

**A FLORISTICS INVENTORY OF THE
VASCULAR PLANTS OF
SANTA FE NATIONAL FOREST AND THE
SURROUNDING HYDROGRAPHIC REGION,
NEW MEXICO**

Cooperative Agreement Between:

United States Forest Service
Santa Fe National Forest
(via USGS, BRD: Order 02MESA1023)

And

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INTRODUCTION

A detailed general floristics inventory of northern New Mexico's Santa Fe National Forest (SFNF) occurred during the summers of 2002 through 2004, and on the Valles Caldera National Preserve (VCNP) from summers 2001 through 2004. The overall goal of this inventory work is to produce a digital atlas of plant distributions based on collected specimens, and to produce an extensive research and reference collection for the forest and other regional herbaria (specimens permitting). Funding for inventory work was provided for two field seasons by the United States Geological Survey, Biological Resource Division (USGS:BRD) and the Rocky Mountain Herbarium (RM) at the University of Wyoming. Additional support was provided by the Aven Nelson Fellowship in Systematic Botany at the University of Wyoming.

Specific project directives as outlined in the task order (attached USGS:BRD order number 02MESA1023, reference number 02330201023) are the following:

- 1) **Conduct a detailed general floristics survey of SFNF and the VCNP with emphasis on species of conservation concern and invasive plants in order to obtain representative specimens of all vascular plants.** Sampling occurred throughout the forest, preserve, and in the surrounding hydrographic region on BLM and public land. Sampling also occurred throughout the growing season and across the elevational range of the study area.
- 2) **Develop a plant database for use with GIS** in a format compatible with ARC/INFO and Arcview. Specifics of collecting specimens and recording label information are addressed in the 'methods' section of this report.
- 3) **Provide a set of representative plant specimens for SFNF and the VCNP for use in plant identification.** SFNF and the VCNP are to receive between one to three mounted specimens representing each taxon for which duplicates are available (2000 specimens). Additional unmounted duplicates will be made available to other regional herbaria.

This final report addresses specifics of inventory work on SFNF. Information about work on the VCNP is provided separately in the accompanying report by Hartman and Nelson (1/21/05). This project is part of a larger effort to map and database the flora of the Southern Rockies in collaboration with other universities/herbaria (covered in 1/21/05). A General Floristic Inventory of Santa Fe National Forest is the subject of my Master's Thesis in the Department of Botany at the University of Wyoming.

STUDY AREA

The study area is situated in northcentral New Mexico and encompasses all of Santa Fe National Forest (1,600,000 acres; 2,500 mi²). See Figure 1 for an overall map of the study area. The study area can be subdivided into an eastern and western portion. The eastern portion is dominated by the southern Sangre de Cristo Mountains and covers in part Mora, Rio Arriba, San Miguel, and Santa Fe counties with relief varying from near 6,000 to more than 13,000 feet (Figure 2). A western portion, extending eastward to Espanola and northward along the Rio Grande River, is dominated by the Jemez Mountains and covers in part Los Alamos, Rio Arriba, Sandoval, and Santa Fe counties with relief varying from near 5,400 to more than 11,000 feet (Figure 3). Specifics about the area under contract are provided in the task order (Appendix C). Additional sampling occurred on public lands on the forest periphery but within the surrounding hydrographic region. This additional sampling increased the size of the study area by a few hundred square miles.

A diversity of habitats were encountered. Desert shrubland and pinyon-juniper woodland habitats occurred at low elevation. Gambel's oak woodland, riparian, open meadow, aspen stands, and forested areas of ponderosa pine, spruce-fir, or mixed conifers were found in the mountains at low to mid-elevation. High elevation sites in the mountains had primarily spruce-fir forest, areas of talus/felsenmeer, and alpine meadows with scattered bristlecone pine.

METHODS

Fieldwork was conducted during the summers of 2002 (21 May to 23 August) and 2003 (29 May to 3 September). Additional collecting occurred in summer 2004 during 4 separate trips, each one week in duration (beginning 29 May, BR; 8 June, RH; 9 July, BN; and 6 August, BR). Specimens are associated with 418 unique waypoints (Figure 4). These occur along 213 separate, mapped collecting routes (Appendix D).

All vegetation types across the range in elevation of the study area were sampled repeatedly and continuously throughout the growing season. Collecting sites were rarely revisited and were spread to ensure maximum coverage of the study area. Continuous sampling of vegetation types allowed for opportunities to document late and early-blooming components of the flora.

The overall goal of inventory work was to accurately sample diversity at each collecting site so all vascular plants encountered in fruit or flower at each site were collected. Collecting sites, for the purpose of this study, are loosely defined as the necessary area required to collect all locally represented taxa. Several collecting sites can occur along a single collecting route. Criteria for establishing a new collecting site along a collection route include movement from one habitat type to another, a significant gain or decrease in elevation, or sufficient distance from a previous site of collection to warrant resampling. A single collecting site may also have multiple associated waypoints for the purpose of improving spatial data, or in the event that a taxon is encountered that was not collected previously. Because collecting sites are not limited spatially, waypoints provide the spatial location of collected specimens to within at most ½ air mile, or more commonly less linear distance.

All specimens were pressed and dried at the Valles Caldera National Preserve skinning shed. Standard label data including locality and ecological data were recorded for each specimen (Hartman, 1992). Specimens were identified at the Rocky Mountain Herbarium (RMH) by using the relevant floras, checklists, monographs, and revisions listed in this report (see Appendix B). Specimens were verified with annotated herbarium collections whenever possible, but all were compared to herbarium material. At least one complete set of specimens from this study will reside at the RMH, and a duplicate set, one of each available taxon found, will be sent to Santa Fe National Forest. Additional duplicate material will be provided to other regional herbaria.

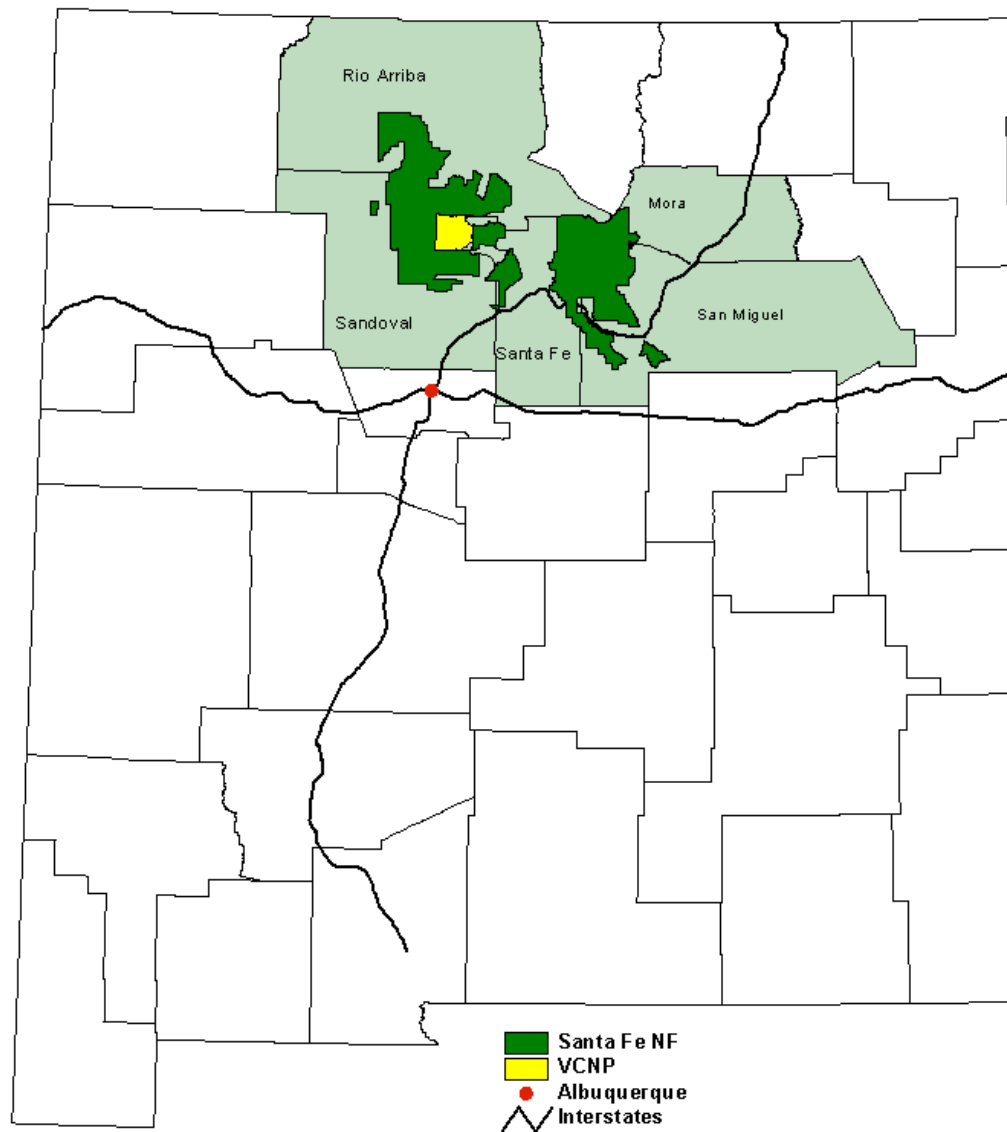


Figure 1. Overview map of study area in northcentral New Mexico. Santa Fe National Forest is provided in green and the Valles Caldera National Preserve (VCNP) in yellow. Relevant counties are darkened and named, except for Los Alamos County which is to the immediate east of the VCNP. Albuquerque and interstate highways serve as reference points.

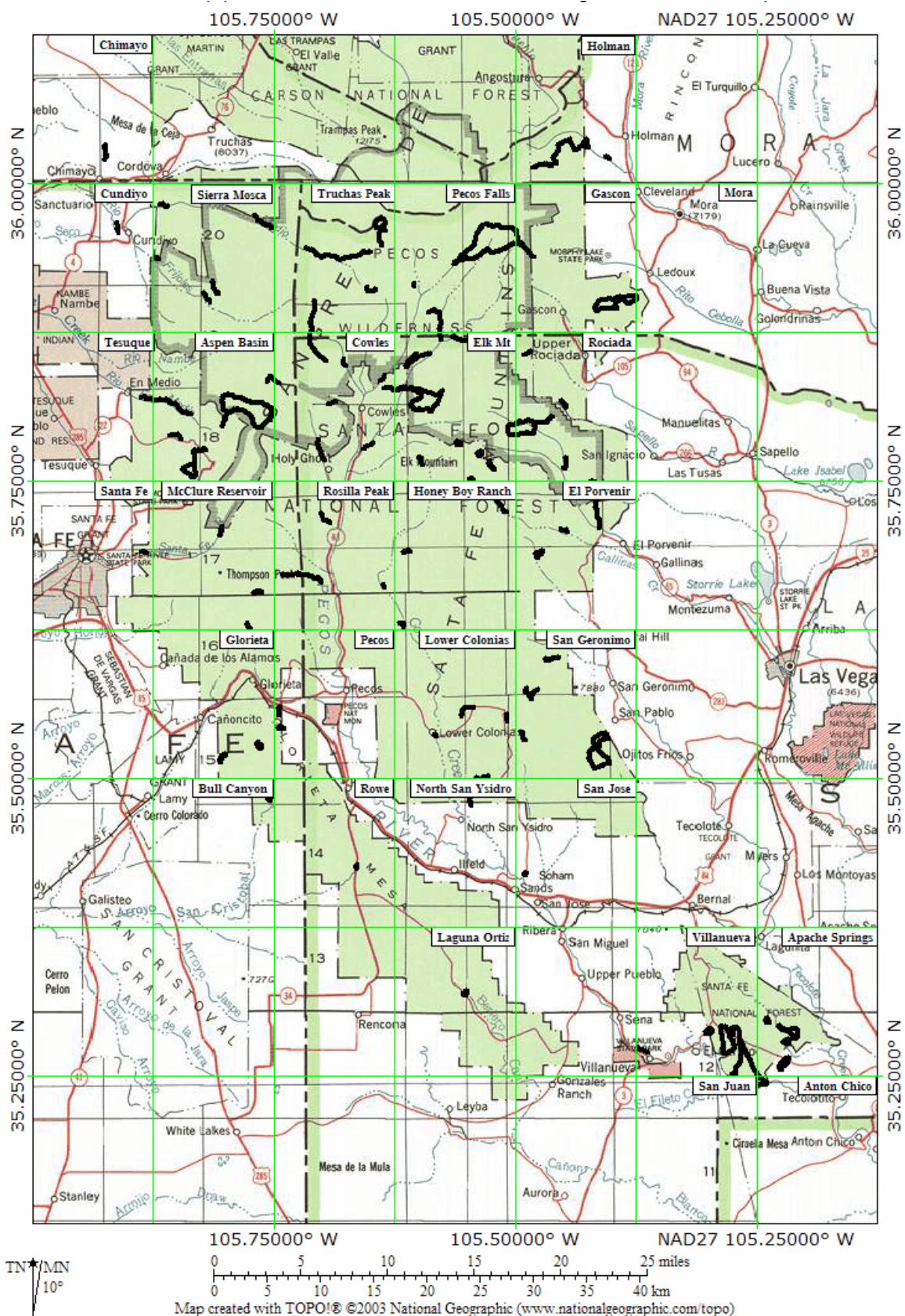


Figure 2. SFNF Sangre de Cristo Mountain eastern portion of study area including all mapped collecting routes of botanical inventory (2002-2004) and names of relevant 7.5' USGS topographic quads.

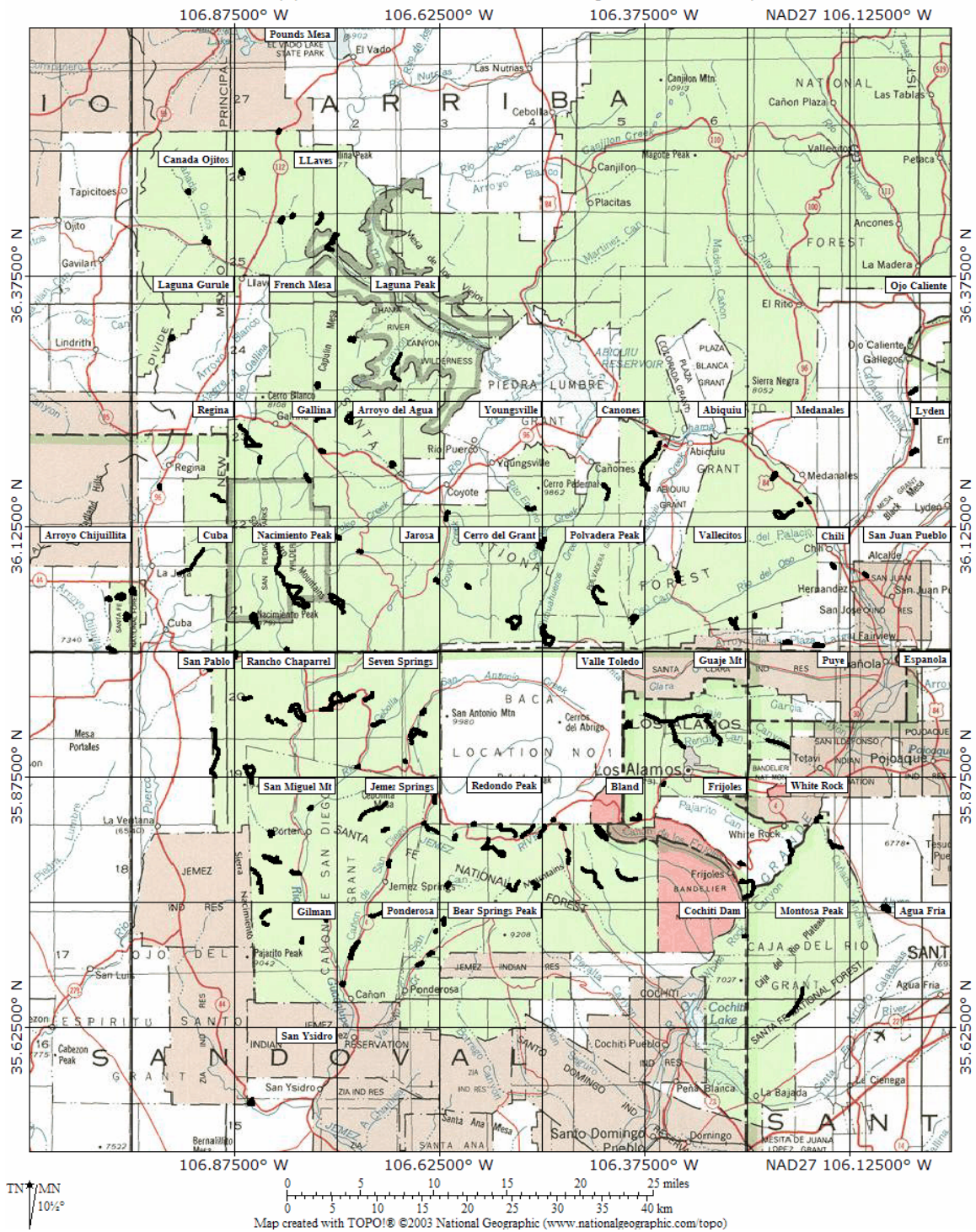


Figure 3. SFNF Jemez Mountain western portion of study area including all mapped collecting routes of botanical inventory (2002-2004) and names of relevant 7.5' USGS topographic quads.

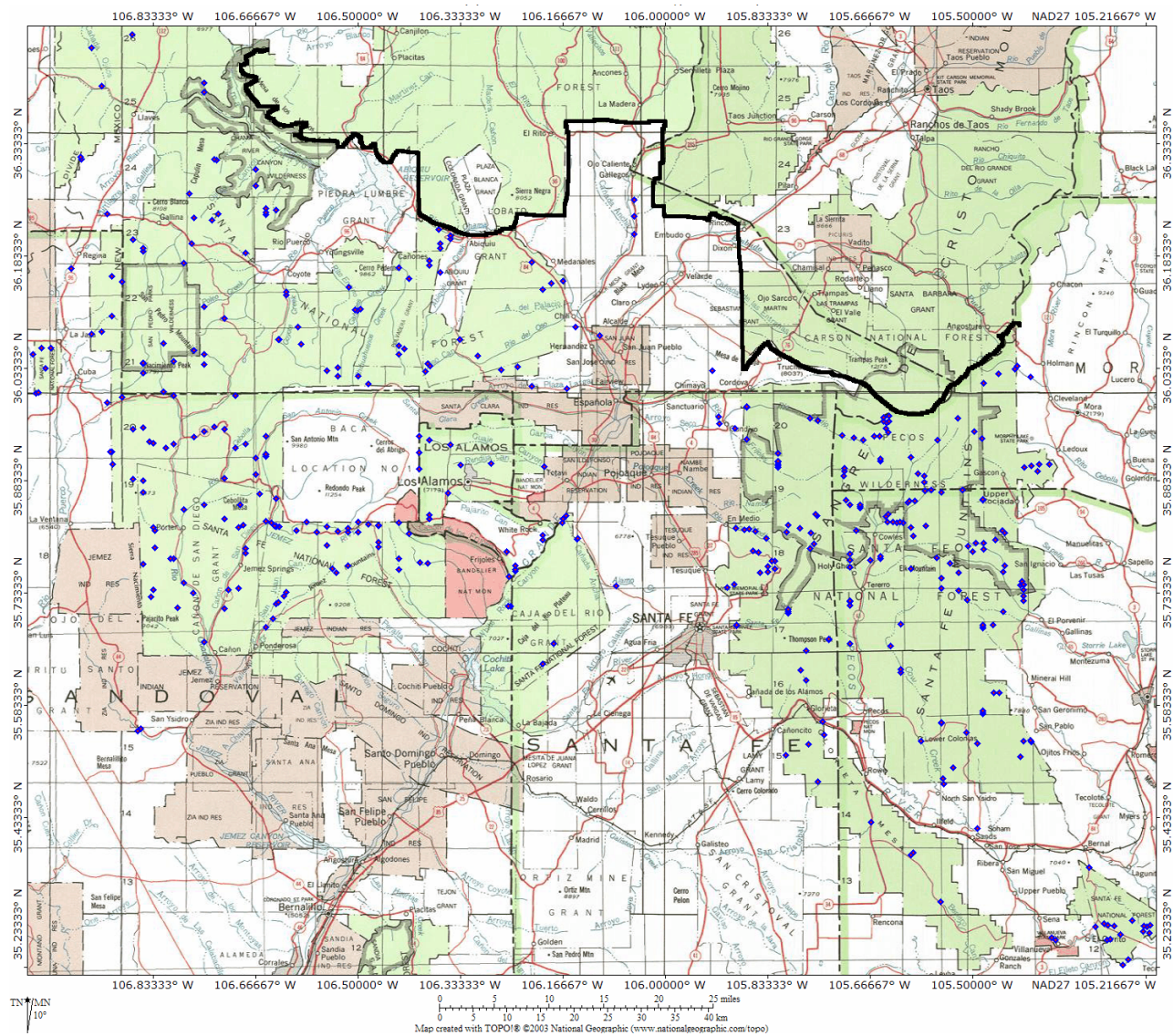


Figure 4. Santa Fe National Forest and 418 waypoints associated with specimens collected during summers 2002 through 2004. The solid black line separates adjoining Carson National Forest to the north.

RESULTS

This floristic survey is based on 12,038 identified collections which document 1228 unique taxa for SFNF (including the VCNF) and surrounding hydrographic region (see Appendix B). The term “unique taxa” as used herein refers to all biological entities including subspecies, varieties, and hybrids. A total of 19 taxa of conservation concern (tracked by one or more agency) were documented (see Table 1 and Appendix A). A total of 140 exotic species were encountered (see Table 2). Of these exotic species, 13 are designated as noxious weeds in New Mexico (New Mexico Department of Agriculture, 1999). Results are summarized below:

Families	100
Genera	475
Species	1141
Varieties	78
Hybrids	9
Unique Taxa	1228
Taxa of Conservation Concern	19
Noxious Weeds	13
Exotic Taxa	140
Endemic Taxa	13

Table 1. Taxa of Conservation Concern. The taxa listed below are tracked by one or more agency. Specific status by agency is provided for each taxon. This list includes agency status information from The New Mexico Rare Plant Technical Committee (<http://nmrareplants.unm.edu/nmrptc/agency.htm>) as well as taxa which only appear in the New Mexico Natural Heritage Program tracking list (<http://nmnhp.unm.edu/tracking/tracking.html>). Definitions of ranks and of abbreviations used in this table are provided below. The number of collections obtained is provided in bold following each taxon.

Taxon	Status**				Counties*
	Federal	State	NMRPTC	NM Herit. Program	Location of Collection(s)
(Fabaceae) Astragalus iodopetalus (Rydb.) Barneby (1)				G2 S2S3	RA
(Liliaceae) Calochortus gunnisonii S. Watson (4) var. perpulcher Cockerell			R RC: 2-1-3	G5T4? S4?	MO, SM
(Ranunculaceae) Clematis bigelovii Torr. (1)	FS-S		R RC: 1-1-2		SD
(Cornaceae) Cornus canadensis L. var. canadensis (4)				G5 S1	SD
(Orchidaceae) Cypripedium parviflorum Salisb. (1) var. pubescens O. W. Knight		NM-E		G5 S2?	SM
(Ranunculaceae) Delphinium sapellonis Cockerell (9)		NM-C	R RC: 1-1-3	G4? S4?	MO, SM
(Orchidaceae) Epipactis gigantea Douglas ex Hook. (1)				G3 S2?	LA
(Asteraceae) Erigeron subglaber Cronquist (1)	FS-S	NM-C	R RC: 2-1-3	G3 S3	SM
(Boraginaceae) Hackelia hirsuta (Wooton & Standl.) (1) I. M. Johnst.			R RC: 1-1-3	G4? S?	SM
(Asteraceae) Hieracium pringlei A. Gray (1)				G2Q S2	SM
(Liliaceae) Lilium philadelphicum L. (2) var. andinum (Nutt.) Ker-Gawl.		NM-E		G5 S3	SM

Taxon	Status**				Counties*
	Federal	State	NMRPTC	NM Herit. Program	Location of Collection(s)
(Loasaceae) Mentzelia springeri (Standl.) Tidestr. (1)		NM-C	R RC: 1-1-3	G? S?	SD
(Boraginaceae) Mertensia viridis (A. Nelson) A. Nelson (1)				G4QT2? S2?	SF
(Apiaceae) Podistera eastwoodiae (2) (J.M. Coult. & Rose) Math. & Const.	FS-S			G3? S2?	RA, SF
(Ranunculaceae) Ranunculus abortivus L. (3)				G5 S1?	RA, SD
(Salicaceae) Salix arizonica Dorn (2)	FW-C FS-S	NM-C	R RC: 1-2-1	G2 S1	MO, RA
(Salicaceae) Salix gooddingii C. R. Ball (3)				G5 S?	LA, SF, SM
(Selaginellaceae) Selaginella weatherbiana R. Tryon (6)	FS-S		R RC: 1-1-2	G3G4 S2?	SF, SM
(Orchidaceae) Spiranthes romanzoffiana Cham. [VCNP]				G5 S2?	

