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## REVISED CHECKLIST OF THE VASCULAR PLANTS OF BRYCE CANYON NATIONAL PARK, UTAH

Hayle Buchanan<sup>1</sup> and Robert Graybosch<sup>2</sup>

ABSTRACT.—Prior to 1960, when the senior author wrote a dissertation on the plant ecology of the Paunsaugunt Plateau forests of Bryce Canyon National Park, relatively little plant taxonomic work had been done in the area. A checklist was prepared in 1971 that included 218 species of higher plants. During the field seasons 1978, 1979, and 1980, additional plants were collected during a second plant community study of the forests. The junior author spent the summer of 1980 at the park collecting plants in additional plant communities and organizing the herbarium collection. This checklist includes the additional species collected and updates the nomenclature of the vascular plants presently known to occur within the boundaries of Bryce Canyon National Park.

Bryce Canyon National Park occupies 35,240 acres (55.06 square miles) along the southeastern edge of the Paunsaugunt Plateau in Garfield and Kane counties in southern Utah. The elevation ranges from 2027 m (6650 ft) near the town of Tropic to 2775 m (9105 ft) at Rainbow Point. The Paunsaugunt Plateau is approximately 30 miles long by 10 miles wide, occupying a position midway between 37 degrees and 38 degrees north latitude 10 miles west of the 112th meridian. The annual precipitation at park headquarters is 16.56 inches. May and June are the driest months of the year with .94 and .60 inches of precipitation. August is the wettest month of the year with 2.35 inches precipitation, due to thunderstorms. Snowfall from November through March provides most of the annual precipitation.

The checklist includes 446 species of vascular plants known to occur within the boundaries of Bryce Canyon National Park. It should not be considered all inclusive, inasmuch as additional species will undoubtedly be discovered. It is, rather, the state of knowledge as of August 1980. The following have served as authorities of nomenclature: monocotyledons, Cronquist et al. (1977); Fabaceae, Welsh (1978); Brassicaceae, except *Erysimum*, Welsh and Reveal (1977); lower vascular plants, gymnosperms and remainder of the dicotyledons, Holmgren and Reveal

(1966), with the exception of the genera *Heterotheca*, *Solidago*, and *Chrysothamnus*, where the nomenclature of Welsh and Moore (1973) was employed.

Welsh, Atwood, and Murdock (1978) cited numerous collections from Bryce Canyon. Some species listed were not located in the field by the present authors. These are included in the checklist and are listed as follows:

*Erigeron abajoensis* Cronq.  
*E. compositus* Pursh  
*E. vagus* Pays.  
*Leucelene cricoides* (Torr.) Greene  
*Physaria newberryi* Gray  
*Thelypodium sagittatum* (Nutt.) Endl. var. *ovalifolium* (Rydb.) Welsh and Reveal  
*Arenaria nuttallii* S. Wats.  
*Carex eleocharis* L. H. Bailey  
*Lathyrus brachycalyx* Rydb. var. *zionis* (C. L. Hitchc.) Welsh  
*Lupinus X alpestris* A. Nels.  
*Linanthastrum nuttallii* (Gray) Ewan  
*Phlox hoodii* Richards  
*Polemonium viscosum* Nutt.

Due to the local edaphic and topographic features, the Bryce Canyon flora is rich in rare and endemic plants. The following list includes those plants cited by Welsh (1979) whose presence in Bryce Canyon has been documented by the authors, or, in the case of *Erigeron abajoensis*, other investigators.

*Erigeron abajoensis* Cronq.  
*Heterotheca jonesii* (Blake) Welsh and Atwood

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*Townsendia minima* Eastw.  
*Cryptantha ochroleuca* Higgins  
*Draba subalpina* Goodm. and Hitchc.  
*Lesquerella rubicundula* Rollins  
*Silene petersonii* Maguire var. *minor* C. L. Hitchc. & Maguire  
*Psoralea pariensis* Welsh & Atwood  
*Castilleja revealii* N. Holmgren  
*Penstemon bracteatus* Keck.

*Erigeron abajoensis* was cited by Welsh et al. (1978). We have not seen it in the field. According to Welsh (1979), *Heterotheca jonesii* was known from one surviving population. The Bryce Canyon collection (Graybosch, 924) is, therefore, a significant extension of the range of this rare plant. One population was located on a sandy outcrop of the Kaiparowits formation in Bridge Canyon at an elevation of 2438 m (8000 ft). Identical habitat is available throughout the southern half of the park; yet no other populations have been located. The site is traversed by a hiking trail, presenting the danger of trampling.

*Townsendia minima*, *Draba subalpina*, and *Lesquerella rubicundula* are common wherever exposed limestone exists. Their "threatened or endangered" status might need reconsideration. *Cryptantha ochroleuca* has been observed near East Creek, Inspiration Point, and below Bryce Point. Populations are small and Welsh's (1979) suggestion that the species be regarded as endangered is certainly justifiable. *Psoralea pariensis* is represented only by a few small, scattered populations along the rim of the Paunsaugunt Plateau.

*Silene petersonii* var. *minor* and *Penstemon bracteatus* are known in the park only from the main amphitheater (herein defined as that portion of the park bordered by Bryce Point on the south, Tropic and Little Henderson Canyons on the north, and from the rim of the Paunsaugunt Plateau to the interface of the Wasatch formation with the underlying Kaiparowits formation) and from outcrops of the Wasatch limestone bordering East Creek. Populations consist of only a few scattered individuals. *Castilleja revealii* is the rarest of these plants, known only from the main amphitheater. Maintenance of the few populations is critical because, according to Welsh (1979), the Reveal paintbrush is known only from Bryce Canyon.

*Cymopterus minimus*, *Phlox gladiiformis*, and *Eriogonum aretioides* are rare plants known from areas close to Bryce Canyon (Cedar Breaks and/or Red Canyon). Since these sites are similar to Bryce Canyon both edaphically and topographically, one might expect to find these species in Bryce Canyon. Despite extensive search, they have not been located in the Park, thereby making protection of the existing populations all the more vital.

In the paper "The Flora of Great Basin Mountain Ranges: Diversity, Sources, and Dispersal Ecology" the flora of Bryce Canyon, based on a 1971 checklist of the national park, was used as a "continental" flora. Of all the continental floras used in the paper, that of Bryce Canyon was considered the most depauperate. The equation: no. of species =  $295.4 (\log \text{area})^{0.11}$  predicted 460 species for Bryce Canyon with 55.06 square miles of area, but only 218 species were reported. This new checklist includes 446 species, which closely approximates the predicted number of species.

#### THE VASCULAR PLANTS OF BRYCE CANYON NATIONAL PARK

##### Aceraceae

1. *Acer glabrum* Torr. (Rocky Mountain maple).
2. *A. grandidentatum* Nutt. (bigtoothed maple).

##### Amaranthaceae

3. *Amaranthus graecizans* L. (tumbleweed amaranth).

##### Anacardiaceae

4. *Rhus trilobata* Nutt. (squawbush).

##### Apiaceae

5. *Cicuta douglasii* (DC.) Coult. & Rose (Douglas water hemlock).
6. *Cymopterus purpureus* S. Wats. (purple biscuit-root).
7. *Ligusticum porteri* Coult. & Rose (ligusticum).
8. *Lomatium minimum* Mathias (Bryce Canyon lomatium).
9. *Lomatium nuttallii* (Gray) Macbr. (desert parsley).
10. *Cymopterus lemmonii* (Coult. & Rose) Dom. (pseudocymopterus).

##### Apocynaceae

11. *Apocynum androsaemifolium* L. (dogbane).

