PLANTS OF GRAND CANYON NATIONAL PARK

W.B. MacDougall

Revised Checklist

Grand Canyon Natural History Association
Grand Canyon, Arizona.
This bulletin is published by the Grand Canyon Natural History Association as a part of its policy to stimulate interest, encourage scientific research and to catalog the natural science and historical resources of Grand Canyon National Park.

It is Number 10 of a series of bulletins published as occasional papers as material and manuscripts are made available, and when bulletins need revision due to the accumulation of new facts and added material.

In reference to this bulletin it should be noted that while the "Standardized Plant Names" was closely followed for scientific names, not all the popular names given in that work are here included. Furthermore in a few instances common names which have a long standing local usage and not listed in "Standard Plant Names" have been incorporated.

Consult the United States Geological Survey's topographic map of Grand Canyon National Park, Arizona (East and West Halves) for localities mentioned in this work.

Bulletin Number 11, "Butterflies of Grand Canyon National Park" is now in preparation and should be ready for publication after the collecting season, sometime in the Fall of 1947.

Louis Schellbach, III
Editor and Exec. Sec'y.
CHECKLIST OF PLANTS
OF
GRAND CANYON NATIONAL PARK

By
W. B. MacDougall
National Park Service

Bulletin No. 10.

Grand Canyon, Arizona
GRAND CANYON NATIONAL HISTORY ASSOCIATION
1947
ADDENDUM

The manuscript was completed up to January 1, 1946, but due to unavoidable delays final typing and editing was not completed until the end of the year.

New genera and species collected, determined and recorded during the year 1946, and added to the Grand Canyon National Park Herbarium, have been added in the form of an appendix. This should be consulted to bring the material up-to-date of January 1, 1947.

Editor.

NATURAL HISTORY BULLETINS

No. 1 - Mammals of the Grand Canyon Region..................25¢
No. 2 - History and Exploration of Grand Canyon..................15¢
No. 3 - Trees of Grand Canyon National Park..................50¢
No. 4 - Contributions to Grand Canyon Bird Study................15¢
No. 5 - Contributions to Grand Canyon Geology..................15¢
No. 6 - Checklist of Plants of Grand Canyon..................Out of print
No. 7 - Prehistoric Man of the Southwest..................25¢
No. 8 - Checklist of Birds of Grand Canyon National Park........25¢
No. 9 - Amphibians and Reptiles, Grand Canyon National Park..................25¢
No. 10 - Plants of Grand Canyon National Park..................50¢
No. 11 - Butterflies of Grand Canyon National Park

(in preparation)
THE first two editions of this checklist were issued while knowledge of the flora of the park was still very fragmentary. In an effort to make the list as complete as was reasonably possible, many species which were believed to occur in the area, but which had not actually been seen or collected, were included. For this reason it was inevitable that many errors crept into the manuscript. Since the publication of the second edition (Bull. No. 6, June, 1936) knowledge of the flora has been greatly increased, largely through the collections and studies made during the past several years by Mrs. Rose E. Collom. This increased knowledge has necessitated a new and thoroughly revised edition.

In this, the third edition of the checklist, the policy has been adopted of including only those species of plants that are represented by specimens in the Grand Canyon National Park herbarium, or for which there exists authentic evidence of collections having been made within the park boundaries. It is known that this list is still incomplete. Much more collecting will need to be done, especially in the more inaccessible portions of the park, before we can claim anything like a complete checklist. Furthermore, it is known that various individuals and institutions have collected plants within the park area in past times but have failed to make lists of such collections available to the National Park Service.

Before this revision was undertaken, letters were sent to a number of institutions known to have made collections within the park, requesting lists of such collections. The Museum of Northern Arizona was the only institution which found it possible to comply with the request at that time. This valuable aid given by the Museum of Northern Arizona is very gratefully acknowledged. More recently Dr. Thomas H. Kearney has compiled and made available to us a complete list of Grand Canyon plants in the Herbarium of the California Academy of Science. These specimens were mostly collected by Alice Eastwood or by Eastwood and Howell and their identifications have all been checked by Dr. Kearney. This list has been very helpful to us and the time and efforts expended by Dr. Kearney in order that our checklist might be as nearly complete as present knowledge permits is much appreciated.
The arrangement of the families of ferns and seed plants is that of THE FERNS AND FLOWERING PLANTS OF ARIZONA by Kearney and Peebles. Wherever there is a reference to 'Kearney and Peebles' in the text the above publication is referred to, and wherever there is a reference to 'Tidestrom and Kittell' the FLORA OF ARIZONA AND NEW MEXICO by these authors is meant. The nomenclature throughout conforms to STANDARDIZED PLANT NAMES so far as possible. In the case of species of seed plants not listed in STANDARDIZED PLANT NAMES the nomenclature is that of Kearney and Peebles. Numerals in the text preceded by Pl and enclosed in parentheses are the catalog numbers of specimens in the Grand Canyon National Park herbarium.

Misses Elzada U. Clover and Lois Jotter of the University of Michigan collected within the park boundaries in the summers of 1938 and 1939 and added many species to the known flora of the park. These species are included in the present checklist with citations of specimen numbers.

Some forty species of the plants listed here are not known to occur anywhere in Arizona outside of Grand Canyon National Park, and seven of them are not known from any other locality in the world.

Practically all of the specimens of vascular plants in the Grand Canyon National Park herbarium, upon which this list is based, were identified, or the identifications were verified, by personnel of the U. S. National Herbarium or by Dr. Thomas H. Kearney, Mr. Robert H. Peebles, both of the U. S. Department of Agriculture, or Dr. Lyman Benson formerly of the University of Arizona. In addition, Dr. Thomas H. Kearney very carefully reviewed the entire manuscript of the checklist just before its final revision and made many corrections and authentic additions to it. The macrofungi were identified by Dr. Alexander H. Smith of the University of Michigan, the lichens by Mr. Charles C. Plitt formerly of the University of Maryland or by Dr. John W. Thompson, Jr. of the University of Wisconsin, and the bryophytes by Mrs. Inez M. Haring and Dr. A. J. Grout. The help so freely given by all of these botanists is very gratefully acknowledged.

The undersigned gratefully acknowledges, also, the invaluable aid given by Mrs. Rose E. Collom in the compilation of this checklist, without which the task could scarcely have been accomplished in the time allotted to it, and the constant encouragement given by both Superintendent H. C. Bryant and Park Naturalist Louis Schellbach, which has served to make the work exceedingly pleasant throughout. The final decisions concerning each species included in the list were made by the undersigned, and he alone is responsible for any errors of scientific fact that may appear.

May, 1946

W. B. MacDougall.
Almost nothing has been done on the algae in Grand Canyon National Park. We have in the herbarium one specimen of an unidentified species of Chara. So far as we know, no other algae have been collected in the park.

Knowledge of the microfungi of the park is also almost entirely lacking. A species of Melampsorella, a rust that forms witches’ brooms on blue spruce (Picea pungens) is abundant on the North Rim, but no specific determination of it has been made. The same thing is true of a species of Valsa which forms cankers on aspen trees on the North Rim. The only microfungus for which we have a specific determination is the rust (Cronartium filamentosum) which occurs on ponderosa pine trees on both rims. Although microfungi are probably less abundant here than in many more humid regions, they offer a fertile field for investigation.

The following macrofungi were collected several years ago by Natt Dodge and were recently identified by Dr. Alexander H. Smith of the University of Michigan. They obviously constitute only a beginning of a study of the macrofungi of the park, but they represent the present state of our knowledge of this group of plants. They were collected on the North Rim. One other species of the Agaricaeae (Armillaria mellea) is known to occur in the park. It causes a root rot of coniferous trees.

**AGARICACEAE**

*Agaricus silvicola* Fr. (Pl 13 and 14)

*Amanita muscaria* (Fr.) Quel. (Pl 4)

*Amanita pantherina* (Fr.) Quel. A pale form. (Pl 15)

*Amanita Sp.* (Pl 2)

*Armillaria albolanaripes* Pk. (Pl 5)

*Amanitopsis vaginata var. livida* Pk. (Pl 6)

*Cantharellus cibarius* Fr. (Probably) (Pl 9)

*Cantharellus sp.* (Might be *C. cibarius*) (Pl 3)

*Collybia semitale* (Fr.) Quel. (Pl 11)

*Collybia velutipes* (Fr.) Quel. (Pl 20)
Hygrophorus fragrans f. pallidus Smith. (PI 18)
Hygrophorus gliocyclus Gr. (PI 17)
Hygrophorus sp. nov.? (PI 12)
Inocybe sororia Kauff. (PI 7)
Lepiota clypeolaria (Fr.) Quel. (PI 8)
Panaeolus separatus Fr. (PI 1)
Pholiota adiposa (Fr.) Quel. (PI 10)

BOLETACEAE

Boletus edulis Fr. (PI 23)
  Bright Angel Point on the North Rim. (Transparency No. 2124, 2123.)
Boletus granulatus Fr. (Yellow form) (PI 22)
Boletus pinicola (Vitt.) Rea. (PI 21)
  (Some regard this as a sub-species of B. edulis)
Boletus versipellis Fr. (PI 16)

POLYPORACEAE

Fomes pinicola (Swartz) Cooke. (PI 14)

LICHENS

LECIDEACEAE

Lecidea strobrunnea (Pam.) Schaeer. (PI 2113)
  Found on Buggeln Hill on the South Rim.
Lecidea cremata (Tayl.) Nyl. (PI 27)
  Found on fine sandy soil along the South Kaibab Trail at 3000 feet elevation.
Lecidea parasema Ach. (PI 2096)
  Found in Aspen Canyon on the South Rim.
Lecidea platycarpa Ach. (PI 2110)
  Found on Coronado Point on the South Rim.
Psora orenulata Tayl. (Pl 2121 and 2122)
Found on Toroweap Point in Grand Canyon National Monument.

Psora decipiens (Ehrh.) Ash. (Pl 2102 and 2120)
Found in Toroweap Valley in Grand Canyon National Monument, and near the sewage disposal plant on the South Rim.

Rhizocarpon geographicum (L.) Lam. and DC (Pl 2106)
Found on Coronado Point on the South Rim.

PELTIGERACEAE

Peltigera canina (L) Willd. (Pl 2112, 2115 and 2189)
Found at Dutchman Pond and ten miles south of Jacob Lake on the North Rim and in Aspen Canyon on the South Rim.

CLADONIACEAE

Cladonia chlorophaea (Floerke) Spreng f. simplex (Hoffm.) Arn. (Pl 2182, 2184, 2187 and 2188)
Found at Chick Sevey Spring, Harvey Mule Pond, and in Little Dutchman Pasture on the North Rim and in Aspen Canyon on the South Rim.

Cladonia columnae Flk.? (Pl 2099)
Found in Aspen Canyon on the South Rim.

Cladonia mitrula Tuck. (Pl 2098, 2180, 2181 and 2186)
Found at Harvey Mule Pond on the North Rim, along the North Kaibab Trail, and in Aspen Canyon on the South Rim.

Cladonia pyxidata (L.) Fr. var. chlorophaea Flk. (Pl 34)
Found with moss near De Motte Park just outside the park boundary on the North Rim.

GYROPHORACEAE

Gyrophora hirsuta (Ach.) Fr. (Pl 26)
Found on Kaibab limestone along the Hermit Trail.

LECANORACEAE

Candelariella vitellina (Ehrh.) Mull. Arg. (Pl 2109)
Found on Coronado Point on the South Rim.
Leoanora cinerea (L.) Rohling  (PI 2107)  
Found on Coronado Point on the South Rim.

**ACAROSPORACEAE**

Acarospora epilutescens Zahlbr  (PI 2123)  
Found on Toroweap Point in Grand Canyon National Monument.

Acarospora sp.  (PI 35)  
Found on fine, sandy soil on Coopopa Point on the South Rim.

**PARMELIACEAE**

Parmelia mollinscula Ach.  (PI 28)  
Found on limestone on Coopopa Point on the South Rim.

Parmelia olivacea (L.) Ach.  (PI 2092, 2094 and 2104)  
Found in Berry’s Pasture, on Yavapai Point, and in Aspen Canyon on the South Rim.

**USNEACEAE**

Ramalina celarig nearest var. subampliata Nyl.  (PI 33)  
Found on branches of trees on Bright Angel Point on the North Rim.

Ramalina fastigiata (Pers.) Ach.  (PI 2118)  
Found at Basin Spring on the North Rim.

Usnea cavernosa Tuck.  (PI 2119 and 2196)  
Found at Basin Spring on the North Rim.

Usnea florida (L.) Hoffm.  (PI 25, 2100 and 2185)  
Found on branches of trees at Yavapai Point on the South Rim.

**TELOSCHISTACEAE**

Teloschistes polycarpus (Ehrh.) Ach.  (PI 2093)  
Found in Berry’s Pasture on the South Rim.
CALOPLACACEAE

Caloplaca elegans (Link) Fries (PI 2105, 2183 and 2192)
The species was found at Yavapai Point on the South Rim and the variety trachyphylla (Tuck.) Fink was found at Coronoado Point on the South Rim and at Dragon View on the North Rim.

VERRUCARIACEAE

Staurothelie olopima Wahl. (PI 2116 and 2117)
Found on Bright Angel Point on the North Rim.

DERMATOCARPACEAE

Dermatocarpon miniatum (L.) Mann var. complicatum (Lightf.)
Fries (PI 2111)
Found on Coronado Point on the South Rim.

BRYOPHYTA (MOSSES AND LIVERWORTS)

FISSIDENTACEAE

Fissidens sublimbatus Grout (PI 1881)
Found in woods at Tip-over Spring on the North Rim.

POLYTRICACEAE

Atrichum undulatum (Hedw.) Beauv. (PI 47)
Found along the road four miles north of Grand Canyon Lodge on the North Rim.

Polytrichum juniperinum Hedw. (PI 38 and 1882 to 1887, inclusive)
Found along the road near Grand Canyon Lodge and three miles north of the Lodge on the North Rim, and at various other places.
DRTICACEAE

Ceratodon purpureus (Hedw.) Brid. (Pl 36, 37 and 1888 to 1910, inclusive)
Found at various places along the entrance road on the North Rim and occurring also on the South Rim. The form xanthopus (Sull) E.G.B. (Pl 37) was found at Point Imperial, Neal Spring, and in Little Dutchman Pasture on the North Rim.

ENCYLYPTACEAE

Encalyptus vulgaris Hedw. var. mutica Brid. (Pl 39 and 1911 to 1916, inclusive)
Found at Rowe Well and Grand View Point on the South Rim and at Point Imperial and along trails near Grand Canyon Lodge on the North Rim.

POTIACEAE

Barbula unguiculata Hedw. (Pl 50)
Found at Indian Gardens in the canyon.

Desmotodon oermus (Heuben) Byr. Eur. (Pl 1918)
Found at Cliff Springs on the North Rim.

Didymodon tophaceus (Brid.) Jur. (Pl 1917)
Found at Kanabowzite Spring on the North Rim.

Gymnostomum recurvirostrum Hedw. (Pl 1919 and 1920)
Found at Cliff Springs on the North Rim.

Husnotiella pringlei (E.G.B.) Grout. (Pl 49)
Found at the junction of the Point Imperial and Cape Royal roads on the North Rim.

Pleurochaste squarrosa (Brid.) Lindb. (Pl 1921)
Found at the forks of upper Clear Creek in the Canyon.

Pterigoneurum ovatum (Hedw.) Dix. (Pl 42)
Found along the Dripping Springs Trail on the South Rim.

Tortula muronifolia Schwaegr. (Pl 41)
Found on Bright Angel Point on the North Rim, and occurring also on the South Rim.

Tortula ruralis (Hedw.) Smith. (Pl 40 and 1923 to 1941, inclusive)
Common on both rims and in the canyon.
Weisia andrewsi Bart. (Pl 66)
Found at Rowe Well on the South Rim, and occurring also on the North Rim.

**GRIMMIACEAE**

Grimmia alpicola Hedw. (Pl 53)
Found at the junction of the Point Imperial and Cape Royal roads on the North Rim.

Grimmia apoerpe (L.) Hedw. var. atrofusc (Sch.) Husn.
(Pl 54 and 1942)
Found at the junction of the Point Imperial and Cape Royal roads on the North Rim.

Grimmia calyptrata Hook. (Pl 51)
Collected at Rowe Well on the South Rim. Fairly common on both rims.

Grimmia decipiens (Schultz) Lind. (Pl 55)
Found at Indian Gardens in the Canyon.

**FUNARIACEAE**

Funaria hygrometrica (L.) Hedw. (Pl 44 and 1943)
Found along Bright Angel Trail at 6400 feet.

Funaria mullenbergi Turn. (Pl 43) (Pl 1944)
Found at the head of Hermit Creek Canyon.

**ORTHOTRICHEACEAE**

Orthotrichum alpestre Hornsch (Pl 52 and 1945)
Found at Rowe Well on the South Rim.

**TIMMIACEAE**

Timmia austriaca Hedw. (Pl 1997)
Found in Aspen Canyon on the South Rim.

Timmia bavarica Hessl. (Pl 45 and 1946 to 1952, inclusive)
Found along the road three miles north of Grand Canyon Lodge on the North Rim.
BRYACEAE

Bryum argenteum L. var. lanatum (P.B.) Bry. Bur. (PI 56 and 1953 to 1957, inclusive)
Common on both rims.

Bryum caespiticium L. (PI 58 and 1958 to 1960, inclusive)
Found at Hull Tank on the South Rim.

Bryum gemmiparum DeNot (PI 61 and 1961)
Found at Dripping Springs in the Canyon.

Bryum cirratum Hoppe and Hornsch (PI 60)
Found at Grandview Point on the South Rim.

Bryum pellens Sw. (PI 57 and 1962)
Found one mile east of Grandview Point on the South Rim and occurring also on the North Rim.

Leptobryum pyriforme (L.) Wils. (PI 1963 to 1966, inclusive)
Found at Road Spring, Tip-over Spring, Kanabovitz Spring and Robbers Roost on the North Rim.

We know of only three liverworts that have been collected within the park boundaries. These are Frullania catalinae Evans (PI 2194) which was found at Coronado Point on the South Rim, Plagioschasma rupestris (Forst.) Steph. (PI 2193) which was found at Basin Spring on the North Rim, and Riccia fluitans L. (Clover and Jotter 4372) which was found in Havasu Canyon.

PTERIDOPHYTA (FERNS AND FERN ALLIES)

2. POLYPODIACEAE (FERN FAMILY)

ADIANTUM (Maidenhair)

Adiantum capillus-veneris L. (PI 68, 69, 70, 71 and 72)
Found in Phantom Canyon and along Bright Angel Trail in the Canyon at 3000 feet elevation and in Havasu Canyon.
CHEILANTHES (Lipfern)

Cheilanthes feel Moore (PL 73 and 74)
Found at Rowe Well and Northeast of Grandview Point on the South Rim.

Cheilanthes wootoni (PL 75)
Found along Bright Angel Trail in the Canyon at 3300 feet elevation.

CYSTOPTERIS (Bladderfern)

Cystopteris fragilis (L.) Bernh. (Brittlefern) (PL 77, 78, 79, 80, 81, 82 and 83)
Found at Robbers Roost, Neal Spring and Kanabowits Spring on the North Rim.

NOTHOLAENA (Cloakfern)

Notholaena limitanea Maxon
We have no specimen of this species but it is reported in Kearney and Peebles as occurring in Clear Creek Canyon in the park, and the 1936 edition of our checklist reports that it is found in clefts of rock on the South Rim.

Notholaena parryii D. C. Eaton (PL 84 and 85)
Found in Bright Angel Canyon and at another undesignated place in the Canyon interior at 3300 feet elevation.

Notholaena sinuata (Lag.) Kaulf. (PL 86 and 87)
Found along the South Kaibab Trail in the Canyon.

PELLAERA (Cliffbrake)

Pelleae longimuoronata Hook. (PL 88 and 89)
Found along Bright Angel Trail in the Canyon at 3500 feet elevation.

Pelleae suksdorfiana Butters (PL 90)
Found in Long Jim Canyon on the South Rim.

PTERIDIUM (Braken)

Pteridium aquilinum (L.) Kuhn var pubescens Underw. (PL 91)
Collected at Robbers Roost on the North Rim. Common at various places on the North Rim.
WOODSIA (Woodsia)

Woodsia mexicana Fee (Pl 94)
Found along Bright Angel Trail in the Canyon at 4000 feet elevation.

Woodsia oregana D. C. Eaton (Pl 95 and 96)
Found at Robbers Roost and in Kaibab Basin on the North Rim.

6. EQUISETACEAE (HORSETAIL FAMILY)

EQUISETUM (Horsetail)

Equisetum arvense L. (Pl 100)
Found at Kanabowmits Spring, near Bright Angel Spring, and 13 miles west of Point Imperial on the North Rim.

Equisetum kansasum Schaffn. (Pl 1102)
Found at Robbers Roost and near Bright Angel Spring on the North Rim.

Equisetum laevigatum A. Br. (Pl 103 and 104)
Found at Greenland Spring on the North Rim and along Bright Angel Creek in the Canyon.

7. SELAGINELLAECAE (SELAGINELLA FAMILY)

SELAGINELLA (Selaginella)

Selaginella mutica D. C. Eaton (Pl 1828 and 2178)
Found along the Hermit Trail at about 6000 feet elevation, and near Kanabowmits Spring.

Selaginella underwoodi Hieron (Pl 2222 and 2223)
Found in Kaibab Basin and Kanabowmits Valley on the North Rim.
SPERMATOPHYTA (SEED PLANTS)

1. PINACEAE (PINE FAMILY)

ABIES (Fir)

*Abies concolor* (Gordon and Glendinning) Hoopes (White Fir) (PI 106 and 107)
Common along the North Rim and on slopes just below the Rim. It also occurs in a few places just below the South Rim.

*Abies lasiocarpa* (Hook.) Nutt. (Alpine Fir) (PI 109)
Found only on the higher elevations on the North Rim.

JUNIPERUS (Juniper)

*Juniperus communis* L. var. montana Ait. (*J. sibirica* Burgsd.) (Dwarf Juniper) (PI 110 and 111)
Common at various places on the North Rim.

*Juniperus scopulorum* Sarg. (Rocky Mountain Juniper) (Rocky Mountain Whitecedar) (PI 114 and 115)
Found at the extremities of points along the edge of the canyon on the North Rim and extending down along the North Kaibab Trail to the base of the Redwall.

*Juniperus utahensis* (Engelm.) Lemmon (Utah Juniper) (PI 117, 118 and 119)
Common on both Rims.

PICEA (Spruce)

*Picea engelmannii* Parry. (Engelmann Spruce)
Common on higher parts of the North Rim.

*Picea pungens* Engelm. (Colorado Spruce, Blue Spruce)
Found at various places on the North Rim.

PINUS (Pine)

*Pinus edulis* Engelm. (Pinyon Pine) (PI 129, 130, 131, 132 and 133)
Common on both Rims.

*Pinus monophylla* Torr. and Frem. (Singleleaf Pinyon Pine)
Found in Bright Angel Canyon near Roaring Springs and in Nankoweap Basin.

*Pinus ponderosa* Douglas (Ponderosa Pine) (PI 136)
Common on both Rims.
PSEUDOTSUGA (Douglas fir)

Pseudotsuga taxifolia (Poir.) Britton (Pl 123, 124 and 125)
Common on the North Rim and in protected places below the South Rim in the upper part of the Canyon. A few trees are found just at the edge of the South Rim in several places.

2. GNETACEAE (JOINTFIR FAMILY)

EPHEDRA (Ephedra, Jointfir)

Ephedra nevadensis Wats. (Pl 138)
Found along the South Kaibab Trail at 3500 and 3700 feet elevation.

Ephedra torreyana Wats. (Pl 140)
Found along the North Kaibab Trail near Roaring Springs and in Havasu Canyon.

Ephedra viridis Coville (Pl 139, 142 and 143)
Common on the South Rim, along the trails leading into the canyon, and in Havasu Canyon.

4. SPARGANACEAE (BURREED FAMILY)

SPARGANUM (Burreed)

Sparganium simplex Huds. (Pl 146)
Found in a pond near the checking station on the North Rim.

5. NAIADACEAE (PONDWEED FAMILY)

POTAMOGETON (Pondweed)

Potamogeton diversifolius Raf. (Pl 147)
Found in a pond near Grandview Point on the South Rim.

Potamogeton foliosus Raf. var. macellus Fernald
Reported by Clover as occurring in Havasu Canyon (Clover 7187)

Potamogeton natans L. (Pl 1026)
Found at Greenland Lake on the North Rim.
7. **ALISMACEAE** (WATERPLANTAIN FAMILY)

**Alisma** (Waterplantain)

*Alisma plantago-aquatica* L. (Pl 1811 and 1812)
Found at Swamp Lake on the North Rim.

8. **GRAMINEAE** (GRASS FAMILY)

**Agropyron** (Wheatgrass)

*Agropyron pauciflorum* (Schwenk.) Hitch. (A. trachymela (Link) Maitz) (Pl 149)
Found near the railroad tracks in Grand Canyon Village on the South Rim.

*Agropyron repens* (L.) Beauv. (Quackgrass) (Pl 150)

*Agropyron smithii* Rydb. (Pl 153 and 154)
Found near the railroad tracks in Grand Canyon Village on the South Rim and at Pipe Creek in the Canyon. Reported to occur also on the North Rim. The var. *molle* (Scribn. and Smith) Jones has been collected in Grand Canyon Village near the railroad tracks.

**Agrostis** (Bentgrass)

*Agrostis scabra* Willd. (Pl 1031, 1032, 2131 and 2132)
Found at Greenland Lake, Kanabowitz Spring, Robbers Roost, in Kaibab Basin, and near the Checking Station on the North Rim.

*Agrostis verticillata* Vill. (Water Bentgrass) (Pl 161 and 162)
Found at Roaring Spring and Santa Maria Spring on the North Rim.

**Alopecurus** (Foxtail)

*Alopecurus aequalis* Sobol. (Pl 163 and 1033)
Found at Kanabowitz Spring on the North Rim.
ANDROPOGON (Bluestem)

Andropogon barbinodis Lag.
Found in Havasu Canyon (Herbarium of the Museum of Northern Arizona No. 4509)

Andropogon glomeratus (Walt) B.S.P. (Pl 2175)
Found near the mouth of Pipe Creek on the South Rim and collected by Clover and Jotter near the mouth of Bright Angel Creek.

ARISTIDA (Threeawn)

Aristida adscensionis L.
Collected by Clover and Jotter at the mouth of Bright Angel Creek (4085, 4098)

Aristida glauca (Nees) Walp. (Pl 164)
Found on Huxley Terrace in the Canyon.

Aristida longiseta Steud. (Pl 165)
Found at Pine Creek in the Canyon.

Aristida hamulosa Henr.
Found along Bright Angel Trail in the Canyon (Eastman 3756).

BLEPHARONEURON (Pine Dropseed)

Blepharoneuron tricholepis (Torr.) Nash (Pl 168)
Found in Big Spring Canyon, in Kaibab Basin and along the Cape Royal Road on the North Rim.

BOUTELOUA (Grama)

Bouteloua aristidoides (H.B.K.) Griseb.
Collected by Clover and Jotter in Havasu Canyon (4377).

Bouteloua barbata Lag. (Pl 169)
Found along the Clear Creek Trail in the Canyon.

Bouteloua curtispendula (Michx.) Torr. (Pl 170 and 171)

Bouteloua gracilis (H.B.K.) Lag. (Pl 172, 173, 174 and 175)
Found at various places on both Rims.

Bouteloua trifida Thurb. (Pl 176)
Found along the Hermit Trail at about 3800 feet elevation.
**BROMUS** (Brome)

*Bromus anomalus* Rupr. (P1 185 and 1813)
Found at Kanabowits Spring on the North Rim, and on
Bright Angel Trail.

*Bromus carinatus* Hook. and Arn. Mountain Brome (P1 2419)
Found at Kanabowits Spring on the North Rim and along
trails in the Canyon (Eastman 5799 and Eastman and Howell
1072)

*Bromus catharticus* Vahl (P1 179)
Found near El Tovar Hotel on the South Rim. Exotic.
Native to Europe.