***County abbreviations:**

Los Alamos	LA	Sandoval	SD
Mora	MO	San Miguel	SM
Rio Arriba	RA	Santa Fe	SF

****Status:**

Federal

FS U.S. Forest Service Sensitive: FS-S
Concern for reduction in population viability as evidenced by (1) significant current or predicted downward trends in population numbers or density, or (2) significant current or predicted downward trends in habitat capability.

FW USFW Service Species of Concern: FW-C
Requiring further study to resolve conservation status OR considered sensitive, rare, or declining on agency lists.

State

NM New Mexico Endangered: NM-E
Listed as threatened or endangered under the Federal Endangered Species Act, or considered proposed under the tenants of the act; or a rare taxon across its range within the state, of limited distribution and population size, and susceptible to adverse impacts or jeopardized survival in NM if unregulated.

New Mexico Species of Concern: NM-C
A New Mexico plant species which should be protected from land use impacts when possible because it is a unique and limited component of the regional flora.

Other

NMRPTC New Mexico Rare Plant Technical Committee Rare: R
Narrowly endemic, OR a taxon that is more widespread, but is numerically rare, OR numerically abundant only in a few small, widely scattered habitats.

Red Code R-E-D (Rarity-Endangerment-Distribution): #-##

R (Rarity):

- 1: rare; with sufficient numbers, wide distribution, and low potential for extinction in near future
- 2: confined to several populations or to one extended population
- 3: limited to one or few highly restricted populations, or so infrequent that seldom reported

E (Endangerment):

- 1: not endangered
- 2: endangered in portion of range
- 3: endangered throughout range

D (Distribution):

- 1: (+/-) widespread outside New Mexico
- 2: rare outside New Mexico
- 3: endemic to New Mexico

New Mexico Natural Heritage Program

Global Rank: G

- G2 Imperiled—Imperiled globally because of rarity or because of some factor(s) making it very vulnerable to extinction.
G3 Vulnerable—Vulnerable globally because of rarity, restriction in range, or other factors making it vulnerable to extinction.
G4 Apparently Secure—Uncommon but usually widespread. Rare and vulnerable only in parts of range.
G5 Secure—Common, widespread, and abundant. Not vulnerable in most of range.

G#G# Range Rank—(e.g., G2G3) is used to indicate uncertainty about the exact status of a taxon.

G? Unranked—Global rank not yet assessed.

G#?—(e.g., G3?) Inexact numeric rank

Q—Questionable taxonomy that may reduce conservation priority

T# Intraspecific Taxon (trinomial)—Status of intraspecific taxon following the species' global rank. Rules of ranking same as above.

State Rank: S

- S1 Critically Imperiled—Critically imperiled in NM because of extreme rarity or factor(s) making it vulnerable to extirpation.
S2 Imperiled—Imperiled in NM because of rarity or factor(s) making it vulnerable to extirpation. More occurrences than S1.
S3 Vulnerable—Vulnerable in NM either because rare, restricted in range, or other factors making it vulnerable to extirpation.
S4 Apparently Secure—Uncommon but not rare, and usually widespread in NM.

S#S# Range Rank—(e.g., S2S3) is used to indicate the range of uncertainty about the exact status of the element.

S? Unranked—NM rank not yet assessed.

S#?—(e.g., S2?) Inexact numeric range.

Adapted from NMRPTC, 1999.

Table 2. List of exotic and noxious taxa. All taxa listed below are designated as exotic to New Mexico in accordance with 'A Working Index of New Mexico Vascular Plant Names' (Allred, 9/21/2004). Taxa recognized by the state as noxious weeds are highlighted in bold and listed with common name, class designation, and region of origin. Class A weeds are absent or present in limited distribution in NM, class B weeds are found only in portions of the state, and class C weeds are widespread. The New Mexico Noxious Weed List (1999) is provided by the New Mexico Department of Agriculture (<http://nmdaweb.nmsu.edu/DIVISIONS/APR/WEED/Noxious%20Weed.pdf>.)

Taxon	Common Name	Class	Origin
<i>Amaranthaceae</i>			
Amaranthus albus L.			
Amaranthus retroflexus L.			
<i>Apiaceae</i>			
Conium maculatum L.	Poison Hemlock	B	Europe
<i>Asteraceae</i>			
Arctium minus Bernh.			
Bidens cernua L.			
Carduus nutans L.	Musk Thistle	B	South Europe
Centaurea repens L.	Russian Knapweed	B	Eurasia
Chrysanthemum leucanthemum L.			
Cichorium intybus L.			
Cirsium arvense (L.) Scop.	Canada Thistle	A	Eurasia
Cirsium vulgare (Savi) Ten.	Bull Thistle	B	Eurasia
Conyza canadensis (L.) Cronquist var. canadensis			
Lactuca serriola L.			
Matricaria matricarioides (Less.) Porter			
Scorzonera laciniata L.			
Sonchus asper (L.) Hill			
Taraxacum laevigatum (Willd.) DC.			
Taraxacum officinale Weber ex F. H. Wigg.			
Tragopogon dubius Scop.			
Tragopogon porrifolius L.			
Tragopogon pratensis L.			
Xanthium spinosum L.			
<i>Boraginaceae</i>			
Cynoglossum officinale L.			
<i>Brassicaceae</i>			
Alyssum parviflorum M. Bieb.			
var. micranthum (C. A. Mey.) Dorn			
Barbarea vulgaris R. Br.			
Berteroa incana (L.) DC.			
Camelina microcarpa Andr. ex DC.			
Capsella bursa-pastoris (L.) Medik.			
Cardaria chalepensis (L.) Hand.-Mazz.			
Chorispora tenella (Pall.) DC.			
Conringia orientalis (L.) Dumort.			
Descurainia sophia (L.) Webb ex Prantl			
Erysimum repandum L.			
Lepidium latifolium L.	Perennial Pepperweed	A	South Europe
Nasturtium officinale R. Br.			
Sisymbrium altissimum L.			
Sisymbrium loeselii L.			
<i>Cannabaceae</i>			
Cannabis sativa L.			
<i>Caryophyllaceae</i>			
Cerastium fontanum Baumg.			
subsp. vulgare (Hartm.) Greuter & Burdet			
Dianthus armeria L. subsp. armeria			

Taxon	Common Name	Class	Origin
<i>Caryophyllaceae</i>			
Saponaria officinalis L.			
Silene noctiflora L.			
Spergularia rubra (L.) J. Presl & C. Presl			
<i>Chenopodiaceae</i>			
Chenopodium capitatum (L.) Asch.			
Chenopodium overi Aellen			
Kochia scoparia (L.) Schrad.			
<i>Convolvulaceae</i>			
Convolvulus arvensis L.	Field Bindweed	C	Europe
<i>Elaeagnaceae</i>			
Elaeagnus angustifolia L.	Russian Olive	C	Europe
<i>Fabaceae</i>			
Gleditsia triacanthos L.			
Lathyrus latifolius L.			
Lotus corniculatus L.			
Medicago lupulina L.			
Medicago sativa L.			
Melilotus albus Medik.			
Melilotus officinalis (L.) Pall.			
Sphaerophysa salsula (Pall.) DC.			
Trifolium hybridum L.			
Trifolium pratense L. var. pratense			
Trifolium repens L.			
<i>Geraniaceae</i>			
Erodium cicutarium (L.) L'Her. ex Aiton			
<i>Lamiaceae</i>			
Marrubium vulgare L.			
Scutellaria galericulata L.			
<i>Liliaceae</i>			
Asparagus officinalis L.			
<i>Malvaceae</i>			
Malva neglecta Wallr.			
<i>Moraceae</i>			
Morus alba L.			
<i>Oleaceae</i>			
Syringa vulgaris L.			
<i>Onagraceae</i>			
Oenothera biennis L.			
<i>Orchidaceae</i>			
Epipactis helleborine L.			
<i>Plantaginaceae</i>			
Plantago lanceolata L.			
Plantago major L. var. major			
<i>Poaceae</i>			
Aegilops cylindrica Host	Jointed Goatgrass	C	South Europe
Agropyron cristatum (L.) Gaertn. var. cristatum			
Agropyron cristatum (L.) Gaertn. var. desertorum (Fisch. ex Link) Dorn			
Agrostis gigantea Roth			
Agrostis stolonifera L.			
Alopecurus pratensis L.			
Arrhenatherum elatius (L.) P. Beauv. ex J. & K. Presl			
Avena fatua L.			
Avena sativa L.			
Bothriochloa ischaemum (L.) Keng var. ischaemum			
Bromus catharticus Vahl			

Taxon	Common Name	Class	Origin
<i>Poaceae</i>			
Bromus commutatus Schrad.			
Bromus inermis Leyss. var. inermis			
Bromus inermis Leyss. var. purpurascens (Hook.) Wagnon			
Bromus japonicus Thunb. ex Murray			
Bromus tectorum L.			
Chloris virgata Sw.			
Dactylis glomerata L.			
Digitaria sanguinalis (L.) Scop.			
Echinochloa crus-galli (L.) P. Beauv. var. crus-galli			
Echinochloa muricata (P. Beauv.) Fernald			
var. microstachya Wiegand			
Elymus elongatus (Host) Runem. var. elongatus			
Elymus hispidus (Opiz) Melderis var. hispidus			
Elymus hispidus (Opiz) Melderis			
var. ruthenicus (Griseb.) Dorn			
Elymus junceus Fisch.			
Elymus repens (L.) Gould			
Eragrostis curvula (Schrad.) Nees var. curvula			
Festuca arundinacea Schreb.			
Festuca pratensis Huds.			
Hordeum murinum L. subsp. glaucum (Steud.) Tzvelev			
Lolium multiflorum Lam.			
Lolium perenne L.			
Phleum pratense L. var. pratense			
Poa annua L.			
Poa compressa L.			
Poa pratensis L.			
Polypogon monspeliensis (L.) Desf.			
Polypogon viridis (Gouan) Breistr.			
Secale cereale L.			
Setaria viridis (L.) P. Beauv.			
Sorghum bicolor (L.) Moench subsp. bicolor			
Sorghum halepense (L.) Pers.			
Triticum aestivum L.			
<i>Polygonaceae</i>			
Polygonum aviculare L.			
Polygonum lapathifolium L. var. lapathifolium			
Polygonum persicaria L.			
Rumex acetosella L.			
Rumex crispus L.			
Rumex patientia L.			
<i>Portulacaceae</i>			
Portulaca oleracea L.			
<i>Ranunculaceae</i>			
Ranunculus repens L.			
<i>Rosaceae</i>			
Malus pumila Mill.			
Prunus persica (L.) Batsch			
Sanguisorba minor Scop. subsp. muricata Briq.			
<i>Salicaceae</i>			
Salix fragilis L.			
<i>Scrophulariaceae</i>			
Linaria dalmatica (L.) Mill. subsp. dalmatica	Dalmatian Toadflax	A	Europe
Linaria vulgaris Mill.	Yellow Toadflax	A	Eurasia
Verbascum thapsus L.			
Veronica anagallis-aquatica L.			

Taxon	Common Name	Class	Origin
<i>Scrophulariaceae</i>			
Veronica serpyllifolia L. var. humifusa (Dickson) Vahl			
<i>Simaroubaceae</i>			
Ailanthus altissima (Mill.) Swingle			
<i>Solanaceae</i>			
Solanum dulcamara L.			
<i>Solanaceae</i>			
Solanum ptycanthum Dunal ex DC.			
Solanum triflorum Nutt.			
<i>Tamaricaceae</i>			
Tamarix chinensis Lour.	Saltcedar	C	Europe
<i>Ulmaceae</i>			
Celtis occidentalis L.			
Ulmus pumila L.	Siberian Elm	C	Europe
<i>Urticaceae</i>			
Urtica dioica L. var. procera (Muhl. ex Willd.) Wedd.			
<i>Zygophyllaceae</i>			
Tribulus terrestris L.			

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Appendix A. Taxa of Conservation Concern. Each taxon includes a brief description of habitat, distribution, and diagnostic features, along with an illustration, scanned specimen, or photograph. A portion of 7.5' quadrangle maps, including the site of collection and all or most of the collecting route, is also provided along with accompanying labels for each specimen. Comments are made where appropriate. Sources of botanical information and illustrations are cited in 'works cited' (see above, p. 18). All topographic images were produced using TOPO!® ©2003 National Geographic (www.nationalgeographic.com/topo).

1. *Astragalus iodopetalus* (Fabaceae)
2. *Calochortus gunnisonii* var. *perpulcher* (Liliaceae)
3. *Clematis bigelovii* (Ranunculaceae)
4. *Cornus canadensis* var. *canadensis* (Cornaceae)
5. *Cypripedium parviflorum* var. *pubescens* (Orchidaceae)
6. *Delphinium sapellonis* (Ranunculaceae)
7. *Epipactis gigantea* (Orchidaceae)
8. *Erigeron subglaber* (Asteraceae)
9. *Hackelia hirsuta* (Boraginaceae)
10. *Hieraceum pringlei* (Asteraceae)
11. *Lilium philadelphicum* var. *andinum* (Liliaceae)
12. *Mentzelia springeri* (Loasaceae)
13. *Mertensia viridis* (Boraginaceae)
14. *Podistera eastwoodiae* (Apiaceae)
15. *Ranunculus abortivus* (Ranunculaceae)
16. *Salix arizonica* (Salicaceae)
17. *Salix gooddingii* (Salicaceae)
18. *Selaginella weatherbiana* (Selaginellaceae)
19. *Spiranthes romanzoffiana* (Orchidaceae) [VCNP]

***Astragalus iodopetalus* (Rydb.) Barneby (Brassicaceae)**

Habitat: *A. iodopetalus* occurs on dry rocky slopes or on benches - commonly among Gambels oak, sagebrush, or in oak-pinyon forest - at 6,000-8,100 feet (Barneby, R. C., 1964).

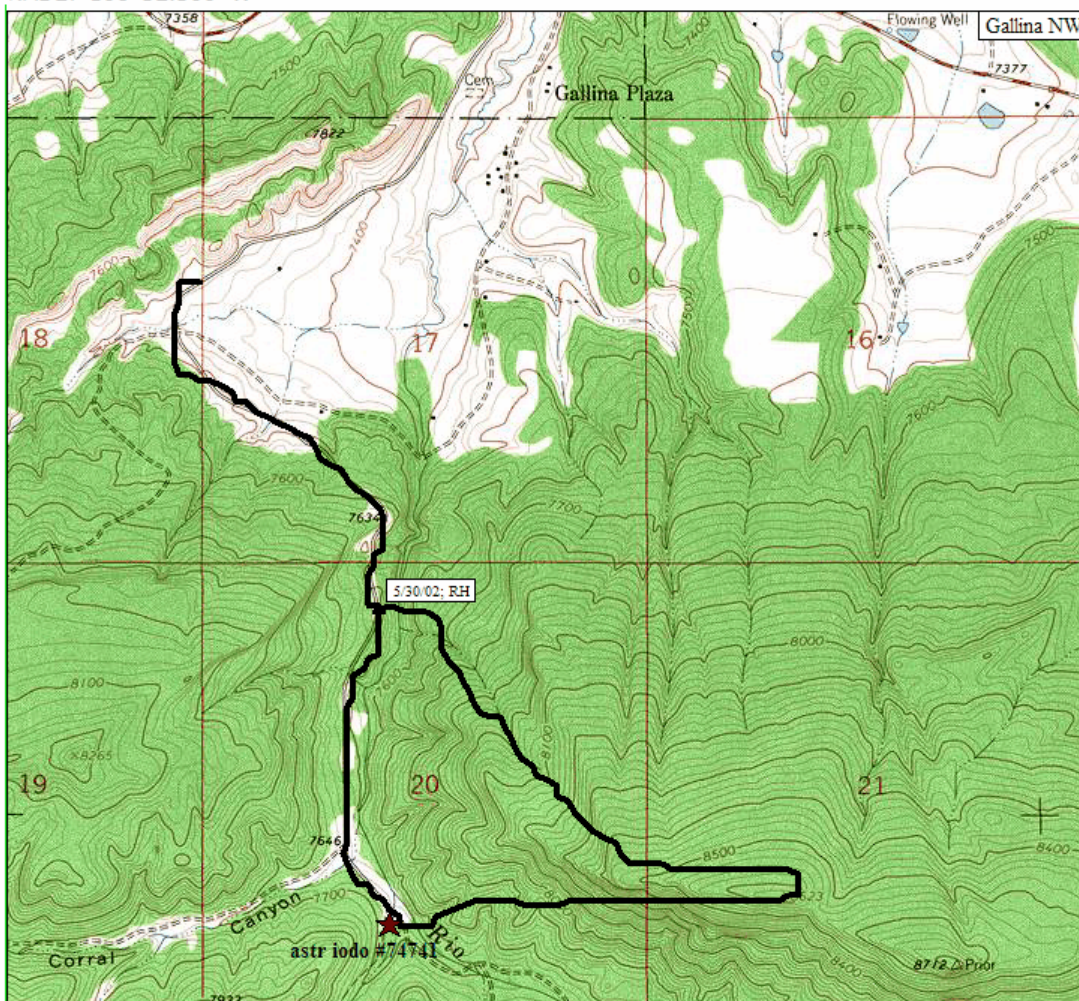
Distribution: Colorado and New Mexico. Barneby (1964) reports that the species is locally common in southwestern Colorado and that populations less commonly extend southeast to the 'west tributaries of the Rio Grande in Rio Arriba and Sandoval Counties, New Mexico'.

Diagnostic features: *A. iodopetalus* is most similar to *A. tephrodes* var. *brachylobus* but differs in having consistently glabrous pods and a villosulous calyx. Calyx teeth are also larger measuring 3-5.5 mm versus 1.7-2.8 mm (Barneby, R.C.).



Scanned Specimen: RH, #74741

NAD27 106°52.500' W



NAD27 106°52.500' W

TN MN
10 1/4°



Fabaceae

NEW MEXICO, U.S.A.

Astragalus iodopetalus (Rydb.) Barneby

RIO ARriba COUNTY

T23N R1E S17

Santa Fe National Forest and Vicinity:

Jemez Mountains: ca 2 air mi SW of

Gallina. SW1/4 S17; also S20, SW1/4 S21.

Benchland, sedimentary, with ponderosa pine and Douglas fir; roadside.

N36 12.282' W106 51.570'

30 May 2002

Elev. 7,400-8,600 ft.

Ronald L. Hartman # 74741

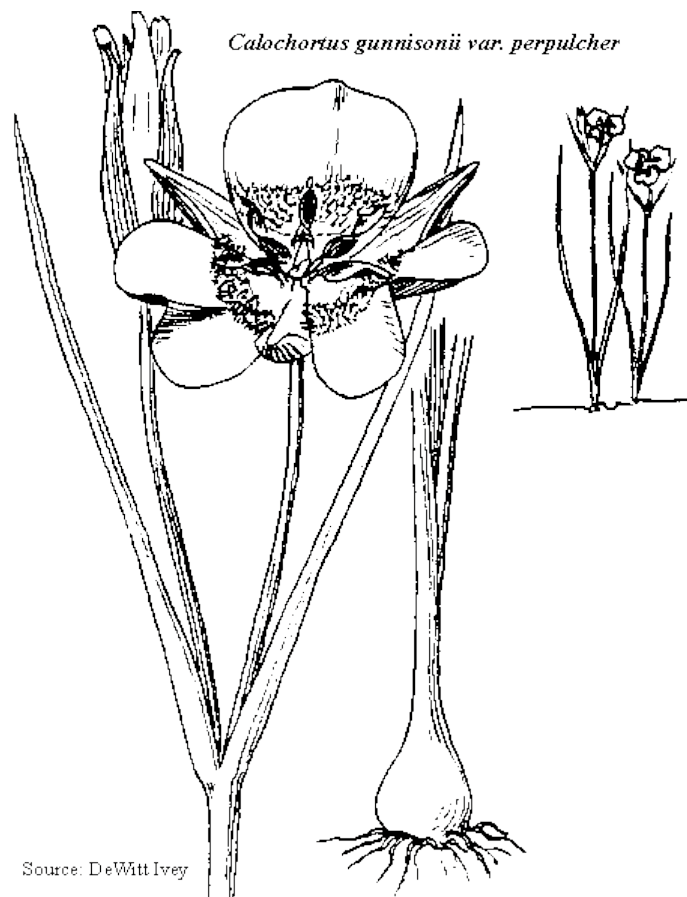
ROCKY MOUNTAIN HERBARIUM (RM), University of Wyoming

***Calochortus gunnisonii* S. Watson var. *perpulcher* Cockerell (Liliaceae)**

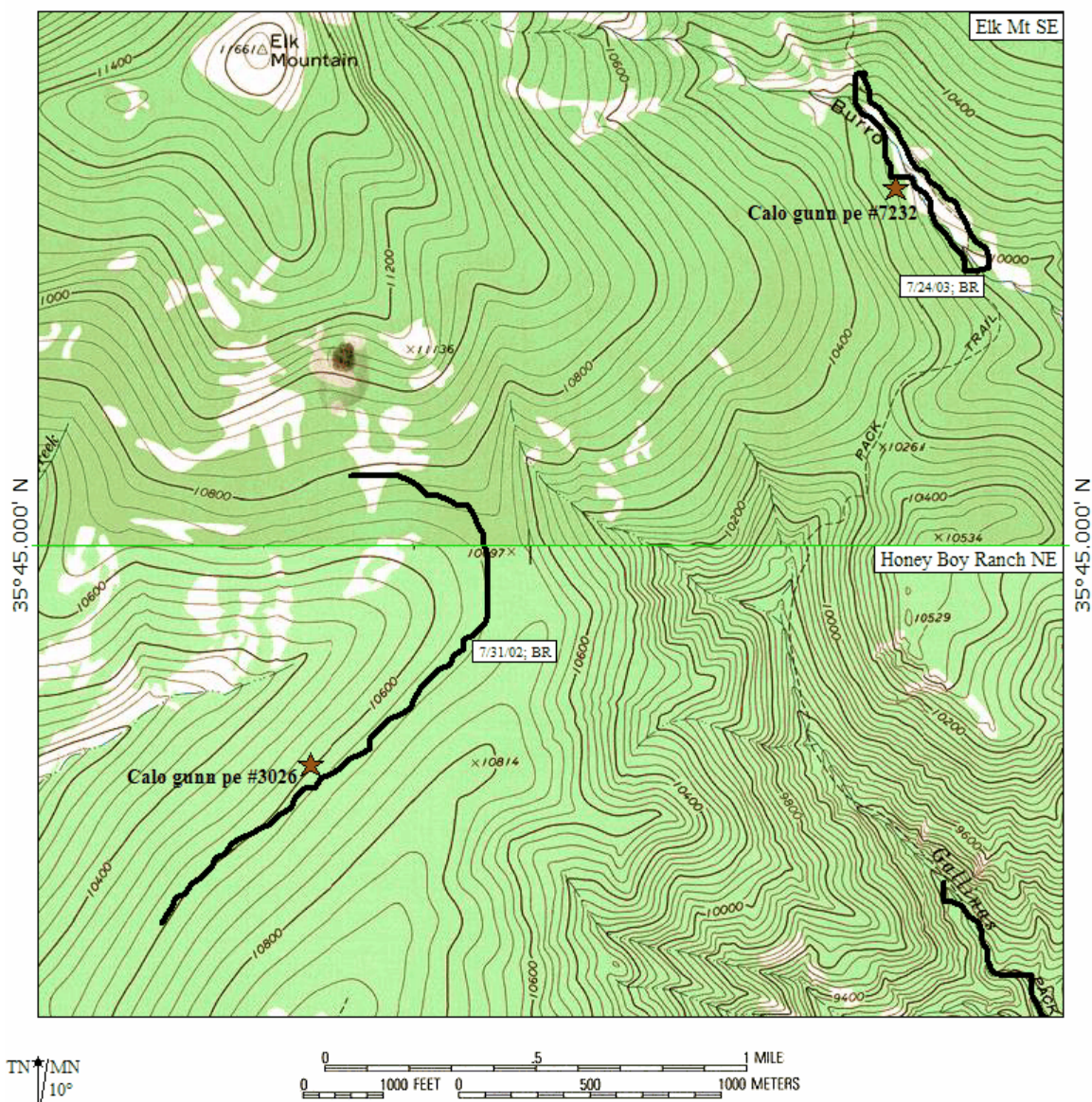
Habitat: This taxon is confined to 'meadows and aspen glades in upper montane coniferous forest', from 9,500-11,200 ft. (NMRPTC, 1999)

Distribution: *C. gunnisonii* var. *perpulcher* is found only in western Mora and San Miguel counties (Owney, 1940).