##### Asclepiadaceae

12. *Asclepias asperula* (Decne.) Woodson (milkweed).

##### Asteraceae (Compositae)

13. *Achillea millefolium* L. (yarrow).
14. *Agoseris aurantiaca* (Hook.) Greene var. *aurantiaca* (mountain dandelion).

15. *A. aurantiaca* (Hook.) Greene var. *purpurea* (Gray) Cronq. (mountain dandelion).
  16. *A. glauca* (Pursh). D. Dietl. var. *parviflora* (Nutt.) Rydb. (mountain dandelion).
  17. *Antennaria dimorpha* (Nutt.) T. & G. (low pussytoes).
  18. *A. parvifolia* Nutt. (pussytoes).
  19. *A. rosea* Greene (rose pussytoes).
  20. *A. rosulata* Rydb. (pygmy pussytoes).
  21. *Arnica chamissonis* Less. (woolly arnica).
  22. *A. cordifolia* Hook. (heartleaf arnica).
  23. *Artemisia arbuscula* Nutt. var. *nova* (A. Nels.) Cronq. (black sage).
  24. *A. carruthii* Wood (Carruth sage).
  25. *A. frigida* Willd. (fringed sage).
  26. *A. ludoviciana* Nutt. (Louisiana sage).
  27. *A. pygmaea* Gray (pygmy sage).
  28. *A. tridentata* Nutt. (big sage).
  29. *Aster chilensis* Nees (aster).
  30. *A. eatonii* (Gray) Howell (bog aster).
  31. *A. glaucodes* Blake (pale aster).
  32. *A. integrifolius* Nutt. (thickstem aster).
  33. *A. occidentalis* (Nutt.) Torr. & Gray (western aster).
  34. *Balsamorhiza sagittata* (Pursh) Nutt. (arrowleaf balsamroot).
  35. *Brickellia oblongifolia* Nutt. (bricklebrush).
  36. *Centaurea repens* L. (Russian knapweed).
  37. *Chaenactis douglasii* (Hook.) Hook. & Arn (chaenactis).
  38. *Chrysothamnus depressus* Nutt. (dwarf rabbitbrush).
  39. *C. linifolius* Greene (broadleaf rabbitbrush).
  40. *C. nauseosus* (Pall.) Britton var. *graveolens* (Nutt.) Hall (rubber rabbitbrush).
  41. *C. parryi* (Gray) Greene (Parry rabbitbrush).
  42. *C. vaseyi* (Gray) Greene (rabbitbrush).
  43. *C. viscidiflorus* (Hook.) Nutt. var. *viscidiflorus* (rabbitbrush).
  44. *Cirsium arizonicum* (Gray) Petrak (Arizona thistle).
  45. *C. canovirens* (Rydb.) Petrak (thistle).
  46. *C. nidulum* (Jones) Petrak (thistle).
  47. *C. pulchellum* (Greene) Woot. & Standl. (purple thistle).
  48. *C. undulatum* (Nutt.) Spreng (wavyleaf thistle).
  49. *Crepis intermedia* Gray (hawk's beard).
  50. *C. occidentalis* Nutt. (western hawk's beard).
  51. *C. runcinata* (James) T & G var. *glauca* (Nutt.) Babcock & Stebbins (dandelion hawk's beard).
  52. *Erigeron abajoensis* Cronq. (abajo daisy).
  53. *E. canus* Gray (fleabane).
  54. *E. compositus* Pursh (dwarf daisy).
  55. *E. divergens* T & G (spreading daisy).
  56. *E. eatoni* Gray (Eaton fleabane).
  57. *E. flagellaris* Gray (trailing fleabane).
  58. *E. pumilus* Nutt. ssp. *concinoides* Cronq. (low fleabane).
  59. *E. simplex* Greene (rock daisy).
  60. *E. speciosus* (Lindl.) DC var. *macranthus* (Nutt.) Cronq. (largeleaf fleabane).
  61. *E. ursinus* D.C. Eaton (Bear River fleabane).
  62. *Erigeron vagus* Pays. (fleabane).
  63. *Grindelia squarrosa* (Pursh) Dunal (gumweed).
  64. *Gutierrezia sarothrae* (Pursh) Britt. & Rusby (snake-weed).
  65. *Haplopappus armerioides* (Nutt.) Gray (goldenweed).
  66. *Helianthella uniflora* (Nutt.) T & G (helianthella).
  67. *Helianthus annuus* L. (sunflower).
  68. *Heterotheca jonesii* (Blake) Welsh & Atwood (Jones goldenaster).
  69. *H. villosa* (Pursh) Shinnars (goldenaster).
  70. *Hymenopappus filifolius* Hook. var. *cinereus* (Rydb.) I. M. Johnston (hymenopappus).
  71. *H. filifolius* Hook. var. *lugens* (Greene) Jeps. (hymenopappus).
  72. *Hymenoxys acaulis* (Pursh) Parker (stemless hymenoxys).
  73. *H. richardsonii* (Hook.) Cockerell (Colorado rubberweed).
  74. *Iva axillaris* Pursh (sumpweed).
  75. *Lactuca pulchella* (Pursh) DC (wild lettuce).
  76. *L. serriola* L. (prickly lettuce).
  77. *Leucclene ericoides* (Torr.) Greene (petite aster).
  78. *Lygodesmia grandiflora* (Nutt.) T. & G (rush pink).
  79. *L. spinosa* Nutt. (thorn skeletonweed).
  80. *Machaeranthera canescens* (Pursh) Gray (hoary machaeranthera).
  81. *M. grindelioides* (Nutt.) Shinnars (rayless goldenweed).
  82. *M. linearis* Greene (false aster).
  83. *Petradoria pumila* (Nutt.) Greene (rock goldenrod).
  84. *Senecio atratus* Greene (black groundsel).
  85. *S. cymbalarioides* Buek (cleftleaf groundsel).
  86. *S. multilobatus* Torr. & Gray (groundsel).
  87. *S. spartioides* T & G (broom groundsel).
  88. *Solidago spathulata* DC (mountain goldenrod).
  89. *S. missouriensis* Nutt. (Missouri goldenrod).
  90. *S. parryi* (Gray) Greene (Parry goldenrod).
  91. *S. sparsiflora* Gray (goldenrod).
  92. *Stephanomeria tenuifolia* (Torr.) Hall (wirelettuce).
  93. *Tanacetum nuttallii* T & G (rock tansy).
  94. *Taraxacum officinale* Weber (dandelion).
  95. *Tetradymia canescens* DC (horsebrush).
  96. *Townsendia excapa* (Richards) Porter (stemless townsendia).
  97. *T. incana* Nutt. (hoary townsendia).
  98. *T. minima* Eastw. (least townsendia).
  99. *Tragapogon dubius* Scop. (goatsbeard).
  100. *Verbesina encelioides* (Cav.) Benth. & Hook. (crownbeard).
  101. *Viguiera multiflora* (Nutt.) Blake (showy goldeneye).
- Berberidaceae**
102. *Berberis fremontii* Torr. (Fremont barberry).
  103. *B. repens* Lindl. (creeping barberry).
- Betulaceae**
104. *Betula occidentalis* Hook. (water birch).
- Boraginaceae**
105. *Cryptantha abata* I. M. Johnston (cryptantha or cat's eye).
  106. *C. bakeri* (Greene) Payson (cryptantha or cat's eye).
  107. *C. confertifolia* (Greene) Payson (cryptantha or cat's eye).
  108. *C. fendleri* (Gray) Greene (cryptantha or cat's eye).
  109. *C. flava* (Nels.) Payson (cryptantha or cat's eye).
  110. *C. fulvocanescens* (Gray) Payson (cryptantha or cat's eye).