*Bromus ciliatus* L. (P1 180, 181, 182 and 2134)
Found at Neal Spring, Roaring Spring, Big Spring Canyon
and along Transept Trail on the North Rim.

*Bromus frondosus* (Shear) Woot. and Standl. (P1 183 and 184)
Found in Big Spring Canyon and at Kanabowits Spring on
the North Rim.

*Bromus inermis* Leyss.
Found at Grand View on the South Rim (Eastman 5198)

*Bromus purpureus* L. (P1 185)
Found along the Bright Angel Trail at about 4000 feet
elevation.

*Bromus racemosus* L. (P1 186)
Found along the railroad and along roads on the South Rim.
Exotic. Native to Europe.

*Bromus rigidus* Roth (P1 188)
Found near El Tovar Hotel on the South Rim. Exotic.
Native to Europe.

*Bromus rubens* L. (P1 189, 190 and 2135)
Found along the Bright Angel Trail, especially near
Indian Gardens, and in Havasu Canyon.

*Bromus tectorum* L. (P1 191 and 2136)
Collected near El Tovar Hotel, at Hearst Ranch, and in
Havasu Canyon on the South Rim.

**CALAMAGROSTIS** (Reedgrass)

*Calamagrostis seppulorum* Jones
We have no specimen of this species but it is reported
in Kearney and Peebles as having been collected along the
Kaibab Trail to Roaring Springs. (Eastwood and Howell 7075).
Known in Arizona only from Grand Canyon.
CENCHRUS (Sandbur)

*Cenchrus pauciflorus* Benth.
Collected in Havasu Canyon by Clover and Jotter (4398).

CYNODON (Bermudagrass)

*Cynodon glomerata* (L.) Pers.

DACTYLIS (Orchardgrass)

*Dactylis glomerata* L.
Found in Havasu Canyon in meadows on the North Rim, and along trails in the Canyon. Exotic. Native to Eurasia.

DIGITARIA (Crabgrass)

*Digitaria sanguinalis* (L.) Scop.
Found in Havasu Canyon by Clover and Jotter (4404).

ECHINOCHLOA (Cockspur)

Found in Havasu Canyon by Clover and Jotter (4399).

ELYMUS (Wildrye)

*Elymus glaucescens* Buckl. (Pl 2221)
Found at Neal Springs on the North Rim.

*Elymus triticoides* Buckl.
We have no specimen of this species but it is reported in the 1936 edition of our checklist as having been found in the Canyon near Santa Maria Spring.

ERAGROSTIS (Lovegrass)

*Eragrostis diffusa* Buckl.
Found in Havasu Canyon by Clover and Jotter (4402).

FESTUCA (Fescue)

*Festuca arizonica* Vasey (Pl 192)
Found in Havasu Canyon.
Festuca dertonensis (All.) Asohers and Graebn.
  Found west of Grand Canyon Village, South Rim. (Herbarium of the Museum of Northern Arizona B5118).

Festuca octoflora Walt.
  Found at Hermit Rapids by Clover and Jotter (2238A).

Festuca ovina L. (Pl 194)
  Found in Little Park on the North Rim.

GLYCERIA (Mannagrass)

Glyceria borealis (Nash) Batchelder (Pl 1034)
  Found at Greenland Lake on the North Rim.

Glyceria striata (Lam) Hitchc. (Pl 2176)
  Found at Robbers Roost on the North Rim.

HETEROPOGON (Tanglehead)

Heteropogon contortus (L.) Beauv.
  We have no specimen of this species but it is reported in the 1936 edition of our checklist as occurring along the Clear Creek Trail in the Canyon.

HILARIA (Galleta)

Hilaria jamesi (Torr.) Benth. (Pl 198)
  Found along Pipe Creek in the Canyon.

HORDEUM (Barley)

Hordeum gussonianum Parl. (Pl 199)
  Found along the railroad tracks on the South Rim. Exotic. Native to Europe.

Hordeum jubatum L. (Pl 200, 201, and 202)
  Found near El Tovar Hotel on the South Rim and at the head of the Kaibab Trail on the North Rim.

Hordeum murinum L. (Pl 203 and 204)
  Found along the Hermit Trail at Santa Maria Spring in the Canyon.

IMPERATA (Satintail)

Imperata hookeri Rupr. (Pl 205 and 2137)
  Found along Bright Angel Trail near the Colorado River.
KOELERIA (Junegrass)

Koeleria cristata (L.) Pers. (Prairie Junegrass) (PI 206 and PI 2417)
  Found at the head of the Bright Angel Trail and near Rowe Well on the South Rim and at Neal Springs on the North Rim.

LOLIUM (Ryegrass)

Lolium perenne L.
  Found at the mouth of Bright Angel Creek by Clover and Jotter (4094) and reported in Kearney and Peebles as occurring on the Kaibab Plateau near the Canyon.

MUHLENBERGIA (Muhly)

Muhlenbergia asperifolia (Nees. & Mey.) Parodi (PI 2138)
  Found near the mouth of Pipe Creek, South Rim, and at the mouth of Bright Angel Creek.

Muhlenbergia sylvatica Torr.
  We have no specimen of this species but it is reported by Kearney and Peebles as having been collected at Grand Canyon (Tourney 169). Known in Arizona only from Grand Canyon.

Muhlenbergia wrightii Vasey (PI 213 and 214)
  Found along Milk Creek on the North Rim.

ORYZOPSIS (Ricegrass)

Oryzopsis bloomeri (Boland.) Ricker (PI 215 and 216)
  Found along the railroad tracks on the South Rim, along Pipe Creek in the Canyon, and reported by Kearney and Peebles as having been collected on a gravelly bank along the Bright Angel Trail in the Canyon (Silveus 1927). Known in Arizona only from Grand Canyon.

Oryzopsis hymenoides (Roem. and Schult.) Ricker (PI 217, 218 and 2139)
  Found in Havasu Canyon and along the railroad tracks on the South Rim, and at Cape Royal on the North Rim.

PANICUM (Witchgrass)

Panicum huashuae Ache.
  We have no specimen of this but it is reported in Kearney and Peebles as occurring along the Bright Angel Trail.
POLYPOGON (Polypogon)

Polypogon monspeliensis (L.) Desf. (Rabbitfoot polypogon)
(Pl 235 and 1843)
Found at Muav Saddle in the Canyon and at Swamp Lake on the North Rim.

SECALE (Rye)

Secale cereale L.
Found at Grandview on the South Rim (Eastman 5720). Exotic.

SETARIA (Bristlegrass)

Setaria lutescens (Weig.) Hubbard
Found in Havasu Canyon by Clover and Jotter (4396A).

Setaria macrostachya H.B.K.
Found at the mouth of Bright Angel Creek and in Havasu Canyon by Clover and Jotter (4082, 4396).

Setaria viridis (L.) Beauv.
Found in Havasu Canyon by Clover and Jotter (4397A).

SITANION (Squirreltail)

Sitanion hystrix (Nutt.) Smith (Bottlebrush) (Pl 151, 152, 238, 239, 1039 and 2141)
Found in Grand Canyon Village and eight miles east of the Village on the South Rim and at Kanabowmits Spring and Swamp Point on the North Rim.

Sitanion jubatum J. G. Smith
Found on South Kaibab Trail by Clover and Jotter (4147).

SPOROBOLUS (Dropseed)

Sporobolus cryptandrus (Torrey) Gray
Found in Havasu Canyon by Clover and Jotter (4423).

Sporobolus flexuosus (Thurb.) Rydb.
Found on Kanab Trail by Clover and Jotter (2345).
STIPA (Needlegrass)

**Stipa arida** Jones (PI 241)
Found along the Bright Angel Trail at about 4200 feet elevation.

**Stipa columbiana** Macoun var. nelsonii (Scribn.) Hitchc. (PI 242)
Found at Neals Spring on the North Rim.

**Stipa comata** Trin. and Rupr. (PI 243)
Found near the railroad tracks on the South Rim.

**Stipa coronata** Thurb.
Found on the south Kaibab Trail by Clover and Jotter (4157). The variety *depauperata* Hitchc. is reported in Kearney and Peebles as occurring along Bright Angel Trail at 5000 feet elevation.

**Stipa lobata** Swallen
We have no specimen of this species but it is reported in Kearney and Peebles as having been collected on a rocky bank along Bright Angel Trail (Silveus 1928). Known in Arizona only from Grand Canyon.

**Stipa lehmanni** Vasey (2220)
Found at Neal Springs on the North Rim.

**Stipa scribneri** Trin.
We have no specimen of this species but it is reported in Kearney and Peebles as having been collected on dry, rocky banks along the Bright Angel Trail (Hitchcock 10448) and along the Kaibab Trail to Roaring Springs (Eastwood and Howell 991). Known in Arizona only from Grand Canyon.

**Stipa speciosa** Trin. and Rupr.
Found along the south Kaibab Trail by Clover and Jotter (4131).

**Stipa temuissima** Trin.
Found in Havasu Canyon (Herbarium of the Museum of Northern Arizona, No. 4957. Apparently the first record for the state of Arizona.)

TRIODIA (Triodia)

**Triodia mutica** (Torr.) Scribn. (PI 246)
Found along the Hermit Trail in the Canyon.

**Triodia pilosa** (Buckl.) Merr. (PI 247)
Found along the Tonto Trail at Pipe Creek.
Triodia pulchella H.B.K.
Reported by Clovis and Jotter from the south Kaibab Trail, Hermit Rapids, and Havasu Canyon.

9. CYPERACEAE (SEDGE FAMILY)

CAREX (Sedge)

Carex arthropoda Olney (PI 1035)
Found at Robbers Roost on the North Rim.

Carex curatorium Stacey
Known only from the type locality which is along the Kaibab Trail to Roaring Springs in the Canyon (Eastwood and Howell 1100, 1101 and 7073). We have no specimen.

Carex festivella Mackenzie (Ovalhead Sedge) (PI 1851)
Found at Tip-over Spring on the North Rim.

Carex haydenii Olney (PI 1852)
Found at Kanabownits Spring on the North Rim.

Carex microptera Mackenzie (Smallwing Sedge)
Found at Neal Springs on the North Rim.

Carex nebraskensis Dewey (PI 248)
Found in the Kaibab Basin on the North Rim.

Carex occidentalis Bailey (PI 2219)
Found at Neal Springs on the North Rim.

Carex petasata Dewey (PI 2125)
Found near the mouth of Pipe Creek and at Hearst Ranch on the South Rim.

Carex rossi Boott
We have no specimen of this but there is a specimen in the herbarium of the California Academy of science that was collected on the North Rim (Eastman and Howell 888).

Carex rusbyi Mackenzie (PI 2128)
Found along Transept Trail and in the vicinity of Robbers Roost on the North Rim.

Carex sicatia Dewey (PI 1840 and 1841)
Found at Swamp Lake and Tip-over Spring on the North Rim.

21
Carex thurberi Dewey (PI 2126)
Found near the mouth of Pipe Creek.

Carex wootoni Mackenzie (PI 2203)
Found near the Checking Station on the North Rim.

**ELEOCHARIS** (Spikesedge, Spikerush)

*Eleocharis acicularis* (L.) Roem. and Schult. var. occidentalis
Svenson. (PI 1036)
Found near the Checking Station on the North Rim.

*Eleocharis calva* Torr. (PI 2143)
Found at Hearst Ranch on the South Rim.

*Eleocharis parishii* Britton (PI 249)
Found at Greenland Lake on the North Rim.

*Eleocharis rostellata* Torr.
We have no specimen of this species but it is reported in
Kearney and Peebles as having been collected at Grand Canyon
(Wooton 2012).

*Eleocharis radicans* (Poir.) Kunth
We have no specimen of this species but it is reported in
Kearney and Peebles as having been collected at Grand Canyon
(Tracy 363).

**FIMBRISTYLIS** (Fimbristylis)

*Fimbristylis thermalis* Wats.
We have no specimen of this species but it is reported in
Kearney and Peebles as occurring at the foot of Bright Angel
Trail in the Canyon. Known in Arizona only from Grand Canyon.

**SCIRPUS** (Bulrush)

*Scirpus olneyi* Gray (PI 2067)
Found near the mouth of Pipe Creek.

16. **JUNCACEAE** (RUSH FAMILY)

**JUNCUS** (Rush)

*Juncus acutus* L. var. sphaerocarpus Engelm.
We have no specimen of this species but it is reported in
Kearney and Peebles that the only known collection from Ari­
 zona is from the Grand Canyon (Rusby 349).
Juncus confusus Coville (Pl 2144 and 2145)  
Found at Kanabowits Spring and Robbers Roost on the North Rim.

Juncus interior Wiet. (Pl 250)  
Found at Buggeln Ranch on the South Rim. Kearney and Peebles report that variety arizonicus (Wieg.) Hermann is known from the Grand Canyon.

Juncus mertensianus Bong.  
Kearney and Peebles report that this species is known in Arizona from one collection only. This was collected from DeMotte Park which is just outside the Park boundary on the North Rim. (M. E. Jones 6056).

Juncus saximontanus Nels. (Pl 251, 2034, 2035, 2146 and 2179)  
Found at Roaring Spring on the North Kaibab Trail and in Kaibab Basin and at Robbers Roost on the North Rim. Some of our specimens are forma brunnescens (Ryd.) Hermann which is said to be the commonest rush in Arizona.

Juncus torreyi Coville  
Found at the mouth of Bright Angel Creek by Clover and Jotter (4090).

Juncus tracyi Rydb. (Pl 1850 and 2129)  
Found at Powell Saddle Spring and Cliff Springs on the North Rim. Known in Arizona only from Grand Canyon.

17. LILIACEAE (LILY FAMILY)

ALLIUM (Onion)

Allium cernuum Roth (A. neomexicanum Rydb.) (Nodding Onion) (Pl 257)  
Found in an open meadow near the North Rim Checking Station. Determined by the U. S. National Herbarium but we believe the determination is an error since the scapes are not recurved.

Allium palmeri Wats. (A. biceptrum Wats.) (Pl 258, 259 and 1818, and 255 and 256)  
Found under ponderosa pines in Long Jim Canyon, in Grand Canyon Village and farther west along the road to Havasu Canyon on the South Rim and at Kanabowits Spring on the North Rim.
ANTHERICUM (Craglily, Amberlily)

Anthericum torreyi Baker (Pl 260 and 261)
Found in the cemetery on the South Rim.

BRODIAEA (Bluedicks, Covena, Grassnuts)

Brodiaea capitata Benth. var. pauciflora Torrey (Pl 262, 263 and 264)
Found along Hermit Trail in the Canyon and in Grand Canyon National Monument.

CALOCHORTUS (Mariposa, Segolily, Mariposalily)

Calochortus nuttalli Torr. and Gray. (Pl 266, 267, 268, 269, 270, 271 and 272)
This is the typical form with whitish to blue-lavender flowers. It is common on both rims.

FRITILLARIA (Fritillary)

Fritillaria atropurpurea Nutt. (Pl 275, 276 and 2147)
Found at Grandview Point on the South Rim and along Transept Trail and several other places on the North Rim.

NOLINA (Beargrass)

Nolina bigelovii (Torr.) Wats. (Pl 2043)
Found near the Ranger Station in Grand Canyon National Monument.

Nolina microcarpa Wats. (Pl 278)
Found in Havasu Canyon. (Herbarium of the Museum of Northern Arizona, B4472).

SMILACINA (False Solomonseal)

Smilacina stellata (L.) Desf. (Starflower) (Pl 280 and 281)
Found at Cliff Springs, Rook Springs, and Robbers Roost on the North Rim and east of Grandview on the South Rim.

YUCCA (Yucca, Soapweed, Spanish-bayonet, Datil)

Yucca angustissima Engelm.
Found in Havasu Canyon. (Herbarium of the Museum of Northern Arizona, B4952).
**Yucca baccata** Torr. (Blue Yucca, Datil) (Broadleaf)
(Pl 282 and 283)
Found on both rims mostly in pinyon-juniper community.

**Yucca baileyi** Woot. and Standl. (Narrowleaf)
Common in the Canyon, especially in the blackbrush community.
ZIGADENUS (Deathcamas)

Zigadenus elegans Pursh. (PI 286 and 287)
Found at Kanabowmirt Spring and Robbers Roost on the North Rim.

18. AMARYLLIDACEAE (AMARYLLIS FAMILY)

AGAVE (Agave, Centuryplant, Mescal)

Agave utahensis Engelm. (PI 1619 and 2714)
Found on both rims and, more abundantly, in the Canyon, especially in the blackbrush community.

19. IRIDACEAE (IRIS FAMILY)

IRIS (Flag, Fleur-de-lis)

Iris missouriensis Nutt. (PI 288)
Found at Neal Spring on the North Rim.

SISYRINCHIUM (Grass, Blue-eyedgrass)

Sisyrinchium demissum Greene (1023)
Found at Kaibab Basin on the North Rim.

20. ORCHIDACEAE (ORCHID FAMILY)

CALYPSO (Calypso)

Calypso bulbosa (L) Oakes (PI 289)
Found near Farview on the North Rim.

CORALLORRHIZA (Coralroot)

Corallorhiza maculata Raf. (PI 290, 291, 292 and 1818)
Found on the North Rim near Neal Springs, at the head of the Kaibab Trail, at Point Imperial, and near Kanabowmirt Fire Tower.

Corallorhiza wisteriana Conrad (PI 1856)
Found at Robbers Roost on the North Rim.
EPIPACTIS (Helleborine)

*Epipactis gigantea* Doug. (*Serapias gigantea* (Doug.) (Eaton) (Pl 294, 1025, 1790 and 2065)

Found at Cliff Springs and Powell Spring on the North Rim and in Havasu Canyon.

GOODYERA (Rattlesnake-plantain)

*Goodyera decipiens* (Hook) Hubbard (*Peranium decipiens* Piper) (Pl 295 and 296)

Found at Greenland Lake on the North Rim.

HABENARIA (Habenaria)

*Habenaria sparsiflora* Wats. var. *laxiflora* Rydb. (Pl 297, 298, 1024, 1792 and 1793)

Found at Roaring Spring and in Powell Saddle on the North Rim.

SPIRANTHES (Ladies-tresses)

*Spiranthes romanzoffiana* Cham. (Pl 299)

Found in a meadow near Robbers Roost and in several other meadows on the North Rim.

21. SAURURACEAE (LIZARDTAIL FAMILY)

ANEMOPSIS (Yerbamansa)

*Anemopsis californica* (Nutt.) Hook. and Arn.

This species was collected at Indian Gardens in 1917 by Miss Eastwood (Eastwood 6104). Since this collection was made more than a quarter of a century ago there is some doubt as to whether the species actually occurs in the park at the present time.

22. SALICACEAE (WILLOW FAMILY)

POPULUS (Poplar, Aspen, Cottonwood)

*Populus tremuloides* Michx. var. *aurea* (Tidestrom) Daniels (Golden Quaking Aspen) (Pl 301 and 302)

Common on the North Rim. Found also in one ravine east of Grandview Point on the South Rim.
Populus fremonti S. Wats. (Fremont Poplar, Fremont Cottonwood)  
(PI 304)  
This species occurs along the banks of Bright Angel Creek, along the lower part of Bright Angel Trail, and in Havasu Canyon.

**SALIX (Willow)**

Salix bebbiana Sarg. (Bebb Willow).  (PI 306, 307 and 308)  
Found at Point Imperial, at Kanabownits Spring and at Neal Spring on the North Rim.

Salix exigua Nutt. (Coyote Willow).  (PI 310 and 311)  
Found at Phantom Ranch and along the Hermit Trail in the Canyon.

Salix goodingi Ball (Dudley Willow).  (PI 309)  
Found along the banks of Bright Angel Creek, at Cliff Spring, and at Neal Spring on the North Rim. Also near the Union Pacific Power House.

Salix laevigata Bebb var. aragruipa (Jepson) Ball  
Found at the foot of Bright Angel Trail (Eastman 6081), along the Kaibab Trail at 4150 feet (H. and V. Bailey 1206) and in Havasu Canyon (Clover 4432).

Salix souleiana Barrett (PI 2064)  
Found at Robbers Roost on the North Rim.

23. **JUGLANDACEAE (WALNUT FAMILY)**

**JUGLANS** (Walnut)

Juglans rupestris Engelm. var. major Torr.  
Found in Havasu Canyon by Clover and Jotter (4406).

24. **BETULACEAE (BIRCH FAMILY)**

**BETULA** (Birch)

Betula fontinalis Sargent (Water Birch).  (PI 314)  
Found at Bright Angel Spring and in Big Spring Canyon on the North Rim.
OSTRYA (Hophornbeam)

Ostrya knowltoni Coville (Pl 316, 317, 318, 319 and 320)
Found in Nankoweap Basin and along all of the trails leading into the Canyon.

25. FAGACEAE (BEECH FAMILY)

QUERCUS (Oak)

Quercus gambeli Nutt. (Q. utahensis) (Gambel Oak) (Rocky Mountain White Oak) (Pl 321, 322, 323, 324, 2171 and 2177)
The common white oak on both rims.

Quercus turbinella Greene (Scrub Live Oak, Scrub Oak) (Pl 325, 326, 327, 328, 329 and 330)
Found at Powell Spring and Santa Maria Spring on the North Rim and in Bright Angel Canyon and along Bright Angel and Hermit Trails; also in Havasu Canyon.

Quercus undulata Torr. (Wavyleaf Oak, Rocky Mountain Shin Oak) (Pl 331 and 332)
Found along the Kaibab Trail above Devil's Yard, at Uncle Jim Point on the North Rim and in Muav Canyon.

26. ULMACEAE (ELM FAMILY)

CELTIS (Hackberry)

Celtis reticulata Torr. (Netleaf Hackberry, Paloblancio) (Pl 333, 334, 335 and 336)
Found at Dripping Springs, in Havasu Canyon and along Bright Angel Trail.

27. MORACEAE (MULBERRY FAMILY)

MORUS (Mulberry)

Morus microphylla Buckl. (Texas Mulberry) (Pl 337)
While this species is native to all of central and southeastern Arizona, the only place it has been found in the park is in Havasu Canyon.
28. **URTICACEAE** (NETTLE FAMILY)

**URTICA** (Nettle)

*Urtica serra* Blume (*U. breueri* Wats.)

Reported from Grand Canyon in Kearney and Peebles and found at Deer Creek Falls by Clover and Jotter (2243).

**PARIETARIA** (Pellitory)

*Parietaria floridana* Nutt. (Pl 340)

Found on the South Kaibab Trail at about 4800 feet.

*Parietaria pennsylvanica* Muhl.

Reported from Grand Canyon in Kearney and Peebles and found in Havasu Canyon by Clover and Jotter (4410).

29. **LORANTHACEAE** (MISTLETOE FAMILY)

**ARCEUTHOBIIUM** (Dwarf mistletoe)

*Arceuthobium campylopodum* Engelm (Pl 341)

The form *divaricatum* (Engelm) Gill of this species is common on pinyon pine on both rims. A specimen believed to be form *microcarpum* (Engelm.) Gill was collected on Engelman spruce near the North Rim Checking Station.

**PHORADENDRON** (Mistletoe)

*Phoradendron juniperinum* Engelm.

Common on Utah juniper on both rims.

30. **SANTALACEAE** (SANDALWOOD FAMILY)

**COMANDRA** (Bastard toadflax)

*Comandra pallida* A. DC. (Pl 343, 344 and 345)

Found at the junction of the Point Imperial and Cape Royal roads and at Powell Saddle on the North Rim.
POLYGONACEAE (BUCKWHEAT FAMILY)

ERIOGONUM (Eriogonum, Wild buckwheat)

Eriogonum alatum Torr. (Wing Eriogonum) (PI 346, 347 and 1810)
Found on Huxley Terrace and at Grandview Point on the South Rim and on Powell Saddle on the North Rim.

Eriogonum arcuatum Greene (PI 352, 353 and 354)
Collected at Cape Royal, Point Sublime, and near the North Rim Checking Station. It occurs also on the South Rim.

Eriogonum aureum Jones (Golden buckwheat)
Found at Cape Royal by Clover and Jotter (4304 and 4314).

Eriogonum cognatum Greene (PI 360 and 361)
Found at several places on the North Rim. Our specimens are labeled E. stellatum Benth., but we are following both Kearney and Peebles and Tidestrom and Kittell in calling them E. cognatum, a species which is very close to E. stellatum and known only from central and northern Arizona.

Eriogonum corymbosum Benth.
Found in Havasu Canyon by Clover and Jotter (7241).

Eriogonum deflexum Torr. (Skeleton weed) (PI 357, 358 and 359)
Found in Long Jim Canyon and in Pasture Wash on the South Rim. Also at Indian Gardens.

Eriogonum flavum Nutt.
We have no specimen of this species but it is reported in Kearney and Peebles as occurring on the North Rim of Grand Canyon (Goodman and Hitchcock 1645, Kearney and Peebles 13896).

Eriogonum howelli Stokes var. subracemosum Stokes (PI 374)
Collected only at Grama Point but reported as common on the North Rim.

Eriogonum inflatum Torr. and Frem. (Desert trumpet, Bladder stem) (PI 363 and 2173)
Collected near the South Kaibab Trail, in Havasu Canyon, and on Clear Creek Trail.

Eriogonum ovalifolium Nutt. (PI 364 and 2044)
Collected in Slide Canyon on the North Rim and said to occur on several rocky points on that rim. Also found in Toroweap Valley.
Eriogonum polifolium Benth. (E. fasciculatum var. polifolium (Benth.) Torr. and Gray) (Pl 365 and 366)

Our herbarium specimens are from Grand Canyon National Monument but the species is said to be quite common on rocky points on the North Rim.

Eriogonum racemosum Nutt. (Redroot Eriogonum) (Pl 367, 368 and 369)

Collected at Point Sublime, Cape Royal and near the Government Employees' Camp on the North Rim but occurs also on the South Rim.

Eriogonum simpsoni Benth. (Pl 370, 371 and 373)

Found at Point Imperial and Point Sublime on the North Rim and at Yaki Point on the South Rim.

Eriogonum wrightii Torr. (Pl 375 and 376)

Found at Waterloo Hill and Pasture Wash on the South Rim.

Eriogonum zionis J. T. Howell var. coccineum J. T. Howell (Pl 377 and 378, 1822 and 1823)

Found at Point Sublime on the North Rim and near Bass Camp on the South Rim. Dr. J. T. Howell states as follows concerning this species: "The scarlet-flowered variety of Eriogonum zionis is at present known only from the rim rocks of the Grand Canyon where it is a rare plant. The species, which has greenish-yellow flowers, seems to be equally rare and is apparently restricted to Zion National Park in southern Utah."

POLYGONUM (Knotweed, Smartweed)

Polygonum aviculare L. (Pl 379 and 380)

Exotic. Found at Neal Spring on the North Rim and in Havasu Canyon.

Polygonum bistortoides Pursh (Pl 381)

Found near the North Rim Checking Station.

Polygonum douglasii Greene (Pl 382 and 2059)

Found in DeMotte Park near the north park boundary and at Robbers Roost.

Polygonum sawatchense Small (Pl 383 and 384)

Found at Neal Spring on the North Rim and at Hull Tank and Trash Tank on the South Rim.

Polygonum watsoni Small (Pl 385)

Found in DeMotte Park near the north park boundary.
PTEROSTEGIA (Pterostegia)

Pterostegia drymarioides Fisch. and Meyer
Found in Havasu Canyon by Clover and Jotter (6300A).

RUMEX (Dock, Sorrel)

Rumex acetosella L. (Sheep Sorrel) (Pl 386)
Exotic. Found near the North Rim Checking Station and in Kaibab Basin on the North Rim.

Rumex altissimus Wood (Pl 387)
Found at Greenland Lake on the North Rim.

Rumex californicus Rech. f. (Pl 391)
Found near the checking on the North Rim.

Rumex hymenosepalus Torr. (Canaigre, Wildhubarb) (Pl 388 and 389)
Found in Grand Canyon National Monument.

Rumex mexicanus Meisn. (Pl 390, 393 and 2061)
Found near the North Rim Checking Station, at Neal Spring, and at Robbers Roost on the North Rim.

Rumex triangulivalvis (Danser) Rech. f. (Pl 392 and 1846)
Found at Swamp Lake and Neal Spring on the North Rim.

34. CHENOPODIACEAE (GOOSEFOOT FAMILY)

ATRIPLEX (Saltbush)

Atriplex canescens (Pursh) Nutt. (Fourwingsaltbush) (Pl 394 to 401, inclusive)
Found at Phantom Ranch, along Bright Angel Trail, in Pasture Wash, along the road to Hilltop, in Havasu Canyon and along Shinumo Creek.

CHENOPODIUM (Goosefoot)

Chenopodium album L. (Lambsquarters) (Pl 403 and 404)
Exotic. Found in Big Spring Canyon and in a few waste places and along roads on the North Rim.

Chenopodium capitatum (L.) Asch. (Pl 406)
Found at Neal Spring on the North Rim.

Chenopodium fremontii S. Wats.
Found at Hilltop (Herbarium of the Museum of Northern Arizona, B4386), and in Havasu Canyon (Clover).
Chenopodium hians Standl.*
   Found along the North Kaibab Trail (Eastman and Howell 7101).

Chenopodium incisum Poir. (C. cormatum (Torr.) Benth. and Hook.) (Pl 405)

Chenopodium incanum (Wats.) Heller
   Found in Havasu Canyon. (Herbarium of the Museum of Northern Arizona, 4976).

Chenopodium murale L.
   Found in Havasu Canyon. (Herbarium of the Museum of Northern Arizona, B4975).

Chenopodium rubrum L. (Pl 406)
   Probably exotic. Found at Neal Spring on the North Rim.

EUROTIA (Winterfat)

Eurotia lanata (Pursh) Moq. (Pl 407 and 408)
   Found in Pasture Wash on the South Rim, and also on Great Thumb.

GRAYIA (Hopsage)

Grayia spinosa (Hook.) Moq. (Pl 409)
   Found in Grand Canyon National Monument.

SALSOLA (Russianthistle)

Salsola kali L. var. temuifolia Tausch (S. pestifer A. Nels.) (Tumbling Russianthistle) (Pl 410)
   Found in Pasture Wash and in Grand Canyon National Monument. Also in waste places in Grand Canyon Village.

35. AMARANTHACEAE (AMARANTH FAMILY)

AMARANTHUS (Amaranth, Pigweed)

Amaranthus hybridus L. (Pl 411)
   Found in Havasu Canyon.

Amaranthus blitoides Wats.
   Found in Havasu Canyon by Clover and Jotter (4408A).
Amaranthus powelli Wats.
   Found in Havasu Canyon by Clover and Jotter (4406A).

36. NYCTAGINACEAE (FOUR-O'CLOCK FAMILY)

ABRONIA (Sandverbena)

Abronia nana Wats. (Pl 412 and 413)
   Found along the Hermit Trail and along the Kaibab Trail
   at about 3000 feet elevation.

Abronia pumula Rydb. (Pl 414)
   Found along the Bright Angel Trail near the river.

ALLIONIA (Allionia)

Allionia incarnata L. (Trailing-four-o'clock) (Pl 415,
   416, 417, 418 and 419)
   Quite common in the lower part of the Canyon and also in
   Havasu Canyon.

ANULOCaulIS (Amuloaulis)

Anulooaulls leisolenus (Torr.) Standi.
   Found in Havasu Canyon by Clover (Clover 6464 and 7217).

BOERHAAVIA (Spiderling)

Boerhaavia coulteri (Hook. f.) Wats. (Pl 421)
   Found in Havasu Canyon.

Boerhaavia wrighti Gray (Pl 422)
   Found along the lower part of Bright Angel Trail and at
   Phantom Ranch in the Canyon.

Boerhaavia torreyana (Wats.) Standl.
   Found in Havasu Canyon by Clover and Jotter (4386).
MIRABILIS (Four-o’clock)

Mirabilis bigelovii Gray (Heller) Munz (Pl 423 and 2151)
Found at Phantom Ranch in the Canyon.

Mirabilis multiflora (Torr.) Gray (Pl 424, 425, 426 and 427)
Found in Pasture Wash, in Havasu Canyon, along Bright Angel Trail, and on Mormon Flat along the Kaibab Trail.

OXYBAPHUS (Oxybaphus)

Oxybaphus linearis (Pursh) Robinson (Pl 420)
Found at Rowe Well and in Pasture Wash on the South Rim and at Phantom Ranch in the Canyon.

38. AIZOACEAE (AIZOON FAMILY)

TRIANTHEMA (Horse-purslane)

Trianthema portulacastrum L.
Found in Havasu Canyon by Clover (Clover 7164).

39. PORTULACACEAE (PORTULAC FAMILY)

CLAYTONIA (Springbeauty)

Claytonia rosea Rydb. (Pl 429 and 430 and 1045)
Found under pines on Buggeln Hill on the South Rim.

LEWISIA (Lewisia)

Lewisia pygmaea (Gray) Robinson (Pl 431, 432, 1794 and 2197)
Found in DeMotte Park just outside the north park boundary on the North Rim and also abundant on Walhalla Plateau.

Lewisia rediviva Pursh (Pl 1795)
Found along the boundary fence near the Navahopi entrance on the South Rim.

MONTIA (Indianlettuce, Minerslettuce)

Montia chamissoi (Ledeb.) Durand and Jackson (Pl 433)
Found in moist places near Kanabomits Spring on the North Rim.
Montia perfoliata (Donn) Howell (PI 1864)
Found along Bright Angel Trail in the Canyon.

40. CARYOPHYLLACEAE (PINK FAMILY)

ARENARIA (Sandwort)

Arenaria aduleata Wats. (PI 434, 435, 436 and 437)
Found near the North Rim Checking Station and at Robbers Roost on the North Rim as well as at Grandview on the South Rim.

Arenaria confusa Rydb. (PI 438, 439 and 440)
Found near Neal Spring and in other meadows on the North Rim, and in Long Jim Canyon on the South Rim.

Arenaria eastwoodiae Rydb. (PI 441)
Found near Milk Creek on the North Rim and at Grandview Point on the South Rim.

Arenaria fendleri Gray. (PI 442)
Found at Swamp Lake on the North Rim.

CERASTIUM (Mouseear Chickweed, Powderhorn)

Cerastium arvense L. (PI 443 and 1817)
Found near the North Rim Checking Station.

SILENE (Catchfly, Campion)

Silene menziesi Hook.
We have no specimen of this but it was collected at Greenland Lake on the North Rim in 1939 by Mrs. Collom.

Silene pringlei Wats. (PI 444 and 445 and 446)
Found at Greenland Lake, Robbers Roost, near Point Sublime, and on Powell Plateau on the North Rim, and 200 feet below Hermit Rest Point on the South Rim.

Silene retiramea Robinson
We have no specimen of this species. The species is known only from the type collection which was obtained on the South Rim of Grand Canyon (Macdougal 181).
STELLARIA (Starwort, Chickweed)

Stellaria jamesiana Torr. (Pl 447, 448, 449, 450, 451 and 452)
Found at Greenland Lake, Robbers Roost, Thompson Canyon, and near Cape Royal on the North Rim.

Stellaria nitens Nutt.
Found along the Hermit Trail (Eastman 6059A).

42. RANUNCULACEAE (CROWFOOT FAMILY)

ACONITUM (Monkshood)

Aconitum columbianum Nutt. (Pl 496)
Found at Kanabowits Spring on the North Rim.

ANEMONE (Anemone)

Anemone tuberosa Rydb. (Pl 453, 454, 455, 456 and 457)
Found along Hermit Trail and in Bright Angel Canyon.

AQUILEGIA (Columbine)

Aquilegia coerulea James (Pl 458, 459, 460, 461, 462 and 465)
Collected at Neal Spring and known to occur at other places on the North Rim.

Aquilegia coerulea James var. pinetorum (Tidestrom) Payson (Pl 464 and 465)
Found at Greenland Spring, Neal Spring and near Little Dutchman Pasture on the North Rim.

Aquilegia chrysantha Gray (Pl 466 and 467)
Found along the Bright Angel Trail at about 3000 feet elevation and at Ribbon Falls.

Aquilegia trilobata Payson (Pl 468)
Found at Ribbon Falls in the Canyon and in Long Jim Canyon on the South Rim.

CALTHA (Marshmarigold)

Caltha leptosepala DC. (Pl 1820, 2089 and 2090)
Found at Swamp Lake on the North Rim.
CLEMATIS (Clematis)

*Clematis douglasi* Hook. (*C. hirsutissima* Pursh.) (PI 471, 472, 473, 474 and 1789)
Not uncomman in open meadows on the North Rim.

*Clematis eriophora* Rydb. (PI 474)
We have one specimen collected somewhere on the North Rim in 1933, exact location unknown.

*Clematis ligusticifolia* Nutt. (Virgin's Bower) (PI 475, 476, 477, 478, 479, 480, 481 and 482)
Found near Powell Spring and along the Cape Royal Road on the North Rim and in Bass Canyon and Havasu Canyon on the South Rim.

*Clematis pseudoalpina* (Kuntze) Nels. (PI 483 and 484)
Found along the Kaibab Trail below the North Rim.

DELPHINIUM (Larkspur)

*Delphinium amabile* Tidestrom. (PI 485, 486 and 487)
Found along Pipe Creek on the South Rim and near Neal Spring on the North Rim.

*Delphinium mensiesi* DC. (*D. pinetorum* Tidestrom) (*D. nelsoni* Greene) (PI 488, 489, 497, 1800, 2205 and 2206)
Found near the Checking Station and on Walhalla Plateau on the North Rim and on Buggein Hill and at Hearst Ranch on the South Rim.

*Delphinium soaposum* Greene (PI 490, 491, 492, 493, 494 and 495)
Found along the Bright Angel Trail in the Canyon and along Kanab Creek, near Two River Junction, on Point Sublime, and near the public garage on the North Rim.

RANUNCULUS (Buttercup)

*Ranunculus bongardi* Greene var. *tenellus* (Nutt.) Greene (PI 498 and 499)
Found at Kanabomnits Spring and Neal Spring on the North Rim.

*Ranunculus cardiophyllus* Hook. (PI 501 to 508 and 514 to 519, inclusive)
Found at Point Sublime, near the North Entrance and at other places on the North Rim. Specimens 514 to 519 are variety *subsaagittatus* (Gray) Benson.
Ranunculus collomae Benson (PI 500, 509, 510, 2156 and 2157)
Found on Buggeln Hill on the South Rim, and in V. T. Meadow and at Greenland Lake on the North Rim.

Ranunculus flammula L. var. ovalis Benson (PI 1796 and 2158)
Found at V. T. Ranch Meadow north of the Park Boundary on the North Rim and at Greenland Lake.

Ranunculus glaberrimus Hook.
This species was collected somewhere on the North Rim by McHenry (McHenry 2076, according to Kearney and Peebles) but we have no specimen in the herbarium and the species is not known to occur elsewhere in Arizona.

Ranunculus inamoenus Greene (PI 511, 512 and 513)
Found at Kanabownits Spring and in DeMotte Park on the North Rim.

THALICTRUM (Meadowrue)
Thalictrum fendleri Engelm. (PI 520, 521, 522, 523, 524, 525, 526 and 527)
Found in Thompson Canyon and at Kanabownits Spring, Neal Spring, and Greenland Lake on the North Rim and known to occur in other moist places on both rims.

45. BERBERIDACEAE (BARBERRY FAMILY)

MAHONIA (Mahonia)
Mahonia fremontii (Torr.) Fedde (Berberis fremontii Torr.) (Fremont Mahonia) (PI 528 and 529)
Found south of Rowe Well on the South Rim and along Bright Angel Trail in the Canyon.

Mahonia repens (Lindl.) Don (Berberis repens Lindl.) (Creeping Mahonia, Oregongrape) (PI 530, 531, 532, 533 and 534)
Found along the Bright Angel and Kaibab Trails, along the Cape Royal Road on the North Rim, and at Shoshone Point and in the vicinity of Long Jim Canyon on the South Rim.
45. **PAPAVERACEAE** (POPPY FAMILY)

**ARGEMONE** (Pricklepoppy, Thistlepoppy)

*Argemone platyoeras* Link and Otto (Pl 535, 536 and 537)
Found along Bright Angel and Kaibab Trails and on Moran Point on the South Rim. The variety *hispida* gray was found along the Hermit Trail (Eastman 5882).

**CORYDALIS** (Corydalis)

*Corydalis aurea* Willd. (*Capnoides aureum* Kuntze.)
(Pl 538, 539, 540 and 541)
Found at Yavapai Point and along the South Entrance Road on the South Rim and at several places on the North Rim. Also on Bright Angel Trail in the Canyon.

46. **CRUCIFERAE** (MUSTARD FAMILY)

**ARABIS** (Rockcress)

*Arabis fendleri* (Wats.) Greene (Pl 542 and 543)
Found at Hermit Rest and along the Hermit Trail.

*Arabis glabra* (L.) Bernh. (*Towermustard*). (Pl 544)
Found at Robbers Roost on the North Rim.

*Arabis gracilipes* Greene (Pl 2207)
Found near Grand Canyon Lodge on Bright Angel Point.

*Arabis perennans* Wats. (Pl 545, 546, 547 and 548)
Found at Yavapai Point and Grandview Point on the South Rim and at Roaring Springs in Bright Angel Canyon.

*Arabis pulchra* Jones var. *pallens* Jones (Pl 2050)
Found along the Kaibab Trail.

**ATHYSANUS**

*Athysanus pusillus* (Hook.) Greene
Found along Hermit Creek (Eastman 6008).

**CAMELINA** (Falseflax)

*Camelina microcarpa* Andr.
Found at Grandview on the South Rim (Eastman 5805).

**CAULANTHUS** (Wildcabbage)

*Caulanthus crassicaulis* (Torr.) Wats. (Pl 1869)
Found at Shoshone Point on the South Rim.
DESCURAINIA (Tansymustard)

Descurainia californica (Gray) Schulz (Pl 549, 555 and 559)
Found at Neal Spring on the North Rim.

Descurainia longipediaellata (Howell) (Sophia filipes (Gray) Heller) (Pl 550)
Found along the Hermit Trail.

Descurainia halictorum Cockerell. (Pl 550 and 551)
Found near the Wayside Museum of Archaeology on the South Rim.

Descurainia incisa (Engeln.) Britt. (Sophia incisa (Engeln.) Greene) (Pl 552, 553, 554 and 556)
Found at Greenland Lake, Neal Spring and Cliff Spring on the North Rim.

Descurainia obtusa (Greene) Schulz (Pl 558)
Found in Long Jim Canyon on the South Rim.

Descurainia pinnata (Walt.) Britton
Subspecies halictorum (Ckll.) Detling was found near El Tovar Hotel in 1916 and subspecies ochroleuca was found along Hermit Creek (Eastman 6070A).

Descurainia sophia (L.) Webb (Pl 557)

DRABA (Draba, Whiteflowerwort)

Draba asprella Greene (Pl 560, 561, 562 and 563)
Found at Neal Spring and in Powell Saddle on the North Rim. Var. kalbensis is reported by Kearney and Peebles as having been collected at Grand Canyon by Cottam (Cottam 2650).

Draba cuneifolia Nutt. (Pl 1865)
Found at the junction of the Yavapai Point road with Highway 64 on the South Rim.

Draba rectifructa Hitchc. (Pl 564)
Found at Robbers Roost on the North Rim.

ERYSIMUM (Erysimum, Western Wallflower)

Erysimum capitatum (Dougl.) Greene (Pl 565, 566 and 573)
Found at Yavapai Point and in Long Jim Canyon on the South Rim, and at Neal Springs on the North Rim.

Erysimum elatum Nutt. (Pl 567, 568, 569, 570 and 571)
Found in Long Jim Canyon and in Grand Canyon Village on the South Rim as well as along Hermit Trail, and also at Greenland Lake on the North Rim.
Erysimum oblanoeolatum Rydb. (Pl 2074, 2075, 2076 and 2077)
Found at Greenland Spring and elsewhere on the North Rim.

Erysimum repandum L. (Pl 572)
Found along the south Kaibab Trail.

**HESPERIDANTHUS** (Hesperidanthus)

Hesperidanthus linearifolius (Gray) Rydb. (Pl 574, 575, 576, 514, 615 and 2078)
Found in Long Jim Canyon on the South Rim, and at Greenland Lake, Ribbon Falls and Cape Royal on the North Rim.

**LEPIDIUM** (Pepperweed, Peppergrass)

Lepidium lasiocarpum Nutt.
Found along Hermit Creek (Eastman 5959)

Lepidium montanum Nutt. (Pl 577, 578, 579, 1877 and 2161)
Found in Toroweap Valley, Grand Canyon National Monument. The first three specimens are var. jonesi (Rydb.) Hitchc. While the last two are var. glabrum Hitchc.

Lepidium perfoliatum L.
Found at Grandview on the South Rim (Eastman 5809).

**LESQUERELLA** (Bladderpod)

Lesquerella arizonica Wats. (Pl 580, 581, 582, 583, 584, 585, 586 and 587)
Found in Long Jim Canyon and in Grand Canyon Village on the South Rim, along Hermit Trail in the Canyon, and in Slide Canyon and Grand Canyon National Monument on the North Rim.

Lesquerella intermedia (Wats.) Heller (Pl 588)
Found at Yavapai Point on the South Rim.

Lesquerella purpurea (Gray) Wats. (Pl 589 and 590)
Found at Hermit Rest on the South Rim and along the Hermit and Kaibab Trails and at Phantom Ranch in the Canyon.

**PHYSARIA** (Twinpod)

Physaria chambersi Rollins
Found along the North Kaibab Trail (Eastman and Howell 1028)
RORIPPA (Rorippa)

Rorippa nasturtium-aquaticum (L) Schinz and Thell. (Watercress) (Pl 591, 592, 593 and 594)
Found along Bright Angel Trail and at Phantom Ranch in the Canyon.

Rorippa obtusa (Nutt.) Britton (Fieldcress) (Pl 595 and 1809)
Found at Neal Spring and Swamp Lake on the North Rim.

Rorippa palustris Besser (R. islandica (Oeder) Borbas) (Marshoress) (Pl 596)
Found at Kanabownts Spring on the North Rim.

Rorippa sphaeroarpa (Gray) Britton (Pl 597)
Found at Kanabownts Spring on the North Rim.

SISYMBRIUM

Sisymbrium altissimum L. (Tumblemustard) (Pl 598 and 599)
Found at Hull Tank on the South Rim and along the Kaibab Trail in the Canyon.

Sisymbrium irio L. Exotic
Found in Havasu Canyon by Clover (Clover 6425), and along Hermit Trail (Eastman 5960).

STANLEYA (Princesplume, Desertplume)

Stanleya pinnata (Pursh.) Britton (S. arquata rydb.) (Pl 600 to 610, inclusive)
Found along the Bright Angel Trail and the Kaibab Trail, both North and South, and in Havasu Canyon.

STREPTANTHUS (Twistflower)

Streptanthus cordatus Nutt. (Pl 612 and 613)
Found at Hermit Rest on the South Rim and along the South Kaibab Trail.

THELYPODIUM (Thelypody)

Thelypodium integrifolium (Nutt.) Engl.
Found at the foot of Bright Angel Trail (Wolf 3180).

Thelypodium wrighti Gray (Pl 616 and 617)
Found at Havasu Canyon and reported in the 1936 edition of our checklist as occurring at Grandview Point on the South Rim.

Thelypodium rhomboideum Rydb.
Found in Havasu Canyon by Clover (Clover 4379).
THLASPI (Pennycress)

*Thlaspi fendleri* Gray (*T. purpurascens* Rydb.)

(PI 618, 619, 620, 621, 622 and 623)

Found at Buggeln Hill on the South Rim and at Robbers Roost, Thompson Canyon and near the Checking Station on the North Rim.

THYSANOCARPUS

*Thysanocarpus laciniatus* Nutt. var. crenatus (Nutt.) Brewer

Found along Hermit Creek (Eastman 5955).

47. CAPPARIDACEAE (CAPER FAMILY)

CLEOME (Spiderflower, Rocky Mountain Beeplant)

*Cleome serrulata* Pursh (PI 624)

Collected in Grand Canyon Village and known to occur in other places on both rims.

*Cleome lutea* Hook. (Yellow Spiderflower)

Found in Havasu Canyon by Clover and Jotter (4381 and 4395).

49. CRASSULACEAE (ORPINE FAMILY)

SEDUM (Stonecrop)

*Sedum stenopetalum* Pursh (PI 625 and 626)

Found west of the old Checking Station on the North Rim.

50. SAXIFRAGACEAE (SAXIFRAGE FAMILY)

FENDLERA (Fendlebush, Fendlerbush)

*Fendlera rupicola* Gray (PI 627, 628, 629, 630, 631, 632, 647, 650, 651, 652 and 653)

Found east of Hilltop on the South Rim, along Bright Angel Trail, and one-half mile down on the Berry Trail.

FENDLERELLA (Fendlerella)

*Fendlerella utahensis* (Wats.) Heller (PI 633, 634, 635, 636 and 637)

Found at Grandview Point on the South Rim, along Bright Angel and Kaibab Trails, and at Cape Royal on the North Rim.
HEUCHERA (Alumroot)

Heuchera parvifolia Nutt. (Pl 638)
Collected at Robbers Roost and in Little Dutchman Pasture on the North Rim, and found at Grandview Point and near Bass Camp on the South Rim. Our plants are probably variety arizonica Rosendahl et al., the type of which was collected at Grand Canyon (Eastwood 5775).

Heuchera rubescens Torr. (Pl 640, 641, 642, 643 and 644)
Found at Neal Spring, Greenland Lake, and Uncle Jim Point on the North Rim and at Grandview Point on the South Rim.

Heuchera versicolor Greene (Pl 639 and 1801)
Found along the Bright Angel and North Kaibab Trails.

LITHOPHRAGMA (Woodland Star)

Lithophragma tenella Nutt. (L. australis Rydb.)(L. bulbifera Rydb.) (Pl 645 and 646)
Found in Long Jim Canyon and four miles east of Moran Point on the South Rim.

PHILODELPHUS (Mockorange)

Philadelphus microphyllus Gray (Pl 648 and 649)
Found along Bright Angel Trail at 5500 feet and in Bass Canyon at 6500 feet. Var. argenteus (Rydb.) Kearney and Peebles (P. argenteus Rydb.) has been collected at Point Imperial on the North Rim.

Philadelphus serpyllifolius Gray (P. argyrocalyx Woot.) (Pl 650, 651, 652, 653, 654)
Found along the Hermit Trail at 5000 feet, along the Kaibab Trail at 6300 feet, and at Point Imperial and Bright Angel Point on the North Rim.

RIBES (Currant, Gooseberry)

Ribes cereum Dougl. (Wax Currant) (Pl 655, 656, 657, 658, 659 and 660)
Found at Buggeln Hill, Bass Camp, and Pasture Wash on the South Rim.

Ribes inebrians Lindl. (Squaw Currant) (Pl 661, 662, 663, 664, 665 and 666)
Found at various points along the South Rim and along the upper parts of the trails leading into the Canyon. Also at Cape Royal on the North Rim and in the upper part of Bass Canyon.
Ribes inerme Rydb. (Whitestem Gooseberry) (PI 667)
Found at Point Imperial on the North Rim.

Ribes leptanthum Gray (Gooseberry) (PI 668, 669, 670, 671, 672, 673 and 674)
Found at Neal Spring, on Bright Angel Point and on Powell Plateau on the North Rim, on Grandview Point on the South Rim, and on the upper parts of both the Bright Angel and Kaibab Trails.

Ribes montigenum McClatchie
Found at Neal Spring on the North Rim (H. and V. Bailey 1231).

Ribes velutinum Greene (Gooseberry) (PI 675 and 676)
Found at Grandview Point on the South Rim and along the Bright Angel Trail at 6500 feet elevation.

Ribes viscosissimum Pursh (PI 677 and 678)
Found at Grandview Point on the South Rim. Not known to occur elsewhere in Arizona.

SAXIFRAGA (Saxifrage)

Saxifrage rhomboidea Greene (PI 679, 680, 681 and 2079)
Found near the Checking Station on the North Rim, and at Hull Tank on the South Rim.

52. CROSSOSOMATACEAE (CROSSOSOMA FAMILY)

CROSSOSOMA (Cossosoma)

Cossosoma parviflorum Robins. and Fern.
Known only from the type specimen collected in the Grand Canyon (Gray in 1885). The type specimen shows fruit but not flowers and there is some question whether it is specifically distinct from C. bigelovii Wats. which occurs elsewhere in Arizona.

53. ROSACEAE (ROSE FAMILY)

AMELANCHIER (Serviceberry)

Amelanchier goldmani Woot. and Standl. (PI 684, 685 and 686)
Found at Kanabwntita Spring, Neal Spring, and Cape Royal on the North Rim.
Amelanchier nitens Tidestr. (Pl 2159)
Found along the Kaibab Trail.

Amelanchier polycarpa Greene (Pl 687 and 688)
Found along the Kaibab Trail from 4100 to 5500 feet, and known to occur on the North Rim. Not known to occur elsewhere in Arizona.

Amelanchier utahensis Koehne (Pl 682, 683 and 686 to 702, inclusive)
Found at Grandview and Yavapai Points on the South Rim and along the upper parts of all trails leading into the Canyon.

CERCOCARPUS (Mountain Mahogany)

Cercocarpus intricatus Wats. (Pl 703, 704, 705 and 706)
Found at Bright Angel Spring on the North Rim and at an unspecified location on the South Rim. Our specimens are mostly variety villosus Schneider (C. arizonicus Jones.)

Cercocarpus ledifolius Nutt. (Pl 707, 708, 709, 710 and 711)
Found at Bright Angel and Uncle Jim Points and at Point Imperial on the North Rim, at Grandview Point on the South Rim, and one-half mile down on the Berry Trail. Not known to occur elsewhere in Arizona.

Cercocarpus montanus Raf. (Pl 712, 713, 714, 715, 716, 717 and 718)
Found at Powell Spring on the North Rim, along the upper parts of Hermit and Berry Trails, and at Roaring Spring on the Kaibab Trail.

CHAMÆBATIARIA (Tansybush, Desert sweet, Fernbush)

Chamaebatiaria millefolium (Torr.) Maxim. (Pl 719, 720, 721 and 722)
Common on both Rims.

COLEOGYNE (Blackbrush)

Coleogyne remosissima Torr. (Pl 725, 724, 725 and 726)
Very abundant on the Tonto Shelf.

COWANIA (Cliffrose, Quininebush)

Cowania stansburiana Torr. (Pl 727 to 737, inclusive)
Common on both Rims.
FALLUGIA (Apacheplume)

Fallugia paradoxa (D. Don) Endl. (Pl 738, 739, 740, 741 and 742)
Quite common in the Canyon and occurring at various places on both Rims.

FRAGARIA (Strawberry)

Fragaria cuneifolia Nutt. (F. ovalis (Lehm.) Rydb.) (Pl 743, 744 and 745)
Found near the Checking Station on the North Rim.

GEUM (Avens)

Geum strictum Ait. (Pl 746)
Found at Neal Spring and Kanabowmints Spring on the North Rim.

HOLODISCUS (Rockspiraea, Oceanspray)

Holodiscus discolor (Pursh) Maxim. var. dumosus (Nutt.) Dippel (Pl 747, 748, 749, 750, 751 and 752)
Found at Neal Spring, Robbers Roost and near Grand Canyon Lodge on the North Rim. Var. glabrescens (Greenman) Jepson has been collected eight miles east of Grand Canyon Village on the South Rim.

POTENTILLA (Cinquefoil)

Potentilla anserina L. var. concolor Seringe (Silverweed) (Pl 753)
Found in DeMotte Park just outside the park boundary on the North Rim.

Potentilla biennis Greene
Found west of Grand Canyon Village (Herbarium of the Museum of Northern Arizona B5114). Reported from Grand Canyon by Kearney and Peebles (Tourney 96). Not known to occur elsewhere in Arizona.