Diagnostic features: This variety is distinguished from the typical variety in having pale yellow petals (versus white, purple, or dark purple). *C. gunnisonii* var. *perpulcher* may be just a color form but is locally constant.



from NMRPTC, 1999



Liliaceae

NEW MEXICO, U.S.A.

Calochortus gunnisonii S. Watson
var. perpulcher Cockerell

SAN MIGUEL COUNTY T18N R13E S34
Santa Fe National Forest and Vicinity:
Sangre de Cristo Mountains: NM Hwy 92, 2
air mi S of Elk Mountain or 7 mi E of
Terrero. NE on old roadbed at 180 degree
bend for 1 air mi toward Elk Mountain.
Also NW1/4 S35 and SE1/4 S27.
Open burn site with dead standing spruce
and wet meadows. Numerous intermittent
springs on gently descending slopes.
Fireweed dominant along roadbed.
N35 44.387' W105 33.325' to N35 45.157'
W105 32.881'.

31 Jul 2002 Elev. 10,600-10,800 ft.

Brian Reif # 3026

ROCKY MOUNTAIN HERBARIUM (RM), University of Wyoming

Liliaceae

NEW MEXICO, U.S.A.

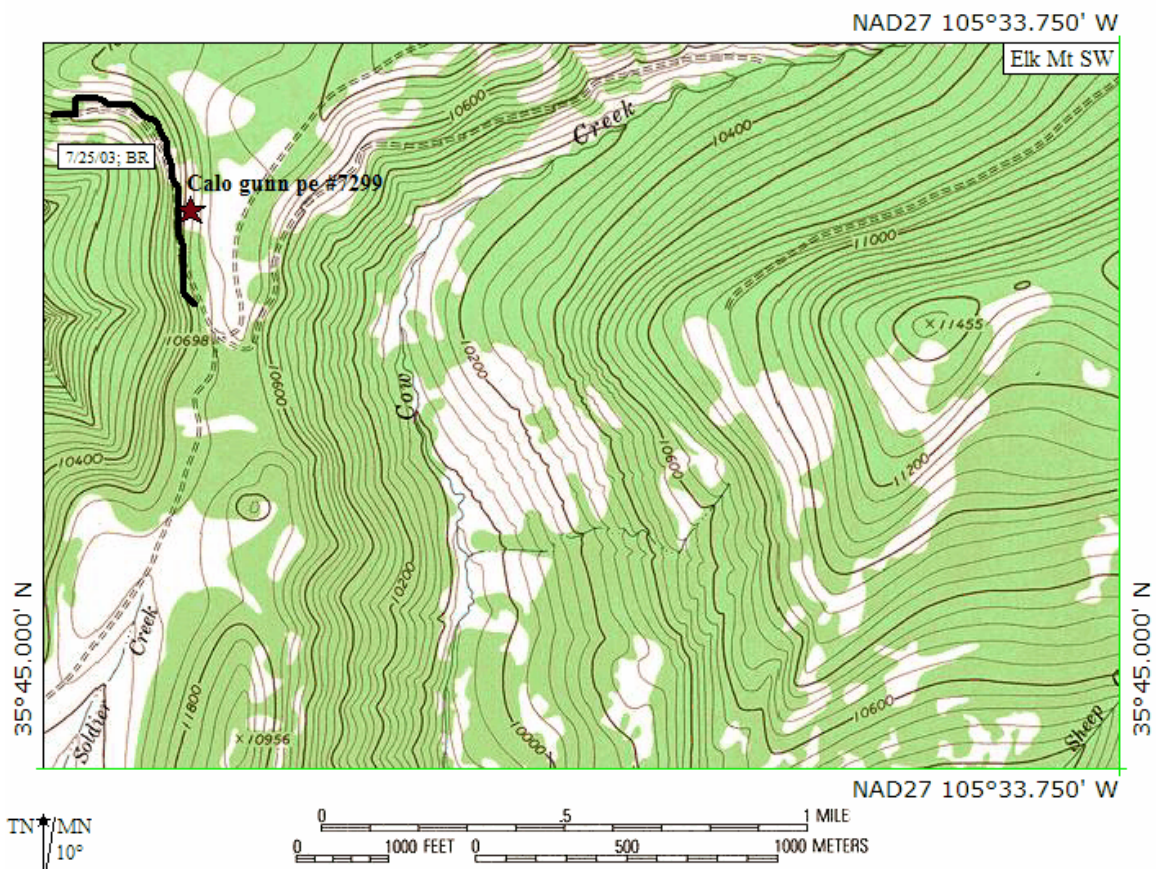
Calochortus gunnisonii S. Watson
var. perpulcher Cockerell

SAN MIGUEL COUNTY T18N R13E S25
Santa Fe National Forest and Vicinity:
Sangre de Cristo Mountains: Trail 216 in
Burro Canyon, 2 air mi E of Elk Mountain
summit. N35.765 W105.528 SE 0.4 air mi
in canyon bottom to N35.760 W105.523 at
creek crossing. NW1/4 S25.
Riparian and open meadow in canyon bottom
below forested slopes of spruce.

24 Jul 2003 Elev. 10,070-10,180 ft.

Brian Reif # 7232

ROCKY MOUNTAIN HERBARIUM (RM), University of Wyoming



Liliaceae NEW MEXICO, U.S.A.

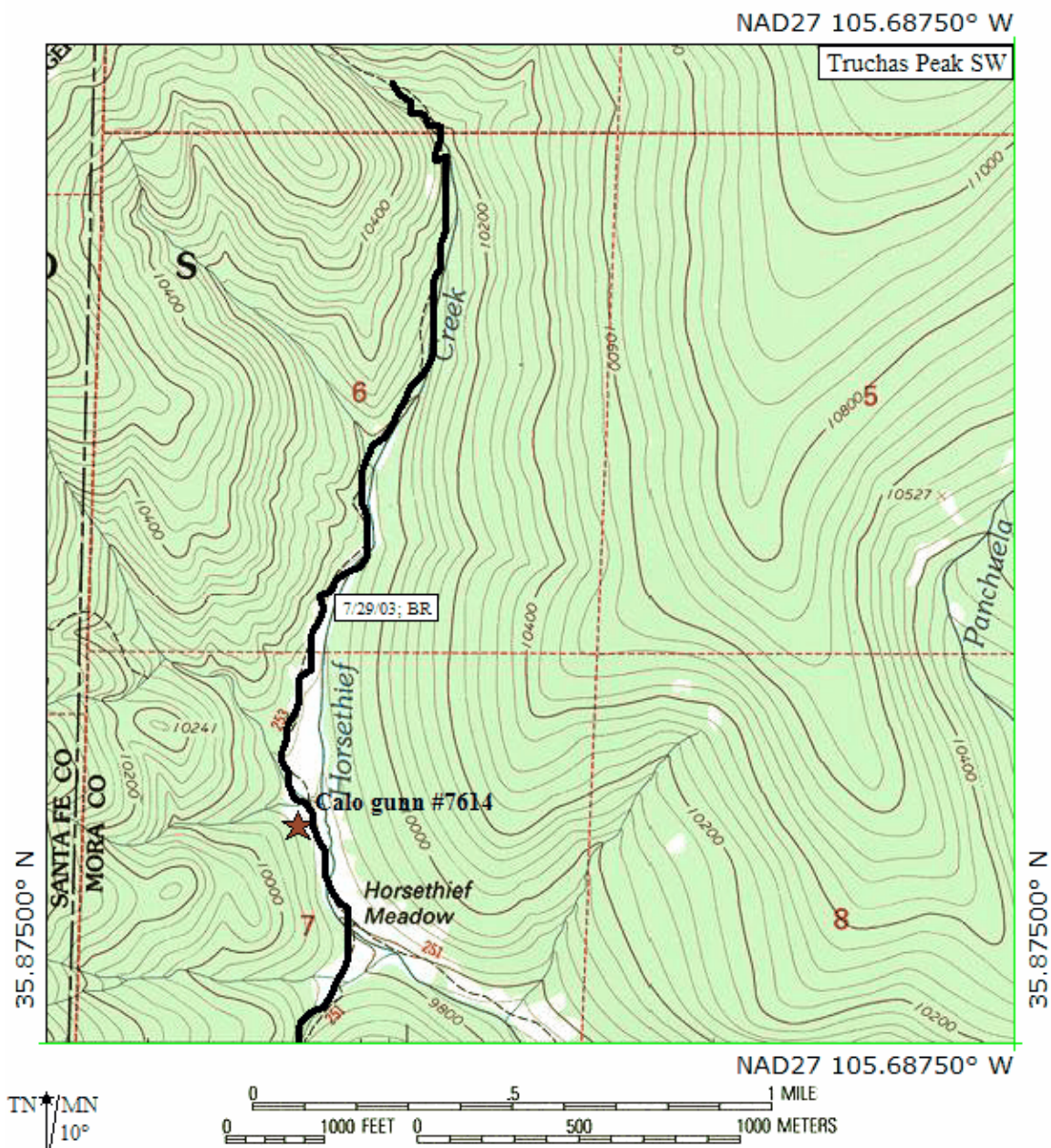
Calochortus gunnisonii S. Watson
var. perpulcher Cockerell

SAN MIGUEL COUNTY T18N R13E S19
Santa Fe National Forest and Vicinity:
Sangre de Cristo Mountains: Forest Road
156 at prominent switchback 3 air mi due
W of Elk Mountain summit; N 0.2 air mi
along road. SE1/4 S19.
Roadside along spruce slope with
bristlecone pine and corkbark fir; also,
pockets of open meadow.
N35.766 W105.600

25 Jul 2003 Elev. 10,660 ft.

Brian Reif # 7299

ROCKY MOUNTAIN HERBARIUM (RM), University of Wyoming



Liliaceae NEW MEXICO, U.S.A.

Calochortus gunnisonii S. Watson
var. perpulcher Cockerell

MORA COUNTY T19N R12E S6
Santa Fe National Forest and Vicinity:
Sangre de Cristo Mountains: Pecos
Wilderness: Trail 251 in Horsethief
Meadow, 3 air mi SW of Pecos Baldy;
N35.889 W105.710 at north end of meadow S
0.8 air mi to sign & tr jct at N35.878
W105.712. S1/2 S6; N1/2 S7
Open hydric subalpine meadow with abundant
sedge and willow.

29 Jul 2003 Elev. 9,840-9,940 ft.

Brian Reif # 7614

ROCKY MOUNTAIN HERBARIUM (RM), University of Wyoming

***Clematis bigelovii* Torr. (Ranunculaceae)**

Habitat: *Clematis bigelovii* occurs in pinyon-juniper woodland at 5,000 feet (in moist canyon sites), to as high as 8,000 feet on moist meadow slopes in mixed conifer forest.

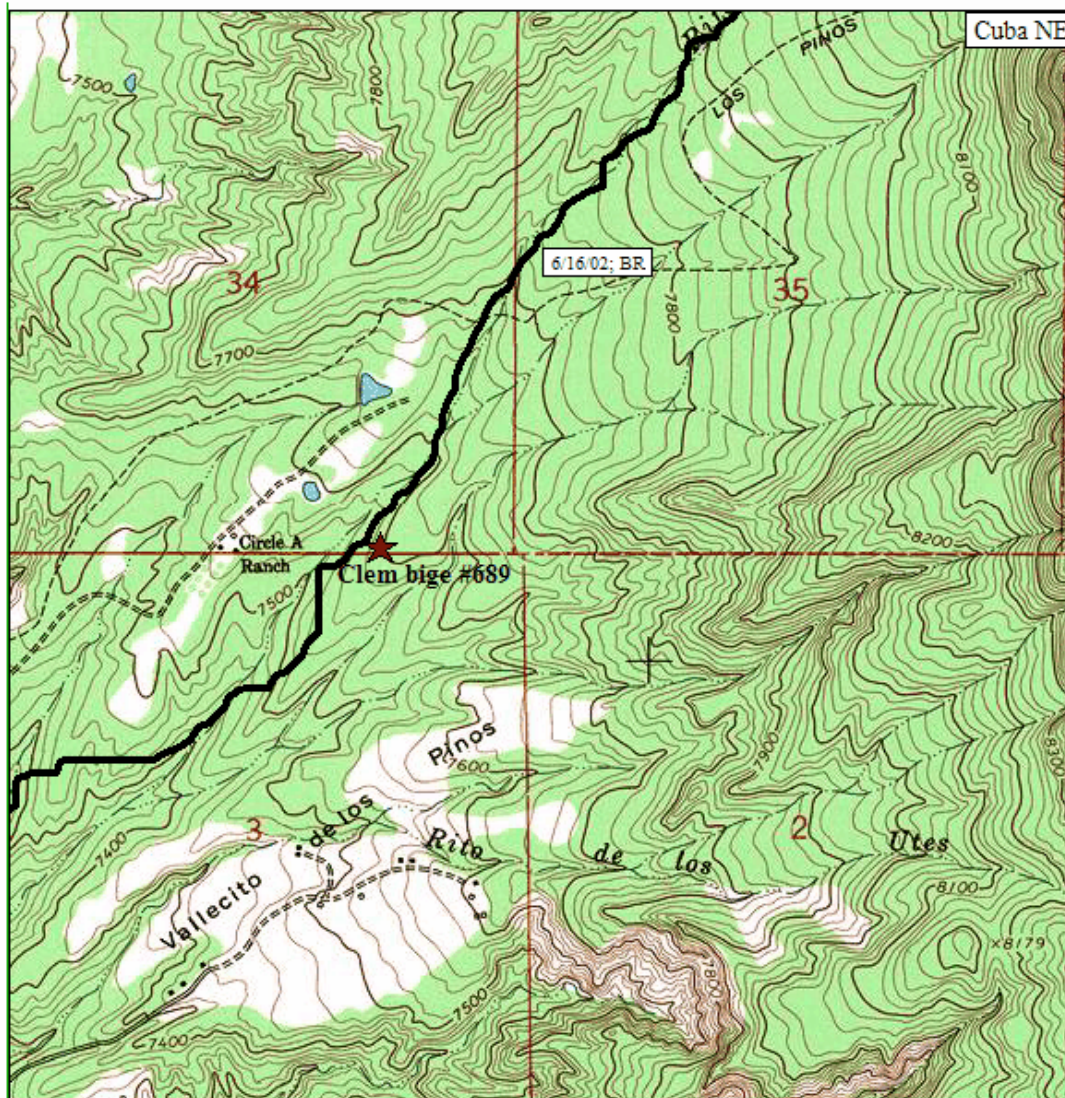
Distribution: This species is largely restricted to New Mexico with a few sites in Arizona.

Diagnostic features: *C. bigelovii* differs from *C. hirsutissima* in having mostly lobed and broader leaflets which are greater than 1.5 cm wide. *C. bigelovii* cannot readily be distinguished from another species, *C. palmeri*, of questionable taxonomic status which may be a synonym (Pringle, 1997).



Scanned Specimen: BR, #689

NAD27 106°56.250' W



NAD27 106°56.250' W

TN MN
10 1/2°



Ranunculaceae NEW MEXICO, U.S.A.

Clematis bigelovii Torr.

SANDOVAL COUNTY T22N R1W S4

Santa Fe National Forest and Vicinity:

Jemez Mountains: Lower Rito de Los Pinos

on NM Hwy 95, 3.9 air mi NNE of Cuba.

From USFS gate 2.7 mi to Los Pinos trail parking lot near wilderness boundary.

Also N1/2 S3, SE1/4 S34, NW1/4 S35 and SW1/4 S26.

Gambels oak woodland.

N36 04.960' W106 55.323' past inholding.

16 Jun 2002

Elev. 7,370-7,980 ft.

Brian Reif # 689

ROCKY MOUNTAIN HERBARIUM (RM), University of Wyoming

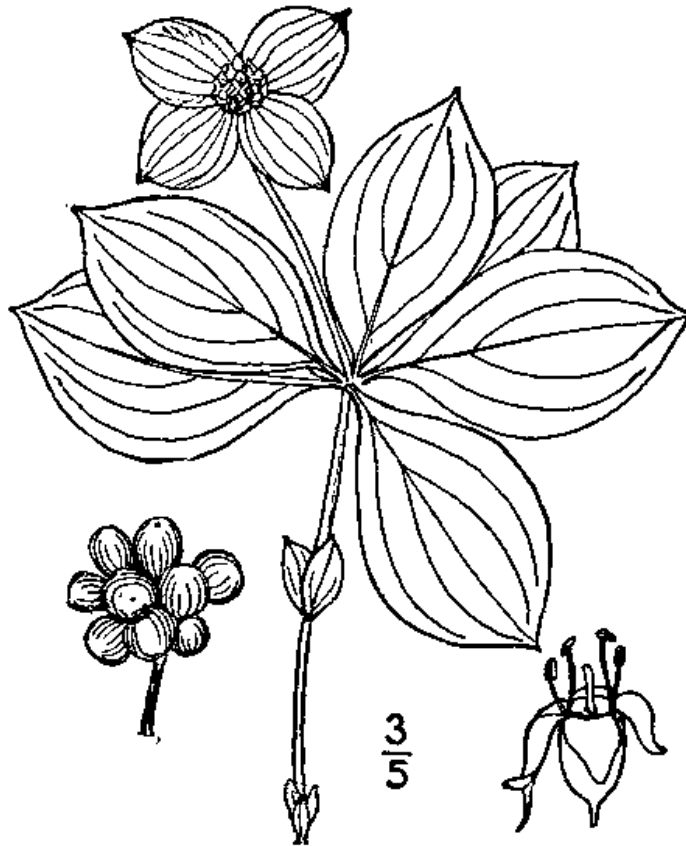
***Cornus canadensis* L. var. *canadensis* (Cornaceae)**

Habitat: This taxon occurs on wooded slopes from 7,500 to 10,000 feet.

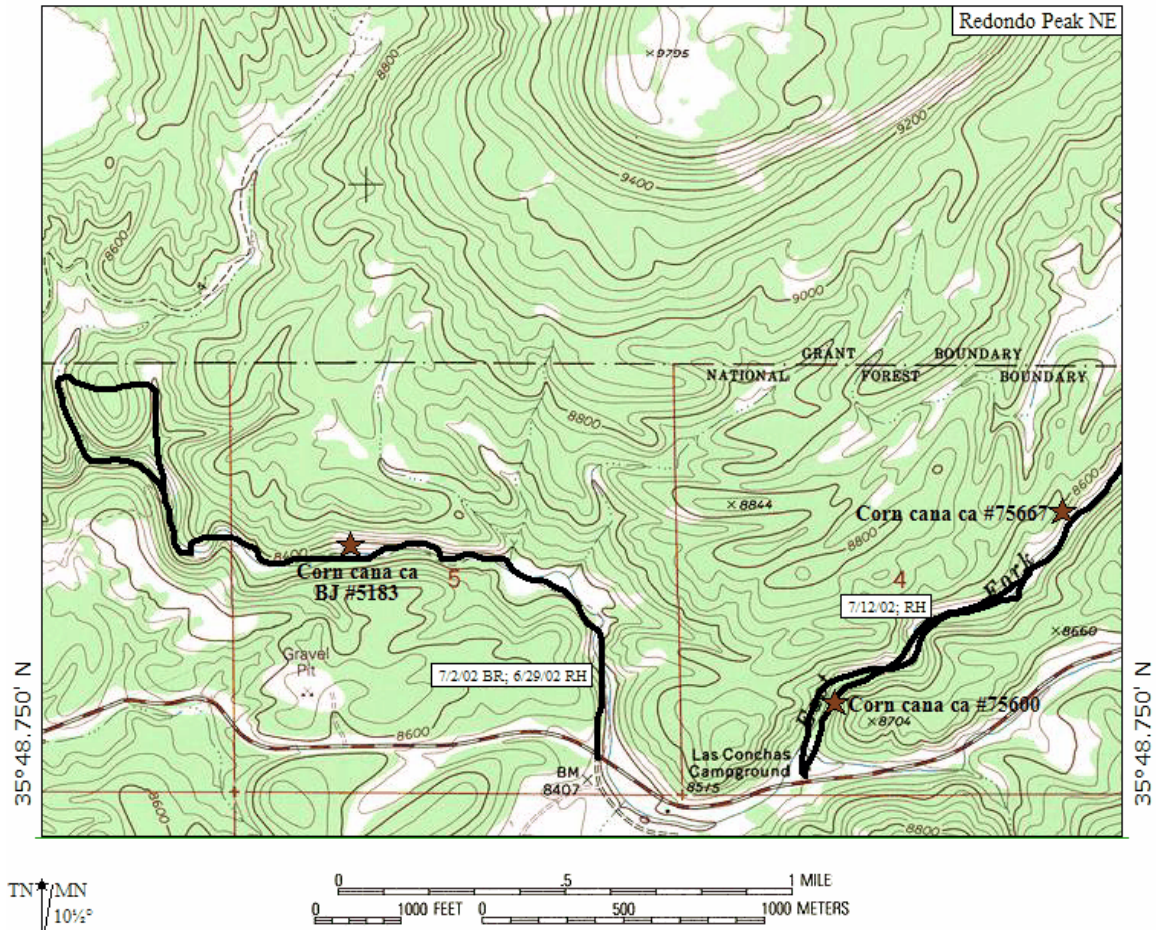
Distribution: *C. canadensis* var. *canadensis* is widely distributed throughout North America but is reported only in Sandoval county for New Mexico (Martin and Hutchins, 1981).

Diagnostic features: This taxon is not readily confused with any other species because it is herbaceous, low-growing, and possesses only a single whorl of 4-6 leaves.

Comments: Given the number of collections obtained, this taxon may be locally quite common in the Jemez Mountains; particularly along the Jemez River, or in other drainages.



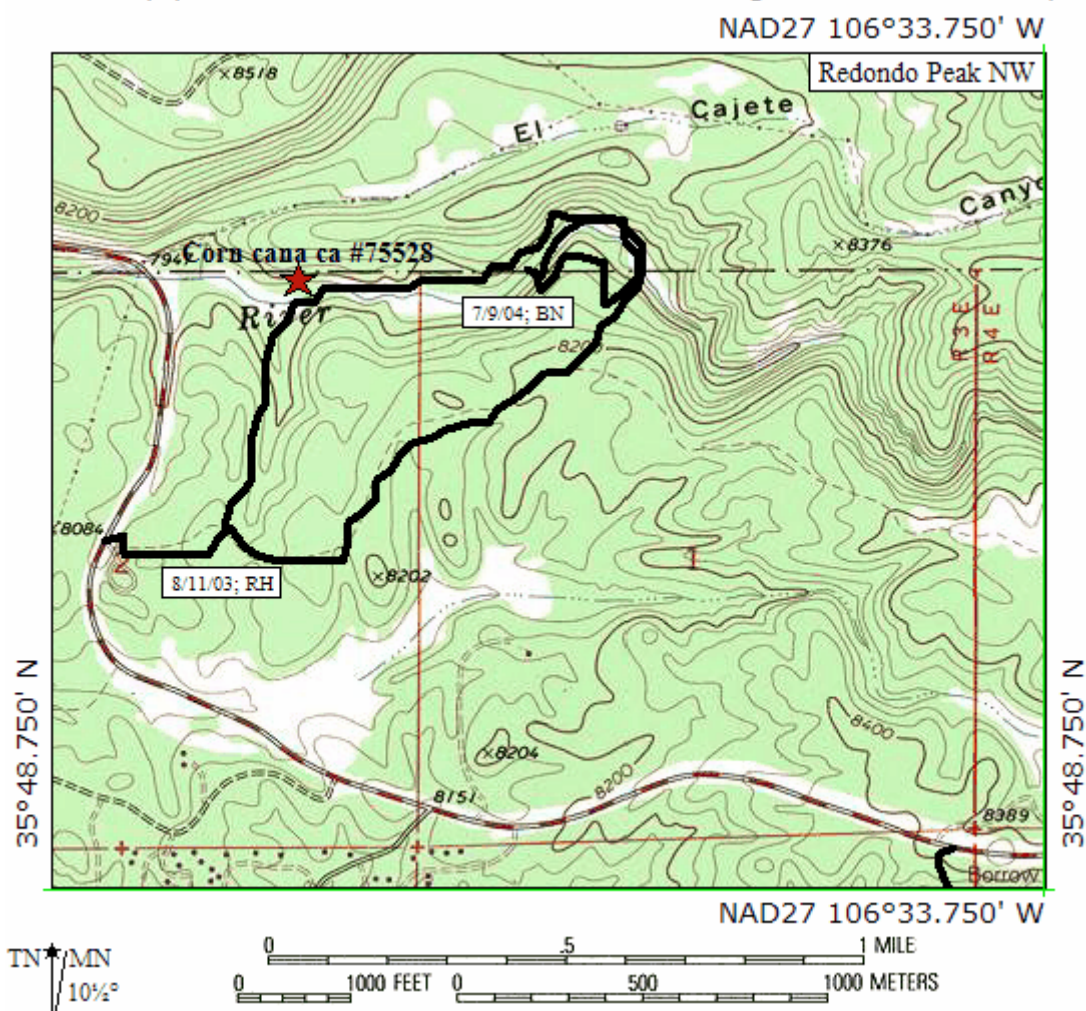
from Britton & Brown, 1913



Cornaceae
NEW MEXICO, U.S.A.
Cornus canadensis L.
var. canadensis
SANDOVAL COUNTY T18N R4E S5
Jemez Mountains: Santa Fe National Forest:
along Upper East Fork Jemez River Trail
ca 1 mi downstream of trailhead.
Abundant on north side of creek.
10 Jun 2001
Brian F. Jacobs # 5183
ROCKY MOUNTAIN HERBARIUM (RM), University of Wyoming

Cornaceae NEW MEXICO, U.S.A.
Cornus canadensis L.
var. canadensis
SANDOVAL COUNTY T18N R4E S4
Santa Fe National Forest and Vicinity:
Jemez Mountains: Las Conchas Campground
on NM Hwy 4 upstream on East Fork Jemez
River to 0.8 mi.
Canyon and streamside.
N35 48.870' W106 31.441'
12 Jul 2002 Elev. 8,461 ft.
Ronald L. Hartman # 75600
ROCKY MOUNTAIN HERBARIUM (RM), University of Wyoming

Cornaceae NEW MEXICO, U.S.A.
Cornus canadensis L.
var. canadensis
SANDOVAL COUNTY T18N R4E S3
Santa Fe National Forest and Vicinity:
Jemez Mountains: Las Conchas Campground
on NM Hwy 4 upstream on East Fork Jemez
River from 0.8 mi to the Valles Caldera
National Preserve boundary. NW1/4 S3.
Canyon and stream.
N35 49.185' W106 31.125'
12 Jul 2002 Elev. 8,473 ft.
Ronald L. Hartman # 75667
ROCKY MOUNTAIN HERBARIUM (RM), University of Wyoming



Cornaceae

NEW MEXICO, U.S.A.

