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CHECKLIST OF VASCULAR PLANTS FOR THE BIGHORN CANYON NATIONAL RECREATION AREA, WYOMING AND MONTANA

Robert W. Lichvar¹, Ellen I. Collins¹, and Dennis H. Knight²

ABSTRACT.—The checklist of vascular plants of Bighorn Canyon National Recreation Area is presented based on field collections and herbarium specimens. The checklist treats 656 taxa from 73 families.

Bighorn Canyon National Recreation Area (BCNRA) is located near the northern end of the Bighorn Mountains in Wyoming and Montana, and occupies 25,911 ha (64,000 acres). The vegetation ranges from desert shrubland to lower montane forest.

Previous to this study, the area had only been collected infrequently by several botanists. Therefore, the lack of knowledge about this area warranted further botanical collections. The objectives of this study were threefold: (1) to conduct an intensive inventory of the flora of BCNRA, (2) to bring together existing herbarium data on the plants of the area, and (3) to compile a checklist of the flora.

METHODS

The fieldwork was conducted during the summer of 1983, with collecting trips taking place monthly from May through August. Approximately 1750 collections, in triplicate, were made from throughout the BCNRA. One set of specimens has been deposited in the Rocky Mountain Herbarium (Department of Botany, University of Wyoming) and another set is at the BCNRA Visitor Center (Lovell, Wyoming).

Specimens were identified during the autumn of 1983. To ensure proper identification, most specimens were compared to material in the Rocky Mountain Herbarium (RM). In addition to field collections, several herbaria and knowledgeable botanists in the region were consulted for information. The RM and two small herbaria at BCNRA were

checked for species location data, and Dr. Robert Dorn, who has made many collecting trips to the area, provided a list of species he had collected there.

MAJOR FLORISTIC ELEMENTS

The flora of BCNRA is composed of the Rocky Mountain, Great Basin, and Great Plains floristic elements (Porter 1962, Dorn 1977). The Great Basin element is the major component of the flora, which includes the following prominent species: *Juniperus osteosperma*, *Artemisia spinescens*, *Atriplex confertifolia*, *Cercocarpus ledifolius*, *Tetradymia spinosa*, *Sarcobatus vermiculatus*, and *Agropyron spicatum*. This element is approaching the northern edge of its range in the BCNRA. The Rocky Mountain element is the second major component of the BCNRA flora, primarily because of the close proximity to the Bighorn and Pryor mountains. Some of the species associated with this element are *Abies lasiocarpa*, *Picea engelmannii*, *Pinus ponderosa*, *Mahonia repens*, *Arnica cordifolia*, and *Calyso bulbosa*.

The smallest element of the flora represents the Great Plains region. This element is found in the northeast portion of the area and includes *Amorpha canescens*, *Calylophus serulatus*, *Andropogon gerardii*, *Bouteloua curtipendula*, *Echinacea angustifolia*, *Liatris punctata*, and *Petalostemon purpureum*.

The distribution of the three floristic elements is correlated to some extent with climatic patterns. The south end of the recreation area is the most arid and is dominated by

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the Great Basin flora, whereas the Rocky Mountain element dominates at cooler, higher elevations from near the south end to Bull Elk Basin. Coniferous forests dominate the higher north slopes. In the area of Fort Smith, the flora is more representative of the Great Plains element, with higher summer precipitation. The average annual precipitation ranges from 18 cm (7 inches) at the south end (Lovell) to 50 cm (20 inches) at Fort Smith on the north end (BCNRA, personal communication).

NOVELTIES OF THE FLORA

Because of the representation of three major elements in the area and numerous endemics located within the Bighorn Mountains, the checklist for BCNRA has some taxa warranting recognition. Also, these taxa of interest include species on the edge of their ranges. A list of these species follows.

Near or Regional Endemics

Penstemon caryi Penn.
Sullivantia hapemanii (Coult. & Fish.) Coult.
Musineon vaginatum Rydb.
Townsendia spathulata Nutt.
Erigeron allocotus Blake
Cryptantha cana (A. Nels.) Pays.
Eritrichium howardii (Gray) Rydb.
Kelseyia uniflora (Wats.) Rydb.
Eriogonum brevicaulis Nutt. spp. *canum* (Stokes) Dorn
Astragalus hyalinus Jones
Stanleya tomentosa Parry

Peripheral Species

Ligusticum porteri Coult. & Rose
Logfia arvensis (L.) Holub.
Polystichum lonchitis (L.) Roth.
Triodanis leptocarpa (Nutt.) Niewl.
Lilium philadelphicum L.
Smilax herbacea L.

THE CHECKLIST

Families, genera, and species are listed in alphabetical order, and the nomenclature follows Dorn (1977), Hitchcock and Cronquist (1973), and Cronquist, Holmgren, Holmgren, and Reveal (1972, 1977). A total of 73 families of vascular plants occur in the BCNRA with 320 genera and 656 taxa of specific or sub-specific rank. Because this checklist is based

largely on one summer of fieldwork, additional species should be expected with additional collections.

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EQUISETACEAE

Equisetum
arvense L.
hyemale L.
laevigatum A. Br.

POLYPODIACEAE

Cheilanthes
feei T. Moore
Cystopteris
fragilis (L.) Bernh.
 var. *fragilis*
Pellaea
occidentalis (E. Nels.) Rydb.
Polystichum
lonchitis (L.) Roth
Woodsia
scopulina D.C. Eat.

SELAGINELLACEAE

Selaginella
densa Rydb.

CUPRESSACEAE

Juniperus
communis L.
 var. *depressa* Pursh
osteosperma (Torr.) Little
scopulorum Sarg.

PINACEAE

Abies
lasiocarpa (Hook.) Nutt.
 var. *lasiocarpa*
Picea
engelmannii Parry ex Engelm.

- Pinus*
flexilis James
ponderosa Dougl. ex P. & C. Lawson
- Pseudotsuga*
menziesii (Mirb.) Franco
 var. *glauca* (Beissn.) Franco
- ACERACEAE
Acer
glabrum Torr.
negundo L.
 var. *interius* (Britt.) Sarg.
- AMARANTHACEAE
Amaranthus
blitoides Wats.
- ANACARDIACEAE
Rhus
glabra L.
trilobata Nutt.
 var. *trilobata*
- Toxicodendron*
rydbergii (Small ex Rydb.) Greene
- APIACEAE
Berula
erecta (Huds.) Cov.
 var. *incisa* (Torr.) Cronq.
- Bupleurum*
americanum Coult. & Rose
- Conium*
maculatum L.
- Cymopterus*
acaulis (Pursh) Raf.
- Heracleum*
sphondylium L.
- Ligusticum*
filicivum Wats.
- Lomatium*
cous (Wats.) Coult. & Rose
dissectum (Nutt.) Math. & Const.
 var. *multifidum* (Nutt.) Math. & Const.
foeniculaceum (Nutt.) Coult. & Rose
orientale Coult. & Rose
triternatum (Pursh) Coult. & Rose
 ssp. *platycarpum* (Torr.) Cronq.
- Musineon*
divaricatum (Pursh) Nutt. ex T. & G.
vaginatum Rydb.
- Osmorhiza*
chilensis H. & A.
depauperata Phil.
longistylis (Torr.) DC.
- Perideridia*
gairdneri (H. & A.) Math.
 ssp. *borealis* Chaung & Const.
- Pteryxia*
terebinthina (Hook.) Coult. & Rose
 var. *calcareae* (Jones) Math.
- Sanicula*
marilandica L.
- APOCYNACEAE
Apocynum
androsaemifolium L.
cannabinum L.
- ASCLEPIADACEAE
Asclepias
speciosa Torr.
- ASTERACEAE
Achillea
millefolium L.
 var. *lanulosa* (Nutt.) Piper
- Agoseris*
glauca (Pursh) Raf.
 var. *dasycephala* (T. & G.) Jeps.
 var. *glauca*
 var. *laciniata* (D.C. Eat.) Smiley
- Ambrosia*
artemisifolia L.
 var. *elatior* (L.) Desc.
psilostachya DC.
 var. *coronopifolia* (T. & G.) Farw.
trifida L.
 var. *trifida*
- Antennaria*
alpina (L.) Gaertn.
 var. *media* (Greene) Jeps.
microphylla Rydb.
parvifolia Nutt.
racemosa Hook.
- Arctium*
minus (Hill) Bernh.
- Arnica*
cordifolia Hook.
fulgens Pursh
latifolia Bong.
rydbergii Greene
sororia Greene
- Artemisia*
biennis Willd.
campestris L.
 ssp. *borealis* (Pall.) Hall & Clem.
 var. *scoleriana* (Bess.) Cronq.
cana Pursh
 ssp. *cana*
dracunculus L.
frigida Willd.
ludoviciana Nutt.
 var. *ludoviciana*
nova A. Nels.
spinescens D. C. Eat.
tridentata Nutt.
- Aster*
chilensis Nees
 ssp. *adscedens* (Lindl.) Cronq.
ciliolatus Lindl.
catonii (Gray) Howell
falcatus Lindl.
foliaceus Lindl. ex DC.
hesperius Gray

- Balsamorhiza*
incana Nutt.
sagittata (Pursh) Nutt.
- Bidens*
cernua L.
- Brickellia*
grandiflora (Hook.) Nutt.
 var. *grandiflora*
- Centaurea*
maculosa Lam.
repens L.
- Chaenactis*
douglasii (Hook.) H. & A.
- Chrysanthemum*
leucanthemum L.
- Chrysothamnus*
nauseosus (Pall. ex Pursh) Britt.
viscidiflorus (Hook.) Nutt.
 ssp. *viscidiflorus*
 var. *latifolius* (D. C. Eat.) Rydb.
 var. *viscidiflorus*
- Cichorium*
intybus L.
- Cirsium*
arvense (L.) Scop.
flodmanii (Rydb.) Arthur
tweedii (Rydb.) Petr.
undulatum (Nutt.) Spreng.
vulgare (Savi) Tenore
- Conyza*
canadensis (L.) Cronq.
- Crepis*
acuminata Nutt.
 ssp. *acuminata*
atrabarba Heller
intermedia Gray
modocensis Greene
 ssp. *modocensis*
runcinata (James) T. & G.
- Echinacea*
pallida Nutt.
 var. *angustifolia* (DC.) Cronq.
- Erigeron*
allicotus Blake
caespitosus Nutt.
compositus Pursh
corymbosus Nutt.
glabellus Nutt.
 var. *glabellus*
ochroleucus Nutt.
 var. *ochroleucus*
 var. *scribneri* (Canby ex Rydb.) Cronq.
pumilus Nutt.
 ssp. *pumilus*
speciosus (Lindl.) DC.
strigosus Muhl. ex Willd.
- Eupatorium*
maculatum L.
- Gaillardia*
aristata Pursh
- Grindelia*
squarrosa (Pursh) Dunal
- Gutierrezia*
sarothrac (Pursh) Britt. & Rusby
- Haplopappus*
armerioides (Nutt.) Gray
- Helianthella*
quinquenervis (Hook.) Gray
- Helianthus*
annuus L.
muttallii T. & G.
petiolaris Nutt.
 ssp. *petiolaris*
rigidus (Cass.) Desf.
 var. *subrhomboideus* (Rydb.) Cronq.
- Heterotheca*
villosa (Pursh) Shinnors
- Hieracium*
albiflorus Hook.
cynoglossoides Arv.-Touv.
- Hymenopappus*
filifolius Hook.
 var. *filifolius*
 var. *polycephalus* (Osterh.) Turner
- Hymenoxys*
acaulis (Pursh) Parker
torreyana (Nutt.) Parker
- Iva*
axillaris Pursh
xanthifolia Nutt.
- Lactuca*
ludoviciana (Nutt.) Ridd.
oblongifolia Nutt.
serriola L.
- Liatris*
punctata Hook.
 var. *punctata*
- Logfia*
arvensis (L.) Holub
- Lygodesmia*
juncea (Pursh) D. Don
- Machaeranthera*
grindelioides (Nutt.) Shinnors
 var. *grindelioides*
tanacetifolia (H. B. K.) Nees
- Malacothrix*
sonchoides (Nutt.) T. & G.
torreyi Gray
- Microseris*
nutans (Hook.) Schultz-Bip.
- Nothocalais*
cuspidata (Pursh) Greene
- Picrandeniopsis*
oppositifolia (Nutt.) Rydb. ex Britt.
- Platyschkuhria*
integrifolia (Gray) Rydb.
 var. *integrifolia*

- Ratibida*
columnifera (Nutt.) Woot. & Standl.
- Rudbeckia*
laciniata L.
var. *ampla* (A. Nels.) Cronq.
- Senecio*
canus Hook.
eremophilus Richards.
integerrimus Nutt.
pauperculus Michx.
plattensis Nutt.
serra Hook.
streptanthifolius Greene
- Solidago*
canadensis L.
var. *salebrosa* (Piper) Jones
gigantea Ait.
var. *serotina* (Kuntze) Cronq.
missouriensis Nutt.
rigida L.
var. *humilis* Porter
spatulata DC.
var. *nana* (Gray) Cronq.
- Sonchus*
asper (L.) Hill
oleraceus L.
uliginosus Bieb.
- Sphaeromeria*
capitata Nutt.
- Stephanomeria*
runcinata Nutt.
- Taraxacum*
laevigatum (Willd.) DC.
officinale Weber
- Tetradymia*
canescens DC.
spinosa Hook & Arn.
- Townsendia*
hookeri Beaman
incana Nutt.
parryi D.C. Eat.
spatulata Nutt.
- Tragopogon*
dubius Scop.
- Wyethia*
scabra Hook.
var. *scabra*
- Xanthium*
strumarium L.
- BERBERIDACEAE
Mahonia
repens (Lindl.) G. Don
- BETULACEAE
Betula
occidentalis Hook.
- BORAGINACEAE
Asperugo
procumbens L.
- Coldenia*
nuttallii Hook.
- Cryptantha*
cana (A. Nels.) Pays.
celosioides (Eastw.) Pays.
flavoculata (A. Nels.) Pays.
kelseyana Greene
- Cynoglossum*
officinale L.
- Eritrichium*
howardii (Gray) Rydb.
- Hackelia*
deflexa (Wahlenb.) Opiz
var. *americana* (Gray) Fern.
& I. M. Johnst.
floribunda (Lehm.) I. M. Johnst.
- Lappula*
redowskii (Hornem.) Greene
- Lithospermum*
incisum Lehm.
ruderale Dougl. ex Lehm.
- Mertensia*
ciliata (James ex Torr.) G. Don
var. *ciliata*
oblongifolia (Nutt.) G. Don
viridis (A. Nels.) A. Nels.
- Onosmodium*
molle Michx.
var. *molle*
var. *occidentale* (Mack.) I. M. Johnst.
- BRASSICACEAE
Alyssum
alyssoides (L.) L.
desertorum Stapf
- Arabis*
demissa Greene
var. *languida* Roll.
glabra (L.) Bernh.
hirsuta (L.) Scop.
holboellii Hornem.
var. *pendulocarpa* (A. Nels.) Roll.
var. *retrofracta* (Grah.) Rydb.
lignifera A. Nels.
microphylla Nutt.
var. *saximontana* Roll.
nuttallii Robins.
sparsiflora Nutt.
- Barbarea*
orthoceras Ledeb.
- Camelina*
microcarpa Andr. ex DC.
- Capsella*
bursa-pastoris (L.) Medic.
var. *bursa-pastoris*
- Cardaria*
chalepensis (L.) Hand.-Mazz.
pubescens (C.A. Mey.) Jarnol.
- Chorispora*
tenella (Pall.) DC.

Descourainia
pinnata (Walt.) Britt.
sophia (L.) Webb ex Prantl

Draba
crassifolia Grah.
 var. *crassifolia*
nemorosa L.
oligosperma Hook.
praealta Greene
reptans (Lam.) Fern.
 ssp. *reptans*
stenoloba Ledeb

Erysimum
asperum (Nutt.) DC.
 var. *asperum*
cheiranthoides L.
 ssp. *altum* Ahti
inconspicuun (Wats.) MacM.
 var. *inconspicuun*

Hesperis
matronalis L.

Lepidium
densiflorum Schrad.
perfoliatum L.

Lesquerella
alpina (Nutt.) Wats.
 ssp. *alpina*
ludoviciana (Nutt.) Wats.

Malcolmia
africana (L.) R. Br.

Nasturtium
officinale R. Br.

Physaria
acutifolia Rydb.
 var. *acutifolia*
didymocarpa (Hook.) Gray
 vary. *didymocarpa*

Rorippa
calycina (Engelm.) Rydb.
curcipes Greene
sinuata (Nutt.) Hitchc.

Sisymbrium
altissimum L.
loeselii L.
linifolium (Nutt.) Nutt. ex T. & G.

Smelowskia
calycina (Steph. ex Willd.) C.A. Mey
 var. *americana* (Regel & Herd.)
 Drury & Roll.

Stanleya
pinnata (Pursh) Britt.
tomentosa Parry

Streptanthella
longirostris (Wats.) Rydb.
 var. *longirostris*

Pediocactus
simpsonii (Engelm.) Britt. & Rose
 var. *simpsonii*

CAMPANULACEAE

Campanula
rotundifolia L.

Triodanis
leptocarpa (Nutt.) Nieuwl.
perfoliata (L.) Nieuwl.
 var. *perfoliata*

CANNABACEAE

Humulus
lupulus L.
 var. *neomexicanus* Nels. & Ckll.

CAPPARACEAE

Cleome
lutea Hook.
 var. *lutea*
serrulata Pursh

Polanisia
dodecandra (L.) DC.
 ssp. *trachysperma* (T. & G.) Iltis

CAPRIFOLIACEAE

Lonicera
utahensis Wats.

Sambucus
canadensis L.
 var. *canadensis*
caerulea Raf.
 var. *caerulea*
raccinosa L.
 ssp. *pubens* (Michx.) House
 var. *neolaucarpa* (Gray) McMinn

Symphoricarpos
albus (L.) Blake
 var. *albus*
occidentalis Hook.
oreophilus Gray
 var. *utahensis* (Rydb.) A. Nels.

CARYOPHYLLACEAE

Arenaria
congesta Nutt.
hookeri Nutt.
nuttallii Pax
 ssp. *nuttallii*
obtusiloba (Rydb.) Fern.

Cerastium
arvense L.
nutans Raf.
 var. *nutans*

Lychnis
alba Mill.

Paronychia
sessiliflora Nutt.

Silene
menziesii Hook.
 var. *ciscosa* (Greene) Hitchc.
 & Maguire

CACTACEAE

Opuntia
polyacantha Haw.

- Stellaria*
media (L.) Vill.
- CHENOPODIACEAE
Atriplex
argentea Nutt.
 ssp. *argentea*
 var. *argentea*
canescens (Pursh) Nutt.
confertifolia (Torr. & Frem.) Wats.
gardneri (Moq.) D. Dietr.
heterosperma Bunge
rosea L.
- Ceratoides*
lanata (Pursh) J. T. Howell
 var. *lanata*
- Chenopodium*
berlandieri Moq.
 var. *zschackei* (J. Murr.) J. Murr.
leptophyllum (Moq.) Wats.
- Corispermum*
hyssopifolium L.
- Grayia*
spinosa (Hook.) Moq.
- Halogeton*
glomeratus (Bieb.) C. A. Mey.
- Kochia*
americana Wats.
scoparia (L.) Schrad.
- Monolepis*
nuttalliana (Schult.) Greene
- Salsola*
kali L.
 var. *tenuifolia* Tausch.
- Sarcobatus*
vermiculatus (Hook.) Torr.
 var. *vermiculatus*
- Suaeda*
fruticosa (L.) Forsk.
torreyana Wats.
- COMMELINACEAE
Tradescantia
bracteata Small ex Britt.
occidentalis (Britt.) Smyth
 var. *occidentalis*
- CONVOLVULACEAE
Convolvulus
arvensis L.
- Ipomoea*
leptophylla Torr.
- CORNACEAE
Cornus
stolonifera Michx.
- CRASSULACEAE
Sedum
lanceolatum Torr.
- CYPERACEAE
Carex
aquatilis Wahlenb.
elymoides Holm
filifolia Nutt.
heliophila Mack.
hoodii Boott
interior Bailey
lanuginosa Michx.
microptera Mack.
nebraskensis Dewey
oederi Retz
parryana Dewey
 var. *parryana*
praegracilis W. Boott
raymoldsii Dewey
rostrata Stokes ex With.
sprengelii Dewey ex Spreng.
viridula Michx.
vulpinoidea Michx.
- Elcocharis*
palustris (L.) R. & S.
- Scirpus*
pallidus (Britt.) Fern.
pungens Vahl
validus Vahl
- EALAEAGNACEAE
Elaeagnus
angustifolia L.
- Shepherdia*
argentea (Pursh) Nutt.
canadensis (L.) Nutt.
- ERICACEAE
Pyrola
asarifolia Michx.
secunda L.
- EUPHORBIACEAE
Euphorbia
cyparissias L.
esula L.
glyptosperma Engelm.
robusta (Engelm.) Small
- FABACEAE
Astragalus
adsurgens Pall.
 var. *robustior* Hook.
agrestis Dougl. ex G. Don
bisulcatus (Hook.) Gray
canadensis L.
 var. *canadensis*
ceramicus Sheld.
 var. *filifolius* (Gray) F. J. Herm.
chamaeleuce Gray
crassicaulus Nutt.
drummondii Dougl. ex Hook.
gulfiflorus Sheld.
hyalinus Jones
kentrophyta Gray
lotiflorus Hook.

miser Dougl. ex Hook.
var. *decumbens* (Nutt.) Cronq.
missouriensis Nutt.
var. *missouriensis*
oreganus Nutt.
purshii Dougl. ex Hook.
var. *purshii*
spatulata Sheld.

Glycyrrhiza
lepidota Pursh

Hedysarum
boreale Nutt.
sulphurescens. Rydb.

Lupinus
argentus Pursh
var. *argentus*
sericeus Pursh
wyethii Wats.

Medicago
lupulina L.
sativa L.

Melilotus
alba Medic.
officinalis (L.) Pall.

Oxytropis
besseyi (Rydb.) Blank.
var. *besseyi*
var. *fallax* Barneby
campestris (L.) DC.
deflexa (Pall.) DC.
lagopus Nutt.
sericea Nutt.

Petalostemon
occidentale (Heller ex Britt.
& Kearn.) Fern.
purpureum (Vent.) Rydb.

Psoralea
esculenta Pursh
lanceolata Pursh
tenuiflora Pursh
var. *tenuiflora*

Sphacrophysa
salsula (Pall.) DC.

Thermopsis
rhombifolia (Nutt. ex Pursh)
Nutt. ex Richards.

Trifolium
hybridum L.
pratense L.

Vicia
americana Muhl. ex Willd.
var. *minor* Hook.

FUMARIACEAE

Corydalis
aurea Willd.

GENTIANACEAE

Frasera
speciosa Dougl. ex Griseb.

GERANIACEAE

Erodium
cicutarium (L.) L'Her.

Geranium
viscosissimum Fisch. & Mey. ex Mey.
var. *risicosissimum*

GROSSULARIACEAE

Ribes
americanum Mill.
aureum Pursh
var. *aureum*
cereum Dougl.
var. *inchrians* (Lindl.) C. L. Hitchc.
setosum Lindl.

HYDROPHYLLACEAE

Phacelia
glandulosa Nutt.
hastata Dougl. ex Lehm.
ivesiana Torr.
linearis (Pursh) Holz.
sericea (Grah. ex Hook.) Gray

IRIDACEAE

Iris
missouriensis Nutt.
Sisyrinchium
angustifolium Mill.
montanum Greene

JUGLANDACEAE

Juglans
cinerea L.

JUNCACEAE

Juncus
balticus Willd.
var. *montanus* Engelm.
ensifolius Wikstr.
longistylis Torr.
var. *longistylis*
parryi Engelm.
regelii Buch.
tenuis Willd.
var. *dudleyi* (Wieg.) F. J. Herm.
var. *tenuis*
torreyi Cov.

LAMIACEAE

Hedeoma
drummondii Benth.
Mentha
arvensis L.
var. *glabrata* (Benth.) Fern.
Monarda
fistulosa L.
var. *menthaefolia* (Grah.) Fern.

Nepeta
cataria L.

Scutellaria
galericulata L.

Stachys
palustris L.
var. *pilosa* (Nutt.) Fern.

LENTIBULARIACEAE

Utricularia
culgaris L.

LILIACEAE

Allium
brevistylum Wats.
geyeri Wats.
textile Nels. & Macbr.

Asparagus
officinalis L.

Calochortus
gunnisonii Wats.
nuttallii T. & G.

Disporum
trachycarpum (Wats.) Benth. & Hook.

Fritillaria
pudica (Pursh) Spreng.

Leucocrinum
montanum Nutt. ex Gray

Lilium
philadelphicum L.
var. *andinum* (Nutt.) Ker

Smilacina
racemosa (L.) Desf.
stellata (L.) Desf.

Smilax
herbacea L.
var. *lasioneuron* (Hook.) A. DC.

Yucca
glauca Nutt.
var. *glauca*

Zygadenus
elegans Pursh
ssp. *elegans*
venenosus Wats.
var. *gramineus* (Rydb.) Walsh ex Peck

LINACEAE

Linum
lewisii Pursh
var. *lewisii*

LOASACEAE

Mentzelia
albicaulis (Dougl. ex Hook.) T. & G.
decapetala (Pursh ex Sims) Urban

MALVACEAE

Malva
parviflora L.

Sphaeralcea
coccinea (Nutt.) Rydb.

NYCTAGINACEAE

Abronia
fragrans Nutt. ex Hook.
Mirabilis
linearis (Pursh) Heimerl

ONAGRACEAE

Calylophus
serrulatus (Nutt.) Raven

Camissonia
andina (Nutt.) Raven
minor (A. Nels.) Raven
scapoidea (T. & G.) Raven
ssp. *scapoidea*

Circaea
alpina L.
var. *alpina*

Epilobium
angustifolium L.
ciliatum Raf.
ssp. *ciliatum*
ssp. *glandulosum* (Lehm.)
Hoch & Raven
paniculatum Nutt. ex T. & G.

Gaura
coccinea Nutt. ex Pursh
parviflora Dougl. ex Hook.

Gayophytum
ramosissimum T. & G.

Oenothera
albicaulis Pursh
caespitosa Nutt.
depressa Greene
pallida Lindl.
ssp. *trichocalyx* (Nutt. ex T. & G.)
Munz & Klein

ORCHIDACEAE

Corallorhiza
maculata Raf.
striata Lindl.

Goodyera
oblongifolia Raf.

Piperia
unalascensis (Spreng.) Rydb.

Platanthera
dilatata (Pursh) Lindl. ex Beck
hyperborea (L.) Lindl.

OROBANCHACEAE

Orobanche
uniflora L.

PLANTAGINACEAE

Plantago
major L.
patagonica Jacq.

POACEAE

Agropyron
cristatum (L.) Gaertn.
elongatum (Host) Beauv.
repens (L.) Beauv.
riparium Scribn. & Sm.
smithii Rydb.
spicatum (Pursh) Scribn. & Sm.
f. *spicatum*
trachycanulum (Link) Malte ex Lewis

- Agrostis*
alba L.
 var. *palustris* (Huds.) Pers.
exarata Trin.
scabra Willd.
- Andropogon*
gerardii Vitman
scoparius Michx.
 var. *scoparius*
- Aristida*
fendleriana Steud.
longiseta Steud.
- Bouteloua*
curtipendula (Michx.) Torr.
 var. *curtipendula*
gracilis (H. B. K.) Lag. ex Griffiths
 var. *gracilis*
- Bromus*
carinatus H. & A.
ciliatus L.
commutatus Schrad.
inermis Leys.
japonicus Thunb.
tectorum L.
- Calamagrostis*
purpurascens R. Br.
- Calamovilfa*
longifolia (Hook.) Scribn.
 var. *longifolia*
- Dactylis*
glomerata L.
- Deschampsia*
cespitosa (L.) Beauv.
 var. *cespitosa*
- Distichlis*
spicata (L.) Greene
 var. *stricta* (Torr.) Scribn.
- Echinochloa*
crusgalli (L.) Beauv.
 var. *crusgalli*
- Elymus*
canadensis L.
 var. *canadensis*
cinereus Scribn. & Merr.
glaucus Buckl.
 var. *glaucus*
virginicus L.
 var. *submuticus* Hook.
- Festuca*
idahoensis Elmer
octoflora Walt.
- Glyceria*
striata (Lam.) Hitchc.
 var. *stricta* (Scribn.) Fern.
- Hordeum*
jubatum L.
- Koeleria*
macrantha (Ledeb.) Schult.
- Leucopoa*
kingii (Wats.) W. A. Weber
- Melica*
subulata (Griseb.) Scribn.
 var. *pannelii* (Scribn.)
 C. L. Hitchc.
- Muhlenbergia*
raccosa (Michx.) B. S. P.
- Oryzopsis*
hymenoides (R. & S.) Ricker ex Piper
micrantha (Trin. & Rupr.) Thurb.
- Phalaris*
arundinacea L.
- Phleum*
pratense L.
- Phragmites*
australis (Cav.) Trin. ex Steud.
- Poa*
alpina L.
 var. *alpina*
arida Vasey
bulbosa L.
compressa L.
cusickii Vasey
fendleriana (Steud.) Vasey
glaucifolia Scribn. & Williams
 ex Williams
interior Rydb.
pratensis L.
sandbergii Vasey
- Polypogon*
monsplienensis (L.) Desf.
- Setaria*
viridis (L.) Beauv.
- Sitanion*
hystrix (Nutt.) J. G. Sm.
- Spartina*
pectinata Link
- Sphenopholis*
obtusata (Michx.) Scribn.
 var. *major* (Torr.) K. S. Erdm.
- Sporobolus*
airoides (Torr.) Torr.
cryptandrus (Torr.) Gray
- Stipa*
columbiana Macoun
comata Trin. & Rupr.
lettermanii Vasey
viridula Trin.
williamsii Scribn.
- Trisetum*
spicatum (L.) Richt.

POLEMONIACEAE

- Gilia*
leptomeria Gray
pinnatifida Nutt. ex Gray
tweedii Rydb.

- Ipomopsis*
pumila (Nutt.) Grant
spicata (Nutt.) Grant
- Leptodactylon*
caespitosum Nutt.
pungens (Torr.) Nutt.
 ssp. *pungens*
- Linanthus*
septentrionalis Mason
- Phlox*
bryoides Nutt.
hoodii Richards.
multiflora A. Nels.
- Polemonium*
occidentale Greene
 var. *occidentale*
pulcherrimum Hook.
 var. *pulcherrimum*
viscosum Nutt.
- POLYGONACEAE
- Eriogonum*
annuum Nutt.
brevicaule Nutt.
 ssp. *canum* (Stokes) Dorn
flavum Nutt.
 var. *flavum*
ovalifolium Nutt.
 var. *ovalifolium*
- Polygonum*
achoreum Blake
aviculare L.
bistortoides Pursh
lapathifolium L.
- Rumex*
crispus L.
triangularis (Danser) Rech. f.
tenosus Pursh
- PORTULACACEAE
- Claytonia*
lanceolata Pursh
 var. *lanceolata*
- Lewisia*
rediviva Pursh
 ssp. *rediviva*
- Montia*
perfoliata (Donn) Howell
 var. *perfoliata*
- Portulaca*
oleracea L.
- POTAMOGETONACEAE
- Potamogeton*
filiformis Pers.
- PRIMULACEAE
- Androsace*
septentrionalis L.
- Dodecatheon*
pulchellum (Raf.) Merr.
- Lysimachia*
ciliata L.
- RANUNCULACEAE
- Actaea*
rubra (Ait.) Willd.
- Anemone*
cylindrica Gray
multifida Poir.
patens L.
- Clematis*
columbiana (Nutt.) T. & G.
 var. *tenuiloba* (Gray) J. Pringle
ligusticifolia Nutt.
 var. *ligusticifolia*
- Delphinium*
bicolor Nutt.
- Ranunculus*
cymbalaria Pursh
 var. *cymbalaria*
macounii Britt.
pensylvanicus L. f.
testiculatus Crantz
uncinatus D. Don ex G. Don
 var. *uncinatus*
- Thalictrum*
dasy carpum Fisch. et al.
fendleri Engelm. ex Gray
 var. *fendleri*
occidentale Gray
 var. *palousense* St. John
- ROSACEAE
- Agrimonia*
gryposepala Wallr.
- Amelanchier*
alnifolia (Nutt.) Nutt.
- Cercocarpus*
ledifolius Nutt.
- Crataegus*
douglasii Lindl.
- Fragaria*
vesca L.
 var. *bracteata* (Heller) R. J. Davis
virginiana Duchn.
 var. *glauca* Wats.
- Geum*
aleppicum Jacq.
macrophyllum Willd.
 var. *pernicisum* (Rydb.) Raup
triflorum Pursh
 var. *triflorum*
- Ivesia*
gordonii (Hook.) T. & G.
- Kelseya*
uniflora (Wats.) Rydb.
- Petrophytum*
caespitosum (Nutt.) Rydb.
- Physocarpus*
malvaceus (Greene) Kuntze
monogynus (Torr.) Coult.

Potentilla
anscrina L.
biennis Greene
diversifolia Lehm.
 var. *diversifolia*
fissa Nutt.
fruticosa L.
gracilis Dougl. ex Hook.
 var. *glabrata* (Lehm.) C. L. Hitchc.
norvegica L.
 ssp. *monspeliensis* (L.)
 Asch. & Graebn.

ovina Macoun
paradoxa Nutt.
pennsylvanica L.

Prunus
americana Marsh
virginiana L.
 var. *melanocarpa* (A. Nels.) Sarg.

Rosa
acicularis Lindl.
 ssp. *sayi* (Schwein.) W. H. Lewis
sayi Schwein.
woodsii Lindl.

Rubus
idaeus L.
 ssp. *sachalinensis* (Levl.) Focke
 var. *gracilipes* Jones

Spiraea
betulifolia Pall.
 var. *lucida* (Dougl. ex Hook.)
 C. L. Hitchc.

RUBIACEAE

Galium
boreale L.
trifidum L.
triflorum Michx.

SALICACEAE

Populus
 x *acuminata* Rydb.
alba L.
angustifolia James
deltoides Marsh.
 ssp. *monilifera* (Ait.) Echenw.
tremuloides Michx.

Salix
amygdaloides Anderss.
boothii Dorn
drummondiana Barr. ex Hook.
exigua Nutt.
lutea Nutt.
monticola Bebb

SANTALACEAE

Comandra
umbellata (L.) Nutt.
 var. *pallida* (A. DC.) Jones

SAXIFRAGACEAE

Boykinia
heucheriformis (Rydb.) Rosend.

Conimitella
williamsii (D. C. Eat.) Rydb.

Heuchera
parvifolia Nutt. ex T. & G.

Lithophragma
parviflorum (Hook.) Nutt. ex T. & G.

Parnassia
palustris L.
 var. *montanensis* (Fern. & Rydb.)
 C. L. Hitchc.

Saxifraga
rhomboidea Greene

Sullivantia
hapemanii (Coul. & Fish) Coul.
 var. *hapemanii*

SCROPHULARIACEAE

Bessya
wyomingensis (A. Nels.) Rydb.

Castilleja
angustifolia (Nutt.) G. Don
chromosa A. Nels.
linariaefolia Benth.
miniata Dougl. ex Hook.
pulchella Rydb.
sessiliflora Pursh

Collinsia
parviflora Lindl.

Minulus
guttatus DC.
 ssp. *guttatus*
suksdorfii Gray

Pedicularis
cystopteridifolia Rydb.

Penstemon
aridus Rydb.
caryi Penn.
confertus Dougl.
 var. *procerus* (Dougl. ex Grah.) Cov.
eriantherus Pursh
 var. *eriantherus*
glaber Pursh
humilis Nutt. ex Gray
 var. *humilis*
laricifolius H. & A.
nitidus Dougl. ex Benth.
radicosus A. Nels.

Verbascum
thapsus L.

Veronica
americana Schwein. ex Benth.
peregrina L.
 var. *xalapensis* (H. B. K.)
 St. John & Warren

SOLANACEAE

Physalis
heterophylla Nees
 var. *heterophylla*

Solanum
dulcamara L.
triflorum Nutt.

TAMARICACEAE

Tamarix
chinensis Lour.

TYPHACEAE

Typha
angustifolia L.
latifolia L.

ULMACEAE

Celtis
occidentalis L.

Ulmus
pumila L.

URTICACEAE

Parietaria
pensylvanica Muhl. ex Willd.

Urtica
dioica L.

VALERIANACEAE

Valeriana
dioica L.
var. *sylvatica* (Richards.) Wats.
edulis Nutt. ex T. & G.
var. *edulis*

VERBENACEAE

Verbena
bracteata Lag. & Rodr.
hastata L.

VIOLACEAE

Viola
adunca Sm.
var. *adunca* Harrington
canadensis L.
var. *canadensis*
nuttallii Pursh
vallicola A. Nels.

VITACEAE

Vitis
riparia Michx.

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