111. *C. humilis* (Greene) Payson (cryptantha or cat's eye).  
 112. *C. jamesii* (Torr.) Payson (cryptantha or cat's eye).  
 113. *C. ochroleuca* Higgins (cryptantha or cat's eye).  
 114. *C. setosissima* (Gray) Payson (cryptantha or cat's eye).  
 115. *Lappula redowskii* (Hornem.) Greene (stickseed).  
 116. *Lithospermum incisum* Lehm. (gromwell).  
 117. *L. multiflorum* Torr. (puccoon).

**Brassicaceae (Cruciferae)**

118. *Arabis fendleri* (S. Wats.) Greene (rockcress).  
 119. *A. holboellii* Hornem. (rockcress).  
 120. *A. pendulina* Greene (rockcress).  
 121. *Capsella bursa-pastoris* (L.) Medic (shepherd's purse).  
 122. *Caulanthus crassicaulis* (Torr.) S. Wats. (wild cabbage).  
 123. *Conringia orientalis* (L.) Dumort (haresear).  
 124. *Descurainia obtusa* (Greene) O. E. Schulz (tansy mustard).  
 125. *D. richardsonii* (Sweet) O. E. Schulz (tansy mustard).  
 126. *D. sophia* (L.) Webb (tansy mustard).  
 127. *Draba subalpina* Goodman & Hitchc. (subalpine whitlograss).  
 128. *Erysimum capitatum* (Dougl.) Greene (western wallflower).  
 129. *E. inconspicuum* (S. Wats.) MacMill (little wallflower).  
 130. *Lepidium densiflorum* Schrad. (prairie pepperweed).  
 131. *L. montanum* Nutt. (mountain pepperweed).  
 132. *Lesquerella intermedia* (S. Wats.) Heller (bladderpod).  
 133. *L. kingii* S. Wats. var. *parvifolia* (Maguire & Holmgren) Welsh & Reveal (bladderpod).  
 134. *L. rubicundula* Rollins (Bryce bladderpod).  
 135. *Malcolmia africana* (L.) R. Br. (African mustard).  
 136. *Physaria chambersii* Rollins (twinpod).  
 137. *P. newberryi* Gray (twinpod).  
 138. *Sisymbrium linifolium* Nutt. (tumblemustard).  
 139. *Stanleya pinnata* (Pursh) Britton (prince's plume).  
 140. *Streptanthus cordatus* Nutt. (twistflower).  
 141. *Thelypodium sagittatum* (Nutt.) Endl. var. *oxalifolium* (Rydb.) Welsh & Reveal (thelypody).  
 142. *Thlaspi arvense* L. (field pennycress).

**Cactaceae**

143. *Opuntia erinacea* Engelm. (pricklypear).  
 144. *Pediocactus simpsonii* Engelm. (echinocactus).

**Campanulaceae**

145. *Campanula parryi* Gray (Parry bellflower).  
 146. *C. rotundifolia* L. (bluebell).

**Capparidaceae**

147. *Cleome lutea* Hook. (yellow beeplant).

**Caprifoliaceae**

148. *Sambucus coerulea* Raf. (elderberry).  
 149. *Symphoricarpos oreophilous* Gray var. *utahensis* (Rydb.) A. Nels. (snowberry).

**Caryophyllaceae**

150. *Arenaria fendleri* A. Gray (sandwort).  
 151. *A. nuttallii* Pax (sandwort).  
 152. *Lychnis drummondii* (Hook.) S. Wats. (campion).

153. *Paronychia sessiliflora* Nutt. (creeping nailwort).  
 154. *Silene petersonii* Maguire var. *minor* C. L. Hitchc. & Maguire (Red Canyon catchfly).  
 155. *Stellaria jamesiana* Torr. (chickweed).  
 156. *S. longipes* Goldie (starwort).

**Celastraceae**

157. *Pachistima myrsinites* (Pursh) Raf. (mountain lover).

**Chenopodiaceae**

158. *Atriplex canescens* (Pursh) Nutt. (four-winged saltbrush).  
 159. *A. tridentata* Kuntze (saltbrush).  
 160. *Chenopodium atrovirens* Rydb. (goosefoot).  
 161. *C. incanum* (S. Wats.) Heller (goosefoot).  
 162. *C. leptophyllum* Nutt. (slimleaf goosefoot).  
 163. *Eurotia lanata* (Pursh) Moq. (winterfat).  
 164. *Salsola iberica* Senner & Pau (Russian thistle).

**Convolvulaceae**

165. *Convolvulus arvensis* L. (field bindweed).

**Cornaceae**

166. *Cornus stolonifera* Michx. (redosier dogwood).

**Cupressaceae**

167. *Juniperus communis* L. (common juniper).  
 168. *J. osteosperma* (Torr.) Little (Utah juniper).  
 169. *J. scopulorum* Sarg. (Rocky Mountain juniper).

**Cyperaceae**

170. *Carex athrostachrya* Olney (slender-beaked sedge).  
 171. *C. aurea* Nutt. (golden sedge).  
 172. *C. canescens* L. (sedge).  
 173. *C. douglasii* Boott (Douglas sedge).  
 174. *C. cleocharis* L. H. Bailey (needleleaf sedge).  
 175. *C. microptera* Mkze. (smallwing sedge).  
 176. *C. nebraskensis* Dewey (Nebraska sedge).  
 177. *C. oederi* Retz. (subalpine sedge).  
 178. *C. praegracilis* W. Boott (sedge).  
 179. *C. rossii* Boott (Ross sedge).  
 180. *C. rostrata* Stokes (beaked sedge).  
 181. *Eleocharis pauciflorus* (Lightf.) Link (spike-rush).  
 182. *E. rostellata* (Torr.) Torr. (beaked spike-rush).  
 183. *Scirpus americanus* Pers. (American bullrush).

**Elaeagnaceae**

184. *Shepherdia argentea* (Pursh) Nutt. (silver buffaloberry).  
 185. *S. canadensis* (L.) Nutt. (russet buffaloberry).  
 186. *S. rotundifolia* Parry (roundleaf buffaloberry).

**Equisetaceae**

187. *Equisetum arvense* L. (field horsetail).  
 188. *E. laevigatum* A. Br. (smooth horsetail).

**Ericaceae**

189. *Arctostaphylos patula* Greene (green leaf manzanita).  
 190. *A. uva-ursi* (L.) Spreng. (bearberry).

**Euphorbiaceae**

191. *Euphorbia fendleri* T & G (spurge).  
 192. *E. hurida* Engelm. (spurge).  
 193. *E. robusta* (Engelm.) Small (robust spurge).

**Fabaceae**

194. *Astragalus agrestis* Dougl. ex G. Don. (milkvetch).  
 195. *A. amphioxys* Gray (crescent milkvetch).

196. *A. argophyllus* Nutt. ex T & G var. *panguicensis* (M. E. Jones) M. E. Jones (silverleafed milkvetch).  
 197. *A. bisulcatus* (Hook.) Gray (two-grooved milkvetch).  
 198. *A. calycosus* Torr. ex S. Wats. (Torrey milkvetch).  
 199. *A. concallarius* Greene (lesser rushy milkvetch).  
 200. *A. hallii* Gray var. *fallax* (Wats.) Barneby (Hall milkvetch).  
 201. *A. humistratus* Gray var. *humivagans* (Rydb.) Barn-  
 eby (ground cover milkvetch).  
 202. *A. kentrophyta* Gray (kentrophyta).  
 203. *A. lonchocarpus* Torr. (great rushy milkvetch).  
 204. *A. megacarpus* (Nutt.) Gray (bladdery milkvetch).  
 205. *A. miser* Dougl. ex Hook. (weedy milkvetch).  
 206. *A. tenellus* Pursh (Pursh milkvetch).  
 207. *Hedysarum boreale* Nutt. (northern sweetvetch).  
 208. *Lathyrus brachycalyx* Rydb. var. *zionis* (C. L.  
 Hitchc.) Welsh (sweetpea).  
 209. *Lotus utahensis* Ottley (Utah trefoil).  
 210. *Lupinus alpestris* A. Nels. (mountain lupine).  
 211. *L. argenteus* Pursh var. *tenellus* (Dougl.) Dunn (sil-  
 very lupine).  
 212. *L. kingii* S. Wats. var. *kingii* (King lupine).  
 213. *L. sericeus* Pursh var. *marianus* (Rydb.) Welsh  
 (silky lupine).  
 214. *Medicago lupulina* L. (black medic).  
 215. *M. sativa* L. (alfalfa).  
 216. *Melilotus officinalis* (L.) Lam. (yellow sweetclover).  
 217. *Oxytropis deflexa* (Pallas) DC var. *sericea* T & G  
 (locoweed).  
 218. *O. jonesii* Barneby (Jones oxytrope).  
 219. *O. oreophila* Gray var. *oreophila* (crazy weed).  
 220. *Psoralea pariensis* Welsh & Atwood (Paria bread-  
 root).  
 221. *Trifolium repens* L. (white clover).  
 222. *Vicia americana* Muhl. ex Willd. (American vetch).

**Fagaceae**

223. *Quercus gambelii* Nutt. (Gambel oak).

**Gentianaceae**

224. *Gentiana affinis* Criseb. (Rocky Mountain pleated  
 gentian).  
 225. *Gentiana amarella* L. var. *heterosepala* (Engelm.)  
 Gillett (gentian).  
 226. *G. dentosa* Rottb. (fringed gentian).  
 227. *G. tenella* Rottb. (pygmy gentian).  
 228. *Swertia radiata* (Kellogg) Kuntze (elkweed; green  
 gentian).

**Geraniaceae**

229. *Geranium caespitosum* James (cranesbill).  
 230. *G. marginale* Rydb. (wild geranium).  
 231. *G. fremontii* Torr. (Fremont geranium).  
 232. *G. richardsonii* Fisch. & Trautv. (Richardson gera-  
 nium).

**Iridaceae**

233. *Iris missouriensis* Nutt. (Rocky Mountain iris).  
 234. *Sisyrinchium demissum* Greene (blue-eyed grass).

**Juncaceae**

235. *Juncus balticus* Willd. (wire rush).  
 236. *J. bufonius* L. (toad rush).  
 237. *J. ensifolius* Wikstr. (Rocky Mountain rush).  
 238. *J. longistylis* Torr. (rush).  
 239. *J. torreyi* Coville (Torrey rush).

**Juncaginaceae**

240. *Triglochin maritima* L. (greater arrowgrass).  
 241. *T. palustris* L. (lesser arrowgrass).

**Lamiaceae (Labiatae)**

242. *Hedeoma drummondii* Benth (mock pennyroyal).  
 243. *Marrubium vulgare* L. (horehound).  
 244. *Moldavica parviflora* (Nutt.) Britton (dragonhead).  
 245. *Monarda odoratissima* Benth. (monardella).  
 246. *Prunella vulgaris* L. (selfheal).

**Liliaceae**

247. *Allium acuminatum* Hook. (wild onion).  
 248. *A. nevadensis* S. Wats. (wild onion).  
 249. *Asparagus officinalis* L. (asparagus).  
 250. *Calochortus nuttallii* T & G (sego lily).  
 251. *Fritillaria atropurpurea* Nutt. (leopard lily).  
 252. *Leucocrinum montanum* Nutt. ex Gray (star lily).  
 253. *Smilacina stellata* (L.) Desf. (false Solomon's seal).  
 254. *Yucca angustissima* Engelm. ex Trelease (yucca).  
 255. *Y. harrimaniae* Trelease (yucca).  
 256. *Zigadenus elegans* Pursh (death camas).

**Linaceae**

257. *Linum aristatum* Engelm. (annual flax).  
 258. *L. kingii* S. Wats. (yellow flax).  
 259. *L. lewisii* Pursh (blue flax).

**Loasaceae**

260. *Mentzelia multiflora* (Nutt.) Gray (blazing star).

**Loranthaceae**

261. *Arceuthobium campylopodium* Engelm. (dwarf mis-  
 tletoe).  
 262. *A. douglasii* Engelm. (dwarf mistletoe).  
 263. *A. vaginatum* (Willd.) Presl. (dwarf mistletoe).  
 264. *Phoradeudron juniperum* Engelm. (juniper mis-  
 tletoe).

**Malvaceae**

265. *Sphaeralcea coccinea* (Nutt.) Rydb. (globemallow).  
 266. *S. parvifolia* A. Nels. (globemallow).

**Nyctaginaceae**

267. *Abronia fragrans* Nutt. (snowball; sand verbena).  
 268. *A. nana* S. Wats. (tufted sand verbena).

**Onagraceae**

269. *Epilobium adenocaulon* Hausskn. (willow-weed).  
 270. *Gayophytum nuttallii* T & G (ground smoke).  
 271. *G. racemosum* T & G (ground smoke).  
 272. *Oenothera brachycarpa* Gray (giant evening prim-  
 rose).  
 273. *O. caespitosa* Nutt. (tufted evening primrose).  
 274. *O. coronopifolia* T & G (delicate evening primrose).  
 275. *O. flava* (A. Nels.) Garrett (yellow evening prim-  
 rose).  
 276. *O. lavenderleafolia* T & G (lavenderleaf evening  
 primrose).  
 277. *O. pallida* Lindl. (pale evening primrose).

**Orchidaceae**

278. *Corallorhiza maculata* Raf. (corallroot).  
 279. *C. striata* Lindl. (striped corallroot).  
 280. *Epipactis gigantea* Dougl. ex Hook. (giant hellebo-  
 rine).  
 281. *Habenaria sparsiflora* S. Wats. (bog orchid).

**Orobanchaceae**

282. *Orobanche fasciculata* Nutt. (broomrape).

## Pinaceae

283. *Abies concolor* (Gord. & Glend.) Lindl. (white fir).  
 284. *Picea pungens* Engelm. (blue spruce).  
 285. *Pinus edulis* Engelm. (pinyon).  
 286. *P. flexilis* James (limber pine).  
 287. *P. longaecca* D. K. Bailey (bristlecone pine).  
 288. *P. ponderosa* Laws. (ponderosa pine).  
 289. *Pseudotsuga menziesii* (Mirb) Franco (Douglas-fir).

## Plantaginaceae

290. *Plantago eriopoda* Torr. (redwood plantain).  
 291. *P. lanceolata* L. (lanceleaf plantain).

## Poaceae (Gramineae)

292. *Agropyron cristatum* (L.) Gaertn. (crested wheatgrass).  
 293. *A. dasystachyum* (Hook.) Scribn. var. *dasystachyum* (thickspike wheatgrass).  
 294. *A. scribneri* Vasey (Scribner wheatgrass).  
 295. *A. smithii* Rydb. (Western wheatgrass).  
 296. *A. spicatum* (Pursh) Scribner & Smith var. *inermis* (Scribn. & Smith) Heller (bluebunch wheatgrass).  
 297. *A. trachycaulum* (Link) Malte var. *trachycaulum* (slender wheatgrass).  
 298. *A. trachycaulum* (Link) Malte var. *unilaterale* (Cassidy) Malte (bearded wheatgrass).  
 299. *Agrostis stolonifera* L. (redtop; bentgrass).  
 300. *Aristida fendleriana* Steud. (three-awn).  
 301. *Arundo donax* L. (giant reed).  
 302. *Bouteloua gracilis* (HBK) Lag. ex Steud. (blue grama).  
 303. *Bromus anomalous* Rupr. ex Fourn (nodding brome).  
 304. *B. carinatus* Hook. & Arn (California brome).  
 305. *B. ciliatus* L. (fringed brome).  
 306. *B. commutatus* Schrader (hairy chess).  
 307. *B. inermis* Leysser (smooth brome).  
 308. *B. tectorum* L. (cheatgrass).  
 309. *Calamagrostis neglecta* (Ehrh.) Gaertn., Meyer & Schreb. (subalpine reedgrass).  
 310. *C. scopulorum* M. E. Jones (reedgrass).  
 311. *Dactylis glomerata* L. (orchard grass).  
 312. *Deschampsia cespitosa* (L.) Beauv. (hairgrass).  
 313. *Elymus junceus* Fischer (Russian wildrye).  
 314. *E. canadensis* L. (Canada wildrye).  
 315. *E. salina* M. E. Jones (salina wildrye).  
 316. *Festuca ovina* L. var. *rydbergii* St.-Yves (sheep fescue).  
 317. *F. pratensis* Hud. (meadow fescue).  
 318. *Glyceria striata* (Lam.) A. S. Hitchc. (fowl manna-grass).  
 319. *Hilaria jamesii* (Torr.) Benth. (galleta).  
 320. *Hordeum brachyantherum* Nevski (meadow barley).  
 321. *H. jubatum* L. (foxtail barley).  
 322. *Koeleria nitida* Nutt. (junegrass).  
 323. *Muhlenbergia andina* (Nutt.) A. S. Hitchc. (foxtail muhly).  
 324. *M. asperifolia* (Nees & Meyer) L. R. Parodi (scratchgrass).  
 325. *M. montana* (Nutt.) A. S. Hitchc. (mountain muhly).  
 326. *M. pungens* Thurber (sandhill muhly).  
 327. *M. richardsonis* (Trin.) Rydb. (mat muhly).  
 328. *Oryzopsis hymenoides* (Roemer & Schultes) Ricker (Indian ricegrass).  
 329. *O. micrantha* (Trin. & Rupr.) Thurber (little ricegrass).

330. *Phleum pratense* L. (timothy).  
 331. *Poa compressa* L. (Canada bluegrass).  
 332. *P. fendleriana* (Steud.) Vasey (mutton grass).  
 333. *P. nevadensis* Vasey ex Scribn. (Nevada bluegrass).  
 334. *P. pratensis* L. (Kentucky bluegrass).  
 335. *P. reflexa* Vasey & Scribn. (nodding bluegrass).  
 336. *Sitanion hystrix* (Nutt.) J. G. Smith (squirreltail).  
 337. *Sporobolus airoides* (Torr.) Torr. (alkali sacaton).  
 338. *Stipa columbiana* Macoun (Columbia needlegrass).  
 339. *S. comata* Trin. & Rupr. (needle-and-thread grass).  
 340. *S. lettermanii* Vasey (letterman needlegrass).  
 341. *X. Stiporyzopsis bloomeri* (Boland) B. L. Johnson (fool's ricegrass).

## Polemoniaceae

342. *Ipomopsis aggregata* (Pursh) Spreng. (skyrocket gilia).  
 343. *Gilia congesta* Hook. var. *congesta* (ballhead gilia).  
 344. *Leptodactylon pungens* (Torr.) Nutt. (prickly phlox).  
 345. *Linanthastrum nuttallii* (Gray) Ewan (false phlox).  
 346. *Phlox austromontana* Cov. (mountain phlox).  
 347. *P. condensata* (Gray) E. Nels. (creeping phlox).  
 348. *P. diffusa* Benth (spreading phlox).  
 349. *P. longifolia* Nutt. (longleaf phlox).  
 350. *P. muscoides* Nutt. (mossy phlox).  
 351. *Polemonium occidentale* Greene (Jacob's ladder).  
 352. *P. viscosum* Nutt. (Jacob's ladder).

## Polygonaceae

353. *Eriogonum alatum* Torr. var. *alatum* (winged buckwheat).  
 354. *E. corymbosum* Benth. in DC var. *corymbosum* (shrubby buckwheat).  
 355. *E. microthecum* Nutt. var. *foliosum* (T & G) Reveal (slimleaf buckwheat).  
 356. *E. panguicense* (M. E. Jones) Reveal var. *panguicense* (Panguitch buckwheat).  
 357. *E. racemosum* Nutt. (redroot buckwheat).  
 358. *E. subreniforme* S. Wats. (kidney-leaf buckwheat).  
 359. *E. umbellatum* Torr. var. *subaridum* Stokes (sul-furflowered buckwheat).  
 360. *Polygonum aviculare* L. (creeping jenny).  
 361. *P. douglasii* Greene var. *johnstonii* Munz (sawatch knotweed).  
 362. *P. ramosissimum* Michx. (bush knotweed).  
 363. *P. viviparum* L. (viviparous knotweed).  
 364. *Rumex crispus* L. (curly dock).  
 365. *R. triangulivalis* (Danser) Rech. (dock).

## Polypodiaceae

366. *Cheilanthes feei* T. Moore (lipfern).  
 367. *Pteridium aquilinum* (L.) Kuhn (bracken fern).

## Primulaceae

368. *Androsace septentrionalis* L. (rock jasmine).  
 369. *Dodecatheon pulchellum* (Raf.) Merrill (shooting star).

## Pyrolaceae

370. *Pyrola asarifolia* Michx. (alpine pyrola).  
 371. *P. cirens* Schweigg (pyrola).  
 372. *Pterospora andromedea* Nutt. (pinedrops).

## Ranunculaceae

373. *Aconitum columbianum* Nutt. (monkshood).  
 374. *Anemone multifida* Poir. (anemone).  
 375. *Aquilegia caerulea* James (Colorado columbine).

376. *A. scopulorum* Tides. (rock columbine).  
 377. *Clematis ligusticifolia* Nutt. (western virgin's bow-  
 er).  
 378. *C. pseudoalpina* (Kuntze) A. Nels. (Rocky Moun-  
 tain clematis).  
 379. *Delphinium scaposum* Greene (larkspur).  
 380. *Ranunculus cymbalaria* Pursh (Rocky Mountain  
 buttercup).  
 381. *R. flammula* L. (creeping buttercup).  
 382. *R. inamoenus* Greene (buttercup).  
 383. *Thalictrum fendleri* Engelm. (meadow rue).

#### Rhamnaceae

384. *Ceanothus fendleri* Gray (Fendler buckbrush).  
 385. *C. martinii* M. E. Jones (Martin buckbrush).

#### Rosaceae

386. *Amelanchier utahensis* Koehne (serviceberry).  
 387. *Cercocarpus ledifolius* Nutt. (curlleaf mountain ma-  
 hogany).  
 388. *C. montanus* Raf. (birch-leaf mountain mahogany).  
 389. *Cowania mexicana* D. Don (cliffrose).  
 390. *Fallugia paradoxa* (D. Don) Endl. (apache plume).  
 391. *Fragaria vesca* L. var. *bracteata* (Heller) R. J. Davis  
 (wild strawberry).  
 392. *Holodiscus dumosus* (Hook.) Heller (ocean spray;  
 rock spirea).  
 393. *Ivesia sabulosa* (M. E. Jones) Keck (ivesia).  
 394. *Peraphyllum ramosissimum* Nutt. (squawapple).  
 395. *Potentilla anserina* L. (silverweed cinquefoil).  
 396. *P. concinna* Richards (elegant cinquefoil).  
 397. *P. crinita* Gray (cinquefoil).  
 398. *P. fruticosa* L. (shrubby cinquefoil).  
 399. *P. gracilis* Dougl. var. *pulcherrima* (Lehm.) Fern.  
 (common cinquefoil).  
 400. *P. plattensis* Nutt. (Platte cinquefoil).  
 401. *Prunus virginiana* L. (choke cherry).  
 402. *Purshia tridentata* (Pursh) DC (bitterbrush).  
 403. *Rosa nutkana* Presl. (Nutmka rose).  
 404. *R. woodsii* Lindl. (wild rose).  
 405. *Rubus idaeus* L. var. *sachalinensis* (Levl.) Focke  
 (wild raspberry).

#### Rubiaceae

406. *Galium trifidum* L. (bedstraw).  
 407. *Kelloggia galioides* Torr. (pseudobedstraw).

#### Salicaceae

408. *Populus angustifolia* James (narrowleaf cotton-  
 wood).  
 409. *P. fremontii* S. Wats. (Fremont cottonwood).  
 410. *P. tremuloides* Michx. (quaking aspen).  
 411. *Salix bebbiana* Sarg. (Bebb willow).  
 412. *S. drummondiana* Barratt (Drummond willow).  
 413. *S. exigua* Nutt. (sandbar willow).  
 414. *S. geyeriana* Anderss. (Geyer willow).  
 415. *S. lasiandra* Benth. var. *caudata* (Nutt.) Sudw. (Pa-  
 cific willow).

#### Santalaceae

416. *Comandra pallida* A. DC (bastard toadflax).

#### Saxifragaceae

417. *Lithophragma tenella* Nutt. (woodland star).  
 418. *Parnassia parviflora* DC (grass-of-Parnassus).  
 419. *Ribes aureum* Pursh (gooseberry).  
 420. *R. cereum* Dougl. (wax currant).

#### Scrophulariaceae

421. *Castilleja chromosa* A. Nels. (Indian paintbrush).  
 422. *C. linariaefolia* Benth. (Wyoming paintbrush).  
 423. *C. revealii* N. Holmgren (Reveal paintbrush).  
 424. *Cordylanthus kingii* S. Wats. (birdbeak).  
 425. *Mimulus guttatus* DC (monkey flower).  
 426. *M. rubellus* Gray (annual monkey flower).  
 427. *Orthocarpus luteus* Nutt. (yellow owllover).  
 428. *O. purpureo-albus* Gray (purple-white owllover).  
 429. *Pedicularis contranthera* Gray (lousewort).  
 430. *Penstemon bracteata* Keck (Red Canyon beard-  
 tongue).  
 431. *P. bridgesii* Gray (redfish).  
 432. *P. caespitosus* Nutt. (mat penstemon).  
 433. *P. comarrhenus* Gray (dusty penstemon).  
 434. *P. eatonii* Gray (Eaton penstemon).  
 435. *P. leiophyllus* Pennell (royal blue penstemon).  
 436. *P. rydbergii* A. Nels. (Rydberg penstemon).  
 437. *P. utahensis* Eastwd. (Utah penstemon).  
 438. *Verbascum thapsus* L. (flannel mullein).  
 439. *Veronica americana* Schw. (American speedwell).

#### Solanaceae

440. *Solanum triflorum* Nutt. (cutleaf nightshade).

#### Tamaricaceae

441. *Tamarix pentandra* Pall. (tamarisk).

#### Valerianaceae

442. *Valeriana acutiloba* Rydb. (valerian).  
 443. *V. edulis* Nutt. (edible valerian).

#### Verbenaceae

444. *Verbena bracteata* Lag. & Rodr. (vervain).

#### Violaceae

445. *Viola adunca* J. E. Smith (blue violet).  
 446. *V. purpurea* Kellogg (goosefoot violet).

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## INDEX TO GENERA AND COMMON NAMES

- Abajo daisy 52  
*Abies* 283  
*Abronia* 267  
*Acer* 1,2  
*Achillea* 13  
*Aconitum* 373  
 African mustard 135  
*Agoseris* 14-16  
*Agropyron* 292-298  
*Agrostis* 299  
 alfalfa 215  
 alkali sacaton 337  
*Allium* 247-248  
 alpine pyrola 370  
*Amaranthus* 3  
*Amelanchier* 386  
 American bullrush 183  
 American speedwell 439  
 American vetch 222  
*Androsace* 368  
*Anemone* 374  
 annual flax 257  
 annual monkeyflower 426  
*Antennaria* 17-20  
 apache plume 390  
*Apocynum* 11  
*Aquilegia* 375,376  
*Arabis* 118-120  
*Arceuthobium* 261-263  
*Arctostaphylos* 189,190  
*Arenaria* 150,151  
*Aristida* 300  
 Arizona thistle 44  
*Arnica* 21,22  
 arrowleaf balsamroot 34  
*Artemisia* 23-28  
*Arnica* 301  
*Asclepias* 12  
*Asparagus* 249  
*Aster* 29-33  
*Astragalus* 194-206  
*Atriplex* 158,159  
  
 ballhead gilia 343  
 Balsamorhiza 34  
 bastard toadflax 416  
 beaked sedge 180  
 beaked spikerush 182  
 bearberry 190  
 Bear River fleabane 61  
 bearded wheatgrass 298  
 Bebb willow 411  
 bedstraw 406  
 bentgrass 299  
*Berberis* 102,103  
*Betula* 104  
 big sage 28  
 bigtoothed maple 2  
 birch-leaf mountain mahogany 388  
 birdbeak 424  
 bitterbrush 402  
 black groundsel 84  
 black medic 214  
 black sage 23  
 bladderpod 132-133  
 bladdery milk vetch 204  
 blazing star 260  
 blue bell 146  
 blue bunch wheatgrass 296  
 blue-eyed grass 234  
 blue flax 259  
 blue grama 302  
 blue penstemon 435  
 blue spruce 284  
 blue violet 445  
 bog aster 30  
 bog orchid 281  
*Bouteloua* 302  
 bracken fern 367  
*Brickellia* 35  
 bricklebrush 35  
 bristlecone pine 287  
 broadleafed rabbitbrush 39  
*Bromus* 303-308  
 broom groundsel 87  
 broom rape 282  
 Bryce bladderpod 134  
 Bryce Canyon lomatium 8  
 bush knotweed 362  
 buttercup 382  
  
*Calamagrostis* 309  
 California brome 304  
*Calochortus* 250  
*Campanula* 145,146  
 campion 152  
 Canada bluegrass 331  
 Canada wildrye 314  
*Capsella* 121  
*Carex* 170-180  
 Carruth sedge 24  
*Castilleja* 421-423  
 cat's eye 105-114  
*Caulanthus* 122  
*Ceanothus* 384,385  
*Centaurea* 36  
*Cercocarpus* 387,388  
*Chaenactis* 37  
*Cheilanthes* 366  
*Chenopodium* 160-162  
 cheat grass 308  
 chickweed 155  
 choke cherry 401  
*Chrysothamnus* 38-43  
*Cicuta* 5  
 cinquefoil 397  
*Cirsium* 44-48  
 cleft leaf groundsel 85  
 Clematis 377,378  
*Cleome* 147  
 cliffrose 389  
 Colorado columbine 375  
 Colorado rubberweed 73  
 Columbia needlegrass 338  
*Comandra* 416  
 common cinquefoil 399  
 common juniper 167  
*Conringia* 123  
*Convolvulus* 165  
*Corallorhiza* 278,279

- corallroot 278  
*Cordylanthus* 424  
*Cornus* 166  
*Cowania* 389  
 cranesbill 229  
 crazyweed 219  
 creeping barberry 103  
 creeping buttercup 381  
 creeping jenny 360  
 creeping nailwort 153  
 creeping phlox 347  
*Crepis* 49-51  
 crescent milkvetch 195  
 crested wheatgrass 292  
 crown beard 100  
*Cryptantha* 105-114  
 curleaf mountain mahogany 387  
 curly dock 364  
 cutleaf nightshade 440  
*Cymopterus* 6  
  
*Dactylis* 311  
 dandelion 94  
 dandelion hawkbeard 51  
 death camas 256  
 delicate evening primrose 274  
*Delphinium* 379  
*Deschampsia* 312  
 desert parsley 9  
*Descurainia* 124-126  
 dock 365  
*Dodecatheon* 369  
 dogbane 11  
 Douglas-fir 289  
 Douglas sedge 173  
 Douglas water hemlock 5  
*Draba* 127  
 dragon head 244  
 Drummond willow 412  
 dusty penstemon 433  
 dwarf daisy 54  
 dwarf mistletoe 261-263  
 dwarf rabbitbrush 38  
  
 Eaton fleabane 56  
 Eaton penstemon 434  
 Echinocactus 144  
 edible valerian 443  
 elderberry 148  
 elegant cinquefoil 396  
 elkweed 228  
*Eleocharis* 180,181  
*Elymus* 313-315  
*Equisetum* 187,188  
*Epilobium* 269  
*Epipactis* 280  
*Erigeron* 52-62  
*Eriogonum* 353-359  
*Erysimum* 128-129  
*Euphorbia* 191-193  
*Eurotia* 163  
  
*Fallugia* 390  
 false aster 82  
 false phlox 345  
 false Solomon's seal 253  
 Fendler buckbrush 384  
  
*Festuca* 316,317  
 field bindweed 165  
 field horsetail 187  
 field pennycress 142  
 flannel mullein 438  
 fleabane 53,62  
 fool's ricegrass 341  
 four-winged saltbrush 158  
 fowl manna grass 318  
 foxtail barley 321  
 foxtail muhly 323  
*Fragaria* 391  
 Fremont barberry 102  
 Fremont cottonwood 409  
 Fremont geranium 231  
 fringed brome 305  
 fringed gentian 226  
 fringed sage 25  
 Fritillaria 251  
  
 galleta 319  
*Galium* 406  
 Gambel oak 223  
*Gayophytum* 270,271  
 gentian 225  
*Gentiana* 224-227  
*Geranium* 229-232  
 Geyer willow 414  
 giant evening primrose 272  
 giant helleborine 280  
 giant reed 301  
*Gilia* 343  
*Glyceria* 318  
 globe mallow 265,266  
 goatsbeard 99  
 golden aster 69  
 goldenrod 91  
 golden sedge 171  
 golden weed 65  
 gooseberry 419  
 goosefoot 160,161  
 goosefoot violet 446  
 grass-of-Parnassus 418  
 great rushy milkvetch 203  
 greater arrowgrass 240  
 green gentian 228  
 greenleaf manzanita 189  
 Grindelia 63  
 growwell 116  
 ground cover milkvetch 201  
 groundsel 86  
 ground smoke 270,271  
 gumweed 63  
*Gutierrezia* 64  
  
*Habenaria* 281  
 hairgrass 312  
 hairy chess 306  
 Hall milkvetch 200  
*Haplopappus* 65  
 haresear 123  
 hawk's beard 49  
 heartleaf arnica 22  
 Hedeoma 242  
*Hedysarum* 207  
*Helianthella* 66

- Helianthus* 67  
*Heterotheca* 68,69  
*Hilaria* 319  
 hoary machaeranthera 80  
 hoary townsendia 97  
*Holodiscus* 392  
*Hordeum* 320,321  
 horehound 243  
 horsebrush 95  
*Hymenopappus* 70,71  
*Hymenoxys* 72-73  
  
 Indian paintbrush 421  
 Indian ricegrass 328  
*Ipomopsis* 342  
*Iris* 233  
*Iva* 74  
*Ivesia* 393  
  
 Jacob's ladder 351,352  
 Jones goldenaster 68  
 Jones oxytrope 218  
*Juncus* 235-239  
 junegrass 322  
 juniper mistletoe 264  
*Juniperus* 167-169  
  
*Kelloggia* 407  
 kentrophyta 202  
 Kentucky bluegrass 334  
 kidney-leaf buckwheat 358  
 King lupine 212  
*Koeleria* 322  
  
*Lactuca* 75,76  
 lance leaf plantain 291  
*Lappula* 115  
 largeleaf fleabane 60  
 larkspur 379  
*Lathyrus* 208  
 lavenderleaf evening primrose 276  
 least townsendia 98  
 leopard lily 251  
*Lepidium* 130,131  
*Leptodactylon* 344  
*Lesquerella* 132-134  
 lesser arrowgrass 241  
 lesser rushy milkvetch 199  
 letterman needlegrass 340  
*Leucelene* 77  
*Leucocrinum* 252  
*Ligusticum* 7  
 limber pine 286  
*Linanthastrum* 345  
*Linum* 257-259  
 lipfern 366  
*Lithophragma* 417  
*Lithospermum* 116,117  
 little ricegrass 329  
 little wallflower 129  
 loco weed 217  
*Lomatium* 8,9  
 longleaf phlox 349  
*Lotus* 209  
 Louisiana sage 26  
 lousewort 429  
 low fleabane 58  
  
 low pussytoes 17  
*Lupinus* 210-213  
*Lychnis* 152  
*Lygodesmia* 78,79  
  
*Machaeranthera* 80-82  
*Malcolmia* 135  
*Marrubium* 243  
 Martin buckbrush 385  
 mat muhly 327  
 mat penstemon 432  
 meadow barley 320  
 meadow fesque 317  
 meadow rue 383  
*Medicago* 214,215  
*Melilotus* 216  
*Mentzelia* 260  
 milkvetch 194  
 milk weed 12  
*Mimulus* 425,426  
 Missouri goldenrod 89  
 mock penuryroyal 242  
*Moldavica* 244  
*Monardella* 245  
 monkeyflower 425  
 monkshood 373  
 mossy phlox 350  
 mountain dandelion 14-16  
 mountain goldenrod 88  
 mountain lover 157  
 mountain lupine 210  
 mountain muhly 325  
 mountain pepperweed 131  
 mountain phlox 346  
*Muhlenbergia* 323-327  
 muttongrass 332  
  
 narrowleaf cottonwood 408  
 Nebraska sedge 176  
 needleleaf sedge 174  
 needle-and-thread grass 339  
 Nevada bluegrass 333  
 nodding brome 303  
 northern sweetvetch 207  
 Nutka rose 403  
  
 ocean spray 392  
*Oenothera* 272-277  
*Opuntia* 143  
 orchard grass 311  
*Orobancha* 282  
*Orthocarpus* 427,428  
*Oryzopsis* 328-329  
*Oxytropis* 217-219  
  
*Pachistima* 157  
 Pacific willow 415  
 pale aster 31  
 pale evening primrose 277  
 Panguitch buckwheat 356  
 Paria breadroot 220  
*Parnassia* 418  
*Paronychia* 153  
 Parry bellflower 145  
 Parry goldenrod 90

- Parry rabbitbrush 41  
*Pedicularis* 429  
*Pediocactus* 144  
*Penstemon* 430-437  
*Peraphyllum* 394  
 petite aster 77  
*Petradoria* 83  
*Phleum* 330  
*Phlox* 346-350  
*Phoradendron* 264  
*Physaria* 136,137  
*Picea* 284  
 pine drops 372  
*Pinus* 285-288  
 pinyon 285  
*Plantago* 290,291  
*Platte cinquefoil* 400  
*Poa* 331-335  
*Polemonium* 351,352  
*Polygonum* 360-363  
 ponderosa pine 288  
*Populus* 408-410  
*Potentilla* 395-400  
 prairie pepperweed 130  
 prickly lettuce 76  
 prickly pear 143  
 prickly phlox 344  
 prince's plume 139  
*Prunella* 246  
*Prunus* 401  
 pseudobedstraw 407  
*Pseudocymopterys* 10  
*Pseudotsuga* 289  
*Psoralea* 220  
*Pteridium* 367  
*Pterospora* 372  
 puccoon 116  
 purple biscuitroot 6  
 purple thistle 47  
 purple-white owllover 428  
 Pursh milkvetch 206  
*Purshia* 402  
 pussytoes 18  
 pygmy gentian 227  
 pygmy pussytoes 20  
 pygmy sage 27  
*Pyrola* 370-371  
  
 quaking aspen 410  
*Quercus* 223  
  
 rabbitbrush 42,43  
*Ranunculus* 380-382  
 rayless goldenweed 81  
 Red Canyon beard tongue 430  
 Red Canyon catchfly 154  
 redfish 431  
 redoisier dogwood 166  
 redroot buckwheat 357  
 red top 299  
 red wool plantain 290  
 reed grass 310  
 Reveal paintbrush 423  
*Rhus* 4  
*Ribes* 419-420  
 Richardson geranium 232  
  
 robust spurge 193  
 rock columbine 376  
 rock cress 118-120  
 rock daisy 59  
 rock goldenrod 83  
 rock jasmine 368  
 rock spirea 392  
 rock tansy 93  
 Rocky Mountain buttercup 380  
 Rocky Mountain clematis 378  
 Rocky Mountain iris 233  
 Rocky Mountain juniper 169  
 Rocky Mountain maple 1  
 Rocky Mountain pleated gentian 224  
 Rocky Mountain rush 237  
*Rosa* 403,404  
 Rose pussytoes 19  
 Ross sedge 179  
 roundleaf buffaloberry 186  
 royal blue penstemon 435  
 rubber rabbitbrush 40  
*Rubus* 405  
*Rumex* 364-365  
 rush 238  
 rush pink 78  
 russet buffaloberry 185  
 Russian knapweed 36  
 Russian thistle 164  
 Russian wildrye 313  
 Rydberg penstemon 436  
  
 Salina wildrye 315  
*Salix* 411-415  
*Salsola* 164  
 saltbrush 159  
*Sambucus* 148  
 sandbar willow 413  
 sandhill muhly 326  
 sand verbena 267  
 sandwort 150,151  
 sawatch knotweed 361  
*Scirpus* 183  
 scratch grass 324  
 Scribner wheatgrass 294  
 sedge 172,178  
 sego lily 250  
 selfheal 246  
*Senecio* 84-87  
 service berry 386  
 sheep fescue 316  
*Shepherdia* 184-186  
 shepherd's purse 121  
 shooting star 369  
 shrubby buckwheat 354  
 shrubby cinquefoil 398  
 showy golden eye 101  
*Silene* 154  
 silver buffaloberry 184  
 silverleafed milkvetch 196  
 silky lupine 213  
 silvery lupine 211  
 silverweed cinquefoil 395  
*Sisymbrium* 138  
*Sisyrinchium* 234  
*Sitanion* 336

- skyrocket gilia 342  
 slender beaked sedge 170  
 slender wheatgrass 297  
 slimleaf buckwheat 355  
 slimleaf goosefoot 162  
 smallwing sedge 175  
*Smilacina* 253  
 smooth brome 307  
 smooth horsetail 188  
 snakeweed 64  
 snowball 267  
 snowberry 149  
*Solanum* 440  
*Solidago* 88-91  
 squaw apple 394  
 squawbush 4  
 squirreltail 336  
*Sphaeralcea* 265,266  
 spike-rush 181  
 sporobolus 337  
 spreading daisy 55  
 spreading phlox 348  
 spurge 191,192  
*Stanleya* 139  
 star lily 252  
 star wort 156  
*Stellaria* 155,156  
 stemless hymenoxys 72  
*Stephanomeria* 92  
 stickseed 115  
*Stipa* 338-340  
*Stiporyzopsis* 341  
*Streptanthus* 140  
 striped corallroot 279  
 subalpine whitlograss 127  
 subalpine reedgrass 309  
 subalpine sedge 177  
 sulfurflowered buckwheat 359  
 sumpweed 74  
 sunflower 67  
 sweet pea 208  
*Swertia* 228  
*Symphoricarpos* 149  
  
 tamarisk 441  
*Tamarix* 441  
*Tanacetum* 93  
 tansy mustard 124-126  
*Taraxacum* 94  
*Tetradymia* 95  
*Thalictrum* 383  
*Thelypodium* 141  
 thelypody 141  
 thickstem aster 32  
 thickspike wheatgrass 293  
 thistle 45,46  
*Thlaspi* 142  
 thorn skeletonweed 79  
 three-awn 300  
 timothy 330  
 toad rush 236  
 Torrey milkvetch 198  
 Torrey rush 239  
*Townsendia* 96-98  
  
*Tragopogon* 99  
 trailing fleabane 57  
*Trifolium* 221  
*Triglochin* 240,241  
 tufted evening primrose 273  
 tufted sand verbena 268  
 tumble mustard 138  
 tumbleweed amaranth 3  
 twinpod 136,137  
 twistflower 140  
 two-grooved milkvetch 197  
  
 Utah juniper 168  
 Utah penstemon 437  
 Utah trefoil 209  
  
 valerian 442  
*Valeriana* 442,443  
*Verbascum* 438  
*Verbena* 444  
*Verbesina* 100  
*Veronica* 439  
 vervain 444  
*Vicia* 222  
*Viguiera* 101  
*Viola* 445  
 viviparous knotweed 363  
  
 water birch 104  
 wavyleaf thistle 48  
 wax currant 420  
 weedy milkvetch 205  
 western aster 33  
 western hawk's beard 50  
 western wallflower 128  
 western wheatgrass 295  
 western virgin's bower 377  
 white clover 221  
 white fir 283  
 wild cabbage 122  
 wild geranium 230  
 wild lettuce 75  
 wild onion 247,248  
 wild rose 404  
 wild raspberry 405  
 wild strawberry 391  
 willow-weed 269  
 winged buckwheat 353  
 winterfat 163  
 wire lettuce 92  
 wire rush 235  
 woodland star 417  
 wooly arnica 21  
 Wyoming paintbrush 422  
  
 yarrow 13  
 yellow beeplant 147  
 yellow evening primrose 275  
 yellow flax 258  
 yellow owlclover 427  
 yellow sweet clover 216  
 Yucca 254,255  
  
*Zigadenus* 256