Cornus canadensis L.
var. canadensis

SANDOVAL COUNTY T18N R4E S5

Santa Fe National Forest and Vicinity:

Jemez Mountains: East Fork Jemez River

from trailhead, 0.2 air mi W of Las

Condras Campground, N and W to Valles

Caldera National Preserve fence near

highpoint 8612. South 1/2 S5; also NE 1/4

S6.

Broad valley with volcanic boulders and

rock outcrops on flanks.

N35 49.658' W106 35.250'

29 Jun 2002

Elev. 8,300-8,400 ft.

Ronald L. Hartman # 75528

ROCKY MOUNTAIN HERBARIUM (RM), University of Wyoming

***Cypripedium parviflorum* Salisb. var. *pubescens* O. W. Knight (Orchidaceae)**

Habitat: This taxon is found in mesic woods, fens, and bogs in the higher mountains at 8,000 to 11,000 feet.

Distribution: *C. parviflorum* var. *pubescens* is widely distributed across North America, extending south along the Rockies into extreme northern New Mexico. Another disjunct population barely enters southwest New Mexico from Arizona. Outliers are found in the southeast portion of the state (Sheviak, 2002).

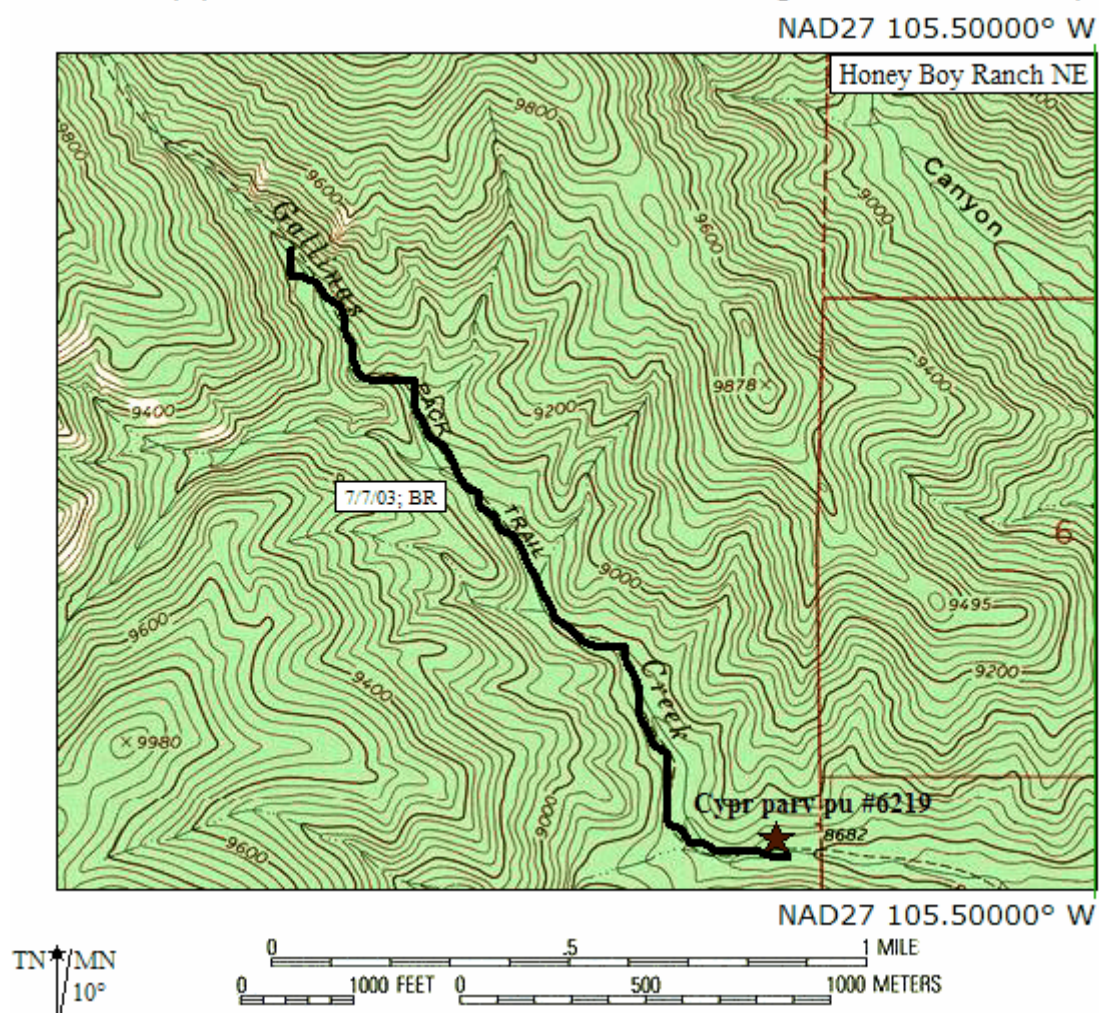
Diagnostic features: This is the only species in the genus *Cypripedium* occurring in New Mexico. It is large, conspicuous, and not easily confused with any other orchid.



B. Reif, 7/ 7//2003



B. Reif, 7/7 /2003



Orchidaceae NEW MEXICO, U.S.A.

Cypripedium parviflorum Salisb.
var. pubescens O. W. Knight

SAN MIGUEL COUNTY T17N R13E S12
Santa Fe National Forest and Vicinity:
Sangre de Cristo Mountains: Gallinas
Creek from end of County Road 263, 20 air
mi NW of Las Vegas. NE1/4 S12; also T18N
R13E S36 SW1/4.
Canyon bottom and lower slope, trailside,
through spruce/fir forest; granite bluffs
constricting canyon in places.
N35.724 W105.509

7 Jul 2003 Elev. 8,630-9,190 ft.

Brian Reif # 6219

ROCKY MOUNTAIN HERBARIUM (RM), University of Wyoming

***Delphinium sapellonis* Cockerell (Ranunculaceae)**

Habitat: This species occurs in open coniferous forest from 7,000 feet to subalpine meadow around 11,000 feet. It is commonly found near water, along streams or drainages.

Distribution: *D. sapellonis* is endemic to New Mexico and is found only in the north and central portions of the state.

Diagnostic characters: This species is distinguished from *D. novomexicanum* by its sepals in bud which are yellowish or brownish versus purple to lavender. The inflorescence of *D. sapellonis* is drab and often conspicuously glandular-pubescent.

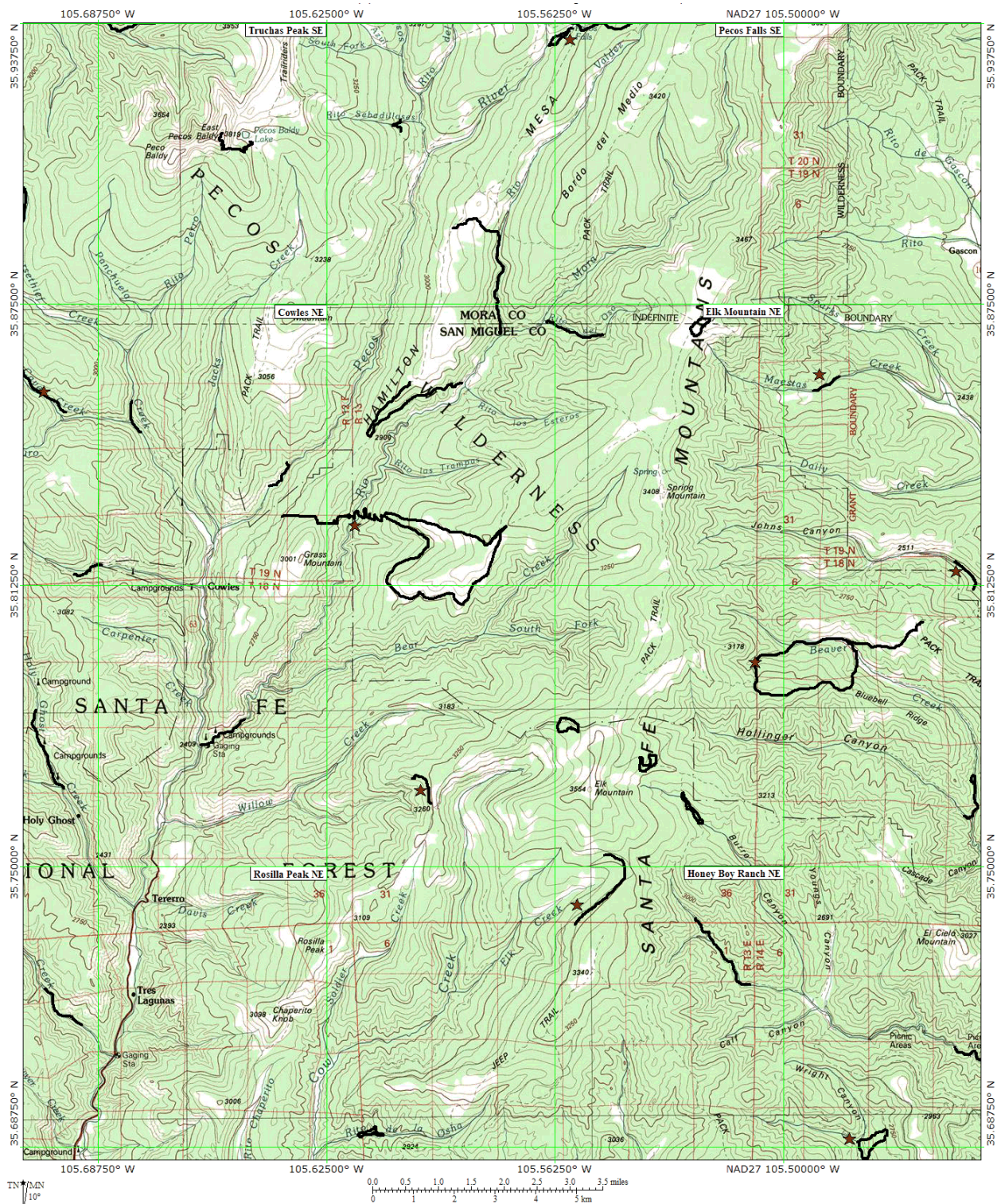
Comments: All collections are from San Miguel and Mora counties, in the southern Sangre de Cristo Mountains, under typical conditions described for the species.



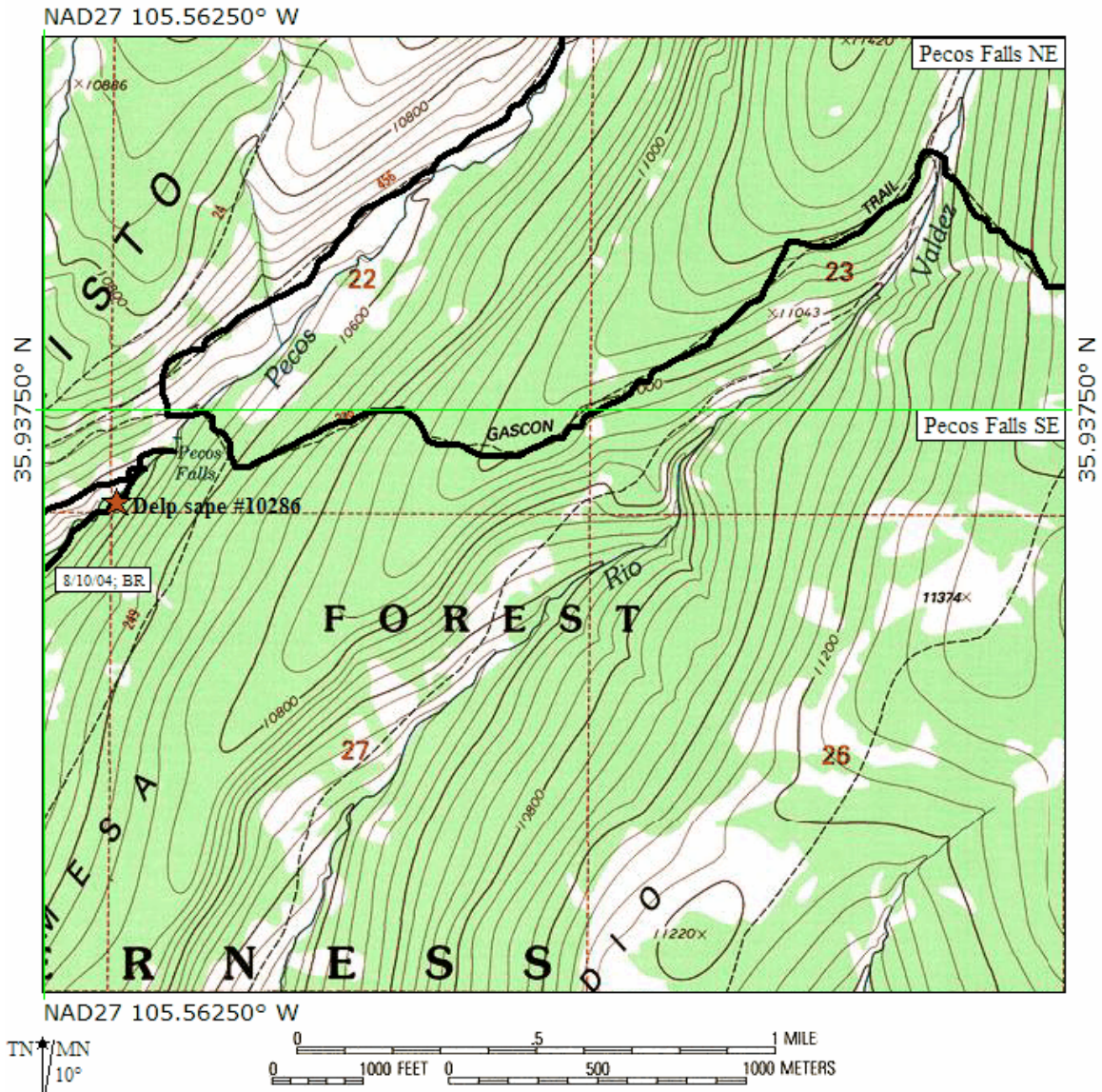
B. Reif, 2003



B. Reif, 2004



Overview of *Delphinium sapellonis* collections (9; red stars), SFNF Sangre de Cristo Mountains 2002-2004. Subsequent 7.5' mapped locations provided from north to south.



Ranunculaceae

NEW MEXICO, U.S.A.

Delphinium sapellonis Cockerell

MORA COUNTY

T20N R13E S22

Santa Fe National Forest and Vicinity:

Sangre de Cristo Mountains: Pecos

Wilderness: Pecos Falls, 11 air mi NNE of

Cowles. SW1/4 S22.

Riparian corridor of Salix, Ribes,

Ligusticum and graminoids.

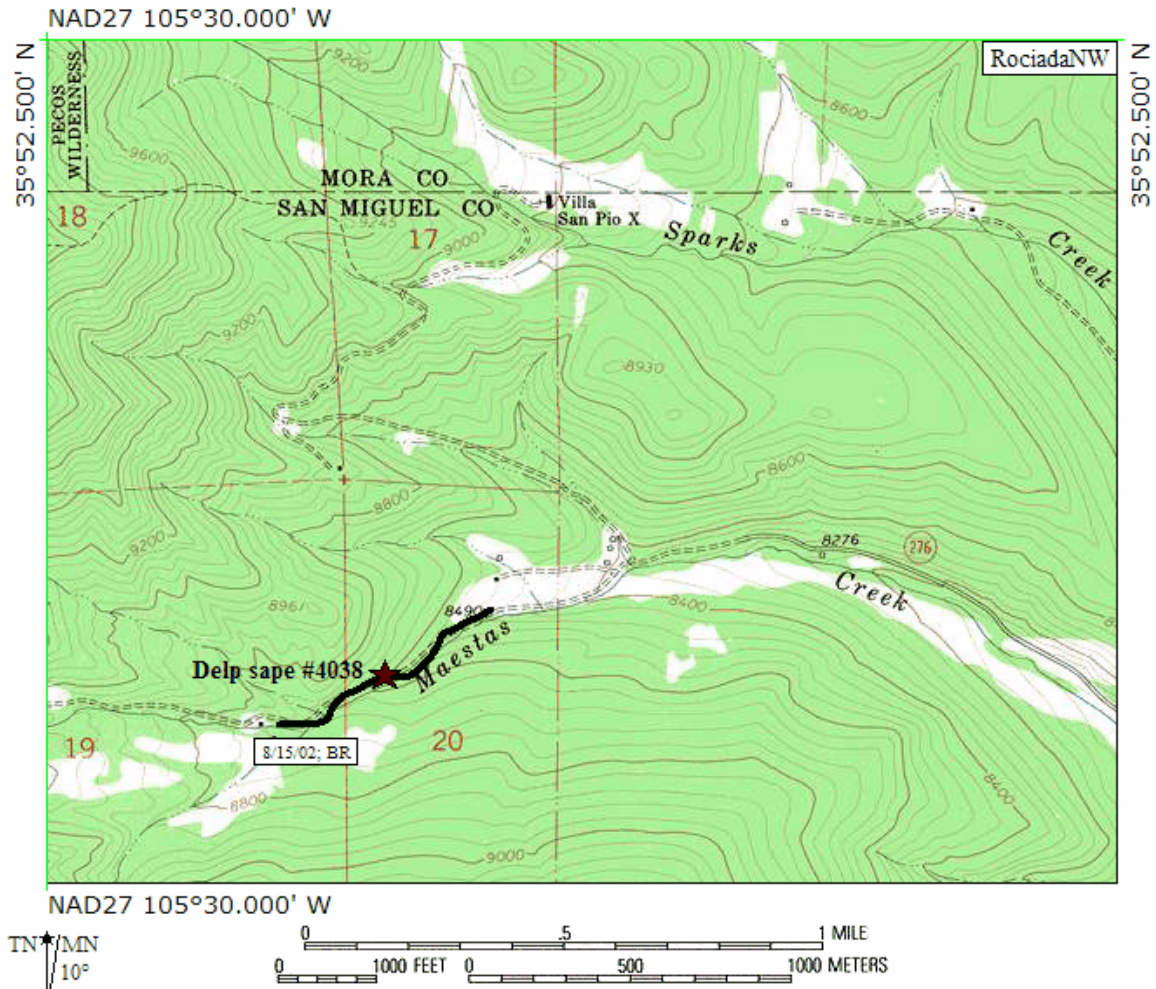
N35.9377 W105.5568.

10 Aug 2004

Elev. 10,500 ft.

Brian Reif # 10286

ROCKY MOUNTAIN HERBARIUM (RM), University of Wyoming



Ranunculaceae NEW MEXICO, U.S.A.

Delphinium sapellonis Cockerell

SAN MIGUEL COUNTY T19N R14E S20

Santa Fe National Forest and Vicinity:

Sangre de Cristo Mountains: Maestas Creek
on north side of NM Hwy 391, 4.5 air mi
WNW of Rociada. SW on road 0.3 air mi
along creek to private drive. NW1/4 S20;
also NE1/4 S19.

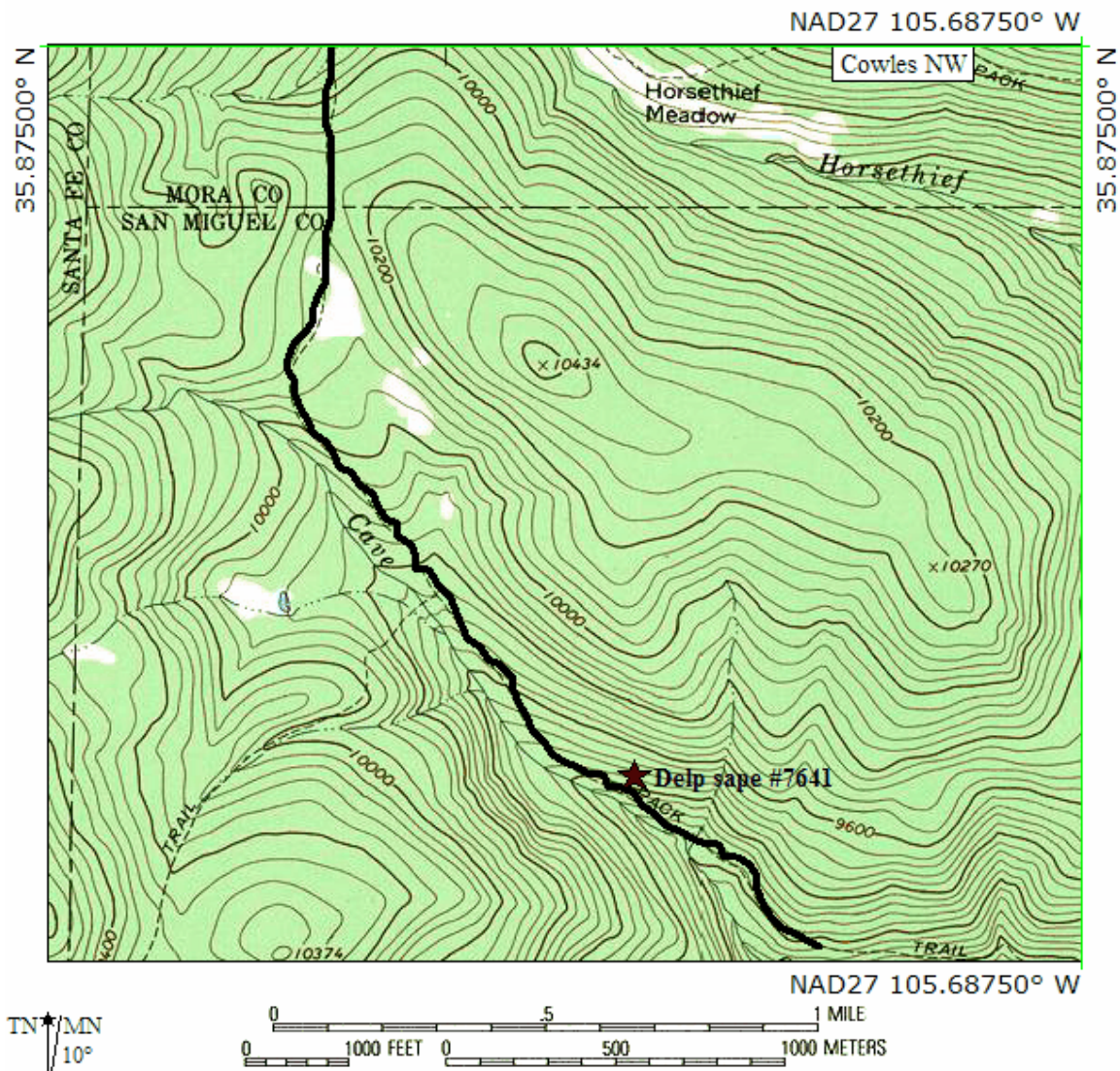
Roadside including cut banks of coarse
volcanic rock, and lower forested slopes
of mixed conifer/aspen.

N35 51.406' W105 29.384' W 0.2 air mi on
road to N35 51.358' W105 29.536' at
private drive.

15 Aug 2002

Elev. 8,500-8,680 ft.

Brian Reif # 4038



Ranunculaceae NEW MEXICO, U.S.A.

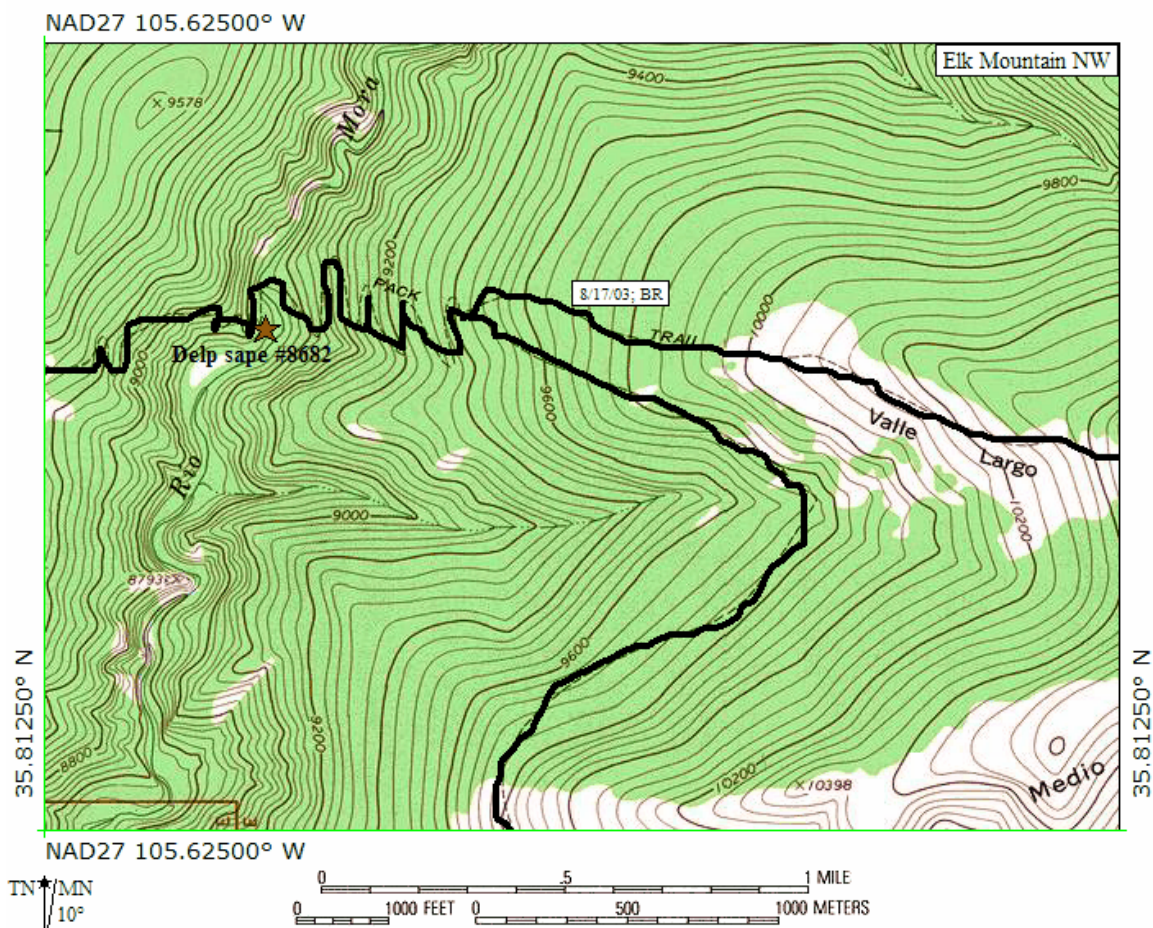
Delphinium sapellonis Cockerell

SAN MIGUEL COUNTY T19N R12E S18
 Santa Fe National Forest and Vicinity:
 Sangre de Cristo Mountains: Pecos
 Wilderness: Trail 288 along Cave Creek, 4
 air mile NW of Cowles; N35.857 W105.706
 SE 0.6 air mi to N35.851 W105.699. SE1/4
 S18; also NW1/4 S20.
 Trailside west-facing slope of spruce/fir
 above creek.

29 Jul 2003 Elev. 9,200-9,600 ft.

Brian Reif # 7641

ROCKY MOUNTAIN HERBARIUM (RM), University of Wyoming



Ranunculaceae NEW MEXICO, U.S.A.

Delphinium sapellonis Cockerell

SAN MIGUEL COUNTY T19N R13E S31

Santa Fe National Forest and Vicinity:

Sangre de Cristo Mountains: Pecos

Wilderness: Valle Largo Trail 248 in

vicinity of Rio Mora, 3 air mi ENE of

Cowles; N35.8278 W105.6183 at Rio Mora E

0.3 air mi on trail to drainage at

N35.8267 W105.6130. NW1/4 S31.

Mixed conifer forest including southwestern
white pine and mature aspen on fine
granitic gravel from eroding bedrock.

17 Aug 2003

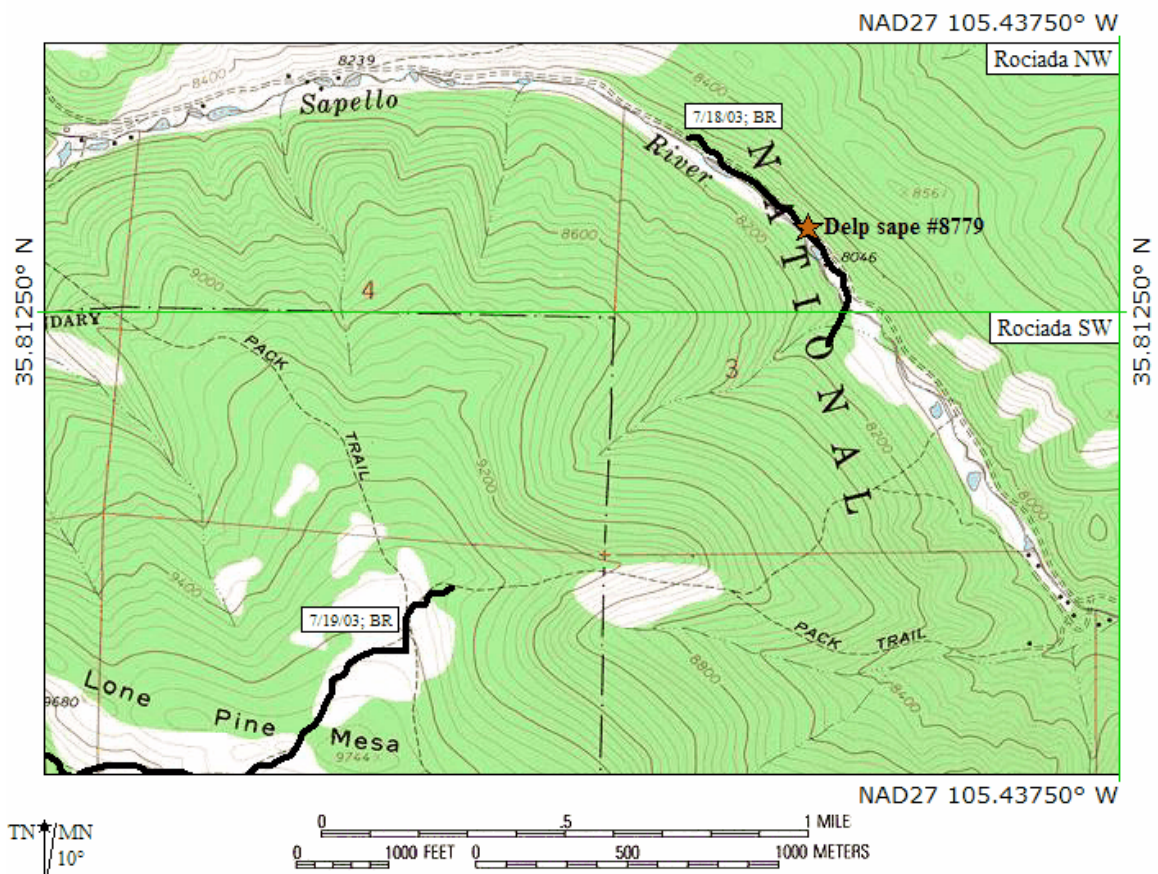
Elev. 8,800-9,200 ft.

Brian Reif # 8682

ROCKY MOUNTAIN HERBARIUM (RM), University of Wyoming

Ranunculaceae

NEW MEXICO, U.S.A.



Ranunculaceae

NEW MEXICO, U.S.A.

Delphinium sapellonis Cockerell

SAN MIGUEL COUNTY

T18N R14E S3

Santa Fe National Forest and Vicinity:

Sangre de Cristo Mountains: Forest Road

60 along Sapello River, 2 air mi SW of

Rociada; N35.8129 W105.4480 at corral NW

0.3 air mi to Surprise Valley Ranch at

N35.8168 W105.4518. W1/2 S3.

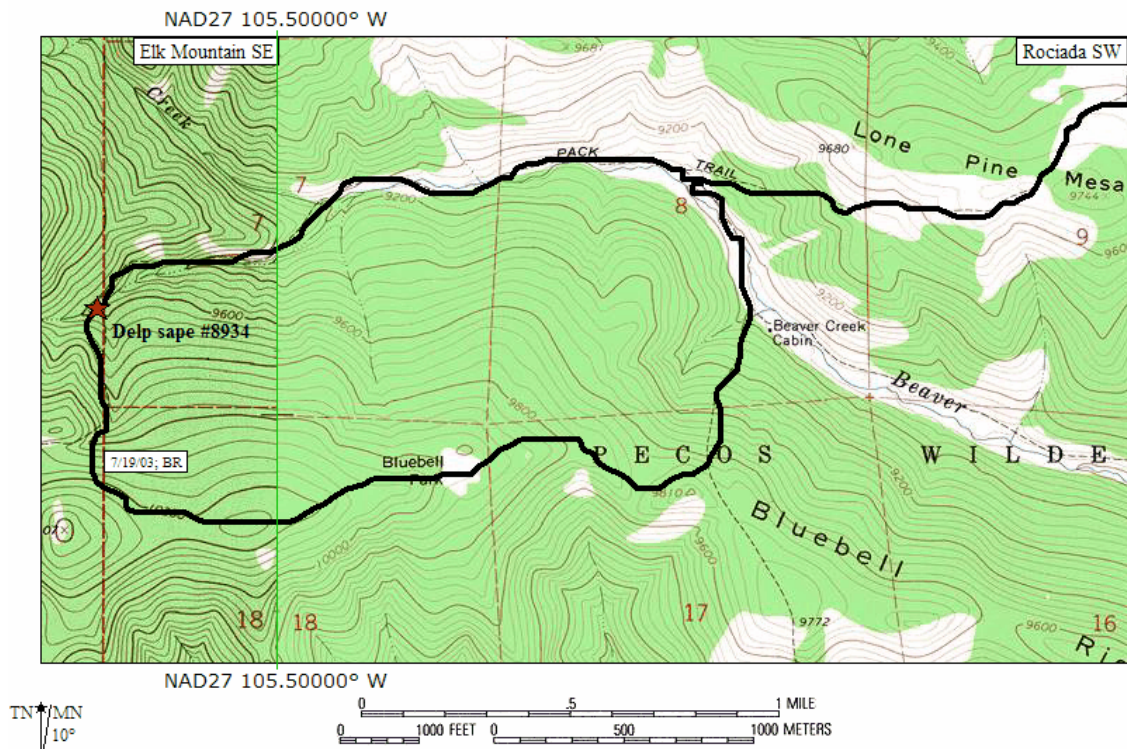
Roadside in canyon bottom and south-facing
slope of mixed conifers/mature aspen;
mostly ponderosa pine in exposed areas.

18 Aug 2003

Elev. 8,000 ft.

Brian Reif # 8779

ROCKY MOUNTAIN HERBARIUM (RM), University of Wyoming



Ranunculaceae

NEW MEXICO, U.S.A.

Delphinium sapellonis Cockerell

SAN MIGUEL COUNTY

T18N R14E S7

Santa Fe National Forest and Vicinity:

Sangre de Cristo Mountains: Pecos

Wilderness: Beaver Creek Trail 247, 5 air

mi WSW of Rociada; N35.7800 W105.4941 WSW

0.8 air mi on trail along creek to

N35.7954 W105.5073 at departure of

drainage.

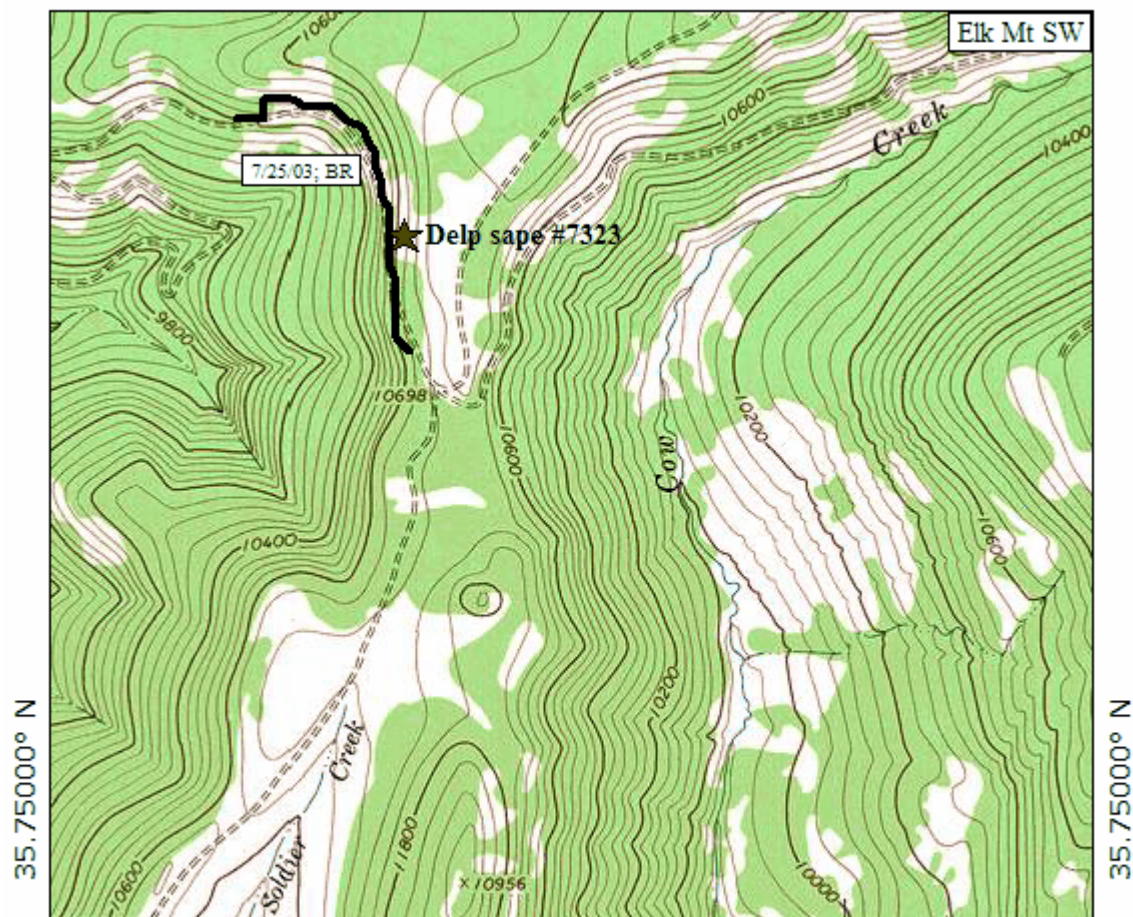
Riparian and adjacent canyon bottom in
spruce forest with mature aspen.

19 Aug 2003

Elev. 9,120-9,600 ft.

Brian Reif # 8934

ROCKY MOUNTAIN HERBARIUM (RM), University of Wyoming



TN★MN
10°



Ranunculaceae

NEW MEXICO, U.S.A.

Delphinium sapellonis Cockerell

SAN MIGUEL COUNTY

T18N R13E S19

Santa Fe National Forest and Vicinity:

Sangre de Cristo Mountains: Forest Road
156 at prominent switchback 3 air mi due
W of Elk Mountain summit; N 0.2 air mi
along road. SE1/4 S19.

Roadside along spruce slope with
bristlecone pine and corkbark fir; also,
pockets of open meadow.

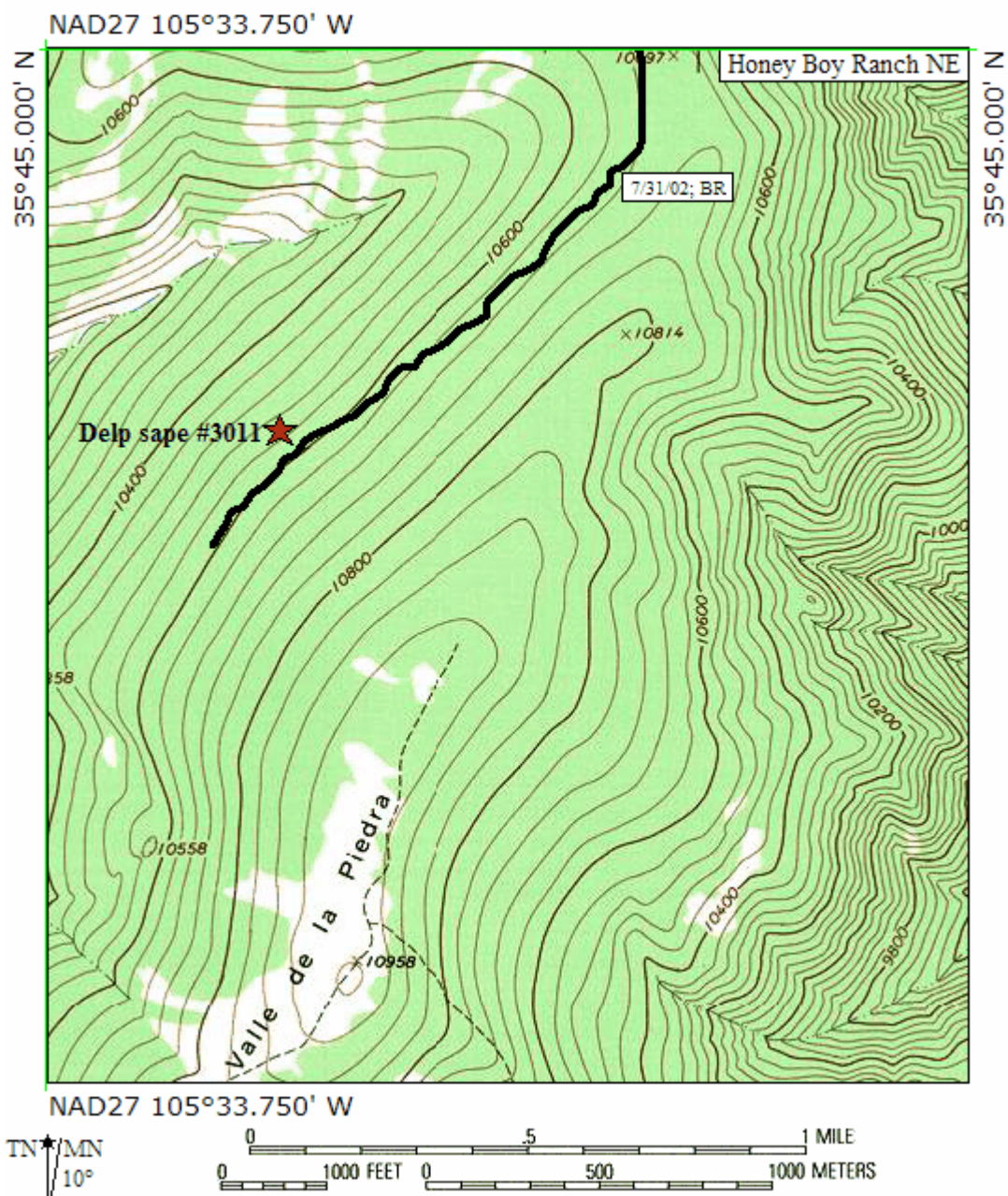
N35.766 W105.600

25 Jul 2003

Elev. 10,660 ft.

Brian Reif # 7323

ROCKY MOUNTAIN HERBARIUM (RM), University of Wyoming



Ranunculaceae

NEW MEXICO, U.S.A.

Delphinium sapellonis Cockerell

SAN MIGUEL COUNTY

T18N R13E S34

Santa Fe National Forest and Vicinity:

Sangre de Cristo Mountains: NM Hwy 92, 2
air mi S of Elk Mountain or 7 mi E of
Terrero. NE on old roadbed at 180 degree
bend for 1 air mi toward Elk Mountain.
Also NW1/4 S35 and SE1/4 S27.

Open burn site with dead standing spruce
and wet meadows. Numerous intermittent
springs on gently descending slopes.

Fireweed dominant along roadbed.

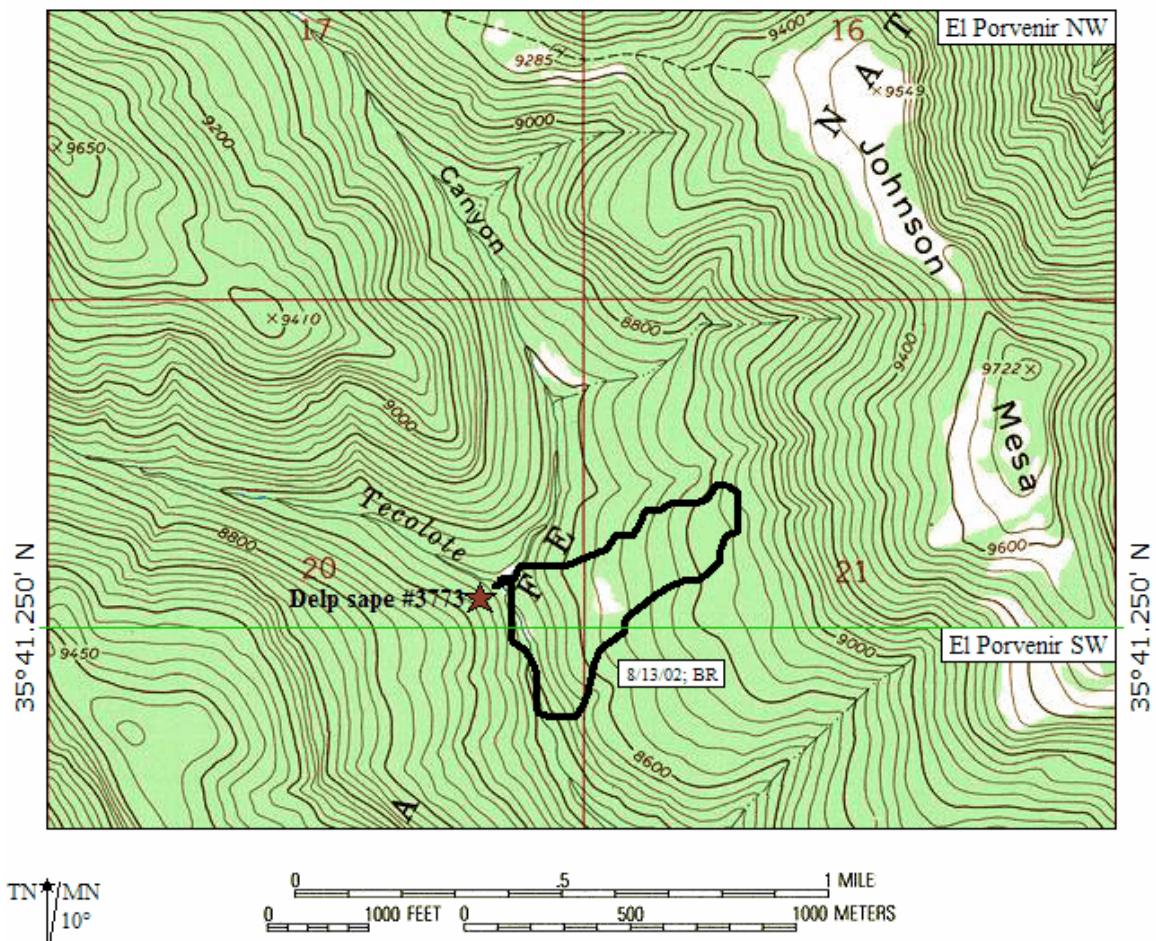
N35 44.387' W105 33.325'.

31 Jul 2002

Elev. 10,600-10,800 ft.

Brian Reif # 3011

ROCKY MOUNTAIN HERBARIUM (RM), University of Wyoming



Ranunculaceae NEW MEXICO, U.S.A.

Delphinium sapellonis Cockerell

SAN MIGUEL COUNTY T17N R14E S21

Santa Fe National Forest and Vicinity:

Sangre de Cristo Mountains: Grindstone

Spring and Tecolote Creek off NM Hwy 291,

16 air mi WNW of Las Vegas. From NM Hwy

291 SW 0.5 air mi to Tecolote Creek.

W1/2 S21; also SE1/4 S20.

Riparian of creek and adjacent meadow in
canyon bottom.

N35 41.302' W105 28.797' at Grindstone

Spring 0.2 air mi S along creek.

13 Aug 2002

Elev. 8,400-8,850 ft.

Brian Reif # 3773

ROCKY MOUNTAIN HERBARIUM (RM), University of Wyoming

***Epipactis gigantea* Douglas ex Hook. (Orchidaceae)**

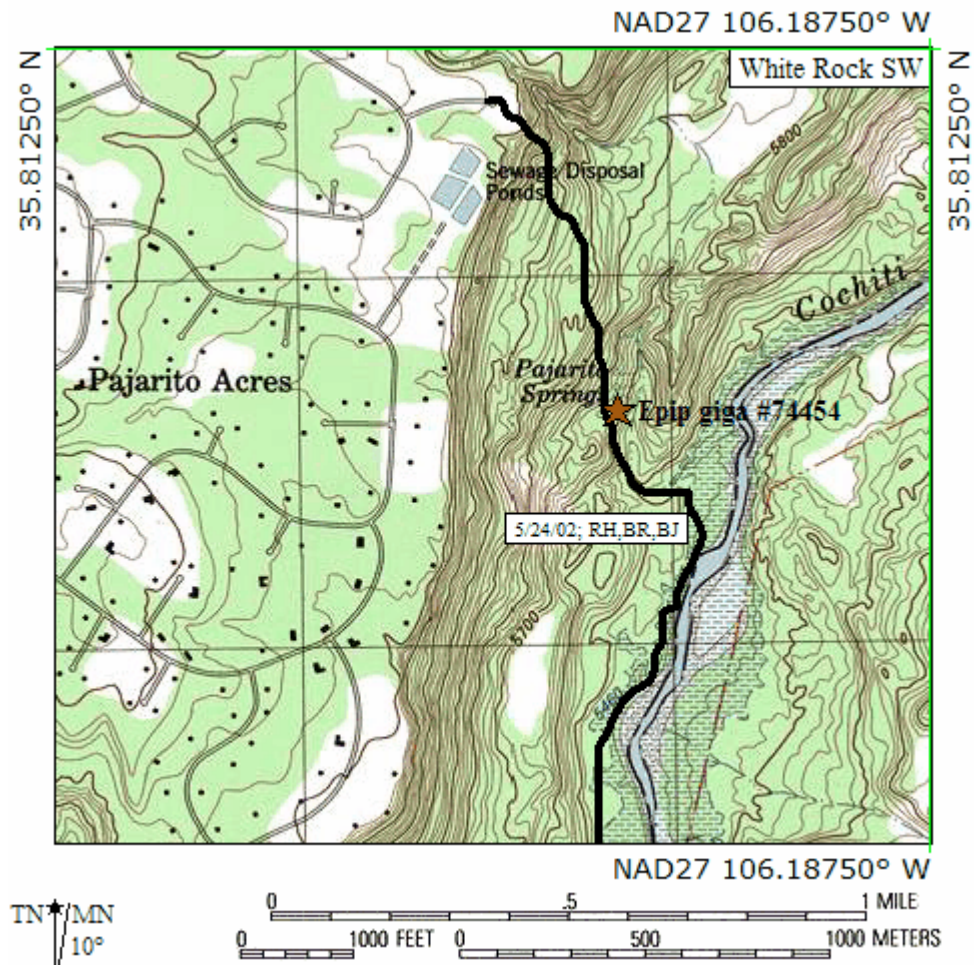
Habitat: This species occurs from sea-level to about 9,000 feet and is found in wet areas including sandy or gravelly shoreline, riparian canyon bottom, and damp woods.

Distribution: This species is reported as broadly distributed across the western United States; from Canada south, and as far eastward as Texas. *E. gigantea* covers the western 3/4th of New Mexico (Brown and Argus, 2002).

Diagnostic Features: *E. gigantea* is separated from *E. helleborine* in having a 3-lobed lip. These are the only two species occurring in New Mexico.



Scanned specimen: RH, #74454 (with BR & BJ)



Orchidaceae NEW MEXICO, U.S.A.

Epipactis gigantea Douglas ex Hook.

LOS ALAMOS COUNTY

Santa Fe National Forest and Vicinity:
Jemez Mountains: White Rock Canyon.
Pajarito Springs.
Spring.

24 May 2002 Elev. 7,500 ft.

Ronald L. Hartman # 74454
with Brian Reif and Brian Jacobs

ROCKY MOUNTAIN HERBARIUM (RM), University of Wyoming

***Erigeron subglaber* Cronquist (Asteraceae)**

Habitat: This species is found on high ridges or in open rocky meadows in the subalpine zone from 10,000 to 11,500 feet.

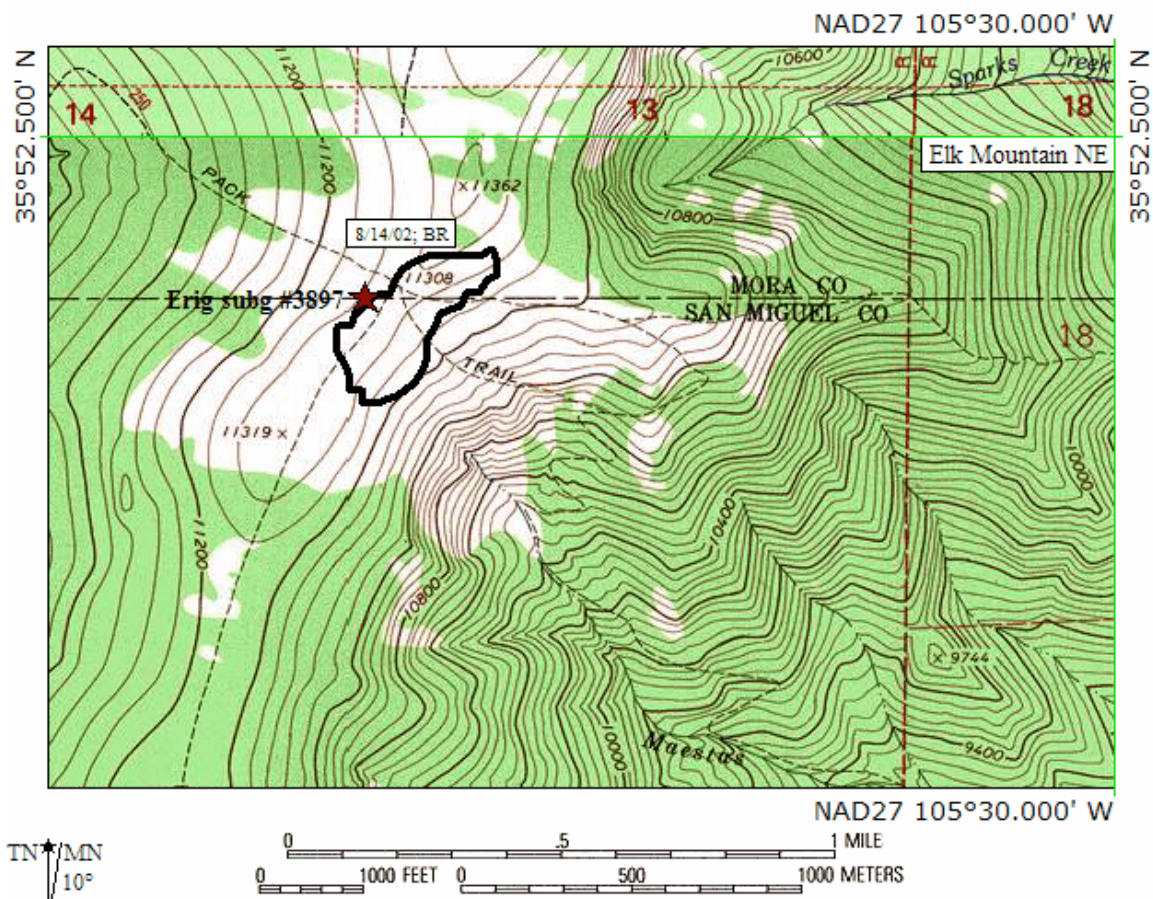
Distribution: *E. subglaber* is narrowly endemic to New Mexico and found only in northwestern San Miguel and central Taos counties of the Sangre de Cristo Mountains.

Diagnostic features: *E. subglaber* differs from *E. leiomerus* in having glabrous rather than glandular involucre bracts.

Comments: The locality of this specimen may advance the known distribution of this species into Mora county.



Scanned Specimen: BR, #3897



Asteraceae NEW MEXICO, U.S.A.

Erigeron subglaber Cronquist

SAN MIGUEL COUNTY T19N R13E S13

Santa Fe National Forest and Vicinity:

Sangre de Cristo Mountains: Pecos

Wilderness: ridge system N of Spring

Mountain, 6 air mi WNW of Rociada, at

county line and junction of trails

250/251/380. W1/2 S13. Also Mora Co.

A rocky, dry meadow with dwarf, flagged

spruce. Small seep on east side ca 200

feet from ridge top.

N35 52.248' W105 31.453'.

14 Aug 2002

Elev. 11,310 ft.

Brian Reif # 3897

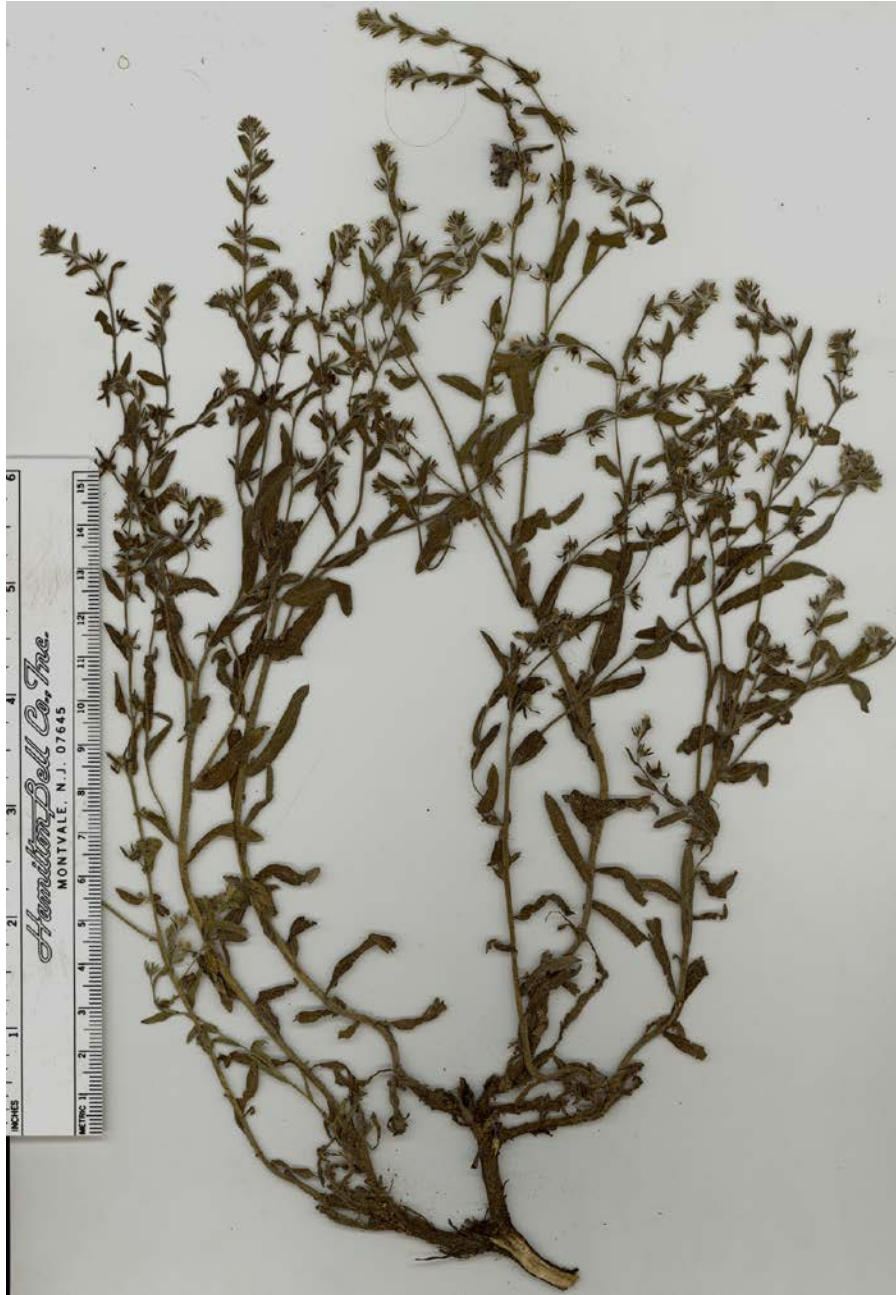
ROCKY MOUNTAIN HERBARIUM (RM), University of Wyoming

***Hackelia hirsuta* (Wooton & Standl.) I. M. Johnst. (Boraginaceae)**

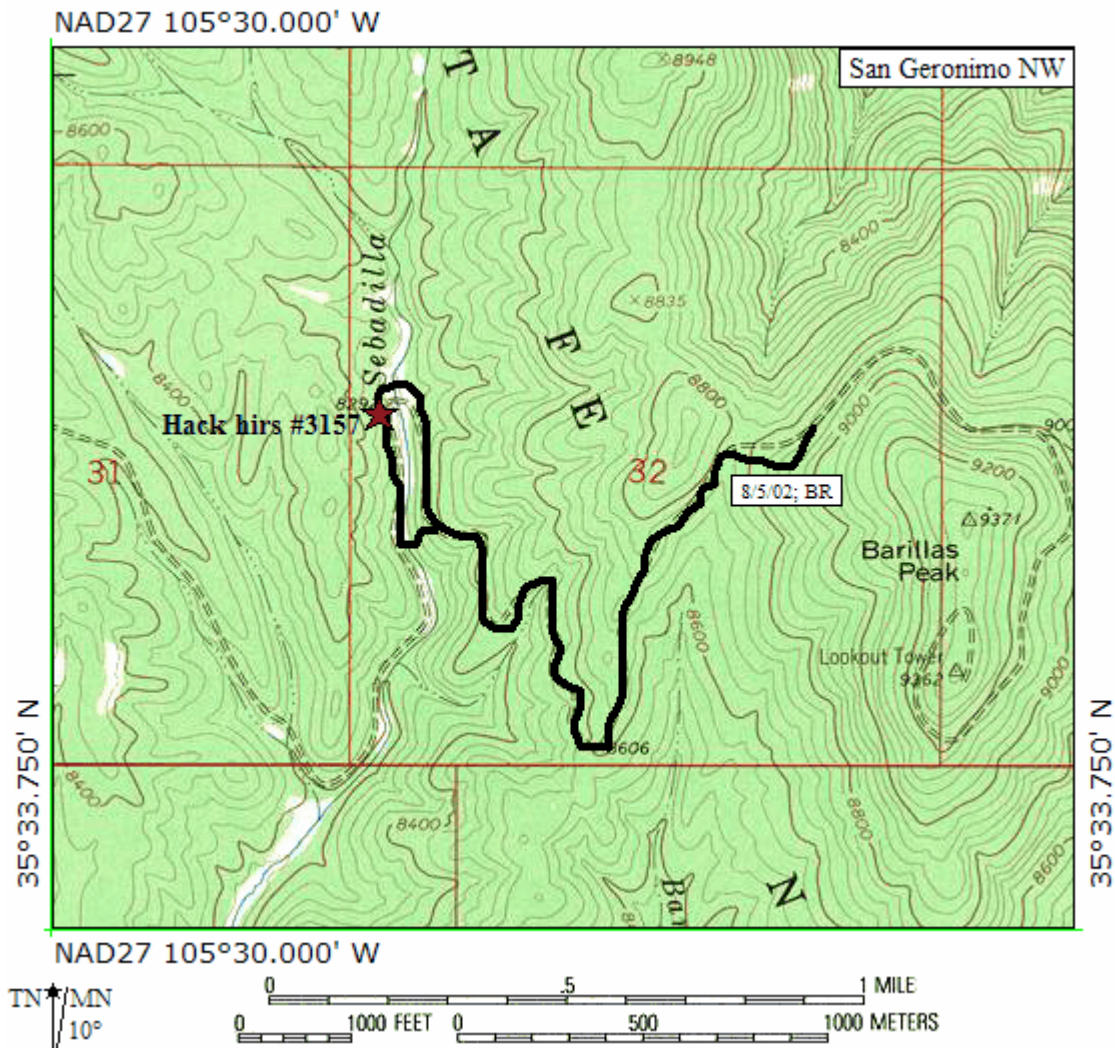
Habitat: *H. hirsuta* is found at dry sites in montane coniferous forest from about 7,000 to 10,000 feet. It is associated with Gambel's oak, and volcanic or shaley substrate (NMRPTC, 1999).

Distribution: This species is endemic to the Jemez, southern Sangre de Cristo, and Canjilon mountains of northcentral New Mexico.

Diagnostic features: *H. hirsuta* has a hirsute stem and leaf margins which are long-ciliate (Martin and Hutchins, 1981).



Scanned Specimen: BR, #3157



Boraginaceae NEW MEXICO, U.S.A.

Hackelia hirsuta
(Wootton & Standl.) I. M. Johnst.

SAN MIGUEL COUNTY T16N R14E S32

Santa Fe National Forest and Vicinity:

Sangre de Cristo Mountains: NM Hwy 83 in vicinity of Barillas Peak, 10 air mi E of Pecos. From crossing of Sebadilla Creek on NM 83 S 0.2 air mi along creek.

Wet to dry meadow in canyon bottom, surrounding excised creek drainage lined with alder, through mixed conifer/aspen forest.

N35 34.523' W105 29.407'.

5 Aug 2002 Elev. 8,300-8,850 ft.

Brian Reif # 3157

ROCKY MOUNTAIN HERBARIUM (RM), University of Wyoming

***Hieracium pringlei* A. Gray (Asteraceae)**

Habitat: *H. pringlei* is found in the mountains at low elevation, from 6,000 to 7,000 feet, in pine, oak, or mixed pine-oak forest (Beaman, 1990).

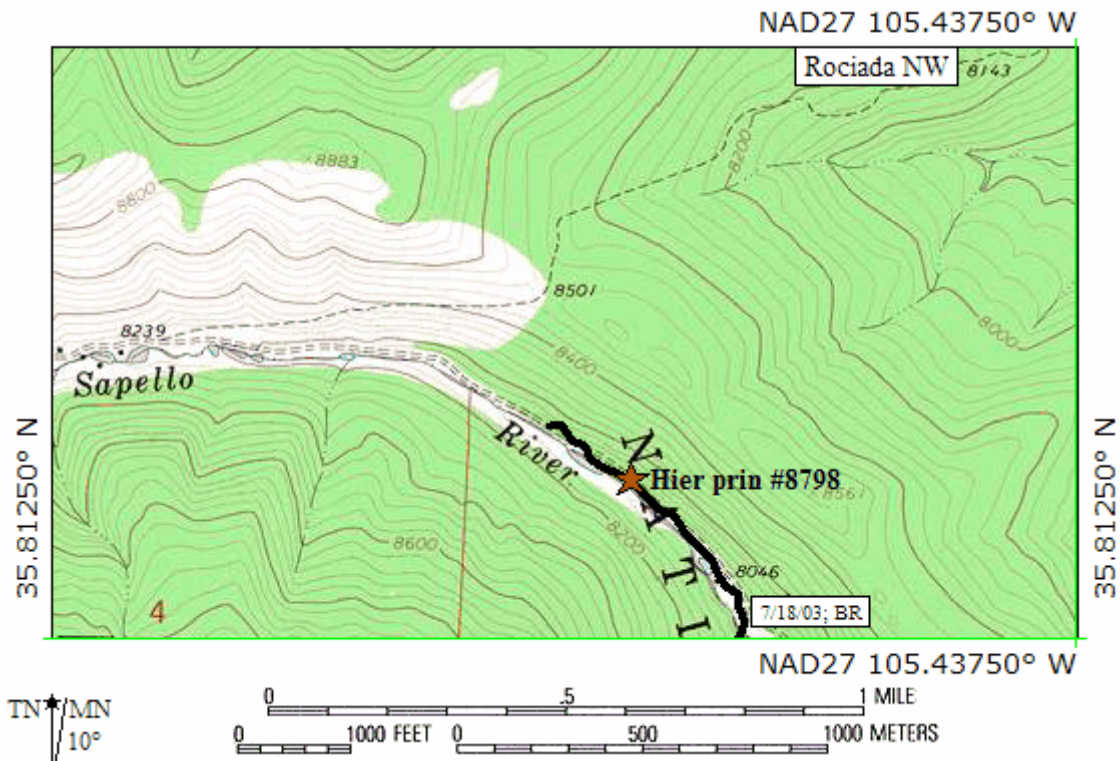
Distribution: This species is broadly distributed over South America, but only occurs in Arizona and extreme southwestern New Mexico in North America.

Distinguishing features: *H. pringlei* is conspicuously lanate at the base and on the lower leaves. It also has a whitish pappus.

Comment: Specimen #8798 did not resemble any herbarium material examined, and must be examined by an expert. It is tentatively identified as this species, despite falling way out of all reported distributions, because it is conspicuously lanate and has a 'snow-white' pappus.



Scanned Specimen: BR, #8798



Asteraceae NEW MEXICO, U.S.A.

Hieracium pringlei A. Gray

SAN MIGUEL COUNTY T18N R14E S3

Santa Fe National Forest and Vicinity:

Sangre de Cristo Mountains: Forest Road

60 along Sapello River, 2 air mi SW of

Rociada; N35.8129 W105.4480 at corral NW

0.3 air mi to Surprise Valley Ranch at

N35.8168 W105.4518. W1/2 S3.

Roadside in canyon bottom and south-facing
slope of mixed conifers/mature aspen;
mostly ponderosa pine in exposed areas.

18 Aug 2003

Elev. 8,000 ft.

Brian Reif # 8798

ROCKY MOUNTAIN HERBARIUM (RM), University of Wyoming

***Lilium philadelphicum* L. var. *andinum* (Nutt.) Ker-Gawl. (Liliaceae)**

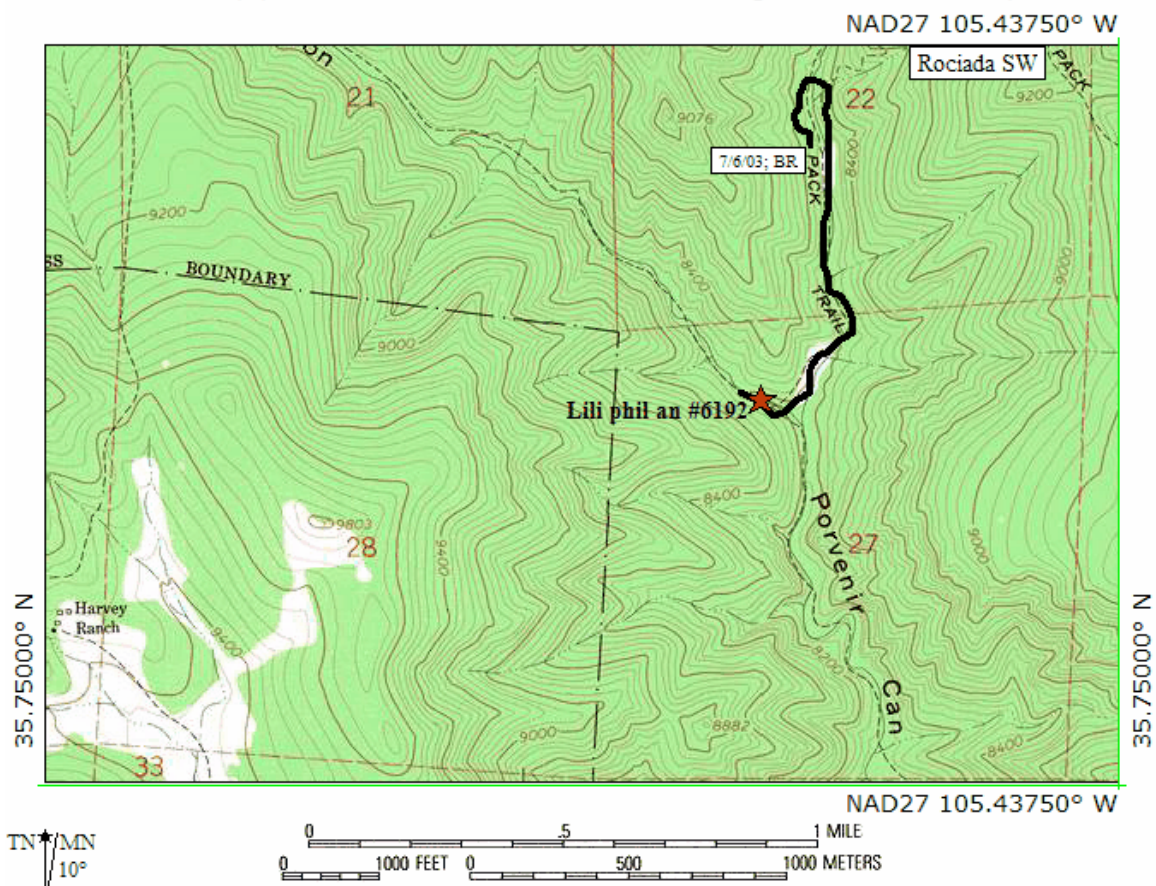
Habitat: This taxon is found in open woods in New Mexico.

Distribution: *L. philadelphicum* var. *andinum* is the widest ranging of the true lilies, extending westward across most of North America and northward into much of Canada. In New Mexico, this taxon is broadly distributed except along the eastern and western borders, or in the southwest quarter of the state (Skinner, 2002).

Diagnostic characters: There are no other taxa in the genus *Lilium* in the state of New Mexico. Nonetheless, the wood lily is readily separated from other western lilies in having an erect inflorescence.



B. Reif, 7/6/2003



Liliaceae NEW MEXICO, U.S.A.

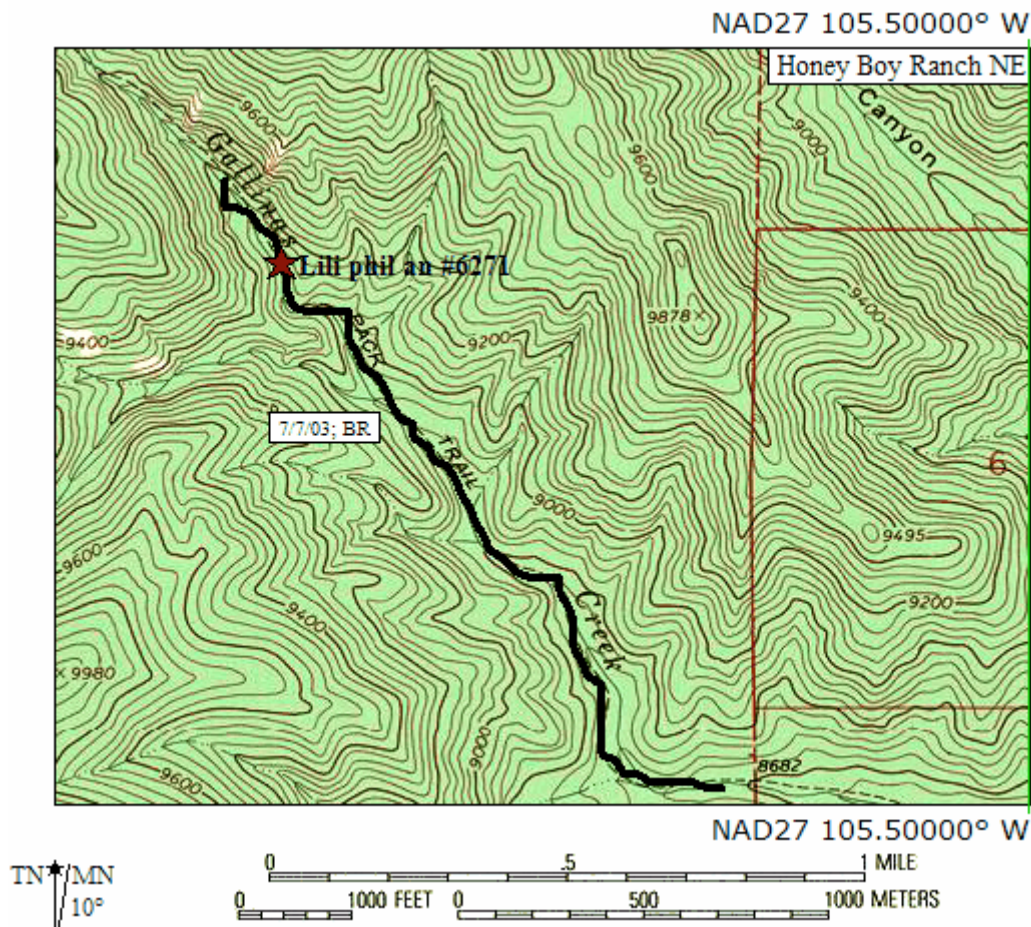
Lilium philadelphicum L.
var. andinum (Nutt.) Ker-Gawl.

SAN MIGUEL COUNTY T18N R14E S22
Santa Fe National Forest and Vicinity:
Sangre de Cristo Mountains: El Porvenir
Canyon on Trail 247, 5 air mi W of San
Ignacio, near Hollinger Canyon junction.
South 1/2, S22; also NW 1/4 S27.
Canyon bottom of mostly spruce, and moist
lower slope of mixed conifers along
trail; granite bluffs constricting canyon.
N35.761 W105.450

6 Jul 2003 Elev. 8,200-8,450 ft.

Brian Reif # 6192

ROCKY MOUNTAIN HERBARIUM (RM), University of Wyoming



Liliaceae NEW MEXICO, U.S.A.

Lilium philadelphicum L.
var. andinum (Nutt.) Ker-Gawl.

SAN MIGUEL COUNTY T17N R13E S12
Santa Fe National Forest and Vicinity:
Sangre de Cristo Mountains: Gallinas
Creek from end of County Road 263, 20 air
mi NW of Las Vegas; Trail 216, 1.2 air mi
NW of road. NE1/4 S12; also T18N R13E
S36 SW1/4.
Canyon bottom and lower slope, trailside,
through spruce/fir forest; granite bluffs
constricting canyon in places.
N35.736 W105.523

7 Jul 2003 Elev. 8,630-9,190 ft.

Brian Reif # 6271

ROCKY MOUNTAIN HERBARIUM (RM), University of Wyoming

***Mentzelia springeri* (Standl.) Tidestr. (Loasaceae)**

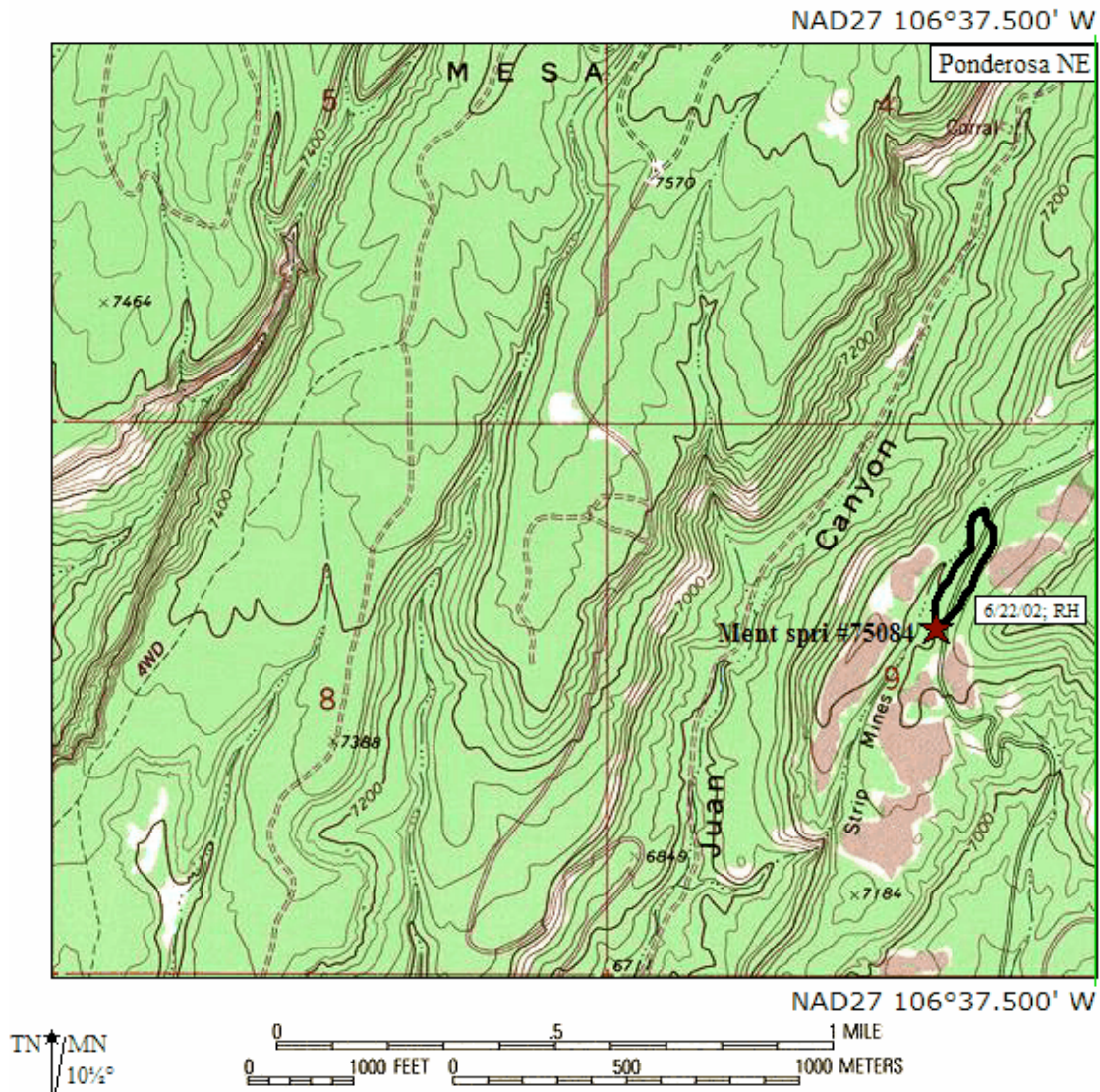
Habitat: *M. springeri* is found on volcanic ash or pumice 'in pinyon-juniper woodland and lower montane coniferous forest' at 7,000 to 8,000 feet (NMRPTC, 1999).

Distribution: This species is endemic to the Jemez mountains and is found only in Los Alamos, northeastern Sandoval, and northwestern Santa Fe counties.

Diagnostic features: *M. springeri* has bright yellow flowers and numerous, highly-branched stems giving it a bushy appearance. This species has been resurrected from synonymy with *M. multiflora* which differs in having cream to pale yellow petals, and a few stout stems.



Scanned Specimen: RH, #75084



Loasaceae NEW MEXICO, U.S.A.

Mentzelia springeri (Standl.) Tidestr.

SANDOVAL COUNTY T17N R3E S3

Santa Fe National Forest and Vicinity:

Jemez Mountains: 5.7 road mi NNE of
Ponderosa.

Roadside.

N35 43.131' W106 37.845'

22 Jun 2002

Elev. 7,250 ft.

Ronald L. Hartman # 75084

ROCKY MOUNTAIN HERBARIUM (RM), University of Wyoming

***Mertensia viridis* (A. Nelson) A. Nelson (Boraginaceae)**

Habitat: *M. viridis* is found in the alpine zone of the higher mountains, from about 11,000 to 13,000 feet.

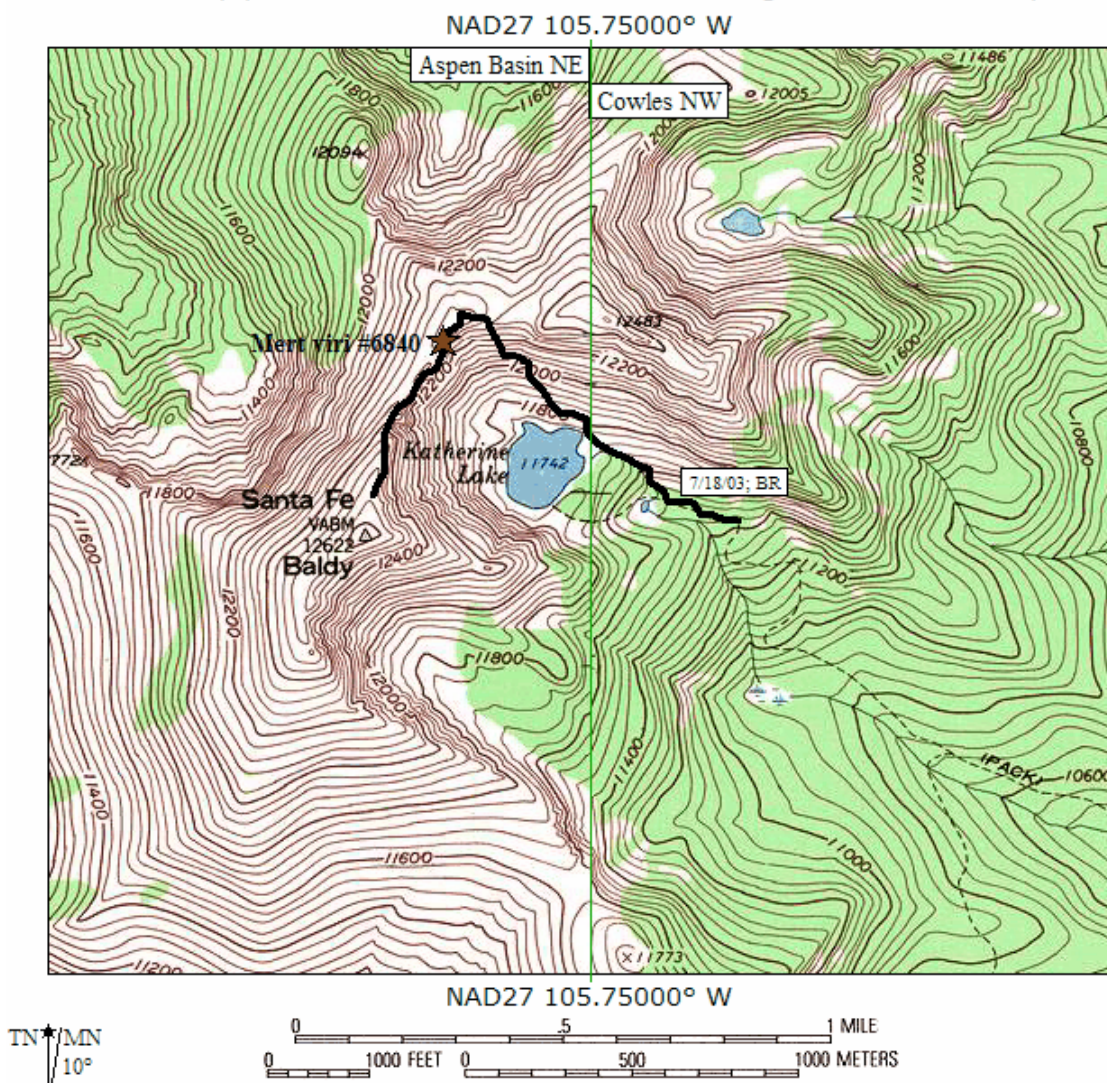
Distribution: This species is reported only in the Sangre de Cristo mountains for the state of New Mexico, with documented collections for Truchas, Lake, Pecos Baldy, and Baldy Peaks (Williams, 1937).

Diagnostic features: *M. viridis* is the only species in the genus with thick and fleshy, glabrous cauline leaves (Martin & Hutchins, 1981). Numerous varieties of this species previously recognized have been reduced to synonymy, and *M. viridis* is now simply regarded as being variable throughout its range. In New Mexico, the species has proportionately larger flowers and a longer calyx than populations in other states.

Comments: Questionable taxonomic status prevents this species from being of conservation concern, although it is evidently restricted in New Mexico and documented only on the higher peaks of the state. Collection #6840 was collected approximately 2.5 miles to the north of a known locality (Lake Peak).



Scanned Specimen: BR, #6840



Boraginaceae NEW MEXICO, U.S.A.

Mertensia viridis (A. Nelson) A. Nelson

SANTA FE COUNTY T19N R11E S35

Santa Fe National Forest and Vicinity:

Sangre de Cristo Mountains: Pecos

Wilderness: Santa Fe Baldy, 6 air mi WNW
of Cowles. Also E1/2 S34.

Alpine ridge and associated granite cliffs.
N35.8380 W105.7550

18 Jul 2003

Elev. 12,430 ft.

Brian Reif # 6840

ROCKY MOUNTAIN HERBARIUM (RM), University of Wyoming

***Podistera eastwoodiae* (J.M. Coult. & Rose) Math. & Const. (Apiaceae)**

Habitat: This species is found in high mountain meadows from about 10,000 to 12,000 feet.

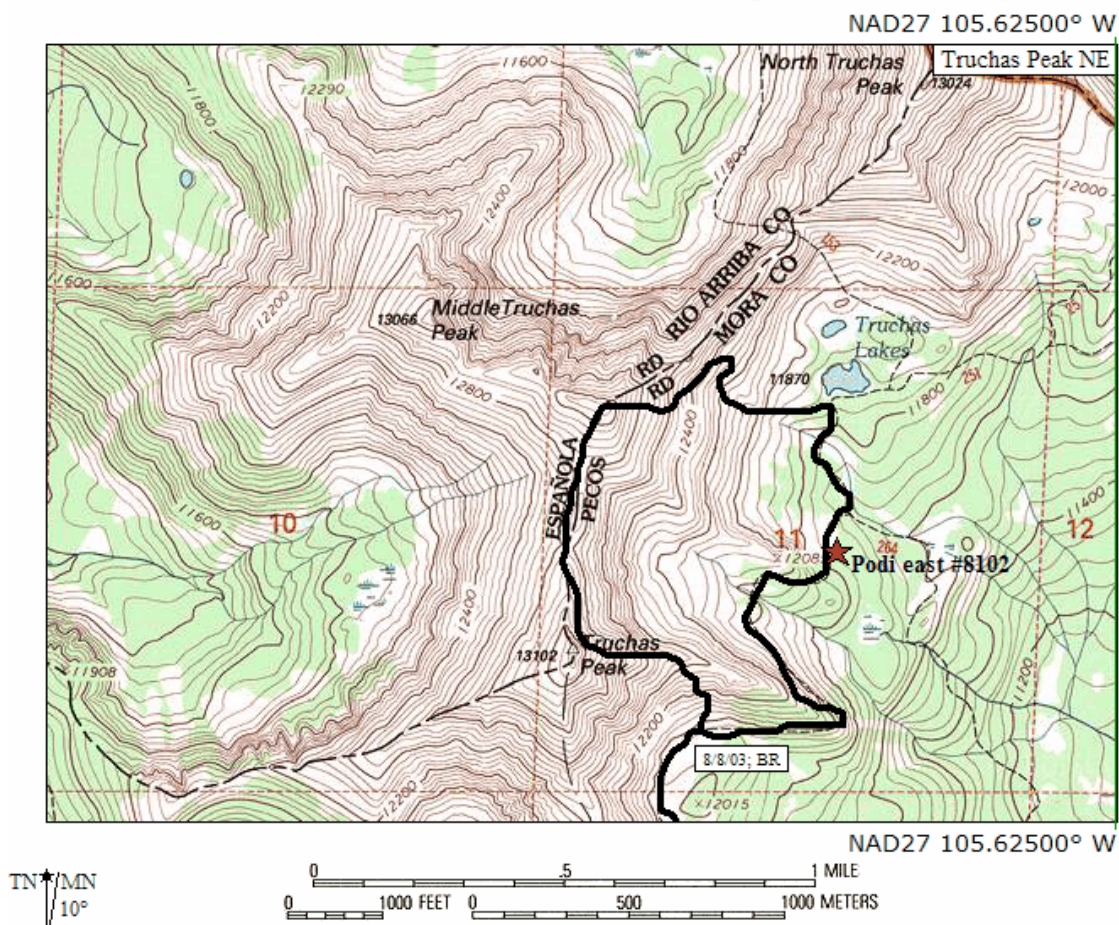
Distribution: *P. eastwoodiae* occurs only in Colorado, northern New Mexico and the La Sal Mountains of Utah (Cronquist, 1997). Martin and Hutchins (1981) tentatively report this species for Taos and Colfax counties.

Diagnostic features: This is the only member of the genus in the state of New Mexico. *Podistera* has a well-developed stylopodium and involucre, tap roots, is characteristically acaulescent, and has greenish-yellow flowers.

Comments: These collections document populations in both the Jemez (Rio Arriba Co.), and Sangre de Cristo Mountains (Santa Fe Co.) suggesting broad distribution.



Scanned Specimen: BR, #8102



Apiaceae NEW MEXICO, U.S.A.

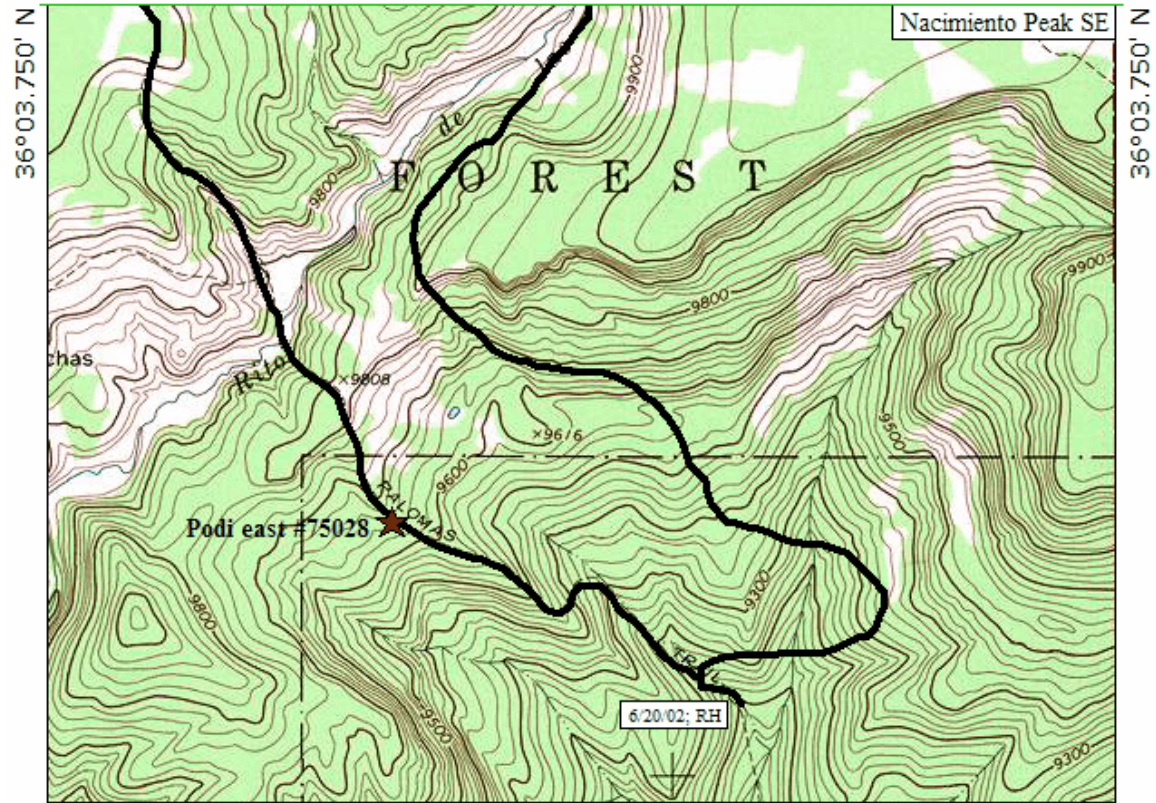
Podistera eastwoodiae
(J.M. Coult. & Rose) Math. & Const.

SANTA FE COUNTY T20N R12E S11
Santa Fe National Forest and Vicinity:
Sangre de Cristo Mountains: Pecos
Wilderness: from Truchas Lakes to S on
Trail 351, 17.5 air mi W of Mora;
N35.9701 W105.6355 at lakes S 0.6 air mi
to N35.9621 W105.6353.
Trailside between spruce forest with talus
slopes to W, and wet subalpine meadows in
bottoms to E.

8 Aug 2003 Elev. 11,900-11,940 ft.

Brian Reif # 8102

ROCKY MOUNTAIN HERBARIUM (RM), University of Wyoming



TN $\nearrow$ MN
10 1/4°



Apiaceae

NEW MEXICO, U.S.A.

Podistera eastwoodiae

(J.M. Coult. & Rose) Math. & Const.

RIO ARriba COUNTY

T21N R1E S3

Santa Fe National Forest and Vicinity:

Jemez Mountains: Forest Road 70 and
Forest Road 50, Padomas Trail, northwest
into San Pedro Parks Wilderness to Vacas
Trail, Forest Road 51. Also S10.

Ponderosa pine and some spruce.

N36 02.528' W106 47.546' and N36 03.975'
W106 48.726'

20 Jun 2002

Elev. 9,300-10,135 ft.

Ronald L. Hartman # 75028

ROCKY MOUNTAIN HERBARIUM (RM), University of Wyoming

***Ranunculus abortivus* L. (Ranunculaceae)**

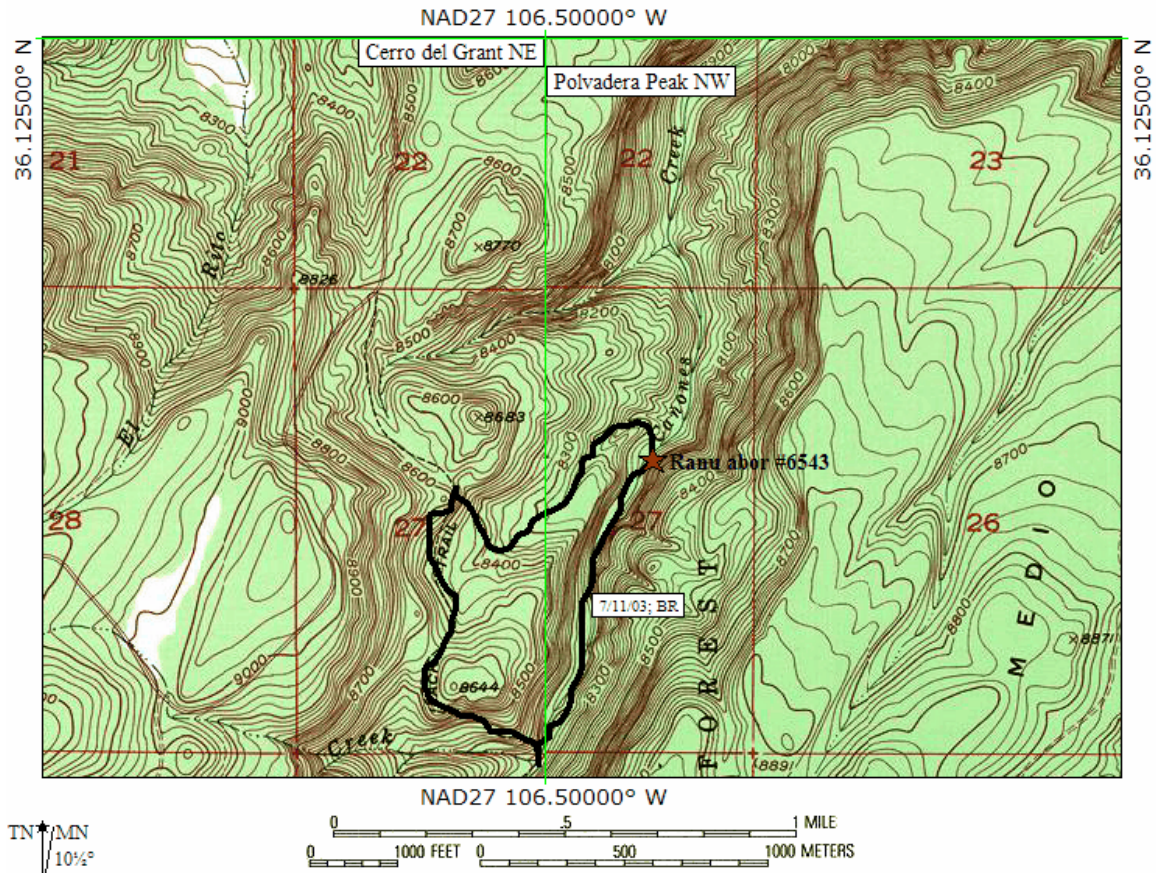
Habitat: This species is found in moist ground, often in open woods, from 5,500 to 9,000 feet.

Distribution: *R. abortivus* is widely distributed across most of North America, extending south along the Rockies into southern Colorado. In New Mexico, only disjunct populations are reported in the northern portion of the state (Whittemore, 1997).

Diagnostic features: *R. abortivus* has minute achene beaks and styles; either lacking or no longer than 0.2 mm. The herbage of this species is glabrous, and some of the basal leaves are merely crenate (Harrington, 1964).



Scanned Specimen: BR, #447



Ranunculaceae NEW MEXICO, U.S.A.

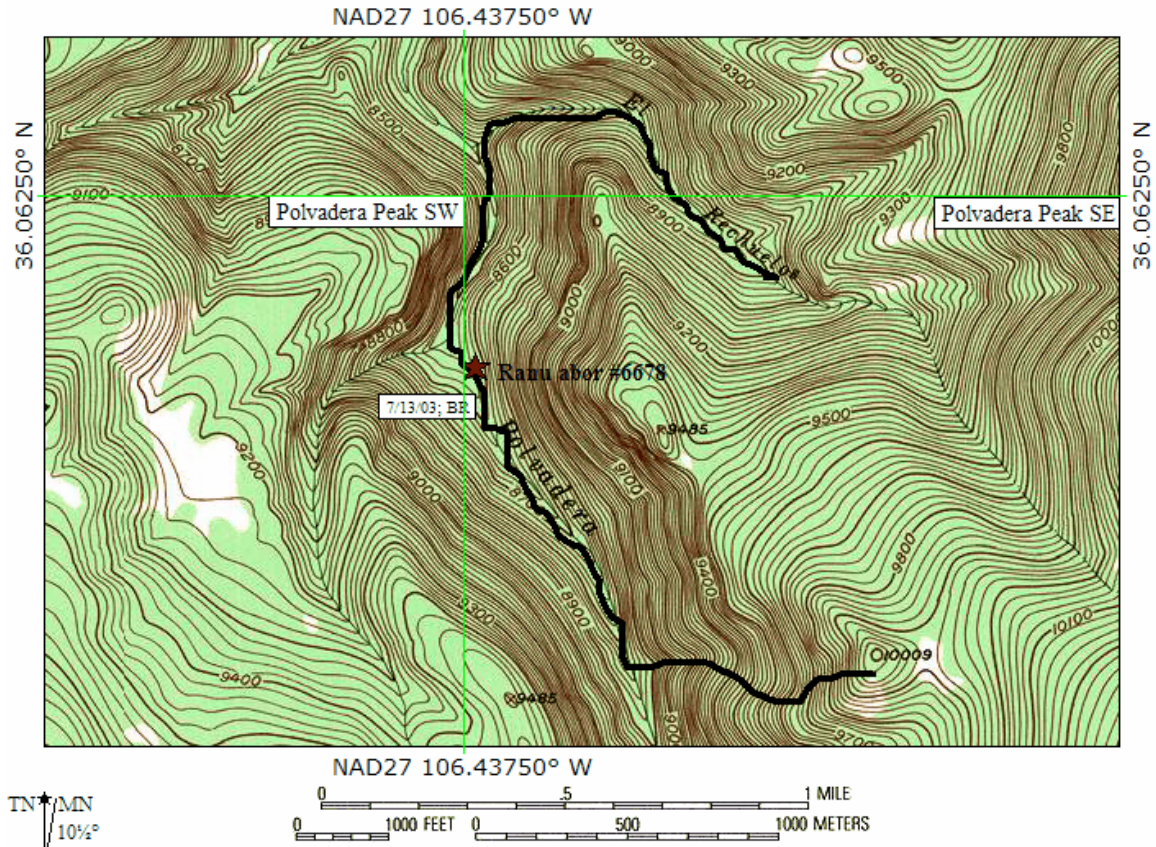
Ranunculus abortivus L.

RIO ARriba COUNTY T22N R4E S27
Santa Fe National Forest and Vicinity:
Jemez Mountains: Canones Creek, 6.5 air
mi SSE of Youngsville; S 0.7 air mi along
creek.
Riparian; streambanks or standing water.
N36.1120 W106.4960

11 Jul 2003 Elev. 8,060 ft.

Brian Reif # 6543

ROCKY MOUNTAIN HERBARIUM (RM), University of Wyoming



Ranunculaceae NEW MEXICO, U.S.A.

Ranunculus abortivus L.

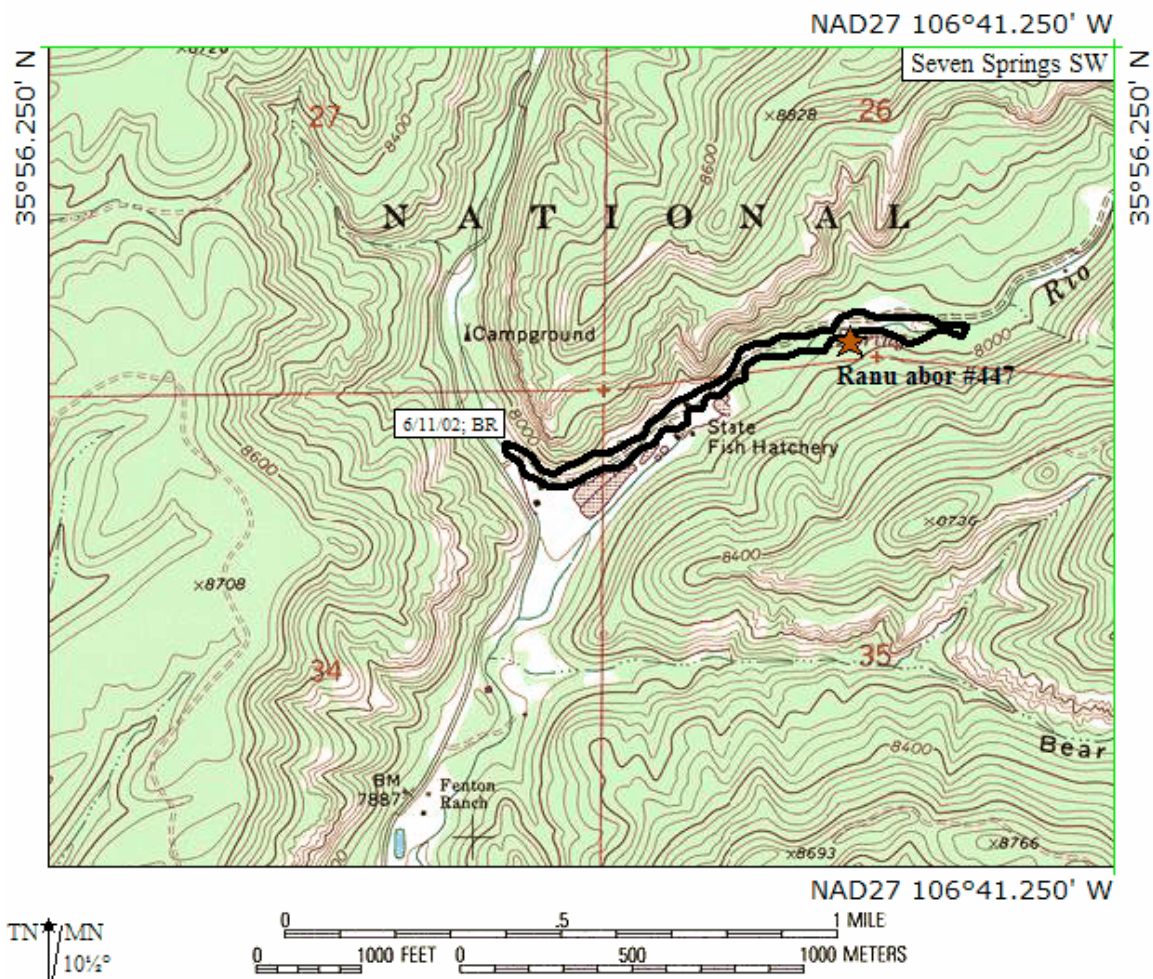
RIO ARriba COUNTY T21N R5E S8

Santa Fe National Forest and Vicinity:
Jemez Mountains: East Fork Polvadera
Creek, 1.5 air mi due W of Polvadera
Peak. N36.063 W106.437 S 0.8 air mi
along creek to N36.052 W106.434. SE1/4
S7; also NE1/4 S8, and NW1/4 S17.
Riparian, grazed bottom, and lower slopes
of spruce/fir forest.

13 Jul 2003 Elev. 8,530-8,700 ft.

Brian Reif # 6678

ROCKY MOUNTAIN HERBARIUM (RM), University of Wyoming



Ranunculaceae NEW MEXICO, U.S.A.

Ranunculus abortivus L.

SANDOVAL COUNTY T20N R2E S35

Santa Fe National Forest and Vicinity:

Jemez Mountains: Seven Springs Fish Hatchery, 5.5 air mi NW of La Cueva, ENE up Rio Cebolla for 1.1 mi. NW1/4 S35; also South1/2 S26.

Riparian.

N35 55.591' W106 42.473' at NM Hwy 126/314 junction to N35 55.931' W106 41.371' on river.

11 Jun 2002

Elev. 7,880-7,960 ft.

Brian Reif # 447

ROCKY MOUNTAIN HERBARIUM (RM), University of Wyoming

***Salix arizonica* Dorn (Salicaceae)**

Habitat: *S. arizonica* is found in the subalpine between 10,000 and roughly 11,000 feet, near seeps, in wet meadows, and along streams (Dorn, 1997).

Distribution: This species is confined to southern Colorado, southern Utah, eastern Arizona, and northern New Mexico. In New Mexico, populations are reported in Mora, Rio Arriba, and Taos counties (NMRPTC, 1999).

Distinguishing features: *S. arizonica* is most similar in appearance to *S. boothii* which has been documented only in Sandoval county. *S. arizonica* has broader leaves which are rounded to cordate at the base, and more teeth per centimeter than the latter species. Marginal teeth of the leaves of *S. arizonica* are gland-tipped.



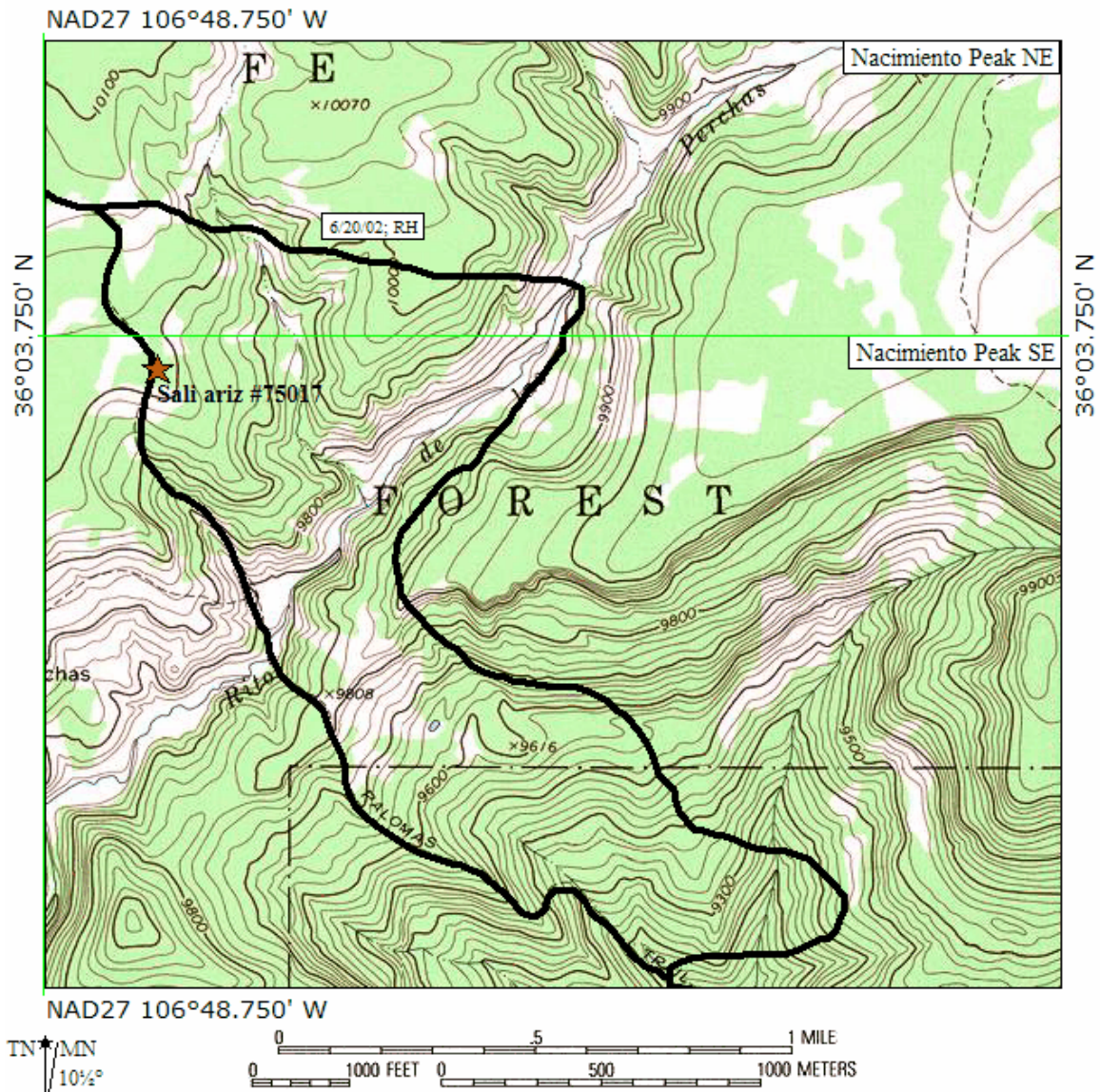
Scanned Specimen: BR, #10294

The map shows the Pecos River flowing through a hilly landscape. The Pecos River Trail is marked with a thick black line. Key features include Pecos Falls, Pecos Falls SE, and Pecos Falls NE. The map includes contour lines, elevation markers, and a scale bar. The map is titled "Pecos Falls NE" and "Pecos Falls SE". The map is labeled with "Pecos River", "Pecos Falls", "Pecos Falls SE", "Pecos Falls NE", "Pecos River Trail", "Pecos River", "Pecos Falls", "Pecos Falls SE", "Pecos Falls NE", "Pecos River", "Pecos Falls", "Pecos Falls SE", "Pecos Falls NE".

Salix arizonica Dorn

10 Aug 2004 Elev. 10,500 ft.

ROCKY MOUNTAIN HERBARIUM (RM), University of Wyoming



Salicaceae

NEW MEXICO, U.S.A.

Salix arizonica Dorn

RIO ARriba COUNTY T21N R1E S3

Santa Fe National Forest and Vicinity:

Jemez Mountains: Forest Road 70 and
Forest Road 50, Padomas Trail, northwest
into San Pedro Parks Wilderness to Vacas
Trail, Forest Road 51. Also S10.

Ponderosa pine and some spruce.

N36 02.528' W106 47.546' and N36 03.975'
W106 48.726'

20 Jun 2002

Elev. 9,300-10,135 ft.

Ronald L. Hartman # 75017

ROCKY MOUNTAIN HERBARIUM (RM), University of Wyoming

***Salix gooddingii* C. R. Ball (Salicaceae)**

Habitat: Dorn (1997) describes the habitat as 'stream banks, shores, flood plains, washes, and seeps' from about 4,000 to about 5,500 feet.

Distribution: *S. gooddingii* is distributed across most of New Mexico and occurs in most counties in the southwest portion of the state. The species is widespread in the state of Arizona.

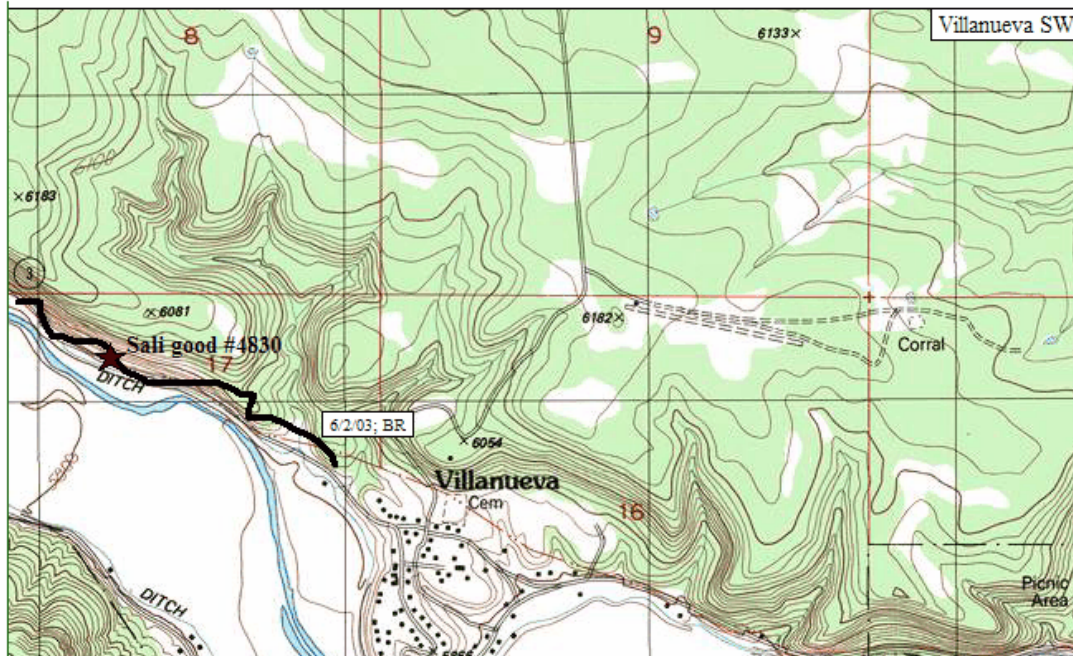
Diagnostic Features. *S. gooddingii* is one of two species in the rocky mountain region with bud scales that have free overlapping margins. The leaves of this species are never glaucous, although they may be more pale below. Year old branchlets are characteristically yellowish.

Comments: This species appears on the Heritage Program tracking list as 'G5 S?' which may indicate review of the species in New Mexico. All published distributions indicate that this willow is not of conservation concern. The collections below are from three separate counties.



Scanned Specimen: BR, #9767

NAD27 105.37500° W



NAD27 105.37500° W

TN MN
9 1/2°



Salicaceae NEW MEXICO, U.S.A.

Salix gooddingii C. R. Ball

SAN MIGUEL COUNTY T12N R15E S17

Santa Fe National Forest and Vicinity:
Sangre de Cristo Mountains: on NM Hwy 3
along Pecos River W of Villanueva State
Park, 10 air mi SSE of I-25/NM Hwy 3
junction. N1/2 S17.

Roadside corridor with pinyon/juniper
woodland on sedimentary slope to north;
irrigation ditch and riparian of
cottonwood, Russian olive to south.

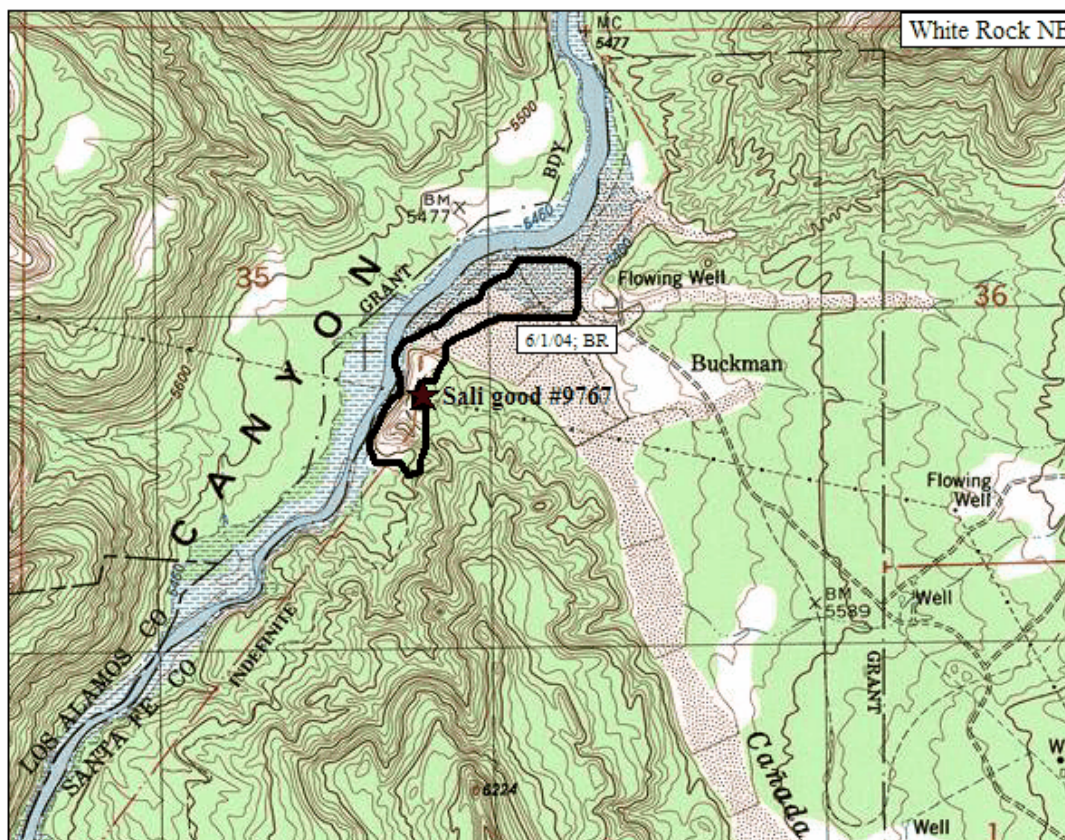
N35.2724 W105.3714

2 Jun 2003

Elev. 5,800 ft.

Brian Reif # 4830

ROCKY MOUNTAIN HERBARIUM (RM), University of Wyoming



TN★/MN
10°

0 0.5 1 MILE
0 1000 FEET 0 500 1000 METERS

Salicaceae NEW MEXICO, U.S.A.

Salix gooddingii C. R. Ball

SANTA FE COUNTY T19N R7E S35

Santa Fe National Forest and Vicinity:

Jemez Mountains: Caja del Rio Plateau:

