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10-31-1985

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### Recommended Citation

Lichvar, Robert W.; Collins, Ellen I.; and Knight, Dennis H. (1985) "Checklist of vascular plants for the Bighorn Canyon National Recreation Area," *Great Basin Naturalist*: Vol. 45 : No. 4 , Article 10.

Available at: <https://scholarsarchive.byu.edu/gbn/vol45/iss4/10>

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

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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.  
*Kelseya 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.

#### ACKNOWLEDGMENTS

We are grateful to the University of Wyoming-National Park Service Research Center and Kenneth Diem, its director, for funding and support throughout the project. William Binnewies, Richard Lake, and J. Terry Peters of the BCNRA provided logistical support, information, and encouragement, and Yoshiko Akashi typed herbarium labels and helped with other important tasks. Ronald Hartman and B. Ernie Nelson are thanked for use of the Rocky Mountain Herbarium, and especially for checking and annotating specimens to ensure proper identification. Robert Dorn shared his field collections and notes from the region.

#### 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.
- Platyschekuhria*  
*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.) Bydb.  
*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*  
*cerulea* Raf.  
 var. *cerulea*  
*raccosa* 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  
*crassicus* 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*  
*rhubifolia* (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

*Calyptophus*  
*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.  
*venosus* Pursh
- PORTULACACEAE
- Claytonia*  
*lanceolata* Pursh  
 var. *lanceolata*
- Lewisia*  
*rediviva* Pursh  
 ssp. *rediviva*
- Montia*  
*perfoliata* (Donn) Howell  
 var. *perfoliata*
- Portulaca*  
*oleracea* L.
- POTAMOGETONACEAE
- Potamogeton*  
*filiformis* Peters.
- 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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