Potentilla diversifolia Lehm. (Pl 754, 755, 756 and 757)
Found at Kanabowmints Spring and in a meadow near the Checking Station on the North Rim.

Potentilla hippiana Lehm. (Pl 758, 759 and 760)
Found in the meadow near the North Rim Checking Station and in Fuller Canyon on the North Rim.
Potentilla monspeliensis L. (PI 761, 762, 763 and 764)
Found at Kanabowits Spring, Neal Spring and Greenland Lake on the North Rim.

Potentilla osterhouti (Nels.) J. T. Howell (PI 777)
Found at Cliff Spring, Point Sublime, and Bright Angel Point on the North Rim.

Potentilla paradoxa Nutt. (PI 765 and 766)
Found at Cliff Spring on the North Rim. The proper identification of this species is somewhat in question.

Potentilla propinqua Rydb. (P. hippea Lehm. var. diffusa (Gray) Lehm.) (PI 767 and 768)
Found at Robbers Roost and Greenland Lake on the North Rim.

Potentilla pulcherrima Lehm. (PI 769)
Found at Kanabowits Spring on the North Rim.

Petrosym (Rookmatt)

Petrophytum caespitosum Rydb. (Spiraea caespitosa Nutt.) (PI 770, 771, 772, 773 and 774)
Common on both Rims. Var. elatior Wats. has been collected in Havasu Canyon and along Bright Angel Trail near the Colorado River.

PRUNUS (Cherry, Plum, Peach, Apricot)

Prunus fasciculata (Torr.) Gray
Found in the Canyon at Tanner Rapids and Hermit Rapids by Clover and Jotter (2296, 2298A and 2299).

Prunus virginiana L. var. demissa (Nutt.) Torr. (Chokecherry)
(PI 775 and 776)
Found at Neal Spring on the North Rim.

ROSA (Rose)

Rosa stellata Wooton (PI 778)
Reported by Kearney and Peebles as having been found on Powell Plateau on the North Rim in 1908 (Ferriss in 1908). A specimen in the Grand Canyon Herbarium collected by Hawbecker in 1935 on the Mesa Eremitia on the South Rim appears to be R. stellata var. mirifica (R. mirifica Greene). The species is not known to occur elsewhere in Arizona.
Rosa woodsii Lindl. var. fendleri (R. fendleri Crepin) (Pl 779 and 780)
Abundant on limited areas east of Grandview on the South Rim.

Rosa arizonica Rydb. (Pl 781, 782 and 783)
Found at Neal Spring and Cape Royal on the North Rim.

RUBUS (Blackberry, Raspberry)

Rubus idaeus L. var. strigosus (R. strigosus Michx var. Arizonicus (Greene) Kearney and Peebles) (Pl 784)
Collected at Bright Angel Spring on the North Rim and found at various places on the North Rim.

Rubus neomexicanus Gray (Pl 785, 786 and 787)
Found along the North Kaibab Trail and on Bright Angel Point on the North Rim.

Rubus procerus Muell (Pl 788)
Found at Indian Gardens. Exotic.

SORBUS (Mountainash)

Sorbus dumosa Greene (Pl 789 and 790)
Found at Point Imperial and at the head of Kaibab Trail on the North Rim.

54. LEGUMINOSAE (PEA FAMILY)

ACACIA (Acacia)

Acacia greggi Gray (Catclaw) (Pl 791, 792 and 793)
Found in Havasu Canyon, along Shinumo Creek, the lower part of Bright Angel Trail, and in other places in the bottom of the Canyon on both sides of the River.

AMORPHA (Amorpha)

Found at Deer Creek Falls by Clover and Jotter (2340).
ASTRAGALUS (Loco, Milkvetch, Poisonvetch, Locoweed)

Astragalus artipes Gray (PI 794 and 795)
Found in Long Jim Canyon and near the Rim three miles east of Yaki Point on the South Rim.

Astragalus amphioxys Gray (PI 796 and 2017)
Found along Pipe Creek and Hermit Rest Trail in the canyon. Specimen 2017 is the variety melanocalyx (Rydb.) Tidstrom.

Astragalus bryanti Barneby
The type specimen of this species was collected by Dr. H. C. Bryant at the head of Phantom Creek in 1939. It has also been collected at the mouth of Hermit Creek (Eastwood 5991).

Astragalus curtilobus Tidestrom (PI 798)
Found near Grandview Point on the South Rim.

Astragalus diphysus Gray (Blue Loco) (PI 799, 800 and 801)
Found at Robbers Roost, Cliff Springs and Greenland Point on the North Rim.

Astragalus hosackiae Greene (PI 802)
Found in Long Jim Canyon on the South Rim.

Astragalus humistratus Gray (PI 803, 821 and 2019)
Found along Bright Angel Trail and at Robbers Roost and Marble Flat on the North Rim. Both the varieties sonorae (Gray) Jones and tenerrimus Jones are represented among our specimens.

Astragalus impensus (Sheid.) Woot. and Standl. (PI 804 to 809, inclusive)
Found at Cape Royal and Cliff Springs on the North Rim.

Astragalus lentiginosus Dougl. (Specklepod Loco) (PI 810, 811, 2016, 2052 and 2209)
Found along the Hermit and Kaibab Trails and at Shoshone Point on the South Rim. It is also known to occur on the North Rim. The varieties mokiacensis (Gray) Young and palans Jones are represented among our specimens and the type of variety oropedi Barneby (Eastman and Howell 7064) was collected on the North Kaibab Trail.

Astragalus newberryi Gray (PI 812)
Found one-half mile east of Hermit Rest.

Astragalus nuttallianus DC. (PI 803)
Found along Bright Angel Trail.
Astragalus praelongus Sheldon (PI 1994)  
  Found at Lee Canyon on the Topooboa Trail on the South  
  Rim and in Havasu Canyon.

Astragalus purshii Dougl. (PI 812)  
  A specimen in the Grand Canyon Herbarium, collected by  
  Hawbecker in 1935 one-half mile east of Hermit Rest on the  
  South Rim is so labeled. Since this is beyond the normal  
  range of the species the specimen may have been incorrectly  
  identified.

Astragalus scoposus Gray (PI 813, 814 and 815)  
  Found along Hermit Trail and along the South Entrance  
  Road. This species is very close to A. calycosus and may not  
  be distinct from it.

Astragalus sonorae Gray var. tenerrimus (Jones) Kearney and  
  Peebles (PI 816)  
  Found in the Kaibab Basin on the North Rim.

Astragalus thompsonae Wats. (PI 817, 818, 819 and 820)  
  Found along the road leading to Rowe Well on the South  
  Rim.

Astragalus zionis Jones  
  Found at the mouth of Hermit Creek (Eastman 5993).

CASSIA (Senna)

Cassia covesi Gray (PI 822, 823, 824 and 826)  
  Found at Phantom Ranch, along Clear Creek Trail and in  
  Havasu Canyon.

CERCIS (Redbud)

Cercis occidentalis Torr. (PI 827, 828, 829, 830 and 831)  
  Found along the Bright Angel and Hermit Trails.

KRAMERIA (Krameria)

Krameria parvifolia Benth.  
  This species is reported in Kearney and Peebles as occurring  
  in the bottom of Grand Canyon and was collected there by  
  Clover and Jotter (2383).

LATHYRUS (Peavine)

Lathyrus arizonicus Britton (PI 2210)  
  Found near Bishop's Cabin on the South Rim.

52
Lathyrus graminifolius (Wats.) White (PI 832, 838, 834 and 835)
   Found along the Bright Angel and Hermit Trails.

Lathyrus eucosmus Butters and St. John (PI 836 and 1797)
   Found in Long Jim Canyon and at Yavapai Point on the South Rim.

Lathyrus parvifolius Wats. (PI 837, 839 and 2211)
   Found along the Kaibab Trail at about 7250 feet elevation.

LOTUS (Deervetch, Deerclover)

Lotus longibracteatus Rydb. (PI 840, 841 and 842)
   Found along the South Entrance Road on the South Rim and
   in Big Spring Canyon on the North Rim.

Lotus utahensis Ottley (PI 843 and 844)
   Found at Robbers Roost, Neal Spring and elsewhere on the
   North Rim.

LUPINUS (Lupine)

Lupinus brevicaulis Wats.
   Found along Bright Angel Trail (Eastman 6090).

Lupinus hilli Greene (PI 845, 846, 847 and 852)
   Found in Long Jim Canyon and near Rowe Well on the South Rim, and near the cafeteria on the North Rim.

Lupinus kingi Wats. (L. sileri Wats.) (PI 848, 849 and 850)
   Found near Cape Royal and in Kaibab Basin on the North Rim, and at Grandview Point on the South Rim.

Lupinus osterhoutianus C. P. Smith (PI 1798)
   A pink flowered variety found near the cafeteria on the North Rim.

Lupinus palmeri Pursh (PI 851, 853, 854, 855 and 856)
   Found near the park boundary east of the South Entrance highway.

MEDICAGO (Medic)

Medicago lupulina L. (Black Medic). (PI 857 and 858)
   Found at Neal Spring and Cliff Spring on the North Rim.
MELILOTUS (Sweetclover)

Melilotus alba Desr. (White Sweetclover) (PI 859, 860 and 861)
Common along the Rim Road on the South Rim and known to occur on the North Rim. Exotic. Native to Eurasia.

Melilotus officinalis (L.) Lam. (Yellow Sweetclover) (PI 862)
Collected at Greenland Lake on the North Rim and common along the Rim Road on the South Rim. Exotic. Native to Eurasia.

Melilotus indica (L) All. (PI 2208)
Found along West Rim Drive and near Rowe Well on the South Rim and in Havasu Canyon.

OXYTROPIS (Crazyweed, White Loco)

Oxytropis lamberti Pursh (O. sericea Nutt.) (PI 863 and 864)
Found in Long Jim Canyon and near Shoshone Point on the South Rim.

PETALOSTEMON (Prairieclover)

Petalostemon candidus Michx. (P. oligophyllus (Torr.) Rydb. (White Sweetclover) (PI 865, 866 and 867)
Found near Rowe Well on the South Rim and at Cape Royal and Cliff Springs on the North Rim.

Petalostemon searsiae Gray (PI 868, 869 and 870)
Found on Buggeln Hill, near the Wayside Museum of Archaeology, and in Havasu Canyon on the South Rim.

PHASEOLUS (Bean)

Phaseolus angustissimus Gray (PI 871, 872, 873 and 874)
Found near the Yavapai Road junction on the South Rim and reported in the 1936 edition of our checklist (as P. dilatatus Woot. and Standl.) as occurring in Long Jim Canyon and at Rowe Well on the South Rim.

PROSOPIS (Mesquite)

Prosopis glandulosa Torr. (P. juliflora (Swartz) DC var. glandulosa (Torr.) Cockerell) (PI 875, 876 and 878)
Found at Indian Gardens and Phantom Ranch in the Canyon and in Havasu Canyon.
PSORALEA (Sorrfpea)

Psoralea tenuiflora Pursh (Pl 879, 880, 881 and 882)

Found at Rowe Well on the South Rim and at Powell Spring and in the vicinity of Piute Point on the North Rim, and reported as occurring at Cape Royal on the North Rim.

ROBINIA (Locust)

Robinia neomexicana Gray (Pl 883, 884, 885, 886, 887 and 888)

Common on both Rims.

TRIFOLIUM (Clover)

Trifolium andinum Nutt (Pl 889 and 2164)

We have one specimen, collected at Cape Royal on the North Rim in 1929. The species is not known to occur elsewhere in Arizona.

Trifolium fendleri Greene (Pl 890)

Found at an unspecified place on the North Rim in 1933 and so identified by the U. S. National Herbarium. It looks like T. pinetorum.

Trifolium hybridum L. (Alsike Clover). (Pl 891)

Found near the Cheoking Station on the North Rim. Exotic. Native to Europe. Not known to occur elsewhere in Arizona.

Trifolium pinetorum Greene (Pl 892 and 893)

Found at Neal Spring, Fawn Spring, Greenland Lake, Robbers Roost and near Bright Angel Point on the North Rim. Also in DeMotte Park just outside the North Park Boundary.

Trifolium repens L. (White Clover) (Pl 894)

Found at Bright Angel Spring on the North Rim. Exotic. Native to Europe.

Trifolium subcaulescens Gray (Pl 895)

Found near Grandview Point on the South Rim.

VICIA (Vetch)

Vicia americana Muhr. (Pl 896 and 2212)

Found at Neal Spring and Cliff Spring on the North Rim, and near Bishop’s Cabin on the South Rim.
55. **GERANIACEAE** (GERANIUM FAMILY)

**ERODIUM** (Heronbill)

*Erodium cicutarium* (L.) L’Her. (Alfileria, Filaree).  
(P1 897, 898, 899, 900 and 1824)  
Found at Hermit’s Rest on the South Rim and along the  
Hermit Trail, at Phantom Ranch and at various places on the  
Tonto Shelf in the Canyon.

*Erodium texanum* Gray  
Found in Havasu Canyon by Clover and Jotter (6412).

**GERANIUM** (Geranium, Cranesbill)

*Geranium atrorubrum* Heller  
(P1 901, 902, 903, 904,  
905 and 906)  
Collected in Long Jim Canyon on the South Rim and at  
Kanabowmits Spring, Farview Point and along Trancept Trail on  
the North Rim. Common in ponderosa pine forests on both  
rims. Most of our specimens have glandular pubescence on the  
pedicels and sometimes on the stems and, therefore, are variety  
*furcatum* (Hanks) Kearney and Peebles (*G. furcatum* Hanks).

*Geranium richardsoni* Fisch. and Trautv.  
(P1 907, 908, 909,  
910 and 911)  
Found at Neal Spring, Greenland Lake, and Cape Royal on  
the North Rim.

57. **LINACEAE** (FLAX FAMILY)

**LINUM** (Flax)

*Linum lewisi* Pursh  
(P1 912, 913 and 914)  
Found along the Rim Road three miles east of Yaki Point,  
at Rowe Well and at Hilltop on the South Rim, and along Bright  
Angel Trail at about 4000 feet elevation in the Canyon. It  
also occurs, especially along roads, on the North Rim.

*Linum puberulum* (Engelm.) Heller  
(P1 1992 and 1996)  
Found along Topooocbya Trail and Lee Canyon on the South  
Rim and in Grand Canyon National Monument.
58. **ZYGOPHYLLACEAE** (CALTROP FAMILY)

**LARREA** (Creosotebush)

*Larrea tridentata* (DC) Coville (PI 915)

Found in the lower end of Toroweap Valley in Grand Canyon National Monument.

**TRIBULUS** (Caltrop)

*Tribulus terrestris* L. (PI 916)

Found in Havasu Canyon. Exotic. Native to southern Europe.

59. **RUTACEAE** (RUE FAMILY)

**PTELEA** (Hoptree)

*Ptelea pallida* Greene (PI 917 to 927, inclusive, and 2042 and 2051)

Found at Yaki Point on the South Rim, at Bright Angel Point on the North Rim, and along all trails leading into the Canyon.

**THAMNOSMA** (Desertrue)

*Thamnosma montana* Torr. and Frem. (Turpentine broom)

(PI 928 to 934, inclusive)

Found along Bright Angel Trail, along Pipe Creek, and in Hermit Basin in the Canyon, and in the lower end of Toroweap Valley in Grand Canyon National Monument.

62. **MALPIGHIACEAE** (MALPIGIA FAMILY)

**JANUSIA**

*Janusia gracilis* Gray (PI 929, 930 and 2172)

Found at Phantom Ranch and along Clear Creek Trail above Bright Angel Creek.
63. **POLYGALACEAE (MILKWORT FAMILY)**

**POLYGALA (Polygala, Milkwort)**

*Polygala alba* Nutt.

We have no specimen of this but the species is reported by Kearney and Peebles as occurring in the park.

64. **EUPHORBIACEAE (SPURGE FAMILY)**

**BERNARDIA (Bernardia)**

*Bernardia inoana* Morton (PL 931 to 938, inclusive, and 2066) Found along the Kaibab Trail, Clear Creek and Shinumo Creek, and in Havasu Canyon and Grand Canyon National Monument.

**DITAXIS (Ditaxis)**

*Ditaxis neomexicana* (Muell. Arg.) Heller (PL 939) Found along Clear Creek Trail above Phantom Point.

**EUPHORBIA (Euphorbia, Spurge)**

*Euphorbia arizonica* Engelm. (PL 940, 941, 942 and 943 and 2027) Found at Phantom Ranch, along the Clear Creek Trail, and at Roaring Spring on the Kaibab Trail, and known to occur also on the North Rim.

*Euphorbia fendleri* Torr. and Gray (PL 944 and 945) Found near the South Entrance Road and near Grandview Point on the South Rim and at Cape Royal on the North Rim.

*Euphorbia incisa* Engelm. (PL 948, 949, 950, 951 and 952) Found along the Pasture Wash Road on the South Rim and at Greenland Lake on the North Rim.

*Euphorbia lurida* Engelm. (PL 1876) Found at the junction of the Yavapai Point road with Highway 64 and west of Grand Canyon Village on the South Rim.

*Euphorbia palmeri* Engelm. (PL 946, 947 and 2029) Found near the park boundary east of the South Entrance Road and at Kanabownits Spring on the North Rim.
Euphorbia polyarpa Benth. var. hirtella Boise. (PI 2154)
Found along Clear Creek Trail in the Canyon.

Euphorbia revoluta Engelm.
Found along the Bright Angel Trail (Eastman 3706).

65. CALLITRICHECEAE (WATERSTARWORT FAMILY)

CALLITRICHE (Waterstarwort)

Callitriches palustris L. (PI 953)
Found at Lookout Lake outside of the park boundary on the North Rim.

67. ANACARDIACEAE (CASHEW FAMILY)

RHUS (Sumac)

Rhus trilobata Nutt. (Skunkbush, Squawbush) (PI 954, 955, 956, 957, 958, 959, 960 and 961)
Found in Bright Angel Canyon, at Indian Gardens, along Hermit Trail, in Havasu Canyon, and in Grand Canyon National Monument.

68. CELASTRACEAE (BITTERSWEET FAMILY)

CANOTIA (Canotia)

Canotia holacantha Torr. (PI 962)
Found in Havasu Canyon

FORSELLESIA (Greasebush)

Forsellesia nevadensis (Gray) Greene (PI 963 to 969, inclusive)
Found along Bright Angel Trail, on the Tonto Shelf, and in Grand Canyon National Monument.

MORTONIA (Mortonia)

Mortonia utahensis A. Nels. (M. scabrella Gray var. utahensis Coville) (PI 970)
Found in Havasu Canyon.
PACHISTIMA (PACHYSTIMA) (Pachistima, Boxleaf)

Pachistima myrsinites (Pursh) Raf. (Myrtle Boxleaf, Mountain Lover) (PI 971)
   Found at Robbers Roost on the North Rim and Powell Saddle on the North Rim.

69. ACERACEAE (MAPLE FAMILY)

ACER (Maple)

Acer glabrum Torr. (Rocky Mountain Maple) (PI 972)
   Collected on the North Kaibab Trail. The species occurs in various places along the slopes of the Kaibab Limestone on both Rims.

Acer grandidentata Nutt. (Bigtooth Maple) (PI 973, 974, 975 and 976)
   Found along the North Kaibab Trail and east of Grandview Point on the South Rim.

Acer negundo L. var. interius (Britton) Sarg. (A. interius Britton) (Box-elder) (PI 977 and 978)
   Found along the North Kaibab Trail and in Havasu Canyon.

71. RHAMNACEAE (BUCKTHORN FAMILY)

CEANOTHUS (Ceanothus)

Ceanothus fendleri Gray (Buckbrush) (PI 979 and 980)
   Found at Cape Royal and Greenland Lake on the North Rim and believed to occur also on the South Rim.

Ceanothus greggi Gray (PI 981, 982, 983 and 984)
   Found on Shoshone Point and just below Tahuta Point on the Big Thumb on the South Rim, in Powell Saddle on the North Rim, and in Grand Canyon National Monument.

Ceanothus martini M. E. Jones (PI 985, 986 and 987)
   Found at the base of Transept Trail, at the head of Roaring Springs Canyon, and at Uncle Jim Point on the North Rim.
CONDALIA (Condalia)

Condalia lycoides (Gray) Weber (Zizyphus lycoides Gray) (Lotébush) (PI 988 and 989)
Found in Havasu Canyon and reported as occurring in Shinumo Canyon and on the Great Thumb.

RHAMNUS (Buckthorn)

Rhamnus betulaefolia Greene (Birchleaf Buckthorn) (PI 990, 991, 992, 993 and 2042)
Found at Roaring Springs on the North Kaibab Trail and on both the Bright Angel Trail and the South Kaibab Trail. Also in Toroweap Valley in Grand Canyon National Monument.

VITACEAE (GRAPE FAMILY)

PARTHENOCISSUS (Creeper, Virginia creeper)

Parthenocissus vitacea (Knerr) Hitchc.
Found in Havasu Canyon by Clover and Jotter (4388).

VITIS (Grape)

Vitis arizonica Engelm. (Canyon Grape) (PI 994)
Collected at Roaring Springs and reported as occurring at other places along Bright Angel Creek, in Cataract Canyon, and in Nankoweap Basin.

MALVACEAE (MALLOW FAMILY)

ILLIAMNA (Wild-hollyhook)

Iliamna grandiflora (Ryd.) Wiggins (Phymosa grandiflora Rydb.) (PI 995)
Found in South Canyon on the Kaibab Plateau outside the north boundary of the park.

MALVA (Mallow)

Malva neglecta Wallr. (M. rotundifolia of authors. Not L.) (PI 996 and 997)
Found at Neal Spring on the North Rim, and in Grand Canyon Village and Havasu Canyon.
SIDALCEA (Checkermallow)

Sidalcea neomexicana Gray (Pl 998 and 999)
Found on the Buggeln Ranch on the South Rim.

SPHAERALCEA (Globemallow)

Sphaeralcea angustifolia (Cav.) G. Don var. cuspidata Gray
(Pl 1000)
Found at Rowe Well on the South Rim.

Sphaeralcea fendleri Gray (Pl 1001)
Found in Havasu Canyon.

Sphaeralcea grossulariaefolia (Hook. and Arn.) Rydb.
var. pedata (Torr.) Kearney (Pl 1002, 1003 and 1004)
Found along the Bright Angel and South Kaibab Trails and
in Havasu Canyon.

Sphaeralcea incana Torr. var. cuneata Kearney
Found in Havasu Canyon by Clover (Clover 165).

Sphaeralcea parvifolia Nels. (S. marginata York)
(Pl 1002 to 1009, inclusive)
Found at Yavapai Point, along the Berry Trail below
Grandview Point, in Pasture Wash, at Hilltop, in Havasu Canyon,
and at various other places on both Rims.

Sphaeralcea rusbyi Gray
Found along Hermit Trail (Eastman 6052) and along Bright
Angel Trail (Meiere in 1917).

Sphaeralcea subhastata Coulter var. oonnata Kearney
(Pl 1010 and 1011)
Found along Dripping Springs Trail.

AYENIA (Ayenia)

Ayenia pusilla L. (Pl 1012)
Found along Clear Creek Trail below Phantom Point.
76. **HYPERICACEAE** (ST. JOHN'S WORT FAMILY)

**HYPERICUM** (St. Johnswort)

*Hypericum anagalloides* Cham. and Schlecht. (PI 1013)
Found at Lookout Lake on the North Rim.

*Hypericum formosum* H. B. K. (PI 1014)
Found at Kanabowinitz Spring and in several other moist situations on the North Rim.

82. **VIOLACEAE** (VIOLET FAMILY)

**VIOLA** (Violet)

*Viola canadensis* L. (White Violet) (PI 1015, 1016 and 1788)
Found at Road Spring on the North Rim.

*Viola nephrophylla* Greene (Blue Violet) (PI 1017 and 1018)
Found at Neal Spring and Kanabowinitz Spring on the North Rim.

84. **LOASACEAE** (LOASA FAMILY)

**MENTZELIA** (Mentzelia, Stickleaf, Blazingstar)

*Mentzelia albicaulis* Dougl. (PI 1019)
Found in Grand Canyon National Monument.

*Mentzelia integra* (Jones) Tidestrom
Found along the Kaibab Trail in the Canyon (Clover 4151).

*Mentzelia multiflora* (Nutt.) Gray (*M. pumila var. multiflora* (Nutt) Urban and Gilg) (PI 1020)
Found at Point Sublime on the North Rim, in Grand Canyon Village on the South Rim, and along the South Kaibab Trail in the Canyon.

*Mentzelia rusbyi* Woot. (PI 1021)
Found on Point Sublime on the North Rim and at the Lauzon Ranch, outside the park, on the South Rim.
PETALONYX (Sandpaperplant)

**Petalonyx parryi** Gray

Found in Havasu Canyon (Clover 6463).

EUCNIDE (Rocknettle)

**Euonide urens** Parry (PI 1022 and 2161)

Found in Havasu Canyon and along the lower part of Bright Angel Trail.

85. CACTACEAE (CACTUS FAMILY)

ECHINOCACTUS (Barrelcactus)

**Echinocactus acanthodes** Lemaire (Ferocactus acanthodes Brit. and Rose) California Barrelcactus

Reported by Clover and Jotter as occurring near the Bass Cable in the Canyon and at several other localities.

**Echinocactus lecontei** Engelm. (Ferocactus lecontei Britt. and Rose) California Barrelcactus

Reported in the 1936 edition of our checklist as occurring on the Tonto Shelf in the Canyon.

ECHINOCEREUS (Hedgehogcactus)

**Echinocereus canyonesis** Clover and Jotter

Found near the Bass Cable in the Canyon. (Type, Clover and Jotter, 2317).

**Echinocereus engelmanni** (Parry) Rumphler

Found in Havasu Canyon (Clover and Jotter 4334) and at Hermit Rapids, Cape Royal and along Bright Angel Creek.

**Echinocereus fendleri** (Engelm.) Rumphler

Reported by Clover and Jotter as occurring in Havasu Canyon, at Hermit Rapids, and at the mouth of Bright Angel Creek.

**Echinocereus octacanthus** (Muhlenpfordt) Brit. and Rose

Found near Bright Angel Creek, along Hermit Creek, and two miles above Bass Cable in the Canyon. (Clover and Jotter 2303 and 2317A).
MAMMILLARIA (Fishhook Cactus, Pincushion Cactus)

*Mammillaria arizonicana* Engelm. (Coryphantha arizonicana Britt. and Rose)

Reported in the 1936 edition of our checklist as occurring both on the North Rim and in the Canyon. It is believed to occur also on the South Rim.

*Mammillaria tetrancistra* Engelm. (Phellosperma tetrancistra Britt. and Rose)

Found in Havasu Canyon (Clover and Jotter 4442) and in several places in Grand Canyon.

OPUNTIA (Pricklypear, Cholla, Cane Cactus)

*Opuntia aurea* Baxter

Found at Indian Gardens in the Canyon (Clover and Jotter 4165).

*Opuntia chlorotica* Engelm. and Bigel.

Found two miles above Bass Cable in the Canyon and in Havasu Canyon, (Clover and Jotter 2316 and 4441).

*Opuntia engelmannii* Salm-Dyck

Reported by Clover and Jotter as occurring in Havasu Canyon and at several places in Grand Canyon.

*Opuntia erinacea* Engelm.

Found at Bass Cable and in Havasu Canyon (Clover and Jotter 4434).

*Opuntia hystrixina* Engelm. and Bigel.

Reported in the 1936 edition of our checklist as having been collected in Nankoweap Basin and reported by Clover and Jotter from several places in the park.

*Opuntia mojavensis* Engelm.

Found in Havasu Canyon (Clover and Jotter 4438).

*Opuntia paeacentha* Engelm.

Found in Havasu Canyon and at Indian Gardens on Bright Angel Trail (Clover and Jotter 4167).

*Opuntia polysanthes* Haworth

Reported by Clover and Jotter as having been found at Hermit Creek and several other places in the Canyon.

*Opuntia rhodantha* Schum.

Found at Cape Royal on the North Rim (Clover and Jotter 4330).
Opuntia vaseyi (Coulter) Britt. and Rose
    Found two miles above Bass Cable in the Canyon (Clover and Jotter 2318).

Opuntia whipplei Engelm. and Bigel.
    This is the common cholla or cane cactus on both Rims.

86. **ELAEAGNACEAE** (OLEASTER FAMILY)

**SHEPHERDIA** (Buffaloberry)

Shepherdia rotundifolia Parry (Lepargyraea rotundifolia Greene) (PI 1023, 1024, 1025 and 2163)
    Found at Cape Royal on the North Rim and at Lipan Point on the South Rim. It is also known to occur at various other rocky points on both Rims.

88. **ONAGRACEAE** (EVENINGPRIMROSE FAMILY)

**EPILOBium** (Willowweed)

Epilobium adenocaulon Hausskn. (PI 1026)
    Found at Fawn Spring on the North Rim.

Epilobium alpinum L. (PI 1027 and 1028)
    Found at Milk Creek on the North Rim.

Epilobium angustifolium L. (Fireweed) (PI 1029 and 1030)
    Found at various places along roads on the North Rim.

Epilobium californiicum Hausskn. (PI 1031)
    Found at Robbers Roost on the North Rim.

Epilobium fastigiatum (Nutt.) Piper (PI 1032)
    Found at Greenland Spring on the North Rim.

Epilobium halleamum Hausskn. (E. drummondi Hausskn.) (PI 1033, 1034 and 1035)
    Found in Kaibab Basin and in DeMotte Park—just outside the north park boundary on the North Rim.

Epilobium paniculatum Nutt. (PI 1036)
    Found at Neal Spring on the North Rim.
GAURA (Gaura)

**Gaura coccinea** Nutt. (PI 1037, 1038 and 1039)
- Found at Pasture Wash on the South Rim and in Havasu Canyon.

**Gaura parviflora** Dougl. (PI 1040)
- Found in Havasu Canyon on the South Rim.

GAYOPHYTUM (Groundsmoke)

**Gayophytum nuttallii** Torr. and Gray (PI 1041, 1042, 1043, 1044 and 2031)
- Found at Hull Tank on the South Rim and at Robbers Roost and at Greenland Spring and along the road between Farview and Cape Royal on the North Rim. Some of our specimens are variety typicum Munz.

**Gayophytum ramosissimum** Torr. and Gray (PI 1045)
- Found in Fuller Canyon on the North Rim.

OENOTHERA (Eveningprimrose)

**Oenothera brevipes** Gray (PI 1046)
- Found on the South Kaibab Trail at about 5500 feet.

**Oenothera caespitosa** Nutt var. marginata (Nutt.) Munz (PI 1047, 1048 and 1049)
- Found at Pasture Wash, at Rowe Well, and along the road to Hilltop on the South Rim.

**Oenothera multijuga** Wats. var. parviflora (Wats.) Munz (PI 1050)
- Found on the South Kaibab Trail at 5000 feet.

**Oenothera coronopifolia** Torr. and Gray (PI 1051, 1052 and 1053)
- Found in Long Jim Canyon and at Trash Tank on the South Rim.

**Oenothera hartwegi** Benth. (PI 1054)
- Found in Long Jim Canyon on the South Rim.

**Oenothera hookeri** Torr. and Gray (PI 1055)
- Found at Vista Enchantment on the North Rim.

**Oenothera lavandulaefolia** Torr. and Gray (PI 1056, 1057, 1058, 1059, 1060 and 1061)
- Found at Scenic View, at Rowe Well, and along the South Entrance Road on the South Rim, and in Grand Canyon National Monument.
Oenothera longissima Rydb. (PI 1062, 1063, 1064, 1065, 1066 and 1067)
   Found along the Cape Royal Road on the North Rim and along Bright Angel Creek.

Oenothera micrantha Hornem. var. exfoliata (Nels.) Munz
   Found in Havasu Canyon by Clover and Jotter (2327 and 4384).

Oenothera multijuga Wats. (PI 1068)
   Found in Havasu Canyon.

Oenothera pallida Lindl. (PI 1069)
   Found along Bright Angel Trail at the bottom of the Canyon, and in Havasu Canyon.

91. UMBELLIFERAE (PARSLEY FAMILY)

APIUM (Celery)

Apium graveolens L. (PI 1070)

CAUCALIS (Falsecarrot)

Caucaulis microcarpa H. and A.
   Found along Hermit Creek (Eastman 5977)

CYMOPHERUS (Cymopterus)

Cymopterus purpurascens (Gray) Jones (Pl 1872 and 2201)
   Found along the east boundary fence, on Mohave Point, and on Mormon Flat near the Kaibab Trail.

LIGUSTICUM (Ligusticum, Lovage, Chuchoptate)

Ligusticum porteri Coulter and Rose (Pl 1071, 1072 and 1073)
   Found at Neal Spring and Greenland Spring on the North Rim.

LOMATIUM (Lomatium, Biscuitroot, Indianroot)

Lomatium leptocarpum (Nutt.) Coulter and Rose (Pl 2124)
   Found in the vicinity of Ariel Point on the North Rim.

Lomatium mcdougali Coulter and Rose (Pl 1074, 1075 and 1076)
   Found at Yavapai Point, in Long Jim Canyon, and one mile west of the Auto Camp on the South Rim.
OREOXIS (Oreoxis)

Oreoxis maedougali (Coult. and Rose) Rydb. (PI 1077 and 1078)
Found on the upper part of the South Kaibab Trail just below Yaki Point and on the Berry Trail just below Grandview Point. These are the only localities known for the species in Arizona.

OSMORHIZA (Sweetroot, Sweetcissely)

Osmorhiza obtusa (Coult. and Rose) Fernald. (PI 1079 and 1080)
Collected at Neal Spring and Kanabowitz Spring and reported also from Robbers Roost on the North Rim.

PERIDERIDIA (Yampa, Wildcaraway)

Perideridia gardneri (Hook. and Arn.) Mathias. (Carum gardneri Gray) (PI 1081 and 1082)
Found at Greenland Lake and Milk Creek on the North Rim.

PSEUDOCYMOPTERUS (Pseudocymopterus)

Pseudocymopterus montanus (Gray) Coult. and Rose (PI 1083, 1084 and 1085)
Found at Greenland Lake and near the Checking Station on the North Rim.

PTERYXIA (Pteryxia)

Pteryxia petraea (Jones) Coult. and Rose (PI 1086, 1087, 1088 and 1089)
Collected at Lookout Point, along the Hermit Trail, near the head of the South Kaibab Trail and known to occur at various places on both rims. Not known to occur elsewhere in Arizona.

92. CORNACEAE (DOGWOOD FAMILY)

CORNUS (Dogwood)

Cornus stolonifera Michx. (PI 1090, 1091, 1092, 1093 and 1094)
Found at Neal Spring, Greenland Spring, and near a spring on Bright Angel Point on the North Rim.
GARRYEA (Silktassel)

Garrya flavescens Wats. (PI 1095, 1096 and 1799)
Found abundantly along the Kaibab Trail from Bright Angel Point to Roaring Springs and occurs also along Bright Angel Trail.

Garrya wrighti Torr.
Found along Grandview Trail. (Eastman 5760).

94. ERICACEAE (HEATHER FAMILY)

ARCTOSTAPHYLOS (Manzanita)

Arctostaphylos patula Greene (A. platycllla Kuntze.) (PI 1097, 1098, 1099 and 1100)
Found in the vicinity of Farview Point, and along the Cape Royal Road near the north end of the Walhalla Plateau on the North Rim, and along the upper part of the North Kaibab Trail.

Arctostaphylos pungens H.B.K. (Pointleaf Manzanita) (PI 1101 to 1107, inclusive)
Found at Yaki Point on the South Rim, at Swamp Point, McKinnon Point, and Uncle Jim Point on the North Rim, and at Roaring Springs on the North Kaibab Trail.

PHYLLODOCE (Mountainheath)

Phyllodoce empetriformis (Smith) Don (PI 1108)
Collected in 1928 along the South Kaibab Trail by former Park Naturalist McKee. This is far south of the normal range of the species but the specimen was identified by the U.S. National Herbarium and seems to be authentic.

PTEROSPORA (Pinedrops)

Pterospora andromedea (Nutt.) (PI 1109, 1110 and 1111)
Collected at the junction of the Cape Royal and Point Imperial roads and found at various other places on the North Rim.

PYROLOA (Pyrola, Shinleaf)

Pyrola picta Smith (PI 1118, 1119, 1120 and 1121)
Found at Greenland Spring, at the junction of the Cape Royal and Point Imperial roads, and near the Kanabowmits Fire Tower on the North Rim.
Pyrola secunda L. (PI 1115, 1116, 1117 and 1803)
Found at Kanabownits Spring and Neal Spring on the North Rim.

Pyrola virens Schweigg. (PI 1112 and 1113)
Found at Neal Spring and Robbers Roost on the North Rim.

95. PRIMULACEAE (PRIMROSE FAMILY)

ANDROSACE (Rockjasmine)
Androsace septentrionalis L. (PI 1122, 1123 and 2218)
Found at Grandview Point and on Buggeln Hill on the South Rim and at Greenland Spring, Fawn Spring, Little Dutchman Meadow, and Kaibab Basin on the North Rim. The varieties of this species intergrade and are difficult to distinguish but we have specimens identified as var. diffusa (Small) Knuth, var. glandulosa (Woot. and Standl.) St. John, and var. puberulenta (Ryd.) Knuth.

DODECATHEON (Shootingstar)
Dodecatheon radicatum Greene (PI 1130, 1131, 1132 and 1133)
Collected in a meadow near the North Rim Checking Station and known to occur at several other places on the North Rim.

PRIMULA (Primrose)
Primula speciosa Rydb. (PI 1134, 1135, 2199 and 2200)
Found at Cliff Springs on the North Rim. Not known to occur elsewhere in Arizona.

98. OLEACEAE (OLIVE FAMILY)

FRAXINUS (Ash)
Fraxinus anomala Torr. (Singleleaf Ash) (PI 1136 to 1144, inclusive)
Found along all trails leading into the Canyon and also along the Rim Trail between Yaki Point and Shoshone Point.

Fraxinus cuspidata Torr. var. macropetala Rehder (F. macropetala Eastw.) (Fragrant Ash, Flowering Ash) (PI 1145, 1146, 1147, 1148 and 1149)
Found along the Bright Angel Trail and known to occur at several places on both rims.
**Fraxinus lowelli** Sarg.
Found in Havasu Canyon by Clover and Jotter (2346).

**Fraxinus velutina** Torr. var. glabra (Thornber) Rehder
(Smooth Ash, Arizona Ash). (Pl 1150)
Found in Havasu Canyon.

**MENODORA** (Menodora)

**Menodora seabra** Gray (Pl 1151, 1152, 1153 and 1154)
Found at Pasture Wash and at the Cemetery near Grand Canyon Village on the South Rim.

**GENTIANACEAE** (GENTIAN FAMILY)

**CENTAURIUM** (Centaurium)

**Centaurium calyoosum** (Buckl.) Fernald (Pl 1155, 1156 and 1157)
Found at the mouth of Garden Creek in the Canyon.

**FRASERA** (Frasera, Elkweed)

**Frasera albomarginata** Wats. (Pl 1124, 1125 and 1126)
Found at Hopi Point and near Rowe Well on the South Rim.

**Frasera paniculata** Torr.
Found west of Rowe Well on the South Rim. (Herbarium of the Museum of Northern Arizona B5188).

**Frasera speciosa** Dougl. (Greengentian, Deersears) (Pl 1129)
Common in open pine forests on both Rims.

**GENTIANA** (Gentian)

**Gentiana heterosepala** Engelm. (Pl 1158 and 1159)
Found in DeMotte Park on the North Rim just north of the park boundary.

**Gentiana parryi** Engelm. (Pl 1160, 1161 and 1162)
Found in Kaibab Basin and at Robbers Roost on the North Rim.
101. **APOCYNACEAE (DOGBANE FAMILY)**

**AMSONIA** (Amsonia)

*Amsonia eastwoodiana* Rydb. (PI 2000 and 2001)
Found along the Hermit Trail and the South Kaibab Trail.

**APOCYNUM** (Dogbane)

*Apopodium androsaemifolium* L. (Spreading Dogbane) (PI 1064)
Found at Robbers Roost on the North Rim

*Apopodium cannabinum* L. (Indian hemp) (PI 1065)
Found at Rowe Well on the South Rim, at Indian Spring in the Canyon, and in Havasu Canyon.

*Apopodium sukdorfi* Greene (PI 1999)
Found in Havasu Canyon.

---

102. **ASCLEPIADACEAE (MILKWEED FAMILY)**

**ASCLEPIAS** (Milkweed)

*Asclepias capricornu* Woods subsp. *occidentalis* Woods
Found along Bright Angel Trail (Meiere in 1917) and somewhere on the North Rim (Eastman and Howell 927)

*Asclepias galioides* H.B.K. (Poison Milkweed) (PI 1170)
Found in Grand Canyon Village and at several places along the East Rim Drive between Grand Canyon Village and the Way-side Museum of Archaeology.

*Asclepias latifolia* (Torr.) Raf.
Found along Hermit Trail (Eastman 5887a).

*Asclepias tuberosa* L. (Butterfly Milkweed, Butterflyweed) (PI 1171)
Found at Powell Spring on the North Rim.

**ASCLEPIODORA** (Antelopehorns)

*Asclepiodora decumbens* (Nutt.) Gray (PI 1172, 1173, 1174 and 1175)
Found at Cape Royal on the North Rim, in Hermit Basin in the Canyon, and along East Rim Drive on the South Rim.
**FUMASTRUM** (Climbing milkweed)

Funastrum heterophyllum (Engelm.) Standl. (PI 1176, 1177 and 1178)

Found at Phantom Ranch, at various places on the Tonto Shelf, and in Havasu Canyon.

---

**103. CONVOLVULACEAE** (CONVOLVULUS FAMILY)

**CUSCUTA** (Dodder)

Cuscuta campestris Yunoker (PI 1179)

Found in Havasu Canyon.

---

**IPOMOEA** (Morningglory)

Ipomoea ocockeae L. var. hederifolia (L.) Gray (Starglory) (PI 1180)

Found in Havasu Canyon.

---

**104. POLEMONIACEAE** (PHLOX FAMILY)

**COLLONIA** (Collomia)

Collomia grandiflora Dougl. (PI 1181, 1182 and 1183)

Found at Cape Royal, Farview Point, and at other places along the Cape Royal Road on the North Rim.

Collomia linearis Nutt. (PI 1184, 1185, 1186 and 1187)

Found at Kanabomits Spring, Fawn Spring, Robbers Roost, and Greenland Spring on the North Rim.

---

**GILIA** (Gilia)

Gilia aggregata (Pursh.) Spreng. (Skyrocket) (PI 1188)

Found at Cape Royal on the North Rim and in Havasu Canyon.

Gilia arenaria Benth. (PI 1189 and 1190)

Found at Yavapai Point on the South Rim and on the South Kaibab Trail, at 5000 feet elevation.
**Gilia arizonica** (Greene) Rydb. (Pl 1191 to 1198, inclusive)
Collected at Grandview on the South Rim and at Cape Royal on the North Rim and common in various other places on both Rims and along the upper parts of the trails leading into the Canyon.

**Gilia bigelovi** Gray
We have no specimen of this but a specimen was collected by Eastwood near Hermit Creek (Eastwood 6022).

**Gilia gracilis** (Dougl.) Hook. (Pl 1199)
Found on Buggeln Hill and west of Grand Canyon Village on the South Rim.

**Gilia inconspicua** (Smith) Dougl. (Shygillia)
Specimens in the Herbarium of the Museum of Northern Arizona (B5121 and B4932) were collected west of Grand Canyon Village and at Hilltop on the South Rim.

**Gilia longiflora** (Torr.) Don (Pl 1200, 1201 and 1202)
Found at Trash Tank on the South Rim and at Bright Angel Point, Cape Royal, and along the Cape Royal Road and the main entrance road on the North Rim.

**Gilia multiflora** Nutt. (Pl 1203)
Collected at Rowe Well and along the Pasture Wash Road about ten miles west of Grand Canyon Village on the South Rim. It is common at various places on the South Rim.

**Gilia polyantha** Ryd. var. *whitingi* Kearney and Peebles (Pl 1204)
Found ten miles west of Grand Canyon Village on the South Rim.

**Gilia pungens** (Torr.) Benth. (Granitegillia)
Found along Grandview Trail (Eastman 5697).

**Gilia setosissima** (Torr. and Gray) Gray
Found in Havasu Canyon. (Herbarium of Museum of Northern Arizona B4967).

**PHLOX** (Phlox)

**Phlox austromontana** Coville (Pl 1205, 1206 and 1207)
Found at various places on the South Rim between Grand Canyon Village and Lipan Point. Also on the Hermit Trail and on Marble Flat.

**Phlox diffusa** Benth. (Pl 1208 to 1214, inclusive)
Found at various undesignated places on the North Rim.

75
Phlox grayi Woot. and Standl. (Pl 1867)
    Found near the east boundary fence on the South Rim.

Phlox longifolia Nutt. (Pl 1215, 1216, 1217, 1218 and 1219)
    Found in Long Jim Canyon, in Grand Canyon Village, and at
    Moran Point on the South Rim, and along Hermit Trail at Hermit
    Basin.

105. HYDROPHYLLACEAE (WATERLEAF FAMILY)

ELLISIA (Ellisia)

Ellisia micrantha (Torr.) Brand (Phacelia micrantha Torr.)
    (Pl 1220)
    Found at Roaring Spring on the Kaibab Trail.

HESPEROCHIRON

Hesperochiron pumilus (Dougl.) Porter (Pl 2191)
    Found on Walhalla Plateau on the North Rim.

NAMA

Nama dichotomum (R. & P.) Choisy
    Found along the road to Grandview on the South Rim (East­
    wood 3648).

NEMOPHILA

Nemophila aurita Lindl. var. arizonica (Jones) Brand (Purple
    Nemophila)
    Found along Hermit Creek (Eastman 6024).

PHACELIA (Phacelia)

Phacelia corrugata Nels. (Pl 1221, 1222 and 1223)
    Found on the Bright Angel and South Kaibab Trails and at
    undesignated place on the North Rim.

Phacelia cryptantha Greene
    Found along Hermit Creek (Eastman 5985).

Phacelia filiformis Brand (Pl 1224 and 1225)
    Found at Indian Cave on the South Rim, at Cliff Spring on
    the North Rim and in Havasu Canyon. Very rare and known only
    from Grand Canyon National Park.
Phacelia gleohomaefola Gray  (Pl 1229 to 1233, inclusive)
Found along the Kaibab and Bright Angel Trails, in Havasu Canyon and in Toroweap Valley in Grand Canyon National Monument.

Phacelia heterophylla Pursh  (Pl 1234, 1235, 1236 and 1237)
Found at Greenland Spring and Neal Spring on the North Rim.

Phacelia laxiflora J. T. Howell  (Pl 1814)
Found along Bright Angel Trail and Hermit Trail in the Canyon, and near Toroweap Point.

Phacelia pedicellata Gray  (Pl 1238 and 1239)
Found on the South Kaibab Trail at 3500 feet elevation.

Phacelia rotundifolia Torr.  (Pl 1240)
Found at Phantom Ranch, along Pipe Creek, and along Bright Angel Trail in the Canyon.

Phacelia saxicola Gray
Found near Rowe Well and near El Tovar Hotel on the South Rim.  (Herbarium of the Museum of Northern Arizona B5187).

106. BORAGINACEAE (BORAGE FAMILY)

AMSINCKIA (Fiddleneck)

Amsinskia intermedia F. & M.
Found along Hermit Creek (Eastman 6016).

Amsinskia menziesi (Lehm.) Nels. and MacBr.  (Pl 1241)
We have an undated specimen collected at an unspecified place on the South Rim and so determined. Since neither Kearney and Peebles nor Tidestrom and Kittell recognize this species as occurring in Arizona, there seems some doubt as to its correct determination.

Amsinskia tessellata Gray
Found along Hermit Trail and at Indian Gardens (Eastman 6069 and 6094).

COLDENIA (Coldenia)

Coldenia hispidissima (Torr.) Gray var. latior Johnston (Pl 1242)
CRYPTANTHA (Cryptantha)

Cryptantha barbigera (Gray) Greene (PI 1243 and 2198)
Found at Phantom Ranch and along Clear Creek Trail in the Canyon.

Cryptantha cepitata (East.) Johnston (PI 1244)
Found on the Hermit Trail (type) and the North Kaibab Trail as far down as Roaring Springs. Known only from Grand Canyon National Park.

Cryptantha confertiflora (Greene) Payson (PI 1245 and 2085)
Found on the South Kaibab Trail at 5700 feet elevation.

Cryptantha fendleri (Gray) Greene
Found along Grandview Trail (Eastman 3633).

Cryptantha flava (Nels.) Payson (PI 1245)
Found in Grand Canyon National Monument.

Cryptantha fulvocamascens (Gray) Payson (PI 1246)
Found along the Hermit Trail.

Cryptantha gracilis Osbr. (PI 1247 and 1248)
Found at Yavapai Point and at the Grandview Road junction on the South Rim.

Cryptantha holoptera (Gray) McBride
Found in Havasu Canyon by Clover (Clover 5034).

Cryptantha jessie (Torr.) Payson (PI 1249, 1250, 1251 and 2081)
Found at Neal Spring and Bright Angel Spring on the North Rim and on the South Kaibab Trail at 7000 feet, and near the east boundary fence on the South Rim.

Cryptantha modesta Payson (PI 1251 and 1252)
Found along the Hermit Trail.

Cryptantha pterocarya (Torr.) Greene (PI 1253)
Found along Hermit Trail in the Canyon.

Cryptantha racemosa (Wats.) Greene (PI 1254 and 2167)
Found along Bright Angel Trail at 3000 feet, in Havasu Canyon, and along Clear Creek Trail.

Cryptantha setosissima (Gray) Payson (PI 1255)
Found at Cape Royal on the North Rim.

Cryptantha virginensis (Jones) Payson (PI 1860)
Reported by Johnston in Kearney and Peebles as occurring along the Hermit Trail. Not known to occur elsewhere in Arizona.
HACKELIA (Hackelia)

_Hackelia floribunda_ (Lehm.) Johnston (_Lappula floribunda_ Greene) (PI 1256, 1257, 1258, 1259 and 1260)
Found at Neal Spring on the North Rim.

LAPPULA (Stickseed)

_Lappula redowskii_ (Hornem.) Greene (_L. occidentalis_ (Wats.) Greene) (PI 1261 and 1262)
Found in Thompson Canyon on the North Rim and in Grand Canyon Village on the South Rim. Var. _desertorum_ (Greene) Johnst. has been found along Hermit Trail (Eastman 5982).

LITHOSPERMUM (Gromwell)

_Lithospermum multiflorum_ Torr. (PI 1263, 1264 and 1265)
Found at Greenland Lake, Cliff Springs, and Cape Royal on the North Rim.

PECTOCARYA (Combseed)

_Pectocarya heterocarpa_ Johnst.
Found at Hermit Camp (Eastman 6020).

_Pectocarya platycarpa_ Muns and Johnst.
Found along the trail to Monument Creek (Eastman 6029).

PLAGIOBOTHRYS (Popcornflower)

_Plagiobothrys arizonicus_ (Gray) Greene
Found at Hermit Camp (Eastman 5966).

_Plagiobothrys jonesi_ Gray (PI 2213)
Found along Clear Creek Trail in the Canyon.

MERTENSIA (Bluebells)

_Mertensia franciscana_ Heller (_M. pratensis_ Heller) (PI 1266 and 1267)
Found at Neal Spring, Greenland Lake, and Little Dutchman Pasture on the North Rim.

_Mertensia macdougali_ Heller (PI 1268)
Found on Buggeln Hill on the South Rim.
107. VERBENACEAE (VERBENA FAMILY)

VERBENA (Verbena, Vervain)

Verbena bracteata Lag. and Rodr. (PI 1269)
Found in Grand Canyon Village, South Rim.

Verbena goodingi Briq. (PI 2045)
Found in Toroweap Valley, Grand Canyon National Monument.

Verbena macdougali Heller (PI 1270, 1271, 1272, 1273 and 1274)
Collected at Hull Tank on the South Rim and known to occur at various places on both rims.

Verbena wrighti Gray
Found at Hilltop on the South Rim (Herbarium of Museum of Northern Arizona B4926).

LIPPIA (Lippia)

Lippia wrighti Gray (PI 1275 and 1276)
Found along the Clear Creek Trail in the Canyon and in Havasu Canyon.

108. LABIATAE (MINT FAMILY)

AGASTACHE (Gianthyssop)

Agastache pallidiflora (Heller) Rydb. (PI 1277 and 1278)
Found at Robbers Roost and in the vicinity of Neal Spring on the North Rim.

DRACOCEPHALUM (MOLDAVICA) (Dragonhead)

Dracocephalum parviflorum Nutt. (Moldevica parviflora (Nutt.) Britton) (PI 1279, 1280, 1282 and 1283)
Found at Neal Spring and Greenland Lake on the North Rim.

HEDEOMA (Falsepennyroyal, Mockpennyroyal)

Hedeoma drummondi Benth. (PI 1284, 1285, 1286, 1287 and 1288)
Collected near Rowe Well and at Hull Tank on the South Rim and at Fowell Saddle and Swamp Point on the North Rim.
Hedeoma nanum (Torr.) Greene subsp. typicum Stewart
Found along Bright Angel and the North Kaibab Trails and the trail to Monument Creek (Eastman 3690 and 6038, and Eastman and Howell 1027).

MENTHA (Mint)
Mentha arvensis L. (M. penardi (Briq.) Rydb.)
(P1 1289, 1290 and 1291)
Found at Kanabowits Spring and at Milk Creek on the North Rim.

MONARDA (Beebalm)
Monarda pectinata Nutt. (P1 1292)
Found at Hull Tank on the South Rim.

MONARDELLA (Monardella)
Monardella odoratissima Benth. (P1 1293, 1294, 1295 and 1815)
Found on the North Kaibab Trail at 7800 feet elevation.

PRUNELLA (Selfheal)
Prunella vulgaris L. (P1 1296, 1297 and 1298)
Found at Fawn Spring and Robbers Roost on the North Rim.

SALAZARIA (Bladdersage)
Salazaria mexicana Torr. (P1 1299)
Found in Grand Canyon National Monument

SALVIA (Sage)
Salvia aethiopis L. (P1 1300 and 1301)
Salvia cernosa Doug. (Desertsage, Purplesage)
(P1 1302 to 1309, inclusive)
Found along the South Kaibab Trail at about 5500 feet elevation.
Salvia davidsonii Greem.
Found in Havasu Canyon by Clover (Clover 7052).
109. SOLANACEAE (POTATO FAMILY)

DATURA (Datura, Thornapple)

Datura meteloides DC. (Sacred Datura) (Pl 1310 and 1311)
Found at Indian Gardens, along Bright Angel Creek, and at various other places in the Canyon.

LYCIUM (Wolfberry, Desertthorn)

Lycoium andersoni Gray (Pl 1312, 1313 and 1314)
Found on the Bright Angel Trail at 2800 feet, on the Hermit Trail, and in Havasu Canyon.

Lycoium pallidum Miers (Pl 1315 and 1316)
Found on the Tonto Shelf in the Canyon, at Pasture Wash on the South Rim, in Havasu Canyon, and in Grand Canyon National Monument.

NICOTIANA (Tobacco)

Nicotiana attenuata Torr. (Pl 1317, 1318 and 1319)
Found in Grand Canyon Village on the South Rim, at Ribbon Falls in the Canyon, and in Grand Canyon National Monument.

Nicotiana trigonophylla Dunal (Pl 1320, 1321 and 1322)
Found on the South Kaibab Trail at 3000 feet elevation and in Havasu Canyon.

PHYSALIS (Groundbitter)

Physalis crassifolia Benth. (Pl 1323, 1324 and 1325)
Found at Point Sublime on the North Rim and in Phantom Canyon and along Bright Angel Creek and Clear Creek Trail in the Canyon.

Physalis fendleri Gray
Found along the North Kaibab Trail (Eastman and Howell 1019).

Physalis hederacea Gray (Pl 1326 and 1327)
Found at Cliff Spring on the North Rim.

SOLANUM (Nightshade)

Solamum douglasii Dunal (Pl 1328 and 1329)
Found in Havasu Canyon.
Solanum elaeagnifolium Cav. (Pl 1330)
Found on the Tonto Shelf in the Canyon.

110. SCROPHULARIACEAE (FIGWORT FAMILY)

CASTILLEJA (Paintedcup, Paintbrush)

Castilleja chromosa Hels. (Pl 1332, 1333, 1334, 1335 and 1336)
Found on the South Kaibab Trail at about 4000 feet elevation and in Slide Canyon on the North Rim at about the same elevation.

Castilleja confusa Greene (Pl 1331 and 1337)
Found in Long Jim Canyon on the South Rim and at Neal Spring on the North Rim.

Castilleja eecromophila Woot. and Standl. (Pl 1338)
Found on Marble Flat in the Canyon. This species is believed by Kearney and Peebles to be synonymous with C. chromosa but our specimens of the two species, as determined by the U. S. National Herbarium, are dissimilar. Possibly this specimen is incorrectly determined.

Castilleja flava Wats. (Pl 1339)
Found in Del'otte Park just north of the park boundary on the North Rim.

Castilleja integra Gray (Pl 1340, 1341 and 1342)
Found in Grand Canyon Village and at Rowe Well on the South Rim.

Castilleja linariaefolia Benth. (Pl 1343, 1344, 1345, 1346 and 1347)
Found in Long Jim Canyon and at Hull Tank on the South Rim and at the junction of the Cape Royal and Point Imperial roads and along the Point Sublime road on the North Rim.

COLLINSIA (Collinsia)

Collinsia parviflora Dougl. (Pl 1348 and 2166)
Found on Buggeln Hill on the South Rim and along Transept Trail on the North Rim.
CORDYLANTHUS (Birdbeak, Clubflower)

*Cordylanthus parviflorus* (Ferris) Wiggins (Pl 1349 and 1350)
Found at Yaki Point and Grandview Point on the South Rim.

*Cordylanthus tenuifolius* Pennell
Found on Grandview Point by Eastwood (Eastwood 3629).
The type specimen of this species was collected somewhere along the Grand Canyon (Eggleston 15677a).

MAURANDIA (Maurandia)

*Maurandia antirrhiniflora* Humb. and Bonpl. (Climbing-snapdragon) (Pl 1351, 1352, 1353 and 1354)
Found in Bright Angel Canyon and in Havaasu Canyon.

MIMULUS (Monkeyflower)

*Mimulus cardinalis* Dougl. (Pl 1355 to 1360, inclusive)
Found at several places along Bright Angel Creek and in Havaasu Canyon.

*Mimulus guttatus* DC. (Pl 1361, 1362 and 1363)
Found at Phantom Ranch.

*Mimulus primuloides* Benth. (Pl 1364, 1365, 1366, 1367 and 1368)
Found near the North Entrance Checking Station on the North Rim.

*Mimulus rubellus* Gray
Found along the North Kaibab Trail (Eastman and Howell 1071)

ORTHOCARUSPUS (Owlslover)

*Orthocarpus luteus* Nutt. (Pl 1369, 1370, 1371, 1372 and 1373)
Found at Greenland Spring, on Marble Flat, in the Kaibab Basin, and in Demotte Park on the North Rim.

*Orthocarpus purpureo-albus* Gray (Pl 1374, 1375, 1376 and 1377)
Found at Rowe Well on the South Rim and near Cape Royal on the North Rim.
PEDICULARIS  (Pedicularis, Lousewort, Woodbetony)

Pedicularis centranthera  Gray  (Pl 1378)
Collected at Grandview Point on the South Rim and known to occur at various places on both Rims.

PENSTEMON  (Penstemon, Beardtongue)

Penstemon barbatus  (Cav.) Roth  (Scarlet Bugler)
(Pl 1379 to 1385, inclusive)
Common on both Rims. Most of our specimens are subspecies torreyi  (Benth.) Keck, which has the lower lip of the corolla smooth instead of bearded.

Penstemon bridgesi  Gray  (Pl 1386 and 1387)
Found at Cape Royal on the North Rim and in Long Jim Canyon on the South Rim.

Penstemon eatoni  Gray  (Pl 1390, 1391, 1392, 1393 and 1394)
The typical species, which is smooth throughout, has been collected on the South Kaibab Trail at 5700 feet elevation. Much more common in the Park is variety undosus  Jones (subsp. undosus  (Jones) Keck), which has the stems puberulent. This variety has been collected at Yavapai Point on the South Rim, on the Hermit Trail, in Havasu Canyon, and in the lower end of Toroweap Valley in Grand Canyon National Monument.

Penstemon jamesi  Benth.
Found near El Tovar Hotel on the South Rim (Eastman 5661).

Penstemon linearioides  Gray  (Pl 1388, 1389, 1395, 1396 and 1397)
Found in Long Jim Canyon and south of Grandview Point on the South Rim, and at Cape Royal and Greenland Spring on the North Rim, and south of Yaki Point on the South Rim. Some of our specimens are variety viridis.

Penstemon micranthus  Nutt.  (Pl 1398 to 1403, inclusive, and 2002)
Found west of the old Checking Station, near the present Checking Station, and in other undesignated places on the North Rim.

Penstemon pachyphyllus  Gray  subsp. congestus  (Jones) Keck
(Pl 1404 to 1409, inclusive)
Found at Yavapai Point, west of Rowe Well, and at other undesignated places on the South Rim and also on the Hermit Trail.

Penstemon palmeri  Gray  (Pl 1410, 1411 and 1412)
Found along Bright Angel Trail and along Pipe Creek in the Canyon and along West Rim Drive on the South Rim.
**Penstemon rydbergii** Nels. (PI 1398 and 1399)
- Found near the Cheoking Station on the North Rim. Not known to occur elsewhere in Arizona.

**Penstemon thompsoniae** (Gray) Rydb. (PI 1413)
- Found in the south end of Pasture Wash on the South Rim and in Slide Canyon on the Kaibab Plateau north of the park on the North Rim.

**Penstemon utahensis** Eastw. (PI 1414, 1415 and 1416)
- Found on the Kaibab and Hermit Trails at about 5600 feet elevation.

**Penstemon virgatus** Gray (PI 1417, 1418 and 1419)
- Found at Cape Royal on the North Rim. It has also been collected in Fuller Canyon and in DeMotte Park just outside the park on the North Rim.

**VERBASCUM** (Mullein)

**Verbasoum thapsus** L. (PI 1420)
- Collected on Buggeln Hill and common in various other places on the South Rim. Exotic. Native to Europe.

**VERONICA** (Speedwell)

**Veronica americana** Schwein. (American Brooklime) (PI 1421, 1422 and 1423)
- Found at Kanabowmits Spring on the North Rim.

**Veronica peregrina** L. var. *xalapensis* (H.B.K.) Pennell (PI 1424, 1425, 1426 and 1427)
- Collected at Buggeln Hill on the South Rim and at Neal Spring on the North Rim and known to occur at several other places on the North Rim.

**Veronica serpyllifolia** L. (PI 1804)
- Found at V. T. Ranch just north of the park boundary.

**III. BIGNONIACEAE** (BIGNONIA FAMILY)

**CHILOPSIS** (Desertwillow)

**Chilopsis linearis** (Cav.) Sweet (PI 1428)
- Found in Havasu Canyon.
112. MARTYNIAEAE (UNICORNPLANT FAMILY)

MARTYNIA (Martynia, Unicornplant)

*Martynia parviflora* Wooton (PI 1429)
Found in Havasu Canyon.

113. OROBANCHACEAE (BROOMRAPE FAMILY)

OROBANCHE (Broomrape)

*Orobancha fasciculata* Nutt. (PI 1430, 1431, 1432 and 1433)
Found at Duck-on-rock and west of Rowe Well on the South Rim.

115. PLANTAGINACEAE (PLANTAIN FAMILY)

PLANTAGO (Plantain)

*Plantago eriopoda* Torr. (PI 1434)
Found at Robbers Roost on the North Rim.

*Plantago fastigiata* Morris
Found at Tanner Rapids in the Canyon by Clover and Jotter (2288) and reported also from Havasu Canyon.

*Plantago lanceolata* L. (Buckhorn Plantain) (PI 1435)
Found at Neal Spring on the North Rim. Exotic. Native to Europe.

*Plantago purshii* Roem. and Schult. (PI 1436 and 1437)
Found in Long Jim Canyon on the South Rim and along Bright Angel Trail at 3700 feet elevation.

116. RUBIACEAE (MADDER FAMILY)

GALIUM (Bedstraw)

*Galium aparine* L.
Found along Hermit Creek (Eastman 6007) and on the North Rim (Eastman and Howell in 1933)
Galium munzi Hilend and Howell
   Found along the North Kaibab Trail (Eastman and Howell 1000 and 7087).

Galium rothroeki Gray
   Found along Grandview Trail (Eastman 3605) and on the North Rim (Eastman and Howell 953 and 994).

Galium stellatum Kellogg var. eremicum Hilend and Howell
   (Pl 1438, 1439, 2165 and 2214)
   Found along Bright Angel and Clear Creek Trails in the Canyon.

Galium triflorum Michx. (Pl 1441, 1442 and 1443)
   Found at Roaring Spring in Bright Angel Canyon.

Galium watsonii (Gray) Heller (Pl 1444, 1445 and 1446)
   Found near Grand Canyon Lodge and at the Checking Station on the North Rim, and along Bright Angel and Hermit Trails.

Galium wrightii Gray (Pl 1440)
   Found along Hermit Trail at about 5500 feet elevation.

HOUSTORIA (Bluets)

Houstonia wrightii Gray (Pl 1447)
   Found at Hull Tank and on Duggeln Hill on the South Rim.

KELLOGGIA (Kelloggia)

Kelloggia galioides Torr. (Pl 1448)
   Found at Greenland Lake on the North Rim and reported by Kearney and Peebles as occurring on both Rims.

117. CAPRIPOLIACEAE (HONEYSUCKLE FAMILY)

LINNAEA (Twinflower)

Linnaea borealis L. var. americana (Forbes) Rehder (Pl 1821)
   Found at an unspecified place on the North Rim.

SAMBUCUS (Elder)

Sambucus coerulescens Raf. (Pl 1449, 1450, 1451 and 1452)
   Collected along the Cape Royal Road on the North Rim.
   This is the common elder on both Rims.
Sambucus microbotrys Rydb. (S. racemosa L. var. microbotrys (Raf.) Kearney and Peebles)

We have no specimen of this species but it is reported in Kearney and Peebles that it occurs on both sides of the Grand Canyon.

SYMPHORICARPOS (Snowberry)

Symphoricarpos oreophilus Gray (Pl 1453 to 1466, inclusive)

Fairly common on both Rims as well as along the upper parts of the trails leading into the Canyon.

Symphoricarpos longiflorus Gray (Pl 1467, 1468 and 1469)

Collected along the upper part of the North Kaibab Trail and known to occur also on the Kaibab Plateau.

Symphoricarpos parishii Rydb. (Pl 1472)

Found on the South Kaibab Trail at about 6500 feet elevation.

Symphoricarpos rotundifolius Gray (Pl 1471)

Found on the South Kaibab Trail at about 6500 feet elevation.

Symphoricarpos utahensis Rydb. (Pl 1470)

Found along the Hermit Trail in the Canyon.

118. VALERIANACEAE (VALERIAN FAMILY)

VALERIANA (Valerian)

Valeriana acutiloba Rydb.

Found along Grandview Trail (Eastman 5710).

Valeriana edulis Nutt. (Pl 1474)

Found at Robbers Roost on the North Rim, and in Fuller's Canyon.

Valeriana micrantha Nelson (Pl 1473 and 1805)

Found at Neal Spring on the North Rim.

119. CUCURBITACEAE (GOURD FAMILY)

CUCURBITA (Gourd)

Cucurbita foetidissima H.B.K. (Buffalogourd) (Pl 1475)

Found in Havasu Canyon and believed to occur also in and about Grand Canyon Village.
120. **CAMPANULACEAE (BELLFLOWER FAMILY)**

**CAMPANULA (Bellflower)**

*C. parryi* Gray (*Parry Bellflower, Harebell*)  
(PI 1476, 1477, 1478, 1479, 1480 and 2170)  
Collected at Neal Spring, Greenland Spring and Big Spring  
on the North Rim and found in most of the meadows on the North  
Rim.

**LOBELIA (Lobelia)**

*L. cardinalis* L. subsp. *graminea* (Lam.) MoVaugh  
(PI 1481 to 1485, inclusive)  
Found along Bright Angel Creek, in the lower part of  
Hance Canyon, and on Toroweap Point in Grand Canyon National  
Monument.

**NEMOCLADUS (Nemocladus)**

*N. glanduliferus* Jepson var. *orientalis* MoVaugh  
Found in Havasu Canyon by Clover (Clover 6244).

121. **COMPOSITAE (SUNFLOWER FAMILY)**

**ACHILLEA (Yarrow, Milfoil)**

*A. laculosa* Nutt.  
(PI 1486, 1487, 1488 and 1489)  
Found at Greenland Spring, along the Cape Royal Road and  
near the North Rim Checkin g Station on the North Rim.

**ACTINEA (Actinea)**

*Actine a acaulis* (Pursh) Spreng. var. *arizonica* (Greene) Blake  
(PI 1490 to 1499, inclusive)  
Common on both rims and along the upper parts of the  
trails leading into the Canyon.

*Actine a cooperi* (Gray) Kuntze  
Found along the South Kaibab Trail by Clover and Jotter  
(4112). We have no specimen of this species but Kearney  
and Peebles report that it was collected by Osterhout (6991) from  
the Bright Angel Trail and by Macdougal (189) at an unspeci-  
fied place in the Grand Canyon.
Aotinea richardsoni (Hook) Kuntze var. floribunda (Gray) Cory
(Pingue, Pingwing) (PI 1500, 1501, 1502, 1503 and 1504)
Found at various places between Yaki Point and Grandview on the South Rim and in Grand Canyon Village.

Aotinea subintegra (Cookerell) Blake (Colorado Rubber Plant)
(PI 1505 to 1509, inclusive)
Common on the North Rim.

AGOSERIS (Agoseris, Mountain Dandelion)

Agoseris arizonica Greene (PI 1510 and 2070)
Found along the Cape Royal Road on the North Rim.

Agoseris glauca (Pursh) Dietr. var. parviflora (Nutt.) Rydb.
(PI 1511, 1512 and 1513)
Found at Robbers Roost on the North Rim and known to occur at several other places on the North Rim.

Agoseris glauca (Pursh) Dietr. var. lasiniata (Eaton) Smiley
(PI 1514 and 1515)
There is some question as to the proper identification of the specimens placed here but we have one specimen collected in Long Jim Canyon on the South Rim and labeled A. taraxicifolia (Nutt.) Dietr. and another collected in a meadow near the Checking Station on the North Rim and labeled A. glauca (Pursh.) Dietr. var. which, in our opinion, are identical and belong here according to the tentative treatment of the genus as set forth in Kearney and Peebles. This variety has been collected in the Park by Eastman (5441 and 5788).

ANAPHALIS (Pearleverlasting, Pearlyeverlasting)

Anaphalis margaritacea (L.) Gray (PI 2217)
Found along the road to Robbers Roost on the North Rim.

ANTENNARIA (Pussytoes)

Antennaria aprica Greene (PI 1516, 1517, 1518 and 1519)
Found on Buggeln Hill and near Grandview Point on the South Rim and at Greenland Lake on the North Rim.

Antennaria arida Nels. (PI 1520)
Found near the Checking Station on the North Rim.

Antennaria marginata Greene
(Eastman 5786).
Antennaria rosulata Rydb. (PI 1521 and 1522)  
Found in a meadow near the North Rim Checking Station and in other meadows on the North Rim.

APLOPAPPUS (Goldenweed)

Aplopappus acredendius (Greene) Blake (PI 1523)  
Found along Bright Angel Creek near Phantom Ranch in the Canyon.

Aplopappus drummondii (Torr. and Gray) Blake (PI 2004)  
Found along Shinumo Creek.

Aplopappus gracilis (Nutt.) Gray (PI 1524 and 2002)  
Found near Grandview Point on the South Rim.

Aplopappus heterophyllus (Gray) Blake (PI 1525)  
Found at Robbers Roost on the North Rim.

Aplopappus nuttallii Torr. and Gray (PI 1526)  
Found at an unspecified place on the North Rim.

Aplopappus parryi Gray (PI 2003)  
Found in the Kaibab Basin on the North Rim.

Aplopappus salicinus Blake  
This species is known only from the type collection on Bright Angel Trail (Eastwood 10). We have no specimen.

Aplopappus scopulorum (Jones) Blake  
We have no specimen of this species but it is reported in Kearney and Peebles as occurring on both sides of Grand Canyon (Eastwood 3586, Eastwood and Howell 7111). Not known to occur elsewhere in Arizona.

Aplopappus spinulosus (Pursh.) DC. var. gooddingi (Nels.) Blake (PI 1527, 1528, 1529, 1530 and 2153)  
Found on the South Kaibab Trail at about 3300 feet elevation, in Havasu Canyon and in Grand Canyon National Monument.

Aplopappus watsoni Gray  
We have no specimen of this species but it is reported in Kearney and Peebles as occurring on rocks at Grand Canyon at about 7000 feet (Eastwood in 1905, Blake 9815, 9818).

ARNICA (Arnica)

Arnica cordifolia Hook. (PI 1531, 1825 and 2215)  
Found on Walhalla Plateau on the North Rim. Not known to occur elsewhere in Arizona.
Arnica foliosa Nutt. (P1 1532)
    Found near the Cheoking Station on the North Rim.

**ARTEMISIA** (Sagebrush, Wormwood)

Artemisia bigelovii Gray (P1 1533, 1534, 1535 and 1536)
    Found at Point Sublime and Grama Point on the North Rim.

Artemisia carruthi Wood (P1 2057)
    Found at Robber’s Roost on the North Rim.

Artemisia dracunculoides Pursh (P1 1537, 1538 and 2058)
    Found at Hull Tank on the South Rim and at Neal Spring and in Kaibab Basin on the North Rim.

Artemisia frigida Willd. (Estafata) (P1 1541, 1542, 1806 and 2079)
    Found at Point Sublime on the North Rim and near Wayside Museum of Archaeology and east boundary fence on the South Rim. Also found near El Tovar Hotel on the South Rim (Eastman 3603).

Artemisia gnaphalodes Nutt.
    Found along the road to Grandview (Eastman in 1913) and on the North Rim (Eastman and Howell 7006).

Artemisia ludoviciana Nutt. (P1 1543)
    Found at Powell Saddle on the North Rim and in Havasu Canyon.

Artemisia nova A. Nels.
    Found along the road to Grandview (Eastman 3602) and on the North Rim (Eastman and Howell 7042).

Artemisia pacifica Nutt. (P1 1539 and 1540)
    Found at Hull Tank on the South Rim and at Greenland Point on the North Rim.

Artemisia tridentata Nutt. (P1 1544 to 1549, inclusive)
    Common on both Rims.

**ASTER** (Aster)

Aster abatus Blake (P1 1550, 1551, 1552 and 1553)
    Found along the South Kaibab and Hermit Trails, at Hilltop on the South Rim, and in Havasu Canyon.

93
**Aster adenolepis** Blake (PI 1554, 1555, 1556 and 2055)
Found along the road to Cape Royal and at Robbers Roost on the North Rim.

**Aster adscendens** Lindl. (PI 2055 and 2056)
Found at Robbers Roost on the North Rim.

**Aster aquifolius** (Greene) Blake (PI 1558, 1559 and 1560)
Found at Neal Spring and in Kaibab Basin on the North Rim.

**Aster arenosus** Blake (PI 2072)
Found one mile east of the south entrance highway on the South Rim.

**Aster caeruleus** DC.
Found along the North Kaibab Trail (Eastman and Howell 7123).

**Aster cichoriacaeus** (Greene) Blake
Found in Havasu Canyon by Clover and Jotter (4367).

**Aster canescens** Pursh (PI 1565 and 1566)
Found at Hull Tank, in Long Jim Canyon and at Hilltop on the South Rim and reported as occurring also on the North Rim. It is also found in Havasu Canyon.

**Aster commutatus** (Torr. and Gray) Gray var. *polycephalus* (Rydb.) Blake (PI 1561 to 1564, inclusive)
Found at Hull Tank and near Grandview on the South Rim and in the vicinity of River View and on Point Sublime on the North Rim.

**Aster foliaceus** Lindl. var. *burkei* Gray (PI 1567)
Found in a meadow near Kanabonsits Spring on the North Rim.

**Aster glaucodes** Blake (PI 1568 and 1569)
The typical form has been collected in Havasu Canyon and the variety *pulcher* Blake has been collected along the West Rim Drive on the South Rim and is reported in Kearney and Peebles as occurring on the North Rim.

**Aster hirtifolius** Blake (PI 1570, 1571, 1572, 1574 and 2071)
Found in Grand Canyon Village on the South Rim, and along trails in the Canyon.

**Aster intricoatus** (Gray) Blake (PI 2032)
Found in Toroweap Valley in Grand Canyon National Monument.

**Aster spinosus** Benth.
Found at the foot of Bright Angel Trail (Eastman 3746).
BACCHARIS (Baccharis)

Baccharis emoryi Gray (PI 1576, 1577, 1578, 1579 and 1580)
Found along Pipe Creek, in Bright Angel Canyon, Shinumo Canyon and Havasu Canyon.

Baccharis glutinosa Pers. (Seepwillow) (PI 1581, 1582, 1583 and 1584)
Found at Phantom Ranch in the Canyon, in Havasu Canyon, and along Bright Angel Trail.

BAHIA (Bahia)

Bahia dissecta (Gray) Britton (PI 1585, 1586 and 1587)
Collected at various places on both Rims. Most abundant on the South Rim.

BAILEYA (Baileya)

Baileya multiradiata Harv. and Gray (PI 2046)
Found in Toroweap Valley in Grand Canyon National Monument.

BEBBIA (Bebbia)

Bebbia juncea (Benth.) Greene (PI 1588 and 1589)
Found at Phantom Ranch in the Canyon.

BRICKELLIA (Brickellbush)

Brickellia atraetaloides Gray (PI 1590 and 2169)
Found at Phantom Ranch in the Canyon.

Brickellia californica (Torr. and Gray) Gray (PI 1591)
Found along the Bright Angel Trail at about 3200 feet elevation and at Grandview Point on the South Rim.

Brickellia grandiflora (Hook.) Nutt. (PI 1592 and 1593)
Found at Cliff Springs on the North Rim and in Long Jim Canyon on the South Rim.

Brickellia longifolia Wats. (PI 1594, 1595, 1596 and 2216)
Found at Phantom Ranch and along the Bright Angel and River Trails at about 3000 feet elevation. Not known to occur elsewhere in Arizona.

Brickellia multiflora Kellogg
We have no specimen of this species but it is reported in Kearney and Peebles as occurring on the North Rim (Eastwood and Howell 7106). Not known to occur elsewhere in Arizona.
Brickellia oblongifolia Nutt. var. linifolia (Eaton) Robinson
(Pi 1597 and 1598)
Found in upper Bass Canyon at 6500 feet elevation and at
Point Sublime on the North Rim.

Brickellia scabra (Gray) Nels.
Found along the North Kaibab Trail (Eastman and Howell
7083).

CHAENACTIS (Chaenactis, Falseyarrow)

Chaenactis macrantha D.C. Eaton
Found along the trail to Monument Creek (Eastman 6028).

Chaenactis stevioides Hook. and Arn. (Herbarium of the Museum
of Northern Arizona, B4925)
Found in Havasu Canyon.

Chaenactis xantiana Gray (Herbarium of the Museum of Northern
Arizona, B4925)
Found in Havasu Canyon.

CHrysopsis (Goldaster, Golden-aster)

Chrysopsis fulcra Greene (Pi 1599 and 1600)
Found at Hull Tank and near Grandview Point on the South
Rim.

Chrysopsis hispida (Hook.) D.C. (Pi 1601)
Found in Big Spring Canyon and in Powell Saddle on the
North Rim.

Chrysopsis villosa (Pursh) Nutt. (Pi 1602 to 1606, inclusive)
Found at Greenland Lake and Cape Royal on the North Rim
and reported as occurring also on the South Rim. It is also
found in Havasu Canyon.

CHRYSOTHAMNUS (Rabbitbrush)

Chrysothamnus depressus Nutt. (Pi 1607 and 1608)
Found near Grand Canyon Village and two miles south of
Moran Point on the South Rim.

Chrysothamnus greenei (Gray) Greene var. filifolius (Rydb.)
Blake
Found on Hermit Trail.
Chrysothamnus nauseosus (Pall.) Britton var. graveolens (Nutt.) Hall (Pl 1609 to 1613, inclusive)  
Found at Cliff Springs on the North Rim and two miles south of Yaki Point, in Pasture Wash and in Havasu Canyon on the South Rim. Variety junceus was found along Bright Angel Trail by Eastman (Eastman 3703).

Chrysothamnus parryi (Gray) Greene var. nevadensis (Gray) Hall (Pl 1614 and 1615)  
Found at Cape Royal on the North Rim and in Long Jim Canyon on the South Rim.

Chrysothamnus viscidiflorus (Hook.) Nutt. var. elegans (Greene) Blake  
Found along the South Kaibab Trail by Clover and Jotter (4140 and 4150)

CIRSIUM (Thistle)

Cirsium arizonicum (Gray) Petrak (Eastman 5789).  
Found at Phantom Ranch in the Canyon and in Havasu Canyon.

Cirsium neomexicanum Gray (Pl 1616)  
Found near the cafeteria on the North Rim and along Bright Angel Trail at about 4600 feet elevation.

Cirsium undulatum (Nutt.) Spreng. (Pl 1620 and 1621)  
Found near River View on the North Rim.

Cirsium wheeleri (Gray) Petrak (Pl 1622, 1623, 1624 and 1625)  
Found at Robbers Roost on the North Rim and in Long Jim Canyon and at Rowe Well on the South Rim.

CREPIS (Hawksbeard)

Crepis intermedia Gray  
We have no specimen of this species but it is reported in Kearney and Peebles as occurring at Grand Canyon (Toumey 664, Ward in 1901). Not known to occur elsewhere in Arizona.

Crepis occidentalis Nutt. (Pl 1626, 1627, 1628 and 1629)  
Found along the Transept Trail on the North Rim and one and one-half miles west of Moran Point and west of Rowe Well on the South Rim.
DYSSODIA (Dogweed)

Dyssodia acerosa DC. (Pl 1630 and 1631)
Found in Havasu Canyon and in Grand Canyon National Monument.

Dyssodia pentachaeta (DC.) Robinson (Pl 1632 and 1633)
Found at Phantom Ranch and along the Clear Creek Trail in the Canyon.

Dyssodia porophylloides Gray (Pl 1634)
Found at Phantom Ranch in the Canyon.

Dyssodia thurberi (Gray) Robinson (Pl 2168)
Found at the foot of the North Kaibab Trail in the Canyon.

ENCelia (Encelia)

Encelia farinosa Gray (Brittlebush, Incienso)
(Pl 1635 and 1636)
Found in the vicinity of Phantom Ranch in the Canyon.

Encelia frutescens Gray (Pl 1637, 1638 and 1639)
Found along the lower parts of the Kaibab Trail near the river and in Grand Canyon National Monument.

ERIGERON (Fleabane)

Erigeron canadensis L.
Found in Havasu Canyon by Clover and Jotter (4390).

Erigeron canus Gray
Found near El Tovar Hotel (Eastman 5546).

Erigeron concinnus (Hook. ' Arn.) Torr. & Gray
(Pl 1640, 1641, 1642 and 1643)
Found one-half mile east of Hermit Rest on the South Rim, along the Bright Angel and South Kaibab Trails in the Canyon at 4000 and 5000 feet elevation, and in Grand Canyon National Monument.

Erigeron divergens Torr. & Gray (Pl 1644, 1645 and 1646)
Collected at Greenland Lake on the North Rim. Common on both Rims.

Erigeron eatoni Gray (Pl 1647 and 1648)
Found just under Grandview Point on the South Rim and in Little Dutchman Pasture on the North Rim.
Erigeron flagelleris Gray (pl 1649 to 1654, inclusive)
Found near Grandview Point on the South Rim, at Robbers Roost, Swamp Point, and Big Spring Canyon on the North Rim, and in Grand Canyon National Monument.

Erigeron formosissimus Greene (pl 1660, 1661, 1664 and 1665)
Found at Robbers Roost, Big Spring and near the Checking Station on the North Rim. Both variety tyuicus Cronquist and variety viscidus (Rydb.) Cronquist are represented among our specimens.

Erigeron lobatus Nels.
Found at the mouth of Bright Angel Creek by Clover and Jotter (4093).

Erigeron macranthus Nutt. (pl 1655, 1656, 1657 and 1658)
Found in Long Jim Canyon on the South Rim and at Greenland Spring and Neal Spring on the North Rim.

Erigeron nudiflorus Buckl. (pl 1659)
Found near Grandview Point on the South Rim.

Erigeron oreophilus Greem.
Found along the North Kaibab Trail (Eastman and Howell 7078).

Erigeron ursinus Eaton (pl 1666)
Found near the Checking Station on the North Rim.

Erigeron utahensis Gray (pl 1667 and 1879)
Found along Bright Angel Trail at about 4800 feet elevation, in Havasu Canyon and along Hermit Trail.

EUPATORIUM (Eupatorium, Thoroughwort)

Eupatorium herbaceum (Gray) Greene (pl 1668, 1669 and 1670)
Found at Neal Springs and Cliff Springs on the North Rim and along the North Kaibab Trail at about 7600 feet elevation.

FRANSERIA (Bursage)

Franseria eriocentra Gray (pl 1671 and 1672)
Found along the Clear Creek Trail and along the Kaibab Trail in the vicinity of the Redwall Limestone.

GAILLARDIA (Gaillardia, Blanketflower)

Gaillardia pinnatifida Torr. (pl 1673, 1674 and 1675)
Found at Trash Tank and in Long Jim Canyon on the South Rim, and at Rowe Well.
**GNAPHALIUM** (Cudweed, Everlasting)

*Gnaphalium macouni* Greene (Pl 1676)
Found in the Kaibab Basin on the North Rim.

*Gnaphalium palustre* Nutt. (Pl 1677)
Found in the Kaibab Basin on the North Rim.

*Gnaphalium wrighti* Gray (Pl 1678)
Found at Phantom Ranch in the Canyon.

**GRINDELIA** (Gumweed)

*Grindelia aphanactis* Rydb. (Pl 1679)
Found along the West Rim Drive on the South Rim.

*Grindelia squarrosa* (Pursh) Dunal var. *serrulata* (Rydb.) Steyermark (Pl 1680)
Found near Grandview Point on the South Rim.

**GUTIERREZIA** (Snakeweed)

*Gutierrezia lucida* Greene (Pl 1681)
Found about eight miles east of Grand Canyon Village on the South Rim.

*Gutierrezia microcephala* (DC.) Gray (Pl 1682)
Found along Clear Creek Trail in the Canyon.

*Gutierrezia sarothrae* (Pursh) Britt. and Rusby (Pl 1683, 1684 and 1685)
Common on both Rims.

**HELIANTHELLA** (Helianthella)

*Helianthella quinquenervis* (Hook.) Gray (Pl 1686, 1687 and 1688)
Found near the Checking Station and at Marble Flat on the North Rim.

*Helianthella microcephala* Gray (Pl 1689 and 1690)
Found at Powell Spring on the North Rim.

**HELIANTHUS** (Sunflower)

*Helianthus petiolaris* Nutt. (Pl 1691)
Found at Trash Tank on the South Rim.
Hieracium (Hawkweed)
Hieracium fendleri Schultz Bip. (PI 1832)
Found near Swamp Point on the North Rim.

Hymenoclea (Burrobrush)
Hymenoclea salsola Torr. and Gray (PI 1692 and 1693)
Found in the lower end of Toroweap Valley in Grand Canyon National Monument.

Hymenopappus (Hymenopappus)
Hymenopappus lugens Greene (PI 1694, 1695, 1696, 1697 and 1698)
Collected at Grandview Point and west of Rowe Well on the South Rim and known to occur at various other places on both Rims.

Lactuca (Lettuce)
Lactuca serriola L. var. integrifolia Bogenhard
Found in Havasu Canyon by Clover and Jotter (4393).

Laphamia (Laphamia)
Laphamia congesta Jones
Found at Cape Royal on the North Rim (Peirson 7419).

Laphamia toumeyi Robins. and Greewm. (PI 1699)
Collected near the Grand Canyon Lodge on the North Rim and known to occur on both Rims. Known only from Grand Canyon National Park.

Madia (Tarweed)
Madia glomerata Hook. (PI 1700 and 1701)
Found in the Kaibab Basin on the North Rim.

Malacothrix (Malacothrix)
Malacothrix clevelandi Gray
Found along Hermit Creek (Eastman 6012).

Malacothrix torreyi Gray (PI 1702)
Found in Pasture Wash on the South Rim.
OXYTENIA

Oxytenia acerosa Nutt.
Found near the lower end of Bright Angel Trail (Eastman 3714).

PARTHENIUM (Parthenium)

Parthenium incanum H.B.K. (PI 1703)
Found in Havasu Canyon and reported in Kearney and Peebles as common in the lower parts of Grand Canyon.

PECTIS (Pectis, Fetid-marigold)

Pectis papposa Harv. and Gray (Pl 1704)
Found in Havasu Canyon.

PEREZIA (Perezia)

Perezia wrighti Gray (Pl 1705, 1706, 1707 and 1708)
Found along Bright Angel Trail and at Phantom Ranch in the Canyon and in Havasu Canyon.

PLUCHEA (Pluchea)

Pluchea sericea (Nutt.) Coville (Arrowweed)
(Pl 1709, 1710 and 1711)
Found at Phantom Ranch in the Canyon and in Havasu Canyon.

POROPHYLLUM (Poreleaf)

Porophyllum gracile Benth. (Pl 1712 and 1713)
Found at Phantom Ranch in the Canyon and in Havasu Canyon.

PSILOSTROPE (Paperflower)

Psilostrophe sparsiflora (Gray) Nels. (Pl 1714 to 1723, inclusive)
Found in Long Jim Canyon on the South Rim, along the Hermit and Kaibab Trails in the Canyon and in Grand Canyon National Monument.

Psilostrophe tagetina (Nutt.) Greene
Found along Hermit Trail (Eastman 5865).
RATIBIDA  (Prairieconeflower)

_Ratibida columnaris_ (Sims) Don  (Pl 1724)
Found near Shoshone Point on the South Rim.

SANVITALIA

_Sanvitalia aborti_ Gray
Found near El Tovar Hotel (Eastman 3647).

SENECIO  (Groundsel)

_Senecio lynceus_ Greene  (Pl 1725)
Found in DeMotte Park just outside the park boundary on the North Rim.

_Senecio macdougali_ Heller  (Pl 1726 and 1727)
Found at Neal Springs and Greenland Springs on the North Rim.

_Senecio monoensis_ Greene  (Pl 1728)
Found in Pasture Wash on the South Rim.

_Senecio multilobatus_ Torr. and Gray  (Pl 1729)
Found one mile south of the South Entrance on the South Rim.

_Senecio quercetorum_ Greene
Found in Havasu Canyon (Herbarium of the Museum of Northern Arizona B4987).

_Senecio spartioides_ Torr. and Gray  (Pl 1730)
Found two miles south of Yaki Point on the South Rim.

_Senecio stygius_ Greene  (Pl 1731)
Found near Rowe Well on the South Rim and along the South Kaibab Trail in the Canyon. The type specimen was collected somewhere in Grand Canyon by Lemmon in 1884.

_Senecio uintahensis_ Nels.  (Pl 1732 to 1737, inclusive)
Found near Grandview Point on the South Rim, on the South Kaibab Trail at 7000 feet elevation, and near the Checking Station on the North Rim and known to occur at other places on both Rims.

SOLIDAGO  (Goldenrod)

_Solidago altissima_ L.  (_S. canadensis var. arizonica_ Gray)  (Pl 1738)
Found near Grandview Point on the South Rim.

103
Solidago graminiflora (Woot. and Standl.) Blake
(P1 1740 and 1741)
Found in South Canyon north of the park boundary on the North Rim.

Solidago missouriensis Nutt. (P1 1739)
Found in Thompson Canyon on the North Rim.

Solidago nana Nutt. (P1 1742, 1743 and 1744)
Found at Fawn Spring, Robbers Roost, and near the Check- ing Station on the North Rim.

Solidago petradoria Blake (P1 1745, 1746 and 1747)
Found at Cape Royal and Point Sublime on the North Rim.

Solidago trinervata Greene (S. sparsiflora Gray)
(P1 1748, 1749, 1750 and 1751)
Found at Neel Springs and Cape Royal on the North Rim, in Long Jim Canyon on the South Rim and in Havasu Canyon.

**SONCHUS (Sowthistle)**

Sonchus asper (L.) Hill (P1 1752)
Found near Bright Angel Creek. Exotic. Native of Europe.

Sonchus oleraceus L.
Found in Havasu Canyon. Exotic. Native to Europe.
(Herbarium of the Museum of Northern Arizona B5002). Also found along the South Kaibab Trail by Clover and Jotter (4129).

**STEPHANOMERIA (PTILORIA) (Wireleettuce)**

Stephanomeria pauciflora (Torr.) Nels. (P1 1753 to 1761, inclusive, and 2041)
Found at Cape Royal, Cliff Springs and Greenland Point on the North Rim, in Bright Angel Canyon and along Clear Creek Trail in the Canyon, in Havasu Canyon, and near the Ranger Station in Grand Canyon National Monument.

Stephanomeria tenuifolia (Torr.) Hall (P1 2060)
Found at Cape Royal on the North Rim.

Stephanomeria thurberi Gray (P1 1762)
Found at Rowe Well on the South Rim.

**TARAXACUM (Dandelion)**

Taraxacum laevigatum (Willd.) DC. (P1 1764 and 1767)
Found near Grandview Point and five miles west of Moran Point on the South Rim.
Taraxacum officinale Weber (T. palustre var. vulgare (Lam.)
Fernald) (P1 1763, 1765 and 1858)
Found at various places on both Rims. This is the
common dandelion of the United States.

TOWNSENDIA (Townsendia)

Townsendia arizonica Gray
Found twelve miles west of Grand Canyon Village (Her­
barium of the Museum of Northern Arizona B4408).

Townsendia excapa (Richards.) Porter (P1 1768, 1769, 1770,
1771 and 1772)
Found in Grand Canyon Village, in Long Jim Canyon and
four miles west of Moran Point on the South Rim.

TRAGOPOGON (Goatsbeard)

Tragopogon dubius Scop. (P1 1773)
Found near Wayside Museum on the South Rim.

TRIXIS (Trixis)

Trixis californica Kellogg (P1 1774, 1775, 1776 and 2152)
Found along the Bright Angel and Kaibab Trails and at
Phantom Ranch in the Canyon.

UROPAPPUS

Uropappus linearifolius Nutt. (Microseris linearifolia (DC)
Schultz Bip.)
Found along Hermit Creek (Eastman 5980).

VERBESINA (Crownbeard)

Verbesina encelioides (Cav.) Benth. and Hook.
(P1 1777 and 1778)
Common in Grand Canyon Village and along roadsides on the
South Rim. Also found in Havasu Canyon.

VIGUIERA (Goldeneye)

Viguiera multiflora (Nutt.) Blake (P1 1779 to 1787, inclusive)
Fairly common on both Rims and collected at several loca­
tions. Var. nevadensis (Nels.) Blake is less common than the
straight species but it has been collected at Neal Springs on
the North Rim and one and one-half miles south of Grandview
Point on the South Rim.
ADDENDUM TO CHECKLIST OF PLANTS
OF
GRAND CANYON NATIONAL PARK
January, 1947

THALLOPHYTA (ALGAE, FUNGI AND LICHENS)

Division MYXOMYCETAE (Slime Moulds)

Lyogola sp. (Slime Mould) (No specimen in herbarium)
(Photo-transparency #2126 in Grand Canyon collection)
Found at spray beds on dead stump in National Park Service Headquarters area, Bright Angel Point, North Rim.

Division EUYMYCETAE (True Fungi)

BASIDIOMYCETES : URIDALES (Rusts)

Coleosporium orwellii Cummins (Rust) (No specimen in herbarium)

Peridermium coloradense (Rust) (No specimen in herbarium)

AGARICALES : POLYPELACEAE (Pore Fungi)

Polyporus circinatus (No specimen in herbarium)
Polyporus sp. (No specimen in herbarium; photo-transparency #2125 in Grand Canyon collection)
Yellow and white mass on old sawed stump found near National Park Service Headquarters on Bright Angel Point, North Rim.

**AGARICACEAE** (Gill Fungi)

*Lentinus lepidens* (Scaley Lentinus) (No specimen in herbarium)

*Tricholoma rutilens (?)* (Tricholoma) (No specimen in herbarium; photo-transparency #2126 in Grand Canyon collection)
Found near National Park Service Headquarters on Bright Angel Point, North Rim.

**LYCOPERDALES : LYCOPERDACEAE** (Puffballs)

*Calvatia gigantea* (Pers. Lloyd) (Giant Calvatia) (No specimen in herbarium, but photo-print mounted on Pl 2428)
Found on South Rim in open *Pinus ponderosa* forest.

**SPERMATOPHYTA** (Seed Plants)

8. **GRAMINEAE** (Grass Family)

**AGROPYRON** (Wheatgrass)

*Agropyron pseudorepens* (Scribner and Smith) (False Quackgrass) (Pl 2418)
Found at Kanabownits Spring on North Rim.

**HORDEUM** (Barley)

*Hordeum nodosum* (Meadow Barley) (Pl 2420)
Found at Neal Springs on North Rim.
9. **Cyperaceae** (Sedge Family)

*Carex* (Sedge)

*Carex near scoparia* Schkuhr (Broom Sedge)  (Pl 2421)
Found in Kanabwotits Canyon, North Rim.

*Carex subfusa* W. Boot (Pl 2422)
Found at Neal Springs on the North Rim.

16. **Juncaceae** (Rush Family)

*Juncus* (Rush)

*Juncus longistyles* Torr.  (Pl 2423)
Found at Neal Springs on the North Rim.

54. **Leguminosae** (Pea Family)

*Astragalus*

*Astragalus humilimus* Gray  (Pl 2424)
Found at Cape Royal just south of parking area on the North Rim.

58. **Zygophyllaceae** (Caltrop Family)

*Kallstroemia* (Caltrop)

*Kallstroemia californica* (Wats.) Vail (Pl 2425)
Found at Grand Canyon Village.

106. **Boraginaceae** (Borage Family)

*Lithospermum* (Gromwell)

*Lithospermum incisum* Lehms (Narrowleaf Gromwell) (Pl 1113)
Found on South Rim along Flagstaff Road. Is the same as L. linearifolium.
Lithospermum linearifolium Goldie
Same as L. incisum.
Lithospermum angustifolium*
Same as L. linearifolium.

121. COMPOSITAE (Sunflower Family)

CHRYSOThAMNUS (Rabbitbrush)

Chrysothamnus nauseosus var. gnaphalodes (Green) Hall
(Rubber Rabbitbrush) (PI 2426)
Found at Cape Royal parking area.

GNAPHALIUM (Cudweed)

Gnaphalium grayi Nels and Macbri. (PI 2427)
Found at Neal Springs on the North Rim.
GENERAL INDEX

Abies 11
  concolor 11
  lasiocarpa 11
Abronia 34
  nana 34
  pumula 34
Acacia 50
  greggi 50
Acarionaeae 1
Acarospora 4
  epilutescens 4
Acarosporaeae 4
Acer 60
  glabrum 60
  grandidentata 60
  interius 60
  var. interius 60
Aceraceae 60
Achillea 90
  lanulosa 90
Aconitum 37
  columbianum 37
Actinea 90
  acaulis
  var. arizonica 90
  cooperi 90
  richardsoni
  var. floribunda 91
  subintegra 91
Adiantum 8
  capillus -
  venosus 8
Agariaceae 1, 107
Agaricales 106
Agaricus 59
  silvicola 1
Agastache 80
  pallidiflora 80
Agave 25
  utahensis 25
Agoseris 91
  arizonica 91
  glauca 91
  var. laciniata 91
  var. parvi-
flora 91
  taxicifolia 91
Agropyron 13, 107
  pauciflorum 13
  pseudorepens 107
  repens 13
  smithii 13
  var. molle 13
  trachycaulum 13
Agrostis 13
  acabra 13
  verticillata 13
Aizoaceae 35
Aizoar Family 35
Alfifleria 56
Algae 1, 106
Alisma 13
  plantago -
  aquatica 13
Alliaceae 13
Allium 23
  bicinephrum 23
  oenulum 23
  neomexicanum 23
  palmeri 23
Allo尼亚 34
  incarnata 34
  linearis 34
Alopecurus 13
  aequalis 13
Alpine Fir 11
Alseike Clover 55
Alumroot 45
Anemia 1
  muscari 1
  pantherina 1
Amaranthaceae 33
  vaginata
  var. livida 1
Amaranth Family 33
Amaranthaceae 33
Amaranthus 33
  blitoides 33
  hybridus 33
  powelli 34
Amorphy 50
  fruticosa
  var. occiden-
talis 50
Amsinckia 77
  intermedia 77
  menziesi 77
  tesselata 77
Amsonia 73
  eastwoodiana 73
Anacardiaceae 59
Anaphalis 91
  margaritacea 91
Andropogon 14
  barbinodis 14
  glomeratus 14
Androsace 71
  septentrionalis 71
  var. diffusa 71
  var. glandula-
  losa 71
  var. puber-
  lenta 71
Anemone 37
  tuberosa 37
Anemopsis 26
  californica 26
Antelopehorn 73
Antennaria 91
  aprica 91
  arida 91
  marginata 91
  rosulata 92
Antericum 24
  torreyi 24
Amorphy 50
  utahensis 25
Apophyllum 48
Apium 68
  graveolens 68
Apolopappus 92
110
acrodenius 92
drummondi 92
gracilis 92
heterophyllus 92
muttalli 92
parryi 92
salicinus 92
scopulorum 92
\textit{var.} gooddingi 92
watsoni 92
Apoynaeae 73
Apoynum 73
androsaemifolium 73
cannabium 73
sukdorfi 73
Apricot 49
Aquilegia 37
ohrysantha 37
oolerulea 37
\textit{var.} pinetorum 37
triternata 37

Arabis 40
fendleri 40
glabra 40
graecilipes 40
perennans 40
pulchra
\textit{var.} pallens 40

Arceuthobium 29
"\textit{var.} divericatum" 29
"\textit{var.} microcarpum" 29
Arctostaphylos 70
patula 70
platyphyllea 70
pungens 70

Areanaria 36
aculeata 36
confusa 36
eastwoodiae 36
fendleri 36

Argemone 40
platyroeras 40
\textit{var.} hispida 40

Aristida 14
adscensionis 14
glaucia 14
hamulosa 14

\textit{longiseta} 14
Arizona Ash 72
Armillaria
\textit{albolanaripes} 1
mellea 1
Arnica 92
cordifolia 92
flosa 93
Arrowweed 102
Artemisia 93
biglovi 93
carruthii 93
dracunculoides 93
frigidula 93
grahamiana 93
ludovicia 93
nova 93
pacifica 93
tridentata 93

Asclepiadaceae 73
Asclepias 73
capricornu
\textit{var.} occidentalis 73
galioides 73
latifolia 73
tuberosa 73
Asclepiodora 73
decumbens 73

Ash 71
Aspen 1, 26
Aster 93
abatus 93
adenolepis 94
adsendens 94
aquifolius 94
arenosus 94
carulescens 94
canescens 94
cichoriaeus 94
comutatus
\textit{var.} polycepha- lus 94
folicaus
\textit{var.} burkei 94
glaucodes 94
\textit{var.} pulcher 94
hirtifolius 94
intricatus 94
Astragalus 51, 108
emphioxy 51
\textit{var.} melano-
calyx 51
artipes 51
bryanti 51
curtiolo 51
diphysus 51
hossakiae 51
humillimus 108
humistratus 51
\textit{var.} sonorae 51
\textit{var.} tener-rimus 51
impensus 51
lentiginosus 51
\textit{var.} mokia-
censis 51
\textit{var.} oropedi 51
\textit{var.} palans 51
newberryi 51
muttallianus 52
praelongus 52
purshii 52
scaposus 52
calyocosus 52
sonora
\textit{var.} tener-
rimus 52
thompsonae 52
zionis 52

Athyranus 40
pusillus 40
Atriplex undulatum 5
Atriplex 32
canescens 32
Avens 45
Ayenia 62
pusilla 62

Bascharis 95
emoryi 95
glutinos 95
Bahia 95
dissecta 95
Baileya 95
multiradiata 95
Barberry Family 39
Barbula ungulculata 6
Barley 17, 107
Barnyardgrass 18
Barreloa 64
Basidiomycetes 106
Bastardtoadflax 2a
Bean 54
Beardtongue 85
Beargrass 24
Bebb Willow 27
Bebbia 95
juncea 95
Bedstraw 87
Beebalm 81
Beech Family 28
Bellflower 90
Bellflower Family 90
Bentgrass 13
Berberidaceae 39
Berberis fremontii 39
repens 39
Bermudagrass 16
Bernardia 58 inana 58
Betula 27 fontinalis 27
Betulaceae 27
Bignonia Family 86
Bignoniaceae 86
Bigtooth Maple 50
Birch 27
Birch Family 27
Birdbeak 84
Biscuitroot 68
Bittersweet Family 59
Black Medic 53
Blackberry 50
Blackbrush 47
Bladderfern 9
Bladderpod 42
Bladdersedge 61
Bladderstem 30
Blanketflower 99
Blazingstar 63
Blepharoneuron 14 tricholepis 14
Blue Loo 51
Blue Spruce 1, 11
Blue violet 63
Blue Yuca 24a
Bluebells 79
Bluedick 24
Blue-eyedgrass 25
Bluestem 14
Bluets 88
Boerhaavia 34
oouleri 34
torreyana 34
wrighti 34
Boletaceae 2
Boletus 2
edulis 2
granulatus 2
piniola 2
versipellis 2
Borage Family 77, 108
Boraginaceae 77, 108
Bottlebrush 19
Bouteloua 14
aristidoides 14
barbata 14
curtipendula 14
gracilis 14
trifida 14
Boxelder 60
Boxleaf 60
Broom 9
Broombellbush 95
Broomella 95
stractylodis 95
californica 95
grandiflora 95
longifolia 95
multiflora 95
obongifolia
var. lini-
folia 95
soabra 96
Bristlegrass 19
Bristlebush 98
Bristlefern 9
Broadleaf Yuca 24
Brodiaea 24 capitata
var. pausi-
flora 24
Brome 15
Bromus 15
Bromus
anomalus 15
carinatus 15
catharticus 15
ciliatus 15
frondosus 15
inermis 15
purgans 15
racemosus 15
rigidus 15
rubens 15
tectorum 15
Broom Sedge 108
Broomrape 87
Broomrape Family 87
Bryaceae 8
Bryophyta 5
Bryum argenteum
var. lanatum 8
caspiticium 8
cirratum 8
gemmiparum 8
pallens 8
Buckbrush 60
Buckhorn Plantain 87
Buckthorn 61
Buckthorne Family 60
Buckwheat Family 30
Buffalogourd 66
Buffalogourd 89
Buhrush 22
Burreed 12
Burreed Family 12
Burrobrush 101
Burkage 99
Buttercup 38
Butterfly Milkweed 73
Butterflyweed 73
Cacao Family 62
Castaceae 64
Cactus Family 64
Calamagrostis 15 scopulorum 15
California Barrel-cactus 64
Callitricheaceae 59
Callitriche 59
palustris 59
Calochortus 24
muttallii 24
Caloplaca
elegans 5
var. trachy-
mitrula 3
pyxidata
var. chlorophaea 3
Cladoniaceae 3
Claytonia 35
rosea 35
clematis 38
douglasii 38
eriophora 38
hirsutissima 38
ligusticfolia 38
pseudoalpina 38
cleome 44
lutea 44
serrulata 44
cliffbrake 9
cliprose 47
climbing milkweed 74
climbing snapdragon 84
cloakfern 9
clover 55
clubflower 84
cocksbur 16
coldenia 77
hispidissima
var. latior 77
coleogyne 47
ramosissima 47
coleosporium
crowellii 106
collinsia 83
parviflora 83
collomia 74
grandiflora 74
linearis 74
collybia
semitale 1
velutipes 1
colorado rubber plant 91
colorado spruce 11
columbine 37
comandra 29
pallida 29
combsseed 79
common cholla 66
compositae 90, 109
condalia 61
lycioides 61
convolvulaceae 74
convolvulus family 74
Corallorrhiza 25
maculata 25
wisteriana 25
Coralroot 25
Cordylanthus 84
parviflorus 84
tenuifolius 84
Coronaeae 69
Cormus 69
stolonifera 69
Corydalis 40
aurea 40
Coryphantha
arizonic 65
Cottonwood 26
Covena 24
Cowania 47
stansburiana 47
Coyote Willow 27
Crabgrass 16
Craglily 24
Cranesbill 56
Crassulaceae 44
Crazyweed 54
Creep 61
Creeper 61
Creeping Mahonia 39
Creosotebush 57
Crepis 97
intermedia 97
occidentalis 97
Cronartium
filamentosum 1
Crossosoma 46
Crossosoma Family 46
bigelovii 46
parviflorum 46
Crossosomataceae 46
Crowfoot Family 37
Crownbeard 105
Cruciferae 40
Cryptantha 78
barbigera 78
capitata 78
confertiflora 78
fendleri 78
flava 78
fulvoaceae 78
gracilis 78
holoptera 78
jamesi 78
modesta 78
pterocarya 78
racemos 78
setosis 78
virginensis 78
Cucurbita 89
foetidissima 89
Cucurbitaceae 89
Cudweed 100, 109
Current 45
Cuscuta 74
campestris 74
Cymopterus
purpureum 78
Cymosus 66
glomerata 16
Cypripedium 21, 108
Cystopteris 9
fragilis 9
Dactylis 16
glomerata 16
Dendelion 104
Detil 24a
Datura 82
meteloides 82
Davidson, R. W.
106, 107
Deathcamas 25
Deerclover 55
Deers-ears 72
Deervetch 53
Delphinium 38
amabile 38
mensiesi 38
pinetorum 38
soapwort 38
Dermatocarpaceae 5
Dermatocarpum 5
miniature
var. compli-
catatum 5
Descurainia 41
california 41
halioctrum 41
incisa 41
longipedicellata
41
obtusa 41
pimatiflora
var. haliocto-
sum 41
var. ochro-
leuca 41
sophia 41
Desertplume 43
Deserttrue 57
Desertsage 81
Desertsweet 47
Desertthorn 82
Deserttrumpet 30
Desertwillow 86
Desmotodon cermus 6
Didymodon topheaeus 6
Digitaria 16
sanguinalis 16
Ditaxis 58
neomexicana 58
Ditricaceae 6
Dock 32
Dodder 74
Dodecatheon 71
radiatum 71
Dodge, Natt 1
Dogbane 73
Dogbane Family 73
Dogweed 98
Dogwood 69
Dogwood Family 69
Douglasfir 12
Draba 41
asprella 41
var. kalbensis 41
Dracocephalum 80
paviflorum 80
Dragonhead 80
Dropseed 19
Dudley Willow 27
Dwarf Juniper 11
Dwarf Mistletoe 29
Dyssodia 98
acerosa 98
pentaichaeta 98
porophyloides 98
thurberi 98
Echinocactus 64
acanthodes 64
leontei 64
Echinocereus 64
canyonensis 64
Engelmanni 64
tenderi 64
octacanthus 64
Echinocloa 16
orugalli
var. zelayensis 16
Elaeagnaceae 66
Elder 88
Eleocharis 22
acicularis
var. occidentalis 22
calva 22
parishii 22
radicans 22
rostellata 22
Elkweed 72
Ellisia 7 6
micrantha 76
Elm Family 28
Elymus 16
glaucus 16
triticoides 16
vulgaris
var. mutica 6
Enalyptaceae 6
Enelia 98
farinosa 98
frutescens 98
Engelmann Spruce 11
Ephedra 12
nevadensis 12
torreya 12
viridis 12
Epilobium 66
adenocauleon 66
alpinum 66
angustifolium 66
californicum 66
drummondii 66
fastigiataum 66
halleaum 66
paniculatum 66
Epipaotis 26
gigantea 26
Equisetaeae 10
Equisetum 10
arvense 10
kansaum 10
laevigatum 10
Eragrostis 16
diffusa 16
Eriogonum alatum 30
arcuatam 30
aurum 30
ocginatum 30
corymbosum 30
deflexum 30
fasciculatum
var. polifolium 31
flavum 30
howeli
var. subraceosmos 30
inflatum 30
ovalifolium 30
polifolium 31
racemosum 31
simpsoni 31
stellatum 50
wrightii 31
zionis
var. occineum 31
Erodium 56
ciourarium 56
texanum 56
Erysimum 41
capitatum 41
elatum 41
ob lanceolatum 42
reapandum 42
Eucalyptus 64
turens 64
bigelovii 75
gracilis 75
inconspicua 75
longiflora 75
multiflora 75
polyantha
  var. whitingi 75
pungens 75
setosissima 75
Gill Fungi 107
Globemallow 62
Glycoeria 17
  borealis 17
  striata 17
Gnaphalium 100, 109
  grayi 109
  macouni 100
  palustre 100
  wrighti 100
Gnetaceae 12
Goatsbeard 105
Goldaster 96
Golden Quaking Aspen 26
Goldenaster 96
Goldenbuckwheat 30
Goldeneye 105
Goldenrod 103
Goldenweed 92
Goodyera 26
  decipiens 26
Gooseberry 45, 46
Goosefoot 32
Goosefoot Family 32
Gourd 89
Gourd Family 89
Grama 14
Gramineae 13, 107
Granitegillia 75
Grape 61
Grape Family 61
Grass Family 13, 107
Grassmut 24
Grayia 33
  spinosa 33
Greasebush 59
Green Gentian 72
Greenleaf Manzanita 70
Grimmia
  alpicola 7
  apocarpa
  var. atrofusca
  calyptrata 7
  decipiens 7
  Grimmiaeae 7
  Grindelia 100
  spathea 100
  squarrosa
  var. serrulata 100
  Gromwell 79, 108
  Groundcherry 82
  Groundsel 103
  Groundsmoke 87
  Gumweed 100
  Gutierrezia 100
  lucida 100
  microcephala 100
  sarothea 100
  Gymnostomum recurvirostrum 6
  Gyrophora
  hirsuta 3
  Gyrophoraceae 3
  Habenaria 26
  sparsiflora
  var. laxiflora
  26
  Hackberry 28
  Hackelia 79
  floribunda 79
  Harebell 90
  Hawksbeard 97
  Hawkweed 101
  Heather Family 70
  Hedeoma 80
  drummondii 80
  namum
  var. typicum 81
  Hedychiogoaactus 64
  Helianthella 100
  microcephala 100
  quinquenervis 100
  Helianthus 100
  petiolaris 100
  Helleborine 26
  Heronbill 56
  Hesperidanthus 42
  linearifolius 42
  Hesperochiron 76
  pumilus 76
  Heteropogon 17
  contortus 17
  Hesperoehiron 76
  parvifolia 45
  var. arizonica 45
  rubescens 45
  versicolor 45
  Hieracium 101
  fendleri 101
  Hilaria 17
  jamesii 17
  Holodisous 48
  discolor
  var. dumosus 48
  var. glabrescens 48
  Honesuckle Family 88
  Hophornbeam 28
  Hop sage 33
  Hoptree 57
  Hordeum 17, 107
  gassoniamum 17
  jubatum 17
  murinum 17
  nodosum 107
  Horse-purslane 35
  Horsetail 10
  Horsetail Family 10
  Houstonia 88
  wrightii 88
  Husnotiella
  pringlei 6
  Hydrophyllaceae 76
  Hygrophyrus 2
  fragrans 2
  gliocyclus 2
  Hymenoclea 101
  salacia 101
  Hymenopappus 101
  lugens 101
  Hypericeae 63
  Hypericum
  anagalloides 63
  formosum 63
  Iliamna 61
  grandiflora 61
  Imperata 17
  hookeri 17
  Incienso 98

117
Indian hemp 73
Indian lettuce 35
Indian root 68
Indigobush 50
Incubye
sororia 2
Ipomoea 74
ococinea
var. hederifolia 74
Iridaceae 25
Iris 25
missouriensis 25
Iris Family 25
Janusia 57
gracilis 57
Joint fir 12
Joint fir Family 12
Juglandaceae 27
Juglans 27
rupestris
var. major 27
Juncaceae 22, 108
Junco 22, 108
acutus
var. sphaerocarpus 22
confusus 23
interior 23
var. arizonicus 23
longistyles 108
mertensianum 23
saximontanus 23
forma brunnescent 23
torreyi 23
traayi 23
Junegrass 18
Juniper 11
Juniperus 11
communis
var. montana 11
siberica 11
soopulorum 11
utahensis 11
Kallstroemia 108
californica 108
Kelloggia 88
galioides 88
Knotweed 31
Koeleria 18
christata 18
Krameria 52
parvifolia 52
Labiatae 80
Lactuca 101
serriola
var. integrifolia 101
Ladieestresses 26
Lambquarters 32
Laphamia 101
congesta 101
toumeyi 101
Lappula 79
floribunda 79
occidentalis 79
redowaki 79
var. desertorum 79
Larkspur 38
Larrea 57
tridentata 57
Lathyrus 52
arizonicus 52
eucosmus 53
graminifolius 53
parvifolius 53
Lecanora
cinerea 4
Lecanoraceae 3
Lecidea 2
crenata 2
parasema 2
platycarpa 2
strobrumnea 2
Lecideaeeae 2
Leguminosae 50, 108
Lentinus
lepideus 107
Lepidogalea
rotundifolia 66
Lepidium 42
lasiocarpum 42
montanum
var. glabrum 42
var. jonesi 42
perfoliatum 42
Lepitota
glypeolera 2
Leptobryum
pyriforme 8
Lesquerella 42
arizonica 42
intermedia 42
purpurea 42
Lettuce 101
Lewisia 35
pygmaea 35
rediviva 35
Licor 1, 2, 106
Ligustium 68
porteri 68
Lilac Family 23
Lily Family 23
Linacea 56
Linnaea 88
borealis
var. americana 88
Limonum 56
levisi 56
puberulum 56
Lipfer 9
Lippia 30
wrighti 80
Lithophagma 45
australis 45
bubifer 45
tenella 45
Lithospermum 79, 108
angustifolium 109
incisum 108
linearifolium 109
multiflorum 79
Leverworth 5, 8
Lizardtail Family 26
Loasa Family 63
Loasaceae 63
Lobelia 90
cardinalis
var. graminia 90
Loco 51
Locoweed 51
Locust 55
Lolium 18
perenne 18
Lomatium 68
leptocarpum 68
madougali 68

118
diohotomum 76
Narrowleaf Gromwell 108
Narrowleaf Yucoa 24a
Needlegrass 20
Nemocladus 90
glanduliferus var. orientalis 90
Nemophila 76
aurita var. arizonica 76
Netleaf Hackberry 28
Nettle 29
Nettle Family 29
Nicotiana 82
attenuate trigonophylla 82
Nightshade 82
Nodding Onion 23
Nolina 24
bigelovii 24
microcarpa 24
Notholaena 9
limitanea 9
parryi 9
simuata 9
Nyotaginaceae 34
Oak 28
Oceanspray 48
Oenothera 67
brevipes 67
caesipitosa var. marginata 67
coronopifolia 67
hartwegi 67
hookeri 67
lavandulaefolia 67
iongissima 68
micrantha var. exfoliata 68
multijuga 67
parvi-flora 67
pallida 67
Oleaceae 71
Oleaster Family 66
Olive Family 71
Onagraceae 66
Onion 23
Opuntia 65
aurea 65
chlorotica 65
engelmanni 65
erinaea 65
hystricina 65
mojavensis 65
phaeantha 65
polycantha 65
rhodantha 65
vaseyi 65
whipplei 65
Orchardgrass 16
Orchid Family 25
Orchidaceae 25
Oregon grape 39
Creoxis 69
madougali 69
Orobanchaceae 87
Orobanchus 87
fasciulata 87
Cripine Family 44
Orthocarpus 84
luteus 84
pupureo-albus 84
Orthotrichaceae 7
Orthotrichum
alpestre 7
Oryzopsis 18
bloomeri 18
hymenoides 18
Osmorrhiza 69
obtusa 69
Ostrya 28
knowltoni 28
Ovalhead Sedge 21
Owl clover 84
Oxybaphus 35
linearis 35
Oxytoma 102
acerosa 102
Oxytropis 54
lamberti 54
sericea 54
Pachistima 60
myrsinites 60
Pachystima 60
Paintbrush 83
Painted pump 83
Palblanco 29
Panaeolus separatus 2
Panicum 18
huachuchae 18
Papaveraceae 40
Paperflower 102
Parietaria 29
florida 29
pennsylvanica 29
Parmelia
mollinscula 4
tolovaea 4
Parmeliaceae 4
Parry Bellflower 80
Parsley Family 68
Parthenium 102
icaenum 102
Parthenoissus 61
vitacea 61
Pea Family 50, 108
Pear 49
Pearly everlasting 91
Pearly everlasting 91
Peavine 52
Petas 102
papposa 102
Pectocarya 79
heterocarpa 79
platycarpa 79
Pedicularis 85
centranthera 85
Peucedanum
longimurcata 9
suksdorffiana 9
Pellitory 29
Peltigera canina 3
Peltigeraeae 3
Pennycress 44
Penstemon 85
barbatus 85
var. torreyi 85
bridgesi 85
eatoni 85
var. undosus 85
jamesi 85
120
linarioides 85
d. viridis 85
mioranthus 85
pachyphyllum
d. congestus 85
palmeri 85
rydbergii 86
thompsoniae 86
utahensis 86
virgatus 86
Peppergrass 42
Pepperweed 42
Peranium
decipiens 26
Perezia 102
wrightii 102
Perideridia 69
gaertneri 69
Peridermium
coloradense 106
Petalonyx 64
parryi 64
Petalostemon 54
candidus 54
oligophyllus 54
searlsiae 54
Petrophytum 49
caspitosum 49
...
Skeleton Weed 30
Skunkbush 59
Skyrocket 74
Slime Mound 106
Smallwing Sedge 21
Smartweed 31
Smilacina 24
bractata var. connata 62
Smith, Dr. Alexander H. 1
Smooth Ash 72
Snakeweed 100
Snowberry 89
Soapweed 24
Solanaeae 82
Solanum 82
douglasi elaeagnifolium 83
Solidago 103
altissima 103
canadensis var. arizonica 103
graminea 104
missouriensis 104
nana 104
petradora 104
sparsiflora 104
trinervata 104
Sonchus 104
asper 104
oleraceus 104
Sophia incisa 41
filipes 41
Sorbus 50
dumosa 50
Sorrel 32
Scythistle 104
Spanish-bayonet 24
Sparganaceae 12
Sparganium 12
simplex 12
Specklepod Loo 51
Speedwell 86
Spermatophyta 11, 107
Sphaeralcea 62
augustifolia var. cuspidata 62
fendleri 62
grossulariae folia

var. pedata 62
incana var. cuneata 62
marginata 62
parvifolia 62
rustyi 62
subhastata var. connata 62
Spiderflower 44
Spiderling 34
Spikerush 22
Spikesedge 22
Spirea caespitosa 49
Spiranthes 26
romansoffiana 26
Sporobolus 19
contractus 19
cryptandrus 19
flexuosus 19
Spreading Dogbane 73
Springbeauty 35
Spruce 11
S purge Family 58
Squawbush 59
Squaw Current 45
Squirreltail 19
Stanleya 43
caruata 43
pinnata 43
Starflower 24
Starwort 37
Staurotheca
clopima 5
Stellaria 37
jamesiana 37
nitens 37
Stephanomeria 104
pauciflora 104
tenuissima 104
thuberi 104
Sterilium 62
Stockey 63
Stickle 79
Stipa 20
arida 20
columbiana var. nelsoni 20
comata 20
coronata 20
var. depau- perata 20
lettermani 20
lobata 20
scribneri 20
speciosa 20
tenuissima 20
St. Johnswort 63
St. Johnswort Family 63
Stonecrop 44
Strawberry 48
S t reptanthus 43
cordata 43
Sumac 59
Sunflower Family 90, 109
Sweetly 69
Sweetclover 54
Sweetclove 69
Symphoricarpos 89
longiflorus 89
oreophilus 89
parishii 89
rotundifolius 89
utahensis 89
Tanglehead 17
Tansy 47
Tansy Mustard 41
Taraxacum 104
laevigatum 104
officinale 105
palustre
var. vulgare 105
Tarweed 101
Teloschistaceae 4
Teloschistes
polycarpus 4
Texas Mulberry 28
Thalictrum 39
Thalictrum 39
fendleri 39
Thallophyta 1, 106
Thamnosma 67
montana 57
Thelypodium 43
integrafolium 43
rhomboidum 43
wrighti 43
Thelypodia 43
Thistle 97
Thistlepoppy 40
Thlaspi 44
<table>
<thead>
<tr>
<th>Botanical Name</th>
<th>Common Name</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>fendleri</em> 44</td>
<td>Fendler's 44</td>
</tr>
<tr>
<td><em>purpurascens</em> 44</td>
<td>Purple 44</td>
</tr>
<tr>
<td><em>Thornapple</em> 82</td>
<td>Thornapple 82</td>
</tr>
<tr>
<td><em>Thoroughwort</em> 99</td>
<td>Thoroughwort 99</td>
</tr>
<tr>
<td><em>Threeawn</em> 14</td>
<td>Threeawn 14</td>
</tr>
<tr>
<td><em>Thysanocarpus</em> 44 var. <em>crenatus</em> 44</td>
<td>Thysanocarpus var. crenatus 44</td>
</tr>
<tr>
<td><em>Timmia austriaca</em> 7</td>
<td>Timmia austriaca 7</td>
</tr>
<tr>
<td><em>bavarica</em> 7</td>
<td>Timmia bavarica 7</td>
</tr>
<tr>
<td><em>Timniaeae</em> 7</td>
<td>Timniaeae 7</td>
</tr>
<tr>
<td><em>Tobacco</em> 82</td>
<td>Tobacco 82</td>
</tr>
<tr>
<td><em>Tortula muconifolia</em> 6 var. <em>ruralis</em> 6</td>
<td>Tortula muconifolia var. ruralis 6</td>
</tr>
<tr>
<td><em>Towermustard</em> 40</td>
<td>Towermustard 40</td>
</tr>
<tr>
<td><em>Townsendia</em> 105</td>
<td>Townsendia 105</td>
</tr>
<tr>
<td><em>arizonica</em> 105</td>
<td>Townsendia arizonica 105</td>
</tr>
<tr>
<td><em>exscapa</em> 105</td>
<td>Townsendia exscapa 105</td>
</tr>
<tr>
<td><em>Tragopogon</em> 105</td>
<td>Tragopogon dubius 105</td>
</tr>
<tr>
<td><em>dubius</em> 105</td>
<td>Trailing Four-o'Clock 34</td>
</tr>
<tr>
<td><em>Trianthema</em> 35</td>
<td>Trianthema 35</td>
</tr>
<tr>
<td><em>portulascastrum</em> 35</td>
<td><em>portulascastrum</em> 35</td>
</tr>
<tr>
<td><em>Tricholoma</em> 107</td>
<td>Tricholoma 107</td>
</tr>
<tr>
<td><em>rutilans</em> 107</td>
<td>Tricholoma rutilans 107</td>
</tr>
<tr>
<td><em>Tribulus</em> 57 var. <em>terrestris</em> 57</td>
<td>Tribulus terrestris 57</td>
</tr>
<tr>
<td><em>Trifolium</em> 55</td>
<td>Trifolium 55</td>
</tr>
<tr>
<td><em>andinum</em> 55</td>
<td>Trifolium andinum 55</td>
</tr>
<tr>
<td><em>fendleri</em> 55</td>
<td>Trifolium fendleri 55</td>
</tr>
<tr>
<td><em>hybridum</em> 55</td>
<td>Trifolium hybridum 55</td>
</tr>
<tr>
<td><em>pinetorum</em> 55</td>
<td>Trifolium pinetorum 55</td>
</tr>
<tr>
<td><em>repens</em> 55</td>
<td>Trifolium repens 55</td>
</tr>
<tr>
<td><em>subaqualescens</em> 55</td>
<td>Trifolium subaqualescens 55</td>
</tr>
<tr>
<td><em>Tridioda</em> 20</td>
<td>Tridioda 20</td>
</tr>
<tr>
<td><em>mutica</em> 20</td>
<td>Tridioda mutica 20</td>
</tr>
<tr>
<td><em>pilosula</em> 20</td>
<td>Tridioda pilosula 20</td>
</tr>
<tr>
<td><em>pulchella</em> 21</td>
<td>Tridioda pulchella 21</td>
</tr>
<tr>
<td><em>Trixis</em> 105</td>
<td>Trixis 105</td>
</tr>
<tr>
<td><em>californica</em> 105</td>
<td>Trixis californica 105</td>
</tr>
<tr>
<td><em>True Fungi</em> 106</td>
<td>True Fungi 106</td>
</tr>
<tr>
<td><em>Tumblemustard</em> 43</td>
<td>Tumblemustard 43</td>
</tr>
<tr>
<td><em>Tumbling Russian-thistle</em> 35</td>
<td>Tumbling Russian-thistle 35</td>
</tr>
<tr>
<td><em>Turpentine Broom</em> 57</td>
<td>Turpentine Broom 57</td>
</tr>
<tr>
<td><em>Twinflower</em> 88</td>
<td>Twinflower 88</td>
</tr>
<tr>
<td><em>Twinpod</em> 42</td>
<td>Twinpod 42</td>
</tr>
<tr>
<td><em>Twistflower</em> 43</td>
<td>Twistflower 43</td>
</tr>
<tr>
<td><em>Ulmaceae</em> 28</td>
<td>Ulmaceae 28</td>
</tr>
<tr>
<td><em>Umbelliferae</em> 68</td>
<td>Umbelliferae 68</td>
</tr>
<tr>
<td><em>Unicornplant</em> 87</td>
<td>Unicornplant 87</td>
</tr>
<tr>
<td><em>Unicornplant Family</em> 87</td>
<td>Unicornplant Family 87</td>
</tr>
<tr>
<td><em>Uridales</em> 106</td>
<td>Uridales 106</td>
</tr>
<tr>
<td><em>Uropappus</em> 105 var. <em>linearifolius</em> 105</td>
<td>Uropappus var. linearifolius 105</td>
</tr>
<tr>
<td><em>Urtica</em> 29 var. <em>serra</em> 29</td>
<td>Urtica var. serra 29</td>
</tr>
<tr>
<td><em>Urticaceae</em> 29</td>
<td>Urticaceae 29</td>
</tr>
<tr>
<td><em>Usnea caerulosa</em> 4 var. <em>florida</em> 4</td>
<td>Usnea var. floridana 4</td>
</tr>
<tr>
<td><em>Usnea</em> 4</td>
<td>Usnea 4</td>
</tr>
<tr>
<td><em>Valerian Family</em> 89</td>
<td>Valerian Family 89</td>
</tr>
<tr>
<td><em>Valeriana</em> 89 var. <em>acutiloba</em> 89</td>
<td>Valeriana var. acutiloba 89</td>
</tr>
<tr>
<td><em>edulis</em> 89</td>
<td>Valeriana edulis 89</td>
</tr>
<tr>
<td><em>mirantha</em> 89</td>
<td>Valeriana mirantha 89</td>
</tr>
<tr>
<td><em>Valerianaceae</em> 89</td>
<td>Valerianaceae 89</td>
</tr>
<tr>
<td><em>Valsa</em> 1</td>
<td>Valsa 1</td>
</tr>
<tr>
<td><em>Verbascum</em> 86 var. <em>thapsus</em> 86</td>
<td>Verbascum var. thapsus 86</td>
</tr>
<tr>
<td><em>Verbena Family</em> 80</td>
<td>Verbena Family 80</td>
</tr>
<tr>
<td><em>Verbena</em> 80 var. <em>bracteata</em> 80</td>
<td>Verbena var. bracteata 80</td>
</tr>
<tr>
<td><em>goodingi</em> 80</td>
<td>Verbena goodingi 80</td>
</tr>
<tr>
<td><em>mac dougali</em> 80</td>
<td>Verbena mac dougali 80</td>
</tr>
<tr>
<td><em>wrighti</em> 80</td>
<td>Verbena wrighti 80</td>
</tr>
<tr>
<td><em>Verbenaceae</em> 80</td>
<td>Verbenaceae 80</td>
</tr>
<tr>
<td><em>Verbesina</em> 105</td>
<td>Verbesina 105</td>
</tr>
<tr>
<td><em>enoecioides</em> 105</td>
<td>Verbesina enoecioides 105</td>
</tr>
<tr>
<td><em>Veronica</em> 86 var. <em>americana</em> 86</td>
<td>Veronica var. americana 86</td>
</tr>
<tr>
<td><em>peregrina</em> 86 var. <em>xalapensis</em> 86</td>
<td>Veronica var. xalapensis 86</td>
</tr>
<tr>
<td><em>serpyllifolia</em> 86</td>
<td>Veronica serpyllifolia 86</td>
</tr>
<tr>
<td><em>Verrucariaceae</em> 5</td>
<td>Verrucariaceae 5</td>
</tr>
<tr>
<td><em>Vervain</em> 80</td>
<td>Vervain 80</td>
</tr>
<tr>
<td><em>Vetch</em> 55</td>
<td>Vetch 55</td>
</tr>
<tr>
<td><em>Vicia</em> 55</td>
<td>Vicia 55</td>
</tr>
<tr>
<td><em>Vicia americana</em> 55</td>
<td>Vicia americana 55</td>
</tr>
<tr>
<td><em>Viguiera</em> 105</td>
<td>Viguiera 105</td>
</tr>
<tr>
<td><em>multiflora</em> 105 var. <em>nevadensis</em> 105</td>
<td>Viguiera var. nevadensis 105</td>
</tr>
<tr>
<td><em>Viola</em> 63 var. <em>canadensis</em> 63</td>
<td>Viola var. canadensis 63</td>
</tr>
<tr>
<td><em>neprophylla</em> 63</td>
<td>Viola neprophylla 63</td>
</tr>
<tr>
<td><em>Violaceae</em> 63</td>
<td>Violaceae 63</td>
</tr>
<tr>
<td><em>Violet</em> 63</td>
<td>Violet 63</td>
</tr>
<tr>
<td><em>Violet Family</em> 63</td>
<td>Violet Family 63</td>
</tr>
<tr>
<td><em>Virginiasreeper</em> 61</td>
<td>Virginiasreeper 61</td>
</tr>
<tr>
<td><em>Virginia creeper</em> 61</td>
<td>Virginia creeper 61</td>
</tr>
<tr>
<td><em>Vitaceae</em> 60</td>
<td>Vitaceae 60</td>
</tr>
<tr>
<td><em>Vitis</em> 61 var. <em>arizonica</em> 61</td>
<td>Vitis var. arizonica 61</td>
</tr>
<tr>
<td><em>Walnut</em> 27</td>
<td>Walnut 27</td>
</tr>
<tr>
<td><em>Walnut Family</em> 27</td>
<td>Walnut Family 27</td>
</tr>
<tr>
<td><em>Water Bentgrass</em> 13</td>
<td>Water Bentgrass 13</td>
</tr>
<tr>
<td><em>Water Birch</em> 27</td>
<td>Water Birch 27</td>
</tr>
<tr>
<td><em>Watercress</em> 43</td>
<td>Watercress 43</td>
</tr>
<tr>
<td><em>Waterleaf Family</em> 76</td>
<td>Waterleaf Family 76</td>
</tr>
<tr>
<td><em>Waterplantain</em> 13</td>
<td>Waterplantain 13</td>
</tr>
<tr>
<td><em>Waterplantain Family</em> 13</td>
<td>Waterplantain Family 13</td>
</tr>
<tr>
<td><em>Waterstarwort</em> 59</td>
<td>Waterstarwort 59</td>
</tr>
<tr>
<td><em>Wayleaf Oak</em> 28</td>
<td>Wayleaf Oak 28</td>
</tr>
<tr>
<td><em>Wax currant</em> 45</td>
<td>Wax currant 45</td>
</tr>
<tr>
<td><em>Weisia andrewsi</em> 7</td>
<td>Weisia andrewsi 7</td>
</tr>
<tr>
<td><em>Western Wallflower</em> 41</td>
<td>Western Wallflower 41</td>
</tr>
<tr>
<td><em>Wheatgrass</em> 15, 107</td>
<td>Wheatgrass 15, 107</td>
</tr>
<tr>
<td><em>White Clover</em> 55</td>
<td>White Clover 55</td>
</tr>
<tr>
<td><em>White Fir</em> 11</td>
<td>White Fir 11</td>
</tr>
<tr>
<td><em>White Loco</em> 54</td>
<td>White Loco 54</td>
</tr>
<tr>
<td><em>White Sweetclover</em> 54</td>
<td>White Sweetclover 54</td>
</tr>
<tr>
<td><em>White Violet</em> 63</td>
<td>White Violet 63</td>
</tr>
<tr>
<td><em>Whitestem Gooseberry</em> 46</td>
<td>Whitestem Gooseberry 46</td>
</tr>
<tr>
<td><em>Whitlow wort</em> 41</td>
<td>Whitlow wort 41</td>
</tr>
<tr>
<td><em>Wild buckwheat</em> 30</td>
<td>Wild buckwheat 30</td>
</tr>
<tr>
<td><em>Wild cabb age</em> 40</td>
<td>Wild cabbage 40</td>
</tr>
<tr>
<td><em>Wild carrot</em> 69</td>
<td>Wild carrot 69</td>
</tr>
<tr>
<td><em>Wild- hollyhook</em> 61</td>
<td>Wild-hollyhook 61</td>
</tr>
<tr>
<td><em>Wild rhubarb</em> 32</td>
<td>Wild rhubarb 32</td>
</tr>
<tr>
<td><em>Wildrye</em> 16</td>
<td>Wildrye 16</td>
</tr>
<tr>
<td><em>Willow</em> 27</td>
<td>Willow 27</td>
</tr>
<tr>
<td><em>Willow Family</em> 26</td>
<td>Willow Family 26</td>
</tr>
<tr>
<td><em>Willoweed</em> 66</td>
<td>Willoweed 66</td>
</tr>
<tr>
<td><em>Wing Eriogonum</em> 30</td>
<td>Wing Eriogonum 30</td>
</tr>
<tr>
<td><em>Winterfat</em> 35</td>
<td>Winterfat 35</td>
</tr>
<tr>
<td><em>Wire lettuce</em> 104</td>
<td>Wire lettuce 104</td>
</tr>
<tr>
<td><em>Witchgrass</em> 18</td>
<td>Witchgrass 18</td>
</tr>
<tr>
<td><em>Witches' Broom</em> 106</td>
<td>Witches' Broom 106</td>
</tr>
<tr>
<td><em>Wolfberry</em> 82</td>
<td>Wolfberry 82</td>
</tr>
</tbody>
</table>
Grateful acknowledgement is added here to Assistant Park Naturalist Paul E. Schuhlz, for his care in compiling the index for this bulletin and helping with the editing. We believe that Dr. W. B. MacDougall would concur with this. At the time of preparing the preface, Dr. MacDougall was not aware of who was to do this and Mr. Schuhlz was not with us. We therefore desire to add this note of appreciation.

The Editor.