



Flora of Badlands National Park

Natural Resource Report NPS/XXXX/NRR—20XX/XXXX (*nrps Series name/number*)



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ON THE COVER

Sage Creek Wilderness Basin

By Grace Kostel

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Executive Summary

Fieldwork was conducted in 2020-2022 to collect plants that fill gaps in documenting the Badlands National Park vascular flora. It resulted in 73 Park flora additions, adding records of rare species and noxious weeds, and providing repeat collection of species that have highly disjunct distributions as present and persisting in the Park. The BADL flora currently stands at 449 species. Complete editing of the NPS database (NPSpecies) was conducted to reflect the newly-documented additions to the flora, to bring it into consistency with prior specimen documentation, and to update it with current taxonomic nomenclature at the finest taxonomic level. NPSpecies signifies the single most readily-available information on the Park flora for use by NPS staff, researchers and the general public, compatible with the BADL museum database and an online specimen database with images of BADL specimen vouchers.

Acknowledgments

We thank the following individuals for their contributions and support of this project: Kara Paintner, Isabel Ashton, Milton Haar, Alexandra Carrier, Alison Loar and Rene Ohms (National Park Service). BADL specimen collection label information were provided for use in this project by Lawrence Schmidt (University of Wyoming Libraries) through the Rocky Mountain Regional Digital Herbarium database. Programming work that transferred them to a new database platform was conducted by Ben Legler and georeferencing work was completed by Joshua Mattson at the Rocky Mountain Herbarium (University of Wyoming). This project was funded by the Natural Resource Condition Assessment Program in concert with the Inventory and Monitoring Program under P16AC01378.

Focused Condition Assessments – Introduction (*Do not edit*)

The National Park Service’s (NPS) Natural Resource Condition Assessment (NRCA) Program evaluates natural resource conditions in park units and delivers the results to park staff, scientists, strategic planners, and the general public through reports and associated products. All NRCA efforts strive to report resource condition information in a way that informs multiple levels of park stewardship activities. Stewardship activities may include partnerships, resource stewardship plans, and park management plans, and may inform on-the-ground actions that park management can readily implement.

As part of the NRCA program, Focused Condition Assessments (FCAs) are short-term projects where a pressing issue or critical data or knowledge gap exists, prompting the need to assess the current conditions of one, or a few park natural resources. FCAs are intended to address specific natural resource conditions that lend important information for management and decision-making. As short-term projects, FCAs primarily rely on utilization and synthesis of existing science and data. FCAs are intended to strengthen our understanding of current resource conditions and their relation to environmental processes across the landscape and improve the delivery of best available science for park management.

Standard products from FCA projects include a detailed project report and associated products. Associated products may be data summaries, resource briefs, geospatial maps and information, story maps, and others. All reports and associated products are available via the NPS Datastore (<https://irma.nps.gov/DataStore/>).

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Chapter 1. Management Issue and Approach

The plant diversity encapsulated by the Badlands National Park (BADL) flora. can be understood as a census or checklist of plants. The BADL flora is represented in a National Park Service (NPS) online database covering the flora and fauna of all NPS units that is called NPSpecies: <https://irma.nps.gov/NPSpecies/> as established and maintained by NPS. The NPSpecies is a gateway to Park flora information that can be used by NPS staff, researchers and the general public for ready access to floristic information.

An accurate and complete flora preserves knowledge of plant diversity, while supporting vegetation management, animal habitat management, and associated biodiversity and natural processes. It is needed to maintain landscapes in the face of invasive plants and to restore native vegetation in the wake of surface-disturbing projects. It is also essential for monitoring ecosystem health and providing a scientifically sound basis for management as advanced by the Inventory and Monitoring Program (I&M) and Park staff. It can be used for education and outreach, and tailored for use by the general public. The Wyoming Natural Diversity Database (WYNDD) worked with the I&M Program in collaboration with NPS units to document and expand the floras of national parks in the Northern Great Plains region as represented in the NPSpecies Database.

The standards for a plant census may vary between academics, agencies and institutions. For plants, vouchers are the most rigorous documentary evidence. The BADL flora is supported by BADL specimens in the BADL Herbarium. Collections made in BADL have also been deposited in herbaria elsewhere in South Dakota and beyond.

1.1. Management Issue or Critical Information Need

1.1.1 Critical Information Need

The study purpose was to advance accurate, representative and complete information on the BADL flora for maintaining the native flora and fauna, and managing the non-native flora. It had two primary objectives: 1. Conduct floristic inventory in BADL during 2020-2022 to document additions to the BADL flora by collecting species without voucher specimens, and 2. Edit NPSpecies for consistency with available BADL documentation and for taxonomic consistency at the finest taxonomic level. Ancillary fieldwork objectives were to document rare species and noxious weeds. Ancillary NPSpecies objectives were to advance consistency between NPSpecies and two related databases: the BADL museum database that represents plant specimens and all other biological collections, and the database that will make BADL plant specimens available online.

1.1.2 Study Area

The study was designed around the unique settings of Badlands National Monument and its information resources. The Monument was established by Congress on March 4, 1929 and designated as Badlands National Park in 1939. It is known for its extensive erosion-sculpted outcrops as textbook examples of geologic processes and exposures, with striking panoramas, significant fossil resources, expanses of mixed grass prairie, and abundant wildlife.

When first established, it consisted of the North Unit totaling about 44,920 ha (111,000 acres), primarily in Pennington County, South Dakota and extending east into Jackson County, SD. It

increased with the addition of the South Unit at 53,945 ha (133,300 acres) over a series of years (1936, 1952, 1968). The South Unit is in the Lakota Tribe's Pine Ridge Reservation. All work in this study was restricted to the North Unit (Figure 1).

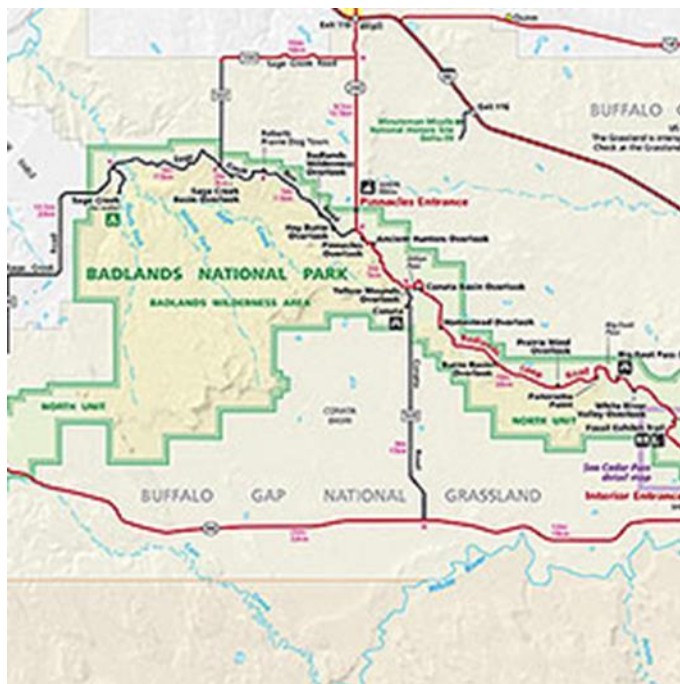
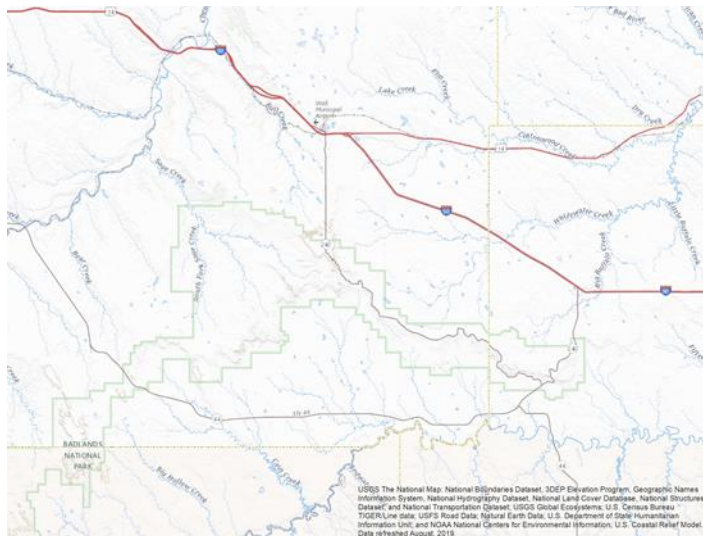


Figure 1A (top). Badlands National Park lies at the divide between the Cheyenne River to the north and the White River to the south. This study was conducted in the North Unit portion of the Park.

Figure 1B (bottom). Badlands National Park (North Unit) is roughly bounded by the towns of Wall, Scenic, and Cedar Pass. It lies south of Interstate 90 and mostly north of State Highway 44.

The North Unit of BADL is roughly bounded by the towns of Wall, Scenic, and Cedar Pass. It lies south of Interstate 90 and mostly north of State Highway 44. The Badlands Loop Road (SD Highway

240) is the primary paved road traversing part of the North Unit, connecting to the Sage Creek Rim Road, together running most of the length of the North Unit. Within the North Unit, the Sage Creek area of BADL was designated as Sage Creek Wilderness Area in 1976 at 21,911 ha (54,144 acres).

BADL is in the Northern Great Plains, a semi-arid region having a continental climate that includes short, hot, and dry summers, with long, cold, and dry winters. The greatest share of annual precipitation occurs in late spring and early summer. Average monthly precipitation values and temperatures in BADL are represented most closely by the nearest NOAA long-term weather station at Wasta, SD west of the Park (USDI NOAA WRCC 2021). The data span 70 years, but with data-collecting gaps. Mean annual precipitation is 41.91 cm (16.5 in). Average snowfall peaks in March at 18.03 cm (7.1 in), and average rainfall peaks in May and June at 7.62 cm and 7.37 cm (3.0 in and 2.9 in), respectively (Figure 2A-B). Average annual temperature is 8.9° C (48° F) with mean monthly minimums of 13.1° C (8.4° F) in January and mean monthly maximums of 32.1° C (89.7° F) in July (USDI NOAA WRCC 2021). Temperatures in the spring and fall seasons vary and change abruptly. The Park usually experiences at least 130 frost-free days a year (USDA SCS 1996). Average monthly means (Figures 2A and 2B) mask the variability between years (Figures 2C and 2D) as well as within months and years.

Preliminary review of long-term precipitation and temperature data (USDI NOAA WRCC 2021) from this same station indicate that trends are stable or nearly so (Figure 2C-D)¹. The 2020 mean annual monthly temperature was the highest annual average temperature on record at 10.6° C (51.0° F), and all growing season months of 2020 were warmer than average. The 2021 mean annual monthly temperature appeared to be significantly higher than the 2020 mean monthly mean, though missing Nov-Dec data and using mean values for these months to determine a conservative annual mean.

Annual precipitation values range from 16 cm – 48.62 cm (6.3 in - 19.14 in). The 2020 growing season was dry compared to the average at 35.1 cm compared to 41.9 cm (13.81 in compared to 16.5 in), i.e., at 83.7%. The 2021 growing season was dryer than the 2020 growing season, though missing Nov-Dec data and substituting mean values for these months to determine a conservative annual mean. Drought conditions of 2020-2021 were aggravated by monthly temperatures greatly exceeding mean monthly temperatures for the period 1952-2020 throughout growing season months of both years.

¹ Meteorological data collection at Wasta, SD began in 1925 but most data collection in the 1930s and 1940s stopped. Only the semi-continuous period from 1952-2021 is used in graphing annual data. Even so, there are multi-year data gaps, particularly from 2003-2005.

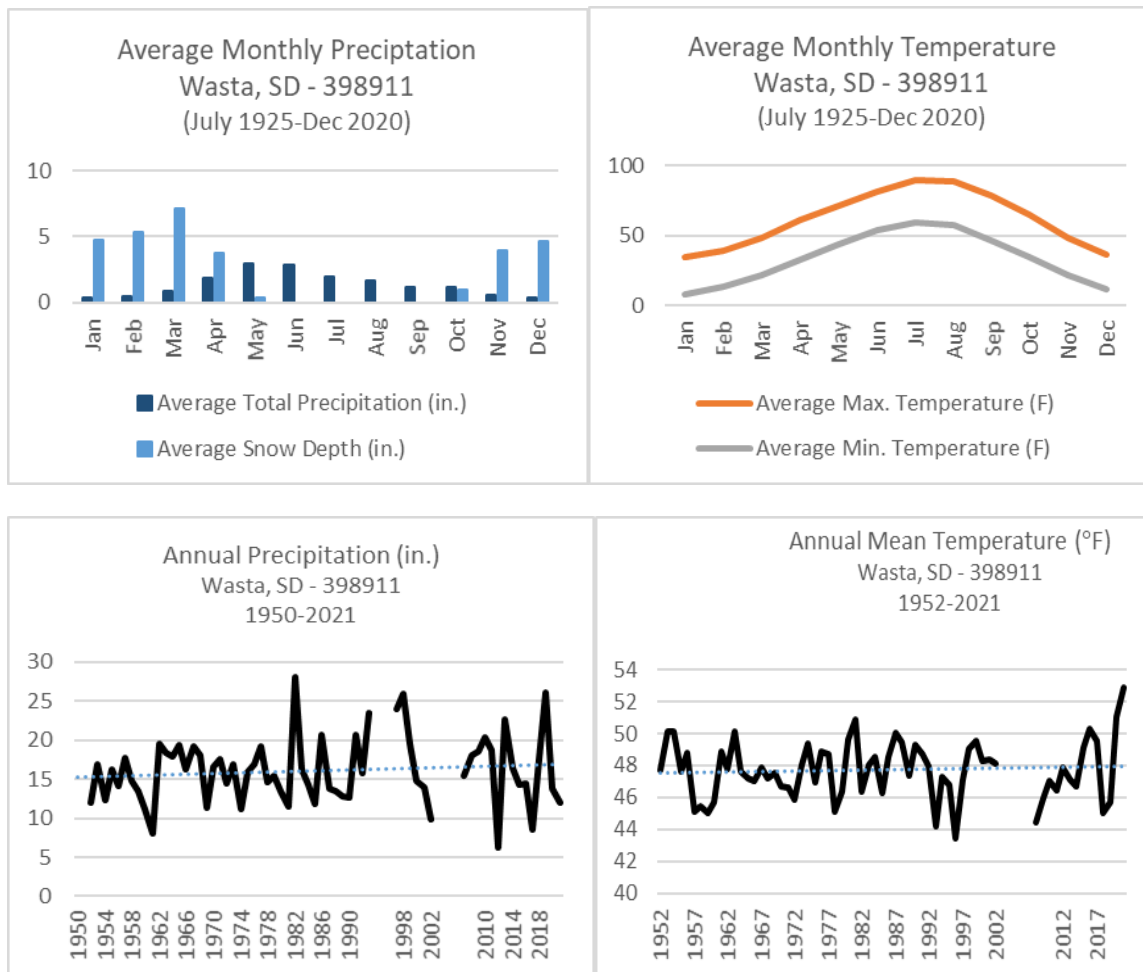


Figure 2. Average monthly precipitation and temperature, and their trends (1950-2021, for Wasta, SD from WRCC 2021)

The BADL landscape has extensive, highly-eroded badlands formed on the high ground between the Cheyenne and White Rivers. Badlands formations are attributed to three primary factors: 1) a climate with low rainfall that is more or less concentrated as heavy showers, 2) poorly-consolidated mudstones, siltstones, and to some extent, sandstones lying at a considerable height above the rivers and their primary tributaries, 3) scarcity or patchiness of deep-rooted vegetation to intercept rainfall and keep water erosion in check.

Geology of the Park consists principally of Cretaceous Pierre Formation clayey shale; Oligocene White River Group (Brule Formation siltstone and Chadron Formation clayey mudstone and shale); and Oligocene Sharps Formation (Gries 1996, USDA SCS 1996, O’Harra 1920, revised 1976).

BADL lies in the Pierre Hills and Tertiary Table Lands divisions of the Great Plains (South Dakota Geological Survey n.d. in USDA SCS 1996). Elevation ranges from below 701 m (2,300-ft), where the White River exits the study area to more than 945 m (3,100 ft.) near “The Pinnacles” at the northern boundary of the North Unit and Red Shirt Table on the western edge of the South Unit. The

highest points in the study area occur just west of Stronghold Table and on Sheep Mountain Table both at nearly 1,006 m (3,300 ft.).

Almost half of the total BADL area is comprised of badlands formations that are either unvegetated or sparsely vegetated (Von Loh et al. 1999). Badlands formations are early-succession habitats maintained by the process of erosion. Most of the rest is mixed-grass prairie dominated by such species as *Bouteloua gracilis* (blue grama), *Elymus smithii* (western wheatgrass) and *Schizachyrium scoparium* (little bluestem; Von Loh et al 1999). Woodlands and shrublands are found in riparian areas. Wetlands and riparian habitats are mapped in the National Wetlands Inventory (USDI Fish and Wildlife Service 2020). Other localized vegetation features are scattered across the Park (Von Loh et al. 1999).

1.2. Study Approach

Fieldwork took place in summers of 2020-2022 and most NPSpecies editing took place in the winter months between them.

1.2.1. Data Sources and Application for Editing NPSpecies

The first systematic study to document the BADL flora was conducted in 1956-57 (Lindstrom 1958, 1959) as a master thesis study at the University of South Dakota. As a result, 306 species were documented among 533 specimens that were deposited at BADL. Any duplicate specimens were deposited at the University of South Dakota herbarium (). This work provided a reference set for use by BADL employees and researchers and a foundation to build upon.

NPSpecies was launched by the NPS to build and maintain information on the flora and fauna of all National Park Service units. Data compilation started for BADL and the rest of the Northern Great Plains Network (NGPN) in 2000. According to USDI NPS (2002), "A prerequisite for assessing the completeness of past inventory efforts and resulting floras and faunas is to have some sense of what a "documented" species is and what an "expected" species is". The NPGN sought input of biology specialists, and also checked select plant reports and plant specimens in herbaria, by some compilation process and framework. In 2002, BADL was reported as having 454 documented species and 38 undocumented species. Authors interpreted this as representing over 90% floristic completeness (USDI NPS 2002). Data standards for plant taxonomic conventions and criteria for evidence were not cited in the report.

As stated in the NPSpecies User Guide, "An essential component of NPSpecies is evidence; that is, observations, vouchers, or reports that document the presence of a species in a park. Ideally, every species in a park that is designated as "present in park" will have at least one form of credible evidence substantiating the designation ... if possible an artifact that someone else can view at a later date (e.g. vouchered specimen or clear diagnostic photo)" (USDI NPS 2017).

In botanical research, the range of acceptable evidence is narrower - in most cases, a voucher specimen deposited and accessible in a herbarium (Culley 2013). On rare occasions, a photograph may suffice. Many journals now reject papers with unvouchered species reports (Culley 2013). The reasons are many. Broadly speaking, specimens ensure the science is repeatable. More specifically, and relevant to NPSpecies, voucher specimens allow species reports to be verified.

After the 2002 NPS report, work on the NPSpecies plant records for BADL continued. In 2016 when collaboration between NPS and WYNDD began, there were 625 plant species records recorded for BADL, of which 487 were recorded as Present, 86 as Unconfirmed, 23 as Probably present, and 18 as Not present (1 with no value).

Many vegetation studies conducted in BADL have produced species lists. They include studies covering vegetation segments (Albertson 1953, Batt 1991, Butler and Batt 1995, Olson 1988, Steigers 1981), wildlife habitat (Agnew 1986, Cincotta et al. 1989, McCracken et al. 1985), baseline monitoring of the vegetation (Ashton et al. 2012), and Park-wide sampling of the vegetation (Von Loh et al. 1999). In addition, there were abbreviated checklists (Badlands National Park no date, Robbins no date) and lists and publications that targeted invasive species (Naylor 1989, Naylor and Reid no date).

In 2019, the 997 vascular plant specimens at BADL were scanned in a separate project between NPS and Rocky Mountain Region Digital Herbarium (RMRDH) at the University of Wyoming (U-WY Libraries) to make the images and supporting collection label data available online. We were not able to work directly with BADL specimens but had this database and low-resolution specimen images accompanying it. A comparison between the NPSpecies database and the RMRDH database indicated that they were not in perfect alignment. So initial goals were to document species that met either of two criteria: Document species that are not recognized as Present for BADL in NPSpecies, and to document species that are not part of the BADL herbarium.

All NPSpecies database entries for BADL were organized by scientific name and reviewed one by one following NPSpecies guidelines (USDI NPS 2017). Park species records were ordered by scientific name, and reviewed one by one. Records can include many types of information. For this project, the following were addressed: Scientific Name, Occurrence, Nativeness, and voucher specimens.

Scientific names in NPSpecies are based on the Integrated Taxonomic Information System (ITIS 2020; <https://www.itis.gov>). In this project, if an older name was replaced, it was made a synonym using the NPSpecies Swap tool. Sometimes synonyms had been entered by mistake as separate species records. In these cases, one of the duplicates was deleted after combining information into a single record. There were entries that were identified only to genus, common for genera in which identification to species is difficult. In most cases, genus records were deleted as they added no information.

Assigning occurrence status was the largest task of NPSpecies review by far. Though evidence is considered "an essential component of NPSpecies" (USDI NPS 2017), many species listed as Present lacked adequate documentation.

For each record, Occurrence Notes, History Notes, and Evidence were reviewed. If evidence was inadequate, the following were searched for specimens: Spreadsheets compiled through review of digital park herbaria (BADL: unpublished files), SEINet herbarium portal (<https://swbiodiversity.org/seinet/collections/harvestparams.php>), Missouri Plateau Plants Database (<http://herbarium.bhsu.edu/>) Rocky Mountain Herbarium, University Wyoming (in person and online; (<http://rmh.uwyo.edu/data/search.php>)).

If no specimen was found, the likelihood of a species occurring in the park was evaluated using the following: Flora of North America (http://floranorthamerica.org/Main_Page), USDA Plants Database (<http://plants.usda.gov>), Regional floras: Great Plains Flora Association 1986, Van Bruggen 1985. Status was then assigned as follows, with an explanation in Occurrence Notes.

Table 1. Occurrence value definitions assigned to BADL species in NPSpecies

Occurrence value	Criteria
Present	Correctly-identified specimen deposited in park herbarium or elsewhere; or species occurs locally, is easily identified, and the source is reliable
Probably Present	Specimen collected immediately adjacent to park, habitat continues into park (this value should be used sparingly, Alison Loar pers. comm.)
Unconfirmed	Reported for park but no specimen found; specimen needed for confident identification; species occurs in general area
Not in Park/False Report	Reported for park; no specimen found; park out of range for the species

In this project, voucher specimens, or the lack thereof, were entered in Occurrence Notes. With many herbaria now putting digitized specimens online, it is increasingly possible to link to herbarium specimens as evidence.

For species not already in NPSpecies, and documented with voucher specimens, records were created with Occurrence = Present. All added records were assigned "Accepted by Park" and "Approved" (USDI NPS 2017).

As part of this work, the online herbarium data portal SEINet was reviewed for BADL records. With the benefit of collector name and number, this review turned up additions and also uncovered BADL specimen duplicates deposited at public institutions that had been annotated, requiring that the redeterminations be entered as edits in NPSpecies.

Finally, the 2020-2022 flora inventory results that represented species additions to the BADL flora were also added to NPSpecies.

1.2.2. Methodology for Targeted Floristic Inventory

The floristic inventory started before the 2020 field season in reviewing a list of BADL species with supporting specimen documentation according to the original specimen log of the Rocky Mountain Region Digital Herbarium Project (RMRDH). This was compared against a list of species reported for BADL with or without documentation based on NPSpecies entries for BADL and their “occurrence” values. Comparison between these two lists was used to produce a list of species reported for BADL with no apparent supporting specimen, and a list of species documented from BADL with supporting specimens. These working lists were also compared against the three more lists on file at BADL: the first detailed checklist of the BADL flora prepared as a Master thesis (Lindstrom 1958, 1959), a later checklist with the title: “Plant List - Badlands National Park” (Robbins no date), and a one-page handout “Checklist of grasses (Poaceae) found in Badlands

National Park, SD.” The resulting target list was later reviewed by Grace Kostel based on her work in adjoining Buffalo Gap National Grasslands (Kostel 2006). The end results were a preliminary search list of species to target and a separate list for reference of what had already been collected.

Prior to the field season, maps and aerial imagery were compiled including the Badlands National Park map, and complete coverage of the Park on aerial-topographic map downloads from GoogleEarth as imagery pairs. They were saved and printed at about the scale of U.S.G.S. 7.5’ topographic maps, for ease of printing on a standard paper size (8 ½ x 11), for carrying in protective plastic sleeves. The aerial imagery was superimposed with National Wetlands Inventory (NWI) mapping and printed out to show every mappable natural or man-made palustrine and riparian feature. They were reviewed before the field season to identify locations for habitats of interest that might be under-sampled, including wetlands, woodlands, prairie dog towns and disturbed areas. The end result was a set of site-specific habitat targets to consider for floristic inventory.

The South Dakota Natural Heritage Program (SDNHP) maintains a list of Rare Plants in South Dakota (2018). SDNHP provided a record of rare plant species known from BADL before the fieldwork as a second set of species to target. In addition, plants recognized on the South Dakota noxious weed list were included as targets.

Targeted collecting was conducted in BADL by Grace Kostel in five visits from June 14-21 and August 16-23 in 2020, from June 1 – June 5 and July 10 – July 14 in 2021, and from June 4-6 in 2022, searching for those plant species lacking vouchers, searching for other targets, and also conducting general collecting in select habitats. Plant identification references used in the field included Van Bruggen (1985) and Great Plains Flora Association (1986). In addition to the maps and imagery compiled before fieldwork, Pennington and Jackson County Soil Surveys were used in the field to identify habitats present in BADL that might contain target species.

Walking surveys were conducted across the length of the Park and within targeted habitats. Specimens were collected if they were otherwise not on the working list of documented species, or if they could not be identified in the field. Location (GPS coordinates), habitat, and associated data were recorded for each collection in a collecting notebook and GPS unit. Locations for all plant collections were recorded in UTM NAD83 and each point was averaged for greater precision. South Dakota Natural Heritage Program Rare Plant Survey Forms were completed to document rare plant occurrences.

Rare species and noxious weed species were noted wherever found, and treated in more detail. Plant survey forms of the South Dakota Natural Heritage Program were completed to document rare plant occurrences. Noxious weeds observations were recorded as waypoints wherever they were found, and later set up as a separate shapefile.

After the field seasons, specimens were identified and collection labels prepared by Grace Kostel on acid-free paper. Vascular plant nomenclature follows the Integrated Taxonomic Information System (ITIS 2021). After each summer, the set of specimens was sent for review by Bonnie Heidel and Hollis Marriott using the specimen and library resources at the Rocky Mountain Herbarium. Annotation labels were added for any redeterminations. Specimens were mounted on unnumbered archival herbarium paper for submitting to BADL where they have been accessioned.

Chapter 2. Study Results

2.1. Editing NPSpecies

NPSpecies was edited based on the online data searches and 2020-2022 collections to produce a tally of 449 species that are Present in the Park. In the process of online data searches, this review also tracked down evidence of additional documented species and duplicates of some BADL specimens deposited in academic institutions where their original identification had been redetermined. It also removed over 60 species as synonyms or higher taxonomic levels, and brought every entry into consistency with the accepted taxonomic standard set by ITIS. The edited database can be queried for all BADL vascular plants directly: <https://irma.nps.gov/NPSpecies/>. The NPSpecies entries for BADL as tallied by occurrence value are shown in Table 2.

Table 2. BADL flora occurrence values as represented in NPSpecies

Occurrence value	Tally
Present	449
Not present/ False report	56
Probably present	4
Unconfirmed	82
Total	591

2.2. Conducting Targeted Floristic Inventory

In the BADL floristic inventory, 160 plant specimens were collected (97 in 2020; 57 in 2021; and 6 in 2022). Among the collected species, 73 species are additions, and 19 of them are non-native (Table 3).

A total of 148 waypoints were recorded along survey routes that spanned the full length of BADL (Figure 3). Most of the points represent collection sites of just one species, but some represent collections of as many as three species. Seventeen represent weed sites. A total of 42 families, 98 genera and 146 different species are represented in the collections. Some voucher specimens were made that filled more than one specimen sheet. Some species were collected with enough material for duplicates and triplicates. A total of 185 specimen sheets have been submitted for addition to BADL museum accessions. The complete list of collections is in Appendix A. The NPSpecies

entries for BADL with Occurrence-Present are listed in Appendix B.

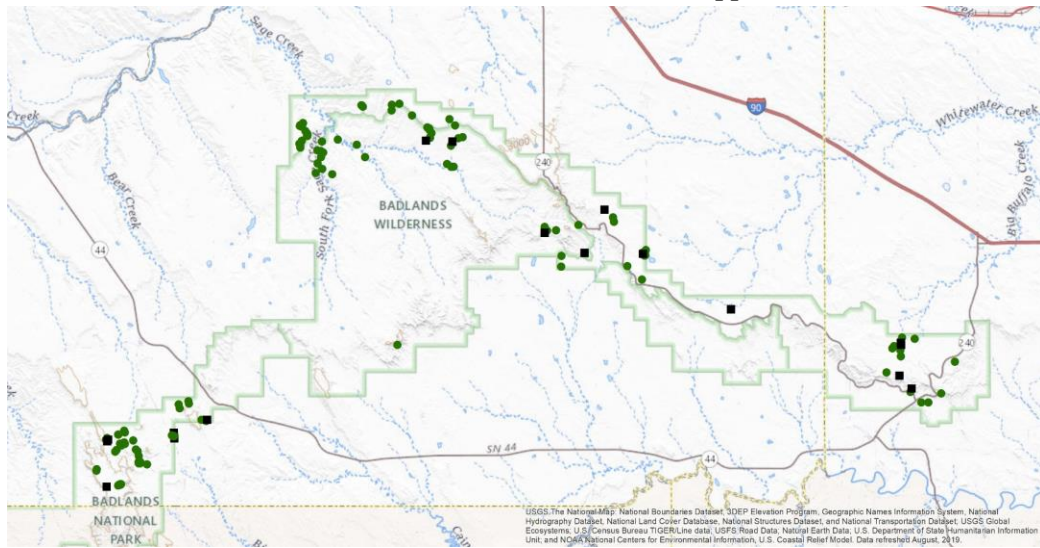


Figure 3a. Collection and Weed points of 2020-2022 floristic inventory fieldwork

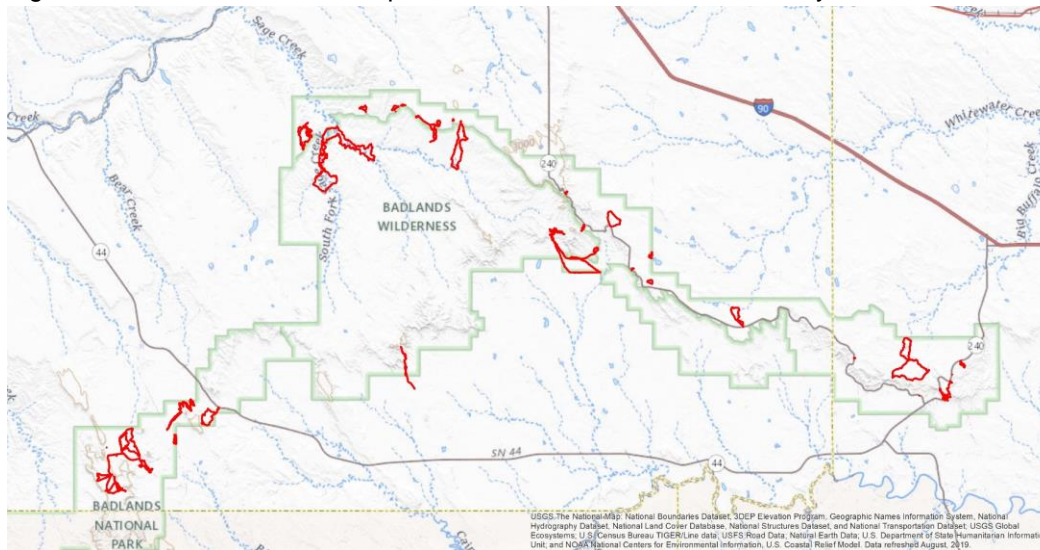


Figure 3b. Survey routes of 2020-2022 floristic inventory fieldwork

Table 3. Taxa collected in BADL (2020-2022) as additions to the flora, sorted by family²

Family	Scientific Name	Prior value in NPSpecies	Prior specimen in BADL	Coll. number
Amaranthac-	<i>Amaranthus albus</i>	Present	Gap	16134
Amaranthac-	<i>Amaranthus californicus</i>	Gap	Gap	16135
Amaranthac-	<i>Chenopodium desiccatum</i>	Probably present	Gap	16138
Amaranthac-	<i>Chenopodium fremontii</i>	Probably present	Gap	16214
Amaranthac-	<i>Chenopodium glaucum</i> var. <i>salinum</i> *	Present	Gap	16171
Amaranthac-	<i>Chenopodium pratericola</i>	Present	Gap	16170
Amaranthac-	<i>Chenopodium rubrum</i>	Present	Gap	16173
Amaranthac-	<i>Salsola collina</i> *	Present	Gap	16140
Asterac-	<i>Ambrosia psilostachya</i>	Present	Gap	16133
Asterac-	<i>Antennaria howellii</i> ssp. <i>neodioica</i>	Gap	Gap	16118
Asterac-	<i>Artemisia campestris</i> ssp. <i>caudata</i>	Unconfirmed	Gap	16144
Asterac-	<i>Artemisia longifolia</i>	Present	Gap	16136
Asterac-	<i>Bidens frondosa</i>	Gap	Gap	16153a
Asterac-	<i>Lactuca ludoviciana</i>	Unconfirmed	Gap	16112
Asterac-	<i>Scorzonera laciniata</i> *	Gap	Gap	16237
Asteraceae	<i>Senecio integerimus</i>	Present	Gap (Specimen redetermined)	16192
Asterac-	<i>Taraxacum erythrospermum</i> *	Gap	Gap	16200
Asterac-	<i>Taraxacum officinale</i> *	Present	Gap (Specimen immature)	16188
Boraginac-	<i>Cryptantha minima</i>	Unconfirmed	Gap	16239
Boraginac-	<i>Buglossoides arvensis</i> *	Unconfirmed	Gap	16185
Boraginac-	<i>Lappula occidentalis</i>	Present	Gap	16194
Boraginac-	<i>Lappula squarrosa</i> *	Present	Gap	16126
Brassicac-	<i>Alyssum desertorum</i> *	Present	Gap	16181
Brassicac-	<i>Boechera collina</i>	Present under <i>Arabis holboellii</i>	Gap (Collected outside BADL)	16180
Brassicac-	<i>Rorippa palustris</i> var. <i>palustris</i>	Gap	Gap	16159
Cactac-	<i>Opuntia macrorhiza</i>	Present	Gap	16105
Cactac-	<i>Opuntia polyacantha</i> var. <i>polyacantha</i>	Present	Gap	16128
Cyperac-	<i>Carex praegracilis</i>	Probably present	Gap	16115
Cyperac-	<i>Carex saximontana</i>	Probably present	Gap	16205
Cyperac-	<i>Carex sprengellii</i>	Gap	Gap	16190

² Non-native species have an asterisk (*) after the scientific name

Family	Scientific Name	Prior value in NPSpecies	Prior specimen in BADL	Coll. number
Cyperac-	<i>Eleocharis erythropoda</i>	Gap	Gap	16202
Cyperac-	<i>Schoenopletus pungens</i> var. <i>badius</i>	Not in Park	Gap	16142
Cyperac-	<i>Schoenoplectus tabernaemontani</i>	Present	Gap	16213
Cyperac-	<i>Scirpus pallidus</i>	Gap	Gap	16212
Euphorbiac-	<i>Euphorbia serpens</i>	Present	Gap	16216
Fabac-	<i>Astragalus crassicaarpus</i> var. <i>crassicaarpus</i>	Present	Gap	16119
Fabac-	<i>Astragalus vexilliflexus</i>	Present	Gap	16104
Fabac-	<i>Gleditsia triacanthos</i> *	Gap	Gap	16238
Fabac-	<i>Pediomelum linearifolium</i>	Gap	Gap	16207
Iridac-	<i>Iris germanica</i> *	Gap	Gap	16240
Lamiac-	<i>Hedeoma drummondii</i>	Probably Present	Gap	16091
Lamiac-	<i>Lycopus americanus</i>	Unconf.	Gap	16235
Lemnac-	<i>Lemna minor</i>	Gap	Gap	16143
Malvac-	<i>Malva neglecta</i> *	Probably Present	Gap	16197
Onagrac-	<i>Epilobium halleanum</i>	Gap	Gap	16215
Onagrac-	<i>Oenothera albicaulis</i>	Present	Gap	16241
Onagrac-	<i>Oenothera curtiflora</i>	Gap	Specimen	16217
Papaverac-	<i>Fumaria vaillantii</i> *	Gap	Gap	16089
Plataginac-	<i>Plantago major</i> *	Unconfirmed	Gap	16226
Poac-	<i>Alopecurus aequalis</i>	Gap	Gap	16160
Poac-	<i>Alopecurus carolinianus</i>	Gap	Gap	16175
Poac-	<i>Bromus squarrosus</i> *	Present	Gap (specimen. redetermined)	16086
Poac-	<i>Glyceria striata</i>	Gap	Gap	16117
Poac-	<i>Dactylis glomerata</i> *	Gap	Gap	16184
Poac-	<i>Elymus repens</i> *	Present	Gap	16221
Poac-	<i>Poa bulbosa</i> *	Gap	Gap	16196
Poac-	<i>Poa interior</i>	Unconfirmed	Gap	16206
Poac-	<i>Poa secunda</i>	Present	Gap	16186
Poac-	<i>Polypogon monspeliensis</i> *	Gap	Gap	16210
Poac-	<i>Pseudoroegneria spicata</i>	Present	Gap (Vegetative specimen)	16227
Poac-	<i>Sphenopholis obtusata</i>	Gap	Gap	16211
Polygonac-	<i>Eriogonum pauciflorum</i> x <i>nebraskense</i>	Gap	Gap	16177
Polygonac-	<i>Persicaria lapathifolia</i>	Gap	Gap	16157
Polygonac-	<i>Rumex fueginum</i>	Gap	Gap	16151, 16162
Polygonac-	<i>Rumex stenophyllus</i> *	Unconfirmed	Gap	16233

Family	Scientific Name	Prior value in NPSpecies	Prior specimen in BADL	Coll. number
Rosac-	<i>Potentilla rivalis</i>	Gap	Gap	16163
Typhac-	<i>Typha angustifolia</i>	Unconfirmed	Gap	16097
Urticac-	<i>Parietaria pennsylvanica</i>	Unconfirmed	Gap	16110
Vitac-	<i>Parthenocissus vitacea</i>	Probably Present	Gap	16109
Vitac-	<i>Vitis riparia</i>	Unconfirmed	Gap	16108

Among SDNHP rare plants, a location of *Astragalus barrii* (Barr’s milkvetch) was documented that may be an addition to existing records (Dingman 2003, 2005). This species is a regional endemic limited to a portion of the Northern Great Plains (parts of Montana, North Dakota, South Dakota and Wyoming). In addition, a buckwheat that had only been reported once before in South Dakota was collected, *Eriogonum x nebraskense* (Figure 4). At one time, it was regarded as a variety of *Eriogonum pauciflorum* (fewflower buckwheat), and had a NatureServe global rank as a globally imperiled taxon (G1), endemic to an area of Colorado, Nebraska and Wyoming. It is now recognized as a hybrid between *E. pauciflorum* and *E. effusum* (spreading buckwheat; Reveal 2005). Hybrids between species are generally not afforded the same rarity rankings as species. It nevertheless represents an addition to the BADL flora and the South Dakota flora. Supporting documentation, including survey forms, photographs and waypoints, have been submitted to SDNHP. There were no new records for other rare species: *Eriogonum visherii* (Visher’s buckwheat), *Physaria arenosa* var. *argillosa* (sidesaddle bladderpod), *Townsendia grandiflora* (largeflower Townsend daisy), or other state rare species.



Figure 4. *Eriogonum x nebraskense*, including whole plant and close-up. By Grace Kostel.

During surveys, 17 of the 148 waypoints were recorded to document invasive weed locations. *Cirsium arvense* (Canada thistle) is on the South Dakota Noxious Weed list and was noted as not only present but well-established in the Park at 16 waypoints. Distinct populations of it encountered during the walking survey were recorded, mapped, and provided in a separate .gpx file for BADL. One location of *Rhaponticum repens* (Russian knapweed; synonyms *Centaurea repens*, *Acroptilon repens*) was documented at a roadside setting on Sheep Mountain (Figure 5), distant from its first documentation in 2006 on a stream terrace southeast of a campground. Russian knapweed was recently added to the South Dakota noxious weed list (Johnson 2022). No other South Dakota Noxious Weed species were documented.

Scorzonera laciniata (cutleaf vipergrass) was collected for the first time in the Park, and is on noxious weed lists of some adjoining states. *Halogeton glomeratus* (halogeton) is another species previously collected in the Park and on the noxious weed lists of adjoining states. These species have the potential to expand their distribution in disturbed habitat such as roadsides, and possibly in native upland and lowland habitats.



Figure 5. Habitat of *Rhaponticum repens* at 2020 collection site. By Grace Kostel.

Poa bulbosa (bulbous bluegrass) is a non-native species collected for the first time, as was *Verbascum thapsus* (mullein) though both were previously reported in the Park. Other exotic species that were flagged as invasive species that could invade the Park (Ashton and Davis 2016) were not found in this project, including: *Euphorbia virgata* (*E. esula* ssp. *uralensis*; leafy spurge), *Falcaria vulgaris* (sicklepod), *Sideritis montana* (mountain ironwort), and *Tanacetum vulgare* (common tansy).

Among the 2020-2022 collections, there were 26 redeterminations. Annotation labels were prepared that follow standard conventions as posted by Perkins (2021). The species names on annotation labels supersede the species name on the collection labels.

Some of the species treated as additions are special combinations of circumstances, such as original entries in NPSpecies having been based on an immature BADL specimen or a misidentified

specimen, a species with a BADL specimen voucher entered in NPSpecies under a name that is no longer an accepted synonym, or other cases.

2.3. Editing the BADL curation database

Prior to submitting BADL specimens, the data for 160 collection labels were entered into a NPS database and submitted to BADL for accessioning into the BADL museum records.

2.4. Editing the RMRDH database

Incidental to working on NPSpecies and the BADL curation databases, the RMRDH was edited with the oversight of Rocky Mountain Herbarium. They checked that the Country, State, and County fields were all populated with values for each specimen record, where possible. A total of 965 of the 997 BADL specimens were georeferenced. Comparison was made between the record data for each specimen and the label on the specimen image to ensure that the label data was correctly entered and nothing was missed. Finally, collection data for the 160 specimens from this project were also added to the RMRDH database.

Chapter 3. Discussion

The 73 species added to the BADL flora in 2020-2022 bring the total number of BADL species documented as present to 449 species. The NPSpecies online database has been reviewed and updated to represent the BADL flora. The 2022 tally of 449 species in this report is less than the 454 tally reported for the BADL flora in the 2002 NPS report (USDI NPS 2002) or the 487 tally of species treated as Present in the NPSpecies database for BADL prior to this project. Most species additions in this project were not recognized as Present for BADL in NPSpecies. There were comparable numbers of species removed for BADL from NPSpecies, most of which were essentially duplicate entries under synonymous names.

Is the BADL flora done now? Floras are dynamic with new species invading and cryptic species discovered, and there may possibly be extirpations. A species accumulation curve shows the patterns of collecting with a great stride in the 1950s (only one species had been collected earlier in 1946), continual growth at lower levels, and an uptick with the current floristic survey project (Figure 6). The rate of discovery is tapering, but that does not mean that floristic documentation is finished. The vegetation plot work of the Inventory and Monitoring Program has generated additions in the challenge of identifying all species in a sample area. Significant additions were also made by a BADL botanist in 2006 netting significant additions of both native and non-native species to the list.

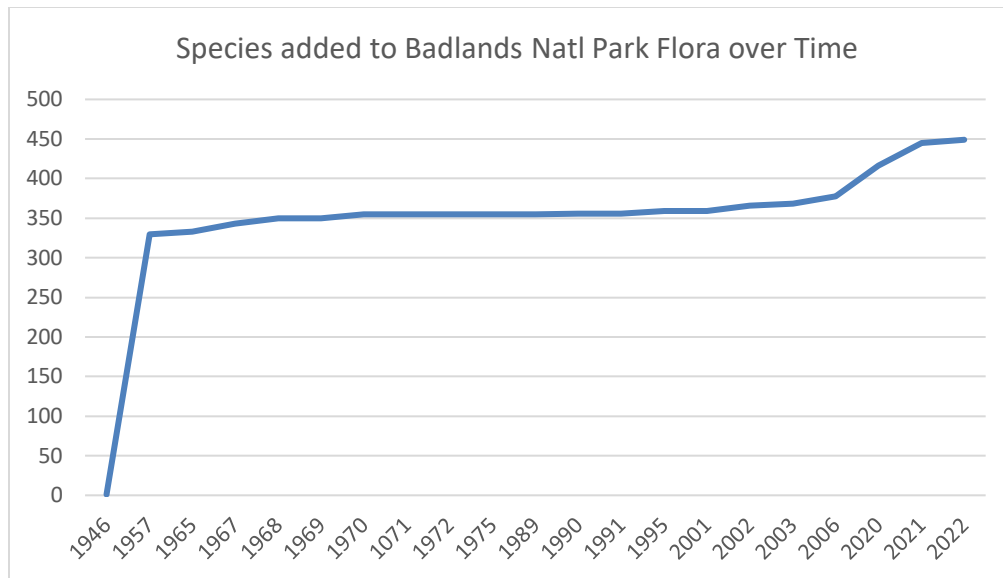


Figure 6. The number of species added to the Badlands National Park flora over time

Why were there so many species to add to the BADL flora in 2020-2022? The additions include a preponderance of species in families that may be overlooked or more difficult to identify (Amaranthaceae, Asteraceae, Chenopodiaceae, Cyperaceae and Poaceae). Fourteen of the added species are not native, and may have been overlooked, or may have arrived recently. They included species that are highly localized that may have been missed in 1950s fieldwork or ensuing studies.

There is no single set of habitat conditions where the additional species were found. A few collections that are additions to the BADL flora were made in widespread habitat such as badlands slopes and mixed grass prairie. Some are generally ruderal natives, i.e., species that are favored by natural disturbance such as erosion and grazing. Most were made from highly-restricted habitat, such as moss-covered draws within *Juniperus scopulorum* (Rocky Mountain juniper). Of the 54 native species added to the BADL flora, about half are on the list of wetland indicator species maintained by the U.S. Army Corps of Engineers, suggesting that the highly-restricted wetland and riparian zones may have been under-collected. Despite the aridity of the BADL landscape, it has small natural and man-made wetland features.

A related question remains: why are there still so many species reported for BADL that have no documentation? It is possible that some of these species reports come from the South Unit. It is also likely that some past intensive botany and ecology studies have produced plant lists as part of results without producing specimen vouchers. In addition, BADL additions were made to NPSpecies based on county distribution information in the Biota of North America (A. Loar pers. commun. to H. Marriott 2020). BADL is partially in Pennington County, a county that spans both the Black Hills and the Great Plains biomes, potentially resulting in addition of Black Hills species to BADL in NPSpecies.

This also raises the question why there were so many species removed from NPSpecies for BADL. At least part of the reason may be due to incorporation of species names that followed different taxonomic standards and incorporation of species that were observed but not collected. There have

been many important vegetation studies conducted on BADL, generating plot data and checklists, but most did not produce voucher specimens for depositing at BADL. NPSpecies is recommended as a reference list for future vegetation sampling.

Directions for future fieldwork might include targeted surveys in high moisture years. Temperatures were extremely high in both 2020 and 2021, and moisture levels low. The 2020 fieldwork was cut short by torrential rain. Habitats with potential target species did not always yield expected results. Upland prairie areas with loam soils are abundant and warrant continued survey. In addition, an early spring (late April, May) survey might also be beneficial to search for spring flowering species that are reported but not confirmed for BADL. It is possible that review of the more unusual and intact wetland and riparian features, as mapped by NWI, might also turn up new records. It is also possible that prairie dog towns, which were under especially intense grazing pressure in the dry 2020-2021 seasons, might also have species that could not be detected (Figure 7).



Figure 7. Bison grazing levels on prairie dog towns intensified in the dry years of 2020-2021. By Grace Kostel.

Floristic fieldwork might also extend to the South Unit of BADL with approval of tribal government. The South Unit of the park contains rocky habitats and *Pinus ponderosa* (Ponderosa pine) habitats not found in the North Unit. It is a possible source for some of the unconfirmed species. In any case, this report and checklist are tools for the I&M program, and for any other researchers doing detailed vegetation sampling.

We note that the additions include a case of a pair of spike-rush specimens, *Eleocharis palustris* and *E. erythropoda*, that are accepted as taxonomically valid by both ITIS and the Flora of North America as two valid species. However, they are treated as synonyms in many floras, and the FNA treatment recognizes that *E. palustris* is the most widespread and common species of the extremely difficult circumboreal “*E. palustris* complex” which includes the latter (Smith et al. 2002). Specimen documentation is the best possible evidence for revisiting determinations and any such underlying taxonomic questions.

Refining this list will be possible if further herbarium work is conducted. Those specimens with duplicates that were redetermined at other institutions or those select species flagged as needing review would be valuable to pursue. This would require a specimen loan. Many but not all specimens

were reviewed on-site by Dr. Mark Gabel and Grace Kostel through Black Hills State University in 2009 (Kostel pers. commun.) as contributing to the process.

Any floristic fieldwork is ideally coupled with NPSpecies work. The BADL entries still include 82 species (over 13% of entries) that are unconfirmed from the Park. The sources of the unconfirmed and false reports aren't going to disappear, so they rightfully remain listed as unconfirmed in park files and online. We decided to leave these records in place, with explanations added to Occurrence Notes, hoping to prevent undocumented species from being added to park lists again.

Results from this BADL project also contribute to documentation of the state and regional flora. Despite the mid-state and mid-continental location of the Park, several of the collected species have their distributions expanded or their persistence documented in South Dakota and in the Great Plains as found in BADL. They include both native taxa such as *Bergia texana* (Texas bergia), *Echinodorus cordifolius* (creeping burhead), and the hybrid *Eriogonum x nebraskense*. They also include other non-native species besides Russian knapweed and the annual grasses, species such as *Fumaria vaillantii*, (earthsmoke) and *Thymelaea passerina* (mezereon).

There are no known species on the BADL list that were introduced into the Park as part of restoration or landscaping projects except that a planting of *Gleditsia triacanthos* (honey locust) has produced at new tree. *Iris germainica* is likely to be an escape from gardens outside the Park. The current BADL list of native species is an appropriate reference when considering seed sources if there are restoration or landscaping projects in the future.

Herbaria are reference “libraries” of plant specimens. The availability of online specimens and specimen data addresses some needs for a “working herbarium” by natural resources staff and visiting researchers, but online resources cannot replace herbaria with tangible specimens. A training set of specimens might be worth developing or else duplicates among 2020-2021 collections in the BADL might be directed to this purpose. A working herbarium is also the best placement for specimens that are immature or vegetative plants that cannot be identified with certainty. There were a number of BADL specimens collected in a drought year for vegetation plot references that were immature plants. While the material may have value to the individual researcher when replicating plot sampling, they are not suited in most cases for documenting the BADL flora or the plot flora.

In BADL, vegetation change and floristic change are pervasive in the face of erosion, grazing, fire, and visitors who may introduce new exotics. The current flora as represented in NPSpecies is a benchmark for maintaining information and natural resources in general. Steps that could help build upon this revised foundation include provisions for consultation with herbaria in cases when additions to the flora are found, and appointing a BADL botanist or regional botanist responsible for more formalized NPSpecies data maintenance.

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Appendix A. BADL 2020-22 specimens collected by Grace Kostel, sorted by collection number

Coll. No.	Family	NPSpecies Entry	New?	Quantity	Review outcome	Genus on label	Species on label	Variety	Subsp.
16084	Agavac-	Yucca glauca		1X	verified	Yucca	glauca		
16085a	Polemoniac-	Phlox hoodii var. hoodii		1X	mixed collection; both P. hoodii and P. andicola	Phlox	hoodii		hoodii
16085b	Polemoniac-	Phlox andicola		1X	mixed collection; both P. hoodii and P. andicola	Phlox	hoodii		hoodii
16086	Poac-	Bromus squarrosus		1X	redet. Bromus squarrosus	Bromus	marginatus		
16087	Fabac-	Medicago sativa var. sativa		1X	verified	Medicago	sativa		sativa
16088	Fabac-	Astragalus barrii		1X	verified	Astragalus	barrii		
16089	Papaverac-	Fumaria vaillantii	Yes	3X	verified	Fumaria	vaillantii		
16090	Nyctaginac-	Mirabilis nyctaginea		1X	verified	Mirabilis	nyctaginea		
16091	Lamiac-	Hedeoma drummondii		1X	verified	Hedeoma	drummondii		
16092	Salicac-	Populus deltoides var. monilifera		1X	verified	Populus	deltoides		monilifera
16093	Liliac-	Fritillaria atropurpurea		1X	verif	Fritillaria	atropurpurea		
16094	Rubiac-	Galium boreale		1X	verified	Galium	boreale		
16095	Asterac-	Rhaponticum repens		1X	verified	Rhaponticum	repens		
16096	Polygonac-	Rumex crispus		1X	verified	Rumex	crispus		
16097	Typhac-	Typha angustifolia	Yes	1X	verified	Typha	angustifolia		
16098	Plantaginac-	Veronica peregrina		1X	verified	Veronica	peregrina		

Coll. No.	Family	NPSpecies Entry	New?	Quantity	Review outcome	Genus on label	Species on label	Variety	Subsp.
16099	Salicac-	Salix interior	Yes	3X	verified	Salix	interior		
16100	Elaeagnac-	Elaeagnus angustifolia		1X	verified	Elaeagnus	angustifolia		
16101	Cyperac-	Eleocharis palustris		1X	verified	Eleocharis	palustris		
16102	Brassicac-	Physaria brassicoide s		1X	verified	Physaria	brassicoides		
16103	Brassicac-	Physaria brassicoide s		1X	redet. Physaria brassicoi des	Physaria	didymocarpa		
16104	Fabac-	Astragalus vexilliflexus		1X	verified	Astragalus	vexilliflexus		
16105	Cactac-	Opuntia macrorhiza		1X	verified	Opuntia	macrorhiza		
16106	Grossulari ac-	Ribes aureum var. villosum		1X	verified	Ribes	aureum	villosum	
16107	Fabac-	Astragalus multiflorus		1X	verified	Astragalus	multiflorus		
16108	Vitac-	Vitis riparia	Yes	2X	verified	Vitis	riparia		
16109	Vitac-	Parthenocissus vitacea	Yes	1X	verified	Parthenocissus	vitacea		
16110	Urticac-	Parietaria pennsylvanica	Yes	1X	verified	Parietaria	pennsylvanica		
16111	Cyperac-	Carex gravida		1X	verified	Carex	gravida		
16112	Asterac-	Lactuca ludoviciana	Yes	1X	redet. Lactuca ludoviciana	Lactuca	canadensis		
16113	Poac-	Poa pratensis		1X	verified	Poa	pratensis		
16114	Poac-	Koeleria macrantha		1X	redet. Koeleria macrantha	Poa	secunda		juncifolia
16115	Cyperac-	Carex praegracilis	Yes	1X	verified	Carex	praegracilis		
16116	Poac-	Poa compressa		1X	verified	Poa	compressa		
16117	Poac-	Glyceria striata	Yes	1X	verified	Glyceria	striata		

Coll. No.	Family	NPSpecies Entry	New?	Quantity	Review outcome	Genus on label	Species on label	Variety	Subsp.
16118	Asterac-	Antennaria howellii ssp. neodioica	Yes	1X	verified	Antennaria	howellii		neodioica
16119	Fabac-	Astragalus crassicaerpus var. crassicaerpus		1X	verified	Astragalus	crassicaerpus	crassicaerpus	
16120	Poac-	Poa compressa		1X	redet. Poa compressa	Poa	secunda		juncifolia
16121	Asterac-	Hymenopappus filifolius		1X	verified	Hymenopappus	filifolius	polycephalus	
16122	Asterac-	Cirsium undulatum		1X	verified	Cirsium	undulatum		
16123	Oxalidac-	Oxalis dillenii		1X	verified	Oxalis	dillenii		
16124	Iridac-	Iris spp.		1X	Veg. redet. Iris spp.	Iris	germanica		
16125	Boraginac-	Lappula occidentalis		1X	verified	Lappula	occidentalis	occidentalis	
16126	Boraginac-	Lappula squarrosa		1X	verified	Lappula	squarrosa		
16127	Asterac-	Diaperia prolifera var. prolifera		1X	verified	Diaperia	prolifera	~prolifera	
16128	Cactac-	Opuntia polyacantha var. polyacantha		1X	verified	Opuntia	polyacantha	~polyacantha	
16129	Scrophulariac-	Verbascum thapsus		1X	verified	Verbascum	thapsus		
16130	Asterac-	Ratibida columifera		1X	verified	Ratibida	columifera		
16131	Asterac-	Taraxacum spp.		1X	redet. Taraxacum spp.	Taraxacum	erythrospermum		
16132	Asterac-	Taraxacum spp.		1X	redet. Taraxacum spp.	Taraxacum	officinale		

Coll. No.	Family	NPSpecies Entry	New?	Quantity	Review outcome	Genus on label	Species on label	Variety	Subsp.
16133	Asterac-	Ambrosia psilostachya		1X	verified	Ambrosia	psilostachya		
16134	Amaranthac-	Amaranthus albus		2X	verified	Amaranthus	albus		
16135	Amaranthac-	Amaranthus californicus	Yes	1X	verified	Amaranthus	californicus		
16136	Asterac-	Artemisia longifolia		4X	verified	Artemisia	longifolia		
16137	Asterac-	Xanthium strumarium		1X	verified	Xanthium	strumarium		
16138	Amaranthac-	Chenopodium desiccatum	Yes	1X	verified	Chenopodium	desiccatum		
16139	Asterac-	Ericameria nauseosa		1X	redet. Ericameria nauseosa	Ericameria	parryi		
16140	Amaranthac-	Salsola collina		1X	verified	Salsola	collina		
16141	Amaranthac-	Salsola tragus		1X	verified	Salsola	tragus		
16142	Cyperac-	Schoenoplectus pungens var. badius	Yes	2X	verified	Schoenoplectus	pungens	~badius	
16143	Lemnac-	Lemna minor	Yes	1X	verified	Lemna	minor		
16144	Asterac-	Artemisia campestris ssp. caudata	Yes	1X	verified	Artemisia	campestris		caudata
16145	Elaeagnac-	Shepherdia argentea		1X	verified	Shepherdia	argentea		
16146	Rosac-	Prunus pumila		1X	verified	Prunus	pumila		
16147	Zygophyllac-	Tribulus terrestris		2X	verified	Tribulus	terrestris		
16148	Asterac-	Ambrosia artemisiifolia		1X	verified	Ambrosia	artemiisiifolia		
16149	Amaranthac-	Kochia scoparia		1X	verified	Kochia	scoparia		
16150	Asterac-	Ambrosia psilostachya		1X	verified	Ambrosia	psilostachya		

Coll. No.	Family	NPSpecies Entry	New?	Quantity	Review outcome	Genus on label	Species on label	Variety	Subsp.
16151	Polygonac-	Rumex fueginum	Yes	1X	verified	Rumex	fueginus		
16152	Asterac-	Ambrosia psilostachya		1X	redet. Ambrosia psilostachya	Iva	annua		
16153a	Asterac-	Bidens frondosa	Yes	1X	verified	Bidens	frondosa		
16153b	Solanac-	Bidens frondosa		1X	redet. Bidens frondosa	Solanum	interius/ptyc-anthum		
16154	Asterac-	Solidago spp.		1X	redet. Solidago spp.	Bidens	tripartita		
16155	Lythrac-	Ammania robusta		1X	redet. Ammania robusta	Ammania	coccina		
16156	Ranunculac-	Echinodorus berteroi		1X	redet. Echinodorus berteroi	Ranunculus	cymbalaria		
16157	Polygonac-	Persicaria lapathifolia	Yes	1X	redet. Persicaria lapathifolia	Polygonum	persicaria		
16158	Elatinac-	Bergia texana		1X	verified	Bergia	texana		
16159	Brassicac-	Rorippa palustris var. palustris	Yes	1X	redet. Rorippa palustris var. palustris	Rorippa	curvipes		
16160	Poac-	Alopecurus aequalis	Yes	1X	verified	Alopecurus	aequalis		
16161	Asterac-	Cirsium arvense		1X	verified	Cirsium	arvense		
16162	Polygonac-	Rumex fueginum		1X	verified	Rumex	maritimus		
16163	Rosac-	Potentilla rivalis	Yes	1X	verified	Potentilla	rivalis		
16164	Asterac-	Xanthium strumarium		1X	verified	Xanthium	strumarium		
16165	Onagrac-	Oenothera biennis		1X	verified	Oenothera	biennis		

Coll. No.	Family	NPSpecies Entry	New?	Quantity	Review outcome	Genus on label	Species on label	Variety	Subsp.
16166	Amaranthac-	Chenopodium album		1X	verified	Chenopodium	album		
16167	Amaranthac-	Chenopodium simplex		1X	verified	Chenopodium	simplex		
16168	Amaranthac-	Krascheninikovia lanata		2X	verified	Krascheninikovia	lanata		
16169	Amaranthac-	Chenopodium desiccatum		1X	verified	Chenopodium	desiccatum		
16170	Amaranthac-	Chenopodium pratericola		1X	verified	Chenopodium	pratericola		
16171	Amaranthac-	Chenopodium glaucum var. salinum		1X	redet. Chenopodium glaucum var. salinum	Chenopodium	strictum		
16172	Amaranthac-	Atriplex argentea		1X	verified	Atriplex	argentea		
16173	Amaranthac-	Chenopodium rubrum		1X	verified	Chenopodium	rubrum		
16174	Amaranthac-??	undetermined		1X	undet.				
16175	Poac-	Alopecurus carolinianus	Yes	1X	verified	Alopecurus	carolinianus		
16176	Boraginac-	Cryptantha spp.		1X	redet. Cryptantha spp.	Cryptantha	cana		
16177	Polygonac-	Eriogonum pauciflorum x nebraskense	Yes	3X	redet. Eriogonum pauciflorum x nebraskense	Eriogonum	brevicaule		
16178	Polygonac-	Eriogonum pauciflorum var. pauciflorum		1X	verified	Eriogonum	pauciflorum	~pauciflorum	
16179	Polygonac-	Eriogonum pauciflorum var. pauciflorum		1X	verified	Eriogonum	pauciflorum	~pauciflorum	

Coll. No.	Family	NPSpecies Entry	New?	Quantity	Review outcome	Genus on label	Species on label	Variety	Subsp.
16180	Brassicaceae	Boechera collinsii	Yes	1X	verified	Boechera	collinsii		
16181	Brassicaceae	Alyssum desertorum	Yes	1X	verified	Alyssum	desertorum		
16182	Brassicaceae	Erysimum repandrum		1X	redet. Erysimum repandrum	Erysimum	inconspicuum		
16183	Ranunculaceae	Ceratophyllum testiculatus		1X	verified	Ceratophyllum	testiculatus		
16184	Poaceae	Dactylis glomerata	Yes	1X	verified	Dactylis	glomerata		
16185	Boraginaceae	Buglossoides arvensis	Yes	1X	verified	Buglossoides	arvensis		
16186	Poaceae	Poa secunda	Yes	1X	verified	Poa	secunda		
16187	Asteraceae	Ivax axillaris		2X	verified	Ivax	axillaris		
16188	Asteraceae	Taraxacum officinale	Yes	1X	verified	Taraxacum	officinale		
16189	Poaceae	Alopecurus aequalis		1X	verified	Alopecurus	aequalis		
16190	Cyperaceae	Carex sprengei	Yes	1X	verified	Carex	sprengei		
16191	Boraginaceae	Lappula occidentalis var. occidentalis		1X	verified	Lappula	occidentalis	occidentalis	
16192	Asteraceae	Senecio integerimus	Yes	2X	verified	Senecio	integerimus		
16193	Polemoniaceae	Phlox andicola		1X	verified	Phlox	andicola		
16194	Boraginaceae	Lappula occidentalis var. cupulata	Yes	1X	verified	Lappula	occidentalis	cupulata	
16195	Polemoniaceae	Phlox andicola		1X	verified	Phlox	andicola		
16196	Poaceae	Poa bulbosa	Yes	1X	verified	Poa	bulbosa		
16197	Malvaceae	Malva neglecta	Yes	2X	verified	Malva	neglecta		
16198	Brassicaceae	Sinapis arvensis	Yes	1X	verified	Sinapis	arvensis		

Coll. No.	Family	NPSpecies Entry	New?	Quantity	Review outcome	Genus on label	Species on label	Variety	Subsp.
16199	Boraginaceae	Mertensia lanceolata		1X	verified	Mertensia	lanceolata		
16200	Asteraceae	Taraxacum laevigatum	Yes	1X	verified	Taraxacum	laevigatum		
16201	Brassicaceae	Erysimum repandum		1X	verified	Erysimum	repandum		
16202	Cyperaceae	Eleocharis erythropoda	Yes	1X	verified	Eleocharis	erythropoda		
16203	Asteraceae	Antennaria parvifolia		1X	verified	Antennaria	parvifolia		
16204	Fabaceae	Amorpha nana		1X	verified	Amorpha	nana		
16205	Cyperaceae	Carex saximontana	Yes	1X	verified	Carex	saximontana		
16206	Poaceae	Poa interior	Yes	2X	verified	Poa	interior		
16207	Fabaceae	Pedicularis linearifolia	Yes	1X	verified	Pedicularis	linearifolia		
16208	Brassicaceae	Draba reptans		1X	verified	Draba	nemorosa		
16209	Polemoniaceae	Phlox hoodii		1X	verified	Phlox	hoodii		
16210	Poaceae	Polypogon monspeliensis	Yes	1X	verified	Polypogon	monspeliensis		
16211	Poaceae	Sphenopholis obtusata	Yes	1X	verified	Sphenopholis	obtusata		
16212	Cyperaceae	Scirpus pallidus	Yes	4X	verified	Scirpus	pallidus		
16213	Cyperaceae	Schoenoplectus tabernaemontani	Yes	1X	verified	Schoenoplectus	tabernaemontani		
16214	Chenopodiaceae	Chenopodium fremontii	Yes	2X	verified	Chenopodium	fremontii		
16215	Onagraceae	Epilobium halleanum	Yes	1X	verified	Epilobium	halleanum		
16216	Euphorbiaceae	Euphorbia serpens	Yes	1X	verified	Euphorbia	serpens		
16217	Onagraceae	Oenothera curtiflora	Yes	1X	verified	Oenothera	curtiflora		
16218	Thymelaeaceae	Thymelaea passerina	Yes	1X	verified	Thymelaea	passerina		

Coll. No.	Family	NPSpecies Entry	New?	Quantity	Review outcome	Genus on label	Species on label	Variety	Subsp.
16219	Poaceae	Elymus trachycaulus		2X	verified	Elymus	trachycaulus	trachycaulus	
16220	Solanaceae	Physalis longifolia	Yes	1X	verified	Physalis	longifolia		
16221	Poaceae	Elymus repens	Yes	1X	verified	Elymus	repens		
16222	Cleomaceae	Polanisia dodecandra		1X	verified	Polanisia	dodecandra		trachysperma
16223	Orobanchaceae	Orobanche ludoviciana	Yes	1X	verified	Orobanche	ludoviciana		
16224	Boraginaceae	Cryptantha celosioides		1X	verified	Cryptantha	celosioides		
16225	Solanaceae	Physalis heterophylla		1X	verified	Physalis	heterophylla		
16226	Plataginaceae	Plantago major	Yes	1X	verified	Plantago	major		
16227	Poaceae	Pseudoroegneria spicata	Yes	2X	verified	Pseudoroegneria	spicata		
16228	Polygonaceae	Rumex venosus		1X	verified	Rumex	venosus		
16229	Amaranthaceae	Amaranthus albus		1X	redet. Amaranthus albus	Amaranthus	arenicola		
16230	Solanaceae	Physalis longifolia		1X	verified	Physalis	longifolia		
16231	Polygonaceae	Rumex altissimus		1X	verified	Rumex	altissimus		
16232	Polygonaceae	Rumex fueginus		1X	verified	Rumex	fueginus		
16233	Polygonaceae	Rumex stenophyllus	Yes	1X	verified	Rumex	stenophyllus		
16234	Polygonaceae	Rumex stenophyllus		1X	verified	Rumex	verticillatus		
16235	Lamiaceae	Lycopus americanus	Yes	1X	verified	Lycopus	americanus		
16236	Apiaceae	Cymopterus montanus		1X	verified				
16237	Asteraceae	Scorzonera laciniata	Yes	1X	verified				
16238	Fabaceae	Gleditsia triacanthos	Yes	1X	verified				

Coll. No.	Family	NPSpecies Entry	New?	Quantity	Review outcome	Genus on label	Species on label	Variety	Subsp.
16239	Boraginaceae	Cryptantha minima	Yes	1X	verified				
16240	Iridaceae	Iris germanica	Yes	1X	verified				
16241	Onagraceae	Oenothera albicaulis		1X	verified				

Appendix B. BADL flora export from NPSpecies, sorted by Scientific Name

<u>Family</u>	<u>Scientific Name</u>	<u>Common Names</u>	<u>Synonyms</u>	<u>Nativeness</u>
Sapindac-	Acer negundo var. interius	boxelder	Acer negundo	Native
Asterac-	Achillea millefolium	yarrow	Achillea millefolium var. occidentalis	Native
Poac-	Achnatherum hymenoides	Indian ricegrass	Oryzopsis hymenoides	Native
Fabac-	Acmispon americanus var. americanus	birdsfoot trefoil	Lotus americanus, Lotus unifoliolatus var. unifoliolatus, Lotus purshianus	Native
Orobanchac-	Agalinis aspera	rough foxglove		Native
Asterac-	Agoseris glauca	prairie dandelion		Native
Poac-	Agropyron cristatum	crested wheatgrass		Non-native
Alismatac-	Alisma gramineum	narrow-leaf water-plantain		Native
Alismatac-	Alisma triviale	water plantain	Alisma plantago-aquatica	Native
Amaryllidac-	Allium textile	textile onion		Native
Poac-	Alopecurus aequalis	shortawn foxtail		Native
Poac-	Alopecurus carolinianus	Carolina foxtail		Native
Brassicac-	Alyssum desertorum	desert madwort		Non-native
Amaranthac-	Amaranthus albus	pigweed		Non-native
Amaranthac-	Amaranthus blitoides	prostrate pigweed		Native
Amaranthac-	Amaranthus californicus	California amaranth		Native
Amaranthac-	Amaranthus retroflexus	rough pigweed		Native
Asterac-	Ambrosia artemisiifolia	common ragweed	Ambrosia artemisiifolia var. elatior	Native
Asterac-	Ambrosia psilostachya	western ragweed		Native
Asterac-	Ambrosia trifida	giant ragweed, great ragweed		Native
Lythrac-	Ammannia robusta	longleaf ammannia	Ammannia coccinea ssp. robusta	Native
Fabac-	Amorpha canescens	leadplant		Native
Fabac-	Amorpha nana	dwarf false indigo		Native
Poac-	Andropogon gerardii ssp. gerardii	big bluestem	Andropogon gerardii	Native
Poac-	Andropogon gerardii ssp. hallii	sand bluestem	Andropogon hallii	Native
Primulac-	Androsace occidentalis	western rockjasmine		Native
Ranunculac-	Anemone caroliniana	Carolina anemone		Native

Ranunculac-	Anemone patens var. multifida	Pasqueflower	Pulsatilla patens ssp. multifida	Native
Asterac-	Antennaria howellii ssp. neodioica	Howell's pussytoes		Native
Asterac-	Antennaria parvifolia	small-leaf pussytoes		Native
Apocynac-	Apocynum cannabinum	common dogbane	Apocynum sibiricum	Native
Brassicac-	Arabis pycnocarpa var. pycnocarpa	creamflower rockcress		Native
Asterac-	Arctium lappa	great burdock		Non-native
Papaverac-	Argemone polyanthemus	white prickly poppy		Native
Poac-	Aristida purpurea var. longiseta	red three-awn	Aristida longiseta	Native
Asterac-	Artemisia biennis	biennial wormwood		Unknown
Asterac-	Artemisia campestris ssp. caudata	field wormwood	Artemisia campestris	Native
Asterac-	Artemisia cana ssp. cana	silver sagebrush	Artemisia cana	Native
Asterac-	Artemisia dracunculus	false tarragon		Native
Asterac-	Artemisia filifolia	sandhill sage		Native
Asterac-	Artemisia frigida	fringed sagewort		Native
Asterac-	Artemisia longifolia	longleaf sagebrush		Native
Asterac-	Artemisia ludoviciana ssp. ludoviciana	white sagewort	Artemisia ludoviciana	Native
Apocynac-	Asclepias pumila	plains milkweed		Native
Apocynac-	Asclepias speciosa	showy milkweed		Native
Apocynac-	Asclepias verticillata	whorled milkweed		Native
Apocynac-	Asclepias viridiflora	green milkweed		Native
Asparagac-	Asparagus officinalis	asparagus		Non-native
Fabac-	Astragalus agrestis	field milkvetch		Native
Fabac-	Astragalus barrii	Barr's milkvetch		Native
Fabac-	Astragalus canadensis	Canadian milkvetch	Astragalus canadensis var. canadensis	Native
Fabac-	Astragalus crassicaarpus var. crassicaarpus	groundplum milkvetch	Astragalus crassicaarpus	Native
Fabac-	Astragalus gilviflorus var. gilviflorus	plains milkvetch	Astragalus gilviflorus	Native
Fabac-	Astragalus gracilis	slender milkvetch		Native
Fabac-	Astragalus laxmannii var. robustior	prairie milkvetch	Astragalus striatus, Astragalus adsurgens var. robustior	Native
Fabac-	Astragalus lotiflorus	low milkvetch		Native
Fabac-	Astragalus missouriensis var. missouriensis	Missouri milkvetch	Astragalus missouriensis	Native
Fabac-	Astragalus multiflorus	looseflower milkvetch	Astragalus tenellus	Native
Fabac-	Astragalus plattensis	Platte milkvetch		Native

Fabac-	<i>Astragalus racemosus</i> var. <i>racemosus</i>	cream milkvetch	<i>Astragalus racemosus</i>	Native
Fabac-	<i>Astragalus vexilliflexus</i> var. <i>vexilliflexus</i>	bentflower milkvetch	<i>Astragalus vexilliflexus</i>	Native
Amaranthac-	<i>Atriplex argentea</i>	silverscale saltbush		Native
Amaranthac-	<i>Atriplex canescens</i> ssp. <i>canescens</i>	four-wing saltbush	<i>Atriplex canescens</i>	Native
Amaranthac-	<i>Atriplex dioica</i>	saline saltbush	<i>Atriplex subspicata</i> , <i>Endolepis</i> <i>dioica</i> , <i>Stutzia dioica</i>	Native
Amaranthac-	<i>Atriplex gardneri</i>	Gardner's saltbush	<i>Atriplex nuttallii</i>	Native
Amaranthac-	<i>Atriplex powellii</i>	Powell's saltbush		Native
Elatinac-	<i>Bergia texana</i>	Texas bergia		Native
Asterac-	<i>Bidens cernua</i>	nodding beggarticks		Native
Asterac-	<i>Bidens frondosa</i>	devil's beggarticks		Non-native
Asterac-	<i>Bidens tripartita</i>	three-lobe beggarticks		Native
Brassicac-	<i>Boechera collinsii</i>	Collins' rockcross	<i>Arabis</i>	Native
Cyperac-	<i>Bolboschoenus</i> <i>maritimus</i> ssp. <i>paludosus</i>	alkali bulrush	<i>Bolboschoenus maritimus</i> , <i>Scirpus maritimus</i> , <i>Schoenoplectus maritimus</i>	Native
Poac-	<i>Bouteloua curtipendula</i>	sideoats grama		Native
Poac-	<i>Bouteloua dactyloides</i>	buffalograss	<i>Buchloe dactyloides</i>	Native
Poac-	<i>Bouteloua gracilis</i>	blue grama		Native
Poac-	<i>Bouteloua hirsuta</i>	hairy grama		Native
Brassicac-	<i>Brassica nigra</i>	black mustard, shortpod mustard		Non-native
Asterac-	<i>Brickellia eupatorioides</i> var. <i>corymbulosa</i>	false boneset	<i>Kuhnia eupatorioides</i>	Native
Poac-	<i>Bromus inermis</i>	smooth brome		Non-native
Poac-	<i>Bromus japonicus</i>	Japanese brome	<i>Bromus arvensis</i>	Non-native
Poac-	<i>Bromus squarrosus</i>	corn brome		Non-native
Poac-	<i>Bromus tectorum</i>	cheatgrass		Non-native
Boraginac-	<i>Buglossoides arvensis</i>	corn gromwell	<i>Lithospermum arvense</i>	Non-native
Poac-	<i>Calamovilfa longifolia</i> var. <i>longifolia</i>	prairie sandreed	<i>Calamovilfa longifolia</i>	Native
Liliac-	<i>Calochortus gunnisonii</i>	Gunnison's mariposa lily		Native
Liliac-	<i>Calochortus nuttallii</i>	Nuttall's mariposa lily		Native
Convolvulac-	<i>Calystegia sepium</i>	hedge bindweed	<i>Convolvulus sepium</i>	Non-native

Brassicac-	Camelina microcarpa	littlepod false flax		Non-native
Brassicac-	Capsella bursa-pastoris	shepherd's-purse		Non-native
Cyperac-	Carex brevior	shortbeak sedge		Native
Cyperac-	Carex duriuscula	spike-rush sedge	Carex eleocharis	Native
Cyperac-	Carex filifolia	threadleaf sedge		Native
Cyperac-	Carex gravida	heavy sedge		Native
Cyperac-	Carex inops ssp. heliophila	sun sedge	Carex pennsylvanica ssp. heliophila	Native
Cyperac-	Carex praegracilis	clustered field sedge		Native
Cyperac-	Carex saximontana	Rocky Mountain sedge		Native
Cyperac-	Carex spengelii	Sprengel's sedge		Native
Orobanchac-	Castilleja sessiliflora	Indian paintbrush		Native
Celastrac-	Celastrus scandens	American bittersweet,		Native
Cannabac-	Celtis occidentalis	common hackberry		Native
Poac-	Cenchrus longispinus	sandbur		Native
Asterac-	Centaurea cyanus	cornflower		Non-native
Asterac-	Centaurea stoebe ssp. micranthos	spotted knapweed	Centaurea biebersteinii, Centaurea maculosa	Non-native
Caryophyllac-	Cerastium arvense ssp. strictum	Field mouse-ear chickweed	Cerastium arvense	Native
Caryophyllac-	Cerastium brachypodium	shortstalk chickweed		Native
Caryophyllac-	Cerastium fontanum ssp. vulgare	common mouse-ear chickweed	Cerastium vulgatum	Non-native
Amaranthac-	Chenopodium album	lambsquarters		Non-native
Amaranthac-	Chenopodium capitatum	strawberry-blite		Native
Amaranthac-	Chenopodium desiccatum	narrowleaf goosefoot		Native
Amaranthac-	Chenopodium fremontii	Fremont's goosefoot		Native
Amaranthac-	Chenopodium glaucum var. salinum	Rocky Mountain goosefoot	Chenopodium glaucum	Native
Amaranthac-	Chenopodium incanum var. incanum	mealy goosefoot	Chenopodium incanum	Native
Amaranthac-	Chenopodium pratericola	desert goosefoot		Native
Amaranthac-	Chenopodium rubrum var. rubrum	red goosefoot	Chenopodium rubrum	Native
Amaranthac-	Chenopodium simplex	giant-seed goosefoot	Chenopodium hybridum	Native
Amaranthac-	Chenopodium subglabrum	smooth goosefoot		Native

Brassicac-	<i>Chorispora tenella</i>	blue mustard		Non-native
Asterac-	<i>Cirsium arvense</i>	Canada thistle		Non-native
Asterac-	<i>Cirsium undulatum</i>	wavyleaf thistle		Native
Asterac-	<i>Cirsium vulgare</i>	bull thistle		Non-native
Ranunculac-	<i>Clematis ligusticifolia</i>	virgin's-bower		Native
Polemoni- ac-	<i>Collomia linearis</i>	slenderleaf collomia		Native
Santalac-	<i>Comandra umbellata</i> ssp. <i>pallida</i>	pale bastard toadflax	<i>Comandra umbellata</i>	Native
Convolvulac-	<i>Convolvulus arvensis</i>	creeping field bindweed		Non-native
Asterac-	<i>Conyza canadensis</i>	Canada horseweed		Native
Asterac-	<i>Conyza ramosissima</i>	dwarf horseweed		Native
Papaverac-	<i>Corydalis micrantha</i> ssp. <i>micrantha</i>	smallflower fumewort	<i>Corydalis micrantha</i>	Native
Rosac-	<i>Crataegus chrysoarpa</i> var. <i>chrysoarpa</i>	scarlet hawthorne		Native
Asterac-	<i>Crepis occidentalis</i>	western hawksbeard		Native
Boraginac-	<i>Cryptantha celosioides</i>	minerscandle	<i>Cryptantha bradburiana</i>	Native
Boraginac-	<i>Cryptantha minima</i>	mall cryptantha		Native
Boraginac-	<i>Cryptantha thyrsoflora</i>	calcareous cryptantha		Native
Asterac-	<i>Cyclachaena xanthiifolia</i>	burweed marshelder	<i>Iva xanthifolia</i>	Native
Apiac-	<i>Cymopterus glomeratus</i>	plains springparsley	<i>Cymopterus acaulis</i>	Native
Apiac-	<i>Cymopterus montanus</i>	mountain springparsley		Native
Cyperac-	<i>Cyperus acuminatus</i>	tapertip flatsedge		Native
Woodsiac-	<i>Cystopteris fragilis</i>	fragile fern		Native
Poac-	<i>Dactylis glomerata</i>	orchard grass		Non-native
Fabac-	<i>Dalea aurea</i>	golden prairieclover		Native
Fabac-	<i>Dalea candida</i> var. <i>oligophylla</i>	white prairieclover	<i>Dalea candida</i> , <i>Petalostemon occidentale</i> , <i>Petalostemon candidus</i>	Native
Fabac-	<i>Dalea enneandra</i>	nineanther prairieclover		Native
Fabac-	<i>Dalea purpurea</i> var. <i>purpurea</i>	purple prairieclover	<i>Dalea purpurea</i>	Native
Ranunculac-	<i>Delphinium carolinianum</i> ssp. <i>virescens</i>	white larkspur	<i>Delphinium virescens</i>	Native
Brassicac-	<i>Descurainia pinnata</i> ssp. <i>brachycarpa</i>	western tansymustard	<i>Descurainia pinnata</i>	Native

Brassicac-	<i>Descurainia sophia</i>	pinnate tansymustard, tansymustard		Non-native
Asterac-	<i>Diaperia prolifera</i>	big-head rabbit-tobacco	<i>Evax prolifera</i>	Native
Poac-	<i>Dichantheium oligosanthes</i>	fewanther obscuregrass		Native
Asterac-	<i>Dieteria canescens</i>	hoary tansyaster	<i>Machaeranthera canescens</i>	Native
Poac-	<i>Distichlis spicata</i> ssp. <i>stricta</i>	inland saltgrass	<i>Distichlis spicata</i>	Native
Brassicac-	<i>Draba reptans</i>	Carolina whitlowgrass		Native
Asterac-	<i>Dyssodia papposa</i>	fetid marigold		Native
Asterac-	<i>Echinacea angustifolia</i>	blacksamson echinacea		Native
Poac-	<i>Echinochloa muricata</i> ssp. <i>microstachya</i>	American barnyard grass		Native
Alismatac-	<i>Echinodorus berteroi</i>	upright burhead		Native
Elaeagnac-	<i>Elaeagnus angustifolia</i>	Russian olive		Non-native
Cyperac-	<i>Eleocharis acicularis</i>	needle spikerush		Native
Cyperac-	<i>Eleocharis erythropoda</i>	bald spikerush		Native
Cyperac-	<i>Eleocharis palustris</i>	common spikerush	<i>Eleocharis macrostachya</i>	Native
Hydrophyllac-	<i>Ellisia nyctelea</i>	false babyblueeyes		Native
Poac-	<i>Elymus canadensis</i>	Canada wildrye		Native
Poac-	<i>Elymus elymoides</i>	bottlebrush squirreltail	<i>Sitanion hystrix</i>	Native
Poac-	<i>Elymus repens</i>	quackgrass		Non-native
Poac-	<i>Elymus trachycaulus</i> ssp. <i>trachycaulus</i>	slender wheatgrass	<i>Elymus trachycaulus</i>	Native
Poac-	<i>Elymus virginicus</i>	Virginia wild rye		Native
Asterac-	<i>Engelmannia peristenia</i>	Engelmann's daisy		Native
Onagrac-	<i>Epilobium brachycarpum</i>	autumn willowherb		Native
Onagrac-	<i>Epilobium halleianum</i>	Hall's willowweed		Native
Equisetac-	<i>Equisetum laevigatum</i>	smooth scouringrush		Native
Poac-	<i>Eragrostis cilianensis</i>	lovegrass		Non-native
Asterac-	<i>Ericameria nauseosa</i> ssp. <i>nauseosa</i>	rubber rabbitbrush	<i>Chrysothamnus nauseosus</i> , <i>Ericameria nauseosa</i> var. <i>nauseosa</i>	Native
Asterac-	<i>Erigeron pumilus</i>	low fleabane		Native
Asterac-	<i>Erigeron strigosus</i>	daisy fleabane		Native
Polygonac-	<i>Eriogonum annuum</i>	annual buckwheat		Native
Polygonac-	<i>Eriogonum effusum</i>	spreading buckwheat		Native

Polygonac-	Eriogonum flavum var. flavum	golden buckwheat	Eriogonum flavum	Native
Polygonac-	Eriogonum pauciflorum	few-flowered buckwheat	Eriogonum multiceps	Native
Polygonac-	Eriogonum visherii	Visher's buckwheat		Native
Polygonac-	Eriogonum X nebraskense	Nebraska buckwheat	Eriogonum pauciflorum var. nebraskense	Native
Brassicac-	Erysimum asperum	western wallflower		Native
Brassicac-	Erysimum cheiranthoides	wormseed wallflower		Non-native
Brassicac-	Erysimum repandum	spreading wallflower		Non-native
Cactac-	Escobaria missouriensis var. missouriensis	Missouri foxtail cactus		Native
Cactac-	Escobaria vivipara var. vivipara	pink pincushion cactus	Coryphantha vivipara	Native
Euphorbiac-	Euphorbia brachycera	horned spurge	Euphorbia robusta	Native
Euphorbiac-	Euphorbia glyptosperma	ridgeseed spurge	Chamaesyce glyptosperma	Native
Euphorbiac-	Euphorbia maculata	milk purslane	Chamaesyce maculata	Native
Euphorbiac-	Euphorbia marginata	snow-on-the-mountain	Chamaesyce albomarginata	Native
Euphorbiac-	Euphorbia serpens	creeping spurge	Chamaesyce serpens	Native
Euphorbiac-	Euphorbia serpyllifolia var. serpyllifolia	thymeleaf sandmat	Chamaesyce serpyllifolia ssp. serpyllifolia, Chamaesyce aequata	Native
Euphorbiac-	Euphorbia spathulata	roughpod spurge		Native
Euphorbiac-	Euphorbia stictospora	slimseed sandmat	Chamaesyce stictospora	Native
Convolvulac-	Evolvulus nuttallianus	shaggy dwarf morning-glory	Evolvulus pilosus	Native
Polygonac-	Fallopia convolvulus	black bindweed	Polygonum convolvulus	Non-native
Oleac-	Fraxinus pennsylvanica	green ash		Native
Liliac-	Fritillaria atropurpurea	leopard lily		Native
Papaverac-	Fumaria vaillantii	earthsmoke		Non-native
Rubiac-	Galium aparine	cleavers		Native
Rubiac-	Galium boreale	northern bedstraw		Native
Geraniac-	Geranium carolinianum	Carolina crane's-bill		Native
Verbenac-	Glandularia bipinnatifida var. bipinnatifida	Dakota mock vervain		Native
Fabac-	Gleditsia triacanthos	honey locust		Unknown
Poac-	Glyceria striata	fowl mannagrass		Native
Fabac-	Glycyrrhiza lepidota	wild licorice		Native
Asterac-	Grindelia squarrosa	curlycup gumweed		Native
Asterac-	Gutierrezia sarothrae	broom snakeweed		Native
Amaranthac-	Halogeton glomeratus	halogeton		Non-native

Lamiac-	Hedeoma drummondii	Drummond's false pennyroyal	Hedeoma longiflora	Native
Lamiac-	Hedeoma hispida	rough false pennyroyal	Hedeoma hispidum	Native
Asterac-	Helianthus annuus	common sunflower		Native
Asterac-	Helianthus maximiliani	Maximilian sunflower		Native
Asterac-	Helianthus petiolaris	prairie sunflower		Native
Brassicac-	Hesperis matronalis	Dames Rocket		Non-native
Poac-	Hesperostipa comata ssp. comata	needle and thread	Stipa comata	Native
Asterac-	Heterotheca villosa var. villosa	hairy false goldenaster	Chrysopsis villosa, Heterotheca villosa	Native
Poac-	Hordeum jubatum ssp. jubatum	foxtail barley	Hordeum jubatum	Native
Poac-	Hordeum pusillum	little barley		Native
Asterac-	Hymenopappus filifolius var. polycephalus	manyhead hymenopappus	Hymenopappus filifolius, Hymenopappus polycephalus	Native
Solanac-	Hyoscyamus niger	henbane		Non-native
Convolvulac-	Ipomoea leptophylla	bush morningglory		Native
Polemoni- ac-	Ipomopsis congesta	ballhead gilia		Native
Iridac-	Iris germanica	German iris		Unknown
Asterac-	Iva axillaris	lesser marshelder		Native
Juncac-	Juncus balticus	Baltic rush	Juncus arcticus var. balticus	Native
Juncac-	Juncus interior	inland rush		Native
Cupressac-	Juniperus scopulorum	Rocky Mountain juniper		Native
Cupressac-	Juniperus virginiana var. virginiana	eastern redcedar	Juniperus virginiana	Native
Amaranthac-	Kochia scoparia	common kochia		Non-native
Poac-	Koeleria macrantha	junegrass	Koeleria pyramidata	Native
Amaranthac-	Krascheninnikovia lanata	winterfat		Native
Asterac-	Lactuca ludoviciana	biannual lettuce		Native
Asterac-	Lactuca serriola	prickly lettuce		Non-native
Boraginac-	Lappula occidentalis var. cupulata	flatspine stickseed		Native
Boraginac-	Lappula occidentalis var. occidentalis	western stickseed	Lappula redowskii	Native
Boraginac-	Lappula squarrosa	European stickseed	Lappula echinata	Non-native
Fabac-	Lathyrus polymorphus	manystem pea		Native
Arac-	Lemna minor	common duckweed		Native

Brassicac-	<i>Lepidium densiflorum</i>	common pepperweed		Native
Brassicac-	<i>Lepidium perfoliatum</i>	clasping pepperwort		Non-native
Asparagac-	<i>Leucocrinum montanum</i>	starlily		Native
Asterac-	<i>Liatris punctata</i> var. <i>punctata</i>	dotted gayfeather	<i>Liatris punctata</i>	Native
Plantaginac-	<i>Linaria dalmatica</i>	Dalmatian toadflax		Non-native
Linac-	<i>Linum rigidum</i> var. <i>rigidum</i>	large-flower yellow flax	<i>Linum rigidum</i>	Native
Boraginac-	<i>Lithospermum incisum</i>	fringed puccoon		Native
Asterac-	<i>Logfia arvensis</i>	field cottonrose		Non-native
Apiac-	<i>Lomatium foeniculaceum</i>	biscuitroot		Native
Fabac-	<i>Lupinus pusillus</i>	low lupine		Native
Solanac-	<i>Lycium barbarum</i>	matrimony vine		Non-native
Lamiac-	<i>Lycopus americanus</i>	American bugleweed		Native
Asterac-	<i>Lygodesmia juncea</i>	rush skeletonplant		Native
Asterac-	<i>Machaeranthera tanacetifolia</i>	tanseyleaf goldenweed		Native
Asparagac-	<i>Maianthemum stellatum</i>	starry false Solomon's seal	<i>Smilacina stellata</i>	Native
Malvac-	<i>Malva neglecta</i>	common mallow	<i>Malva rotundifolia</i>	Non-native
Fabac-	<i>Medicago lupulina</i>	black medic		Non-native
Fabac-	<i>Medicago sativa</i> ssp. <i>falcata</i>	yellow alfalfa		Non-native
Fabac-	<i>Medicago sativa</i> ssp. <i>sativa</i>	alfalfa		Non-native
Fabac-	<i>Melilotus alba</i>	white sweetclover		Non-native
Fabac-	<i>Melilotus officinalis</i>	yellow sweetclover		Non-native
Lamiac-	<i>Mentha arvensis</i>	wild mint		Native
Loasac-	<i>Mentzelia decapetala</i>	ten-petal blazingstar	<i>Nuttallia decapetala</i>	Native
Loasac-	<i>Mentzelia nuda</i>	bractless blazingstar	<i>Nuttallia stricta</i> , <i>Mentzelia nuda</i> var. <i>stricta</i>	Native
Boraginac-	<i>Mertensia lanceolata</i> var. <i>lanceolata</i>	prairie bluebells	<i>Mertensia lanceolata</i>	Native
Nyctaginac-	<i>Mirabilis linearis</i> var. <i>linearis</i>	Narrowleaf four-o'clock	<i>Oxybaphus linearis</i> , <i>Mirabilis linearis</i>	Native

Nyctaginac-	Mirabilis nyctaginea	heartleaf four-o'clock		Native
Lamiac-	Monarda fistulosa	wild bergamot		Native
Amaranthac-	Monolepis nuttalliana	poverty weed		Native
Poac-	Muhlenbergia cuspidata	plains muhly		Native
Poac-	Muhlenbergia racemosa	marsh muhly		Native
Asterac-	Mulgedium oblongifolium	blue lettuce	Lactuca tatarica var. pulchella, Lactuca oblongifolia	Native
Poac-	Munroa squarrosa	false buffalograss	Monroa squarrosa	Native
Apiac-	Musineon divaricatum	leafy musineon		Native
Ranunculac-	Myosurus minimus	tiny mousetail		Native
Poac-	Nassella viridula	green needlegrass	Stipa viridula	Native
Lamiac-	Nepeta cataria	catnip		Non-native
Asterac-	Nothocalais cuspidata	wavyleaf prairie-dandelion	Microseris cuspidata	Native
Onagrac-	Oenothera albicaulis	whitestem evening primrose		Native
Onagrac-	Oenothera biennis	common evening primrose		Native
Onagrac-	Oenothera cespitosa	gumbo lily	Oenothera caespitosa	Native
Onagrac-	Oenothera curtiflora	velvetweed	Gaura mollis	Native
Onagrac-	Oenothera laciniata	cutleaf evening primrose		Native
Onagrac-	Oenothera nuttallii	Nuttall's evening primrose		Native
Onagrac-	Oenothera serrulata	sundrops	Calylophus serrulatus	Native
Onagrac-	Oenothera suffrutescens	scarlet gaura	Gaura coccinea	Native
Cactac-	Opuntia fragilis	brittle pricklypear		Native
Cactac-	Opuntia macrorhiza var. macrorhiza	bigflower pricklypear	Opuntia macrorhiza	Native
Cactac-	Opuntia polyacantha var. polyacantha	plains pricklypear	Opuntia polyacantha, Opuntia tortispina	Native
Orobanchac-	Orobanche fasciculata	clustered broomrape		Native
Orobanchac-	Orobanche ludoviciana	Louisiana broomrape		Native
Orobanchac-	Orthocarpus luteus	yellow owllover		Native
Oxalidac-	Oxalis dillenii	slender yellow woodsorrel		Native
Oxalidac-	Oxalis stricta	upright yellow woodsorrel		Native
Fabac-	Oxytropis lambertii var. lambertii	purple locoweed	Oxytropis lambertii	Native
Asterac-	Packera cana	woolly groundsel		Native
Asterac-	Packera plattensis	prairie groundsel	Senecio plattensis	Native

Poac-	<i>Panicum capillare</i>	common panic grass		Native
Poac-	<i>Panicum virgatum</i>	switchgrass		Native
Urticac-	<i>Parietaria pensylvanica</i>	pellitory		Native
Caryophyllac-	<i>Paronychia sessiliflora</i>	low nailwor		Native
Vitac-	<i>Parthenocissus vitacea</i>	Virginia creeper		Native
Poac-	<i>Pascopyrum smithii</i>	western wheatgrass	<i>Agropyron smithii</i>	Native
Fabac-	<i>Pediomelum argophyllum</i>	silverleaf scurfpea	<i>Psoralea argophylla</i>	Native
Fabac-	<i>Pediomelum cuspidatum</i>	largebract Indian breadroot	<i>Psoralea cuspidata</i>	Native
Fabac-	<i>Pediomelum esculentum</i>	Indian breadroot	<i>Psoralea esculenta</i>	Native
Fabac-	<i>Pediomelum linearifolium</i>	slimleaf scurfpea		Native
Plantaginac-	<i>Penstemon albidus</i>	white penstemon		Native
Plantaginac-	<i>Penstemon angustifolius</i>	narrowleaf penstemon		Native
Plantaginac-	<i>Penstemon eriantherus</i> var. <i>eriantherus</i>	fuzzy-tongue penstemon	<i>Penstemon eriantherus</i>	Native
Plantaginac-	<i>Penstemon glaber</i> var. <i>glaber</i>	saw-sepal penstemon	<i>Penstemon glaber</i>	Native
Plantaginac-	<i>Penstemon gracilis</i>	slender penstemon		Native
Plantaginac-	<i>Penstemon grandiflorus</i>	largeflowered penstemon		Native
Cleomac-	<i>Peritoma serrulata</i>	Rocky Mountain beeplant	<i>Cleome serrulata</i>	Native
Polygonac-	<i>Persicaria amphibia</i>	water smartweed	<i>Polygonum amphibium</i>	Native
Polygonac-	<i>Persicaria lapathifolia</i>	pale smartweed	<i>Polygonum lapathifolium</i>	Native
Poac-	<i>Phleum pratense</i>	timothy		Non-native
Polemoni- ac-	<i>Phlox andicola</i>	prairie phlox		Native
Polemoni- ac-	<i>Phlox hoodii</i>	Hood's phlox		Native
Poac-	<i>Phragmites australis</i>	common reed		Native
Solanac-	<i>Physalis heterophylla</i> var. <i>heterophylla</i>	groundcherry	<i>Physalis heterophylla</i>	Native
Solanac-	<i>Physalis longifolia</i>	longleaf groundcherry		Native
Solanac-	<i>Physalis pumila</i>	dwarf groundcherry		Native
Brassicac-	<i>Physaria arenosa</i> ssp. <i>arenosa</i>	Great Plains bladderpod	<i>Lesquerella arenosa</i>	Native
Brassicac-	<i>Physaria brassicoides</i>	double twinpod		Native
Brassicac-	<i>Physaria ludoviciana</i>	silvery bladderpod	<i>Lesquerella ludoviciana</i>	Native
Asterac-	<i>Picradeniopsis oppositifolia</i>	oppositeleaf bahia		Native
Pinac-	<i>Pinus ponderosa</i> var. <i>scopulorum</i>	Rocky Mountain ponderosa pine	<i>Pinus ponderosa</i>	Native
Poac-	<i>Piptatherum micranthum</i>	littleseed ricegrass	<i>Oryzopsis micrantha</i> , <i>Piptatheropsis micrantha</i>	Native
Plantaginac-	<i>Plantago elongata</i>	slender plantain		Native

Plantaginac-	<i>Plantago major</i>	common plantain		Non-native
Plantaginac-	<i>Plantago patagonica</i>	woolly plantain	<i>Plantago patagonica</i> var. <i>spinulosa</i>	Native
Poac-	<i>Poa bulbosa</i>	bulbous bluegrass		Non-native
Poac-	<i>Poa compressa</i>	Canada bluegrass		Non-native
Poac-	<i>Poa interior</i>	interior bluegrass	<i>Poa nemoralis</i> ssp. <i>interior</i>	Native
Poac-	<i>Poa palustris</i>	fowl bluegrass		Native
Poac-	<i>Poa pratensis</i> ssp. <i>pratensis</i>	Kentucky bluegrass	<i>Poa pratensis</i>	Unknown
Poac-	<i>Poa secunda</i>	Sandberg's bluegrass	<i>Poa sandbergii</i>	Native
Cleomac-	<i>Polanisia dodecandra</i> ssp. <i>trachysperma</i>	clammyweed	<i>Polanisia graveolens</i>	Native
Polygalac-	<i>Polygala alba</i>	white milkwort		Native
Polygalac-	<i>Polygala verticillata</i>	whorled milkwort		Native
Polygonac-	<i>Polygonum aviculare</i>	prostrate knotweed		Non-native
Polygonac-	<i>Polygonum ramosissimum</i>	tall knotweed	<i>Polygonum ramosissimum</i> var. <i>ramosissimum</i>	Native
Poac-	<i>Polypogon monspeliensis</i>	annual rabbitsfoot grass		Non-native
Salicac-	<i>Populus deltoides</i> ssp. <i>monilifera</i>	plains cottonwood	<i>Populus deltoides</i>	Native
Portulacac-	<i>Portulaca oleracea</i>	common purslane		Non-native
Rosac-	<i>Potentilla hippiana</i>	woolly cinquefoil		Native
Rosac-	<i>Potentilla pensylvanica</i>	Pennsylvania cinquefoil		Native
Rosac-	<i>Potentilla recta</i>	sulphur cinquefoil		Non-native
Rosac-	<i>Potentilla rivalis</i>	river cinquefoil		Native
Martyniac-	<i>Proboscidea louisianica</i> ssp. <i>louisianica</i>	ram's horn	<i>Proboscidea louisianica</i>	Native
Rosac-	<i>Prunus americana</i>	American plum		Native
Rosac-	<i>Prunus pumila</i> var. <i>besseyi</i>	western sandcherry	<i>Prunus pumila</i>	Native
Rosac-	<i>Prunus virginiana</i>	chokecherry	<i>Prunus virginiana</i> var. <i>virginiana</i> , <i>Prunus virginiana</i> var. <i>demissa</i>	Native
Poac-	<i>Pseudoroegneria spicata</i>	bluebunch wheatgrass	<i>Pseudoroegneria spicata</i> ssp. <i>spicata</i>	Native
Fabac-	<i>Psoralidium lanceolatum</i>	lemon scurfpea	<i>Psoralea lanceolata</i>	Native
Fabac-	<i>Psoralidium tenuiflorum</i>	slimflower scurfpea	<i>Psoralea tenuiflora</i>	Native

Ranunculac-	Ranunculus cymbalaria	alkali buttercup		Native
Ranunculac-	Ranunculus glaberrimus var. ellipticus	sagebrush buttercup	Ranunculus glaberrimus	Native
Ranunculac-	Ranunculus testiculatus	bur buttercup	Ceratocephala testiculata	Non-native
Asterac-	Ratibida columnifera	prairie coneflower		Native
Asterac-	Rhaponticum repens	Russian knapweed	Acroptilon repens, Centaurea repens	Non-native
Anacardiac-	Rhus aromatica var. aromatica	fragrant sumac	Rhus aromatica, Rhus aromatica var. serotina	Native
Grossulariac-	Ribes aureum var. villosum	golden currant	Chrysobotrya odorata, Ribes odoratum	Native
Grossulariac-	Ribes cereum var. cereum	wax currant	Ribes inebrians, Ribes cereum	Native
Brassicac-	Rorippa palustris ssp. palustris	bog yellowcress		Native
Brassicac-	Rorippa sinuata	spreading yellowcress		Native
Rosac-	Rosa arkansana	prairie rose	Rosa arkansana var. suffulta	Native
Rosac-	Rosa blanda	smooth rose		Native
Rosac-	Rosa woodsii var. woodsii	Wood's rose	Rosa woodsii	Native
Polygonac-	Rumex altissimus	smooth dock		Native
Polygonac-	Rumex crispus	curly dock		Non-native
Polygonac-	Rumex fueginus	golden dock	Rumex maritimus var. fueginus	Native
Polygonac-	Rumex stenophyllus	narrowleaf dock		Non-native
Polygonac-	Rumex venosus	sand dock		Native
Alismatac-	Sagittaria cuneata	nothern arrowhead		Native
Salicac-	Salix amygdaloides	peachleaf willow		Native
Salicac-	Salix eriocephala	yellow willow	Salix lutea, Salix eriocephala var. famelica	Native
Salicac-	Salix interior	sandbar willow	Salix exigua ssp. interior	Native
Salicac-	Salix petiolaris	meadow willow		Native
Amaranthac-	Salsola collina	slender Russian-thistle		Non-native
Amaranthac-	Salsola tragus	prickly Russian thistle	Salsola iberica	Non-native
Lamiac-	Salvia reflexa	blue sage		Native
Sarcobatac-	Sarcobatus vermiculatus	greasewood		Native
Poac-	Schedonnardus paniculatus	tumblegrass	Muhlenbergia paniculata	Native
Poac-	Schizachyrium scoparium var. scoparium	little bluestem	Andropogon scoparius	Native

Cyperac-	Schoenoplectus pungens	common threesquare	Schoenoplectus pungens var. pungens, Scirpus pungens	Native
Cyperac-	Schoenoplectus tabernaemontani	softstem bulrush	Scirpus validus	Native
Cyperac-	Scirpus pallidus	pale bulrush		Native
Asterac-	Scorzonera laciniata	cutleaf vipergrass		Unknown
Scrophulariac-	Scrophularia lanceolata	lanceleaf figwort		Native
Asterac-	Senecio integerrimus	lambstongue ragwort		Native
Poac-	Setaria viridis	green bristle grass		Non-native
Elaeagnac-	Shepherdia argentea	silver buffaloberry		Native
Brassicac-	Sinapis arvensis	charlock mustard		Non-native
Brassicac-	Sisymbrium altissimum	tumblemustard		Non-native
Iridac-	Sisyrinchium montanum var. montanum	blue-eyed grass	Sisyrinchium montanum	Native
Smilacac-	Smilax lasioneura	carrionflower	Smilax herbacea	Native
Solanac-	Solanum ptychanthum	West Indian nightshade	Solanum ptycanthum, Solanum nigrum	Native
Solanac-	Solanum rostratum	buffalobur		Native
Solanac-	Solanum triflorum	cutleaf nightshade		Native
Asterac-	Solidago altissima var. gilvocanescens	Canada goldenrod	Solidago canadensis, Solidago canadensis var. gilvocanescens, Solidago altissima	Native
Asterac-	Solidago lepida var. salebrosa	salebrosa goldenrod	Solidago canadensis var. salebrosa	Native
Asterac-	Solidago missouriensis	Missouri goldenrod	Solidago missouriensis var. fasciculata	Native
Asterac-	Solidago mollis	soft goldenrod		Native
Asterac-	Solidago rigida ssp. humilis	stiff goldenrod	Oligoneuron rigidum	Native
Fabac-	Sophora nuttalliana	silky sophora		Native
Poac-	Spartina pectinata	prairie cordgrass		Native
Malvac-	Sphaeralcea coccinea var. coccinea	scarlet globemallow	Malvastrum coccineum	Native
Poac-	Sphenopholis obtusata	prairie wedgegrass		Native
Poac-	Sporobolus compositus var. compositus	dropseed	Sporobolus asper	Native
Poac-	Sporobolus cryptandrus	sand dropseed		Native
Brassicac-	Strigosella africana	African mustard	Malcolmia africana	Non-native
Caprifoliac-	Symphoricarpos occidentalis	western snowberry		Native

Asterac-	Symphotrichum ericoides	white heath aster	Symphotrichum ericoides var. ericoides, Aster ericoides	Native
Asterac-	Symphotrichum falcatum	white prairie aster	Symphotrichum falcatum var. falcatum, Aster falcatus	Native
Asterac-	Symphotrichum oblongifolium	aromatic aster	Aster oblongifolius	Native
Plantaginac-	Synthyris wyomingensis	Wyoming kittentails	Besseya wyomingensis	Native
Tamaricac-	Tamarix ramosissima	saltcedar		Non-native
Asterac-	Taraxacum erythrospermum	dandelion	Taraxacum laevigatum	Non-native
Asterac-	Taraxacum officinale	common dandelion		Non-native
Asterac-	Tetraneris acaulis var. acaulis	stemless four-nerve daisy	Hymenoxys acaulis	Native
Fabac-	Thermopsis rhombifolia	goldenpea		Native
Brassicac-	Thlaspi arvense	field pennycress		Non-native
Thymelaeac-	Thymelaea passerina	mezeleon		Non-native
Asterac-	Townsendia exscapa	stemless Townsend daisy		Native
Anacardiac-	Toxicodendron rydbergii	poison ivy		Native
Melanthiac-	Toxicoscordion venenosum var. gramineum	grassy deathcamas	Zigadenus venenosus var. gramineus	Native
Commelinac-	Tradescantia bracteata	bracted spiderwort		Native
Commelinac-	Tradescantia occidentalis var. occidentalis	prairie spiderwort	Tradescantia occidentalis	Native
Asterac-	Tragopogon dubius	common salsify		Non-native
Zygophyllac-	Tribulus terrestris	puncture vine		Non-native
Fabac-	Trifolium pratense	red clover		Non-native
Campanulac-	Triodanis leptocarpa	slimpod Venus looking-glass		Native
Campanulac-	Triodanis perfoliata var. perfoliata	Venus looking-glass	Triodanis perfoliata	Native
Typhac-	Typha angustifolia	narrowleaf cattail		Native
Typhac-	Typha latifolia	broadleaf cattail		Native
Ulmac-	Ulmus americana	American elm		Native
Ulmac-	Ulmus rubra	slippery elm		Native
Scrophulariac-	Verbascum thapsus ssp. thapsus	mullein	Verbascum thapsus	Non-native
Verbenac-	Verbena bracteata	bracted vervain		Native

Verbenac-	<i>Verbena stricta</i>	hoary vervain		Native
Plantaginac-	<i>Veronica arvensis</i>	common speedwell		Non-native
Plantaginac-	<i>Veronica peregrina</i>	purslane speedwell		Native
Fabac-	<i>Vicia americana</i> ssp. minor	purple vetch	<i>Vicia americana</i>	Native
Violac-	<i>Viola nuttallii</i>	yellow prairie violet		Native
Vitac-	<i>Vitis riparia</i>	riverbank grape		Native
Vitac-	<i>Vitis vulpina</i>	frost grape		Native
Poac-	<i>Vulpia octoflora</i>	six-week fescue		Native
Woodsiac-	<i>Woodsia oregana</i> ssp. cathcartiana	cliff fern	<i>Woodsia oregana</i>	Native
Asterac-	<i>Xanthisma spinulosum</i>	spiny goldenweed	<i>Machaeranthera pinnatifida</i> var. pinnatifida, <i>Haplopappus spinulosus</i>	Native
Asterac-	<i>Xanthium strumarium</i>	cocklebur		Native
Asparagac-	<i>Yucca glauca</i>	yucca		Native

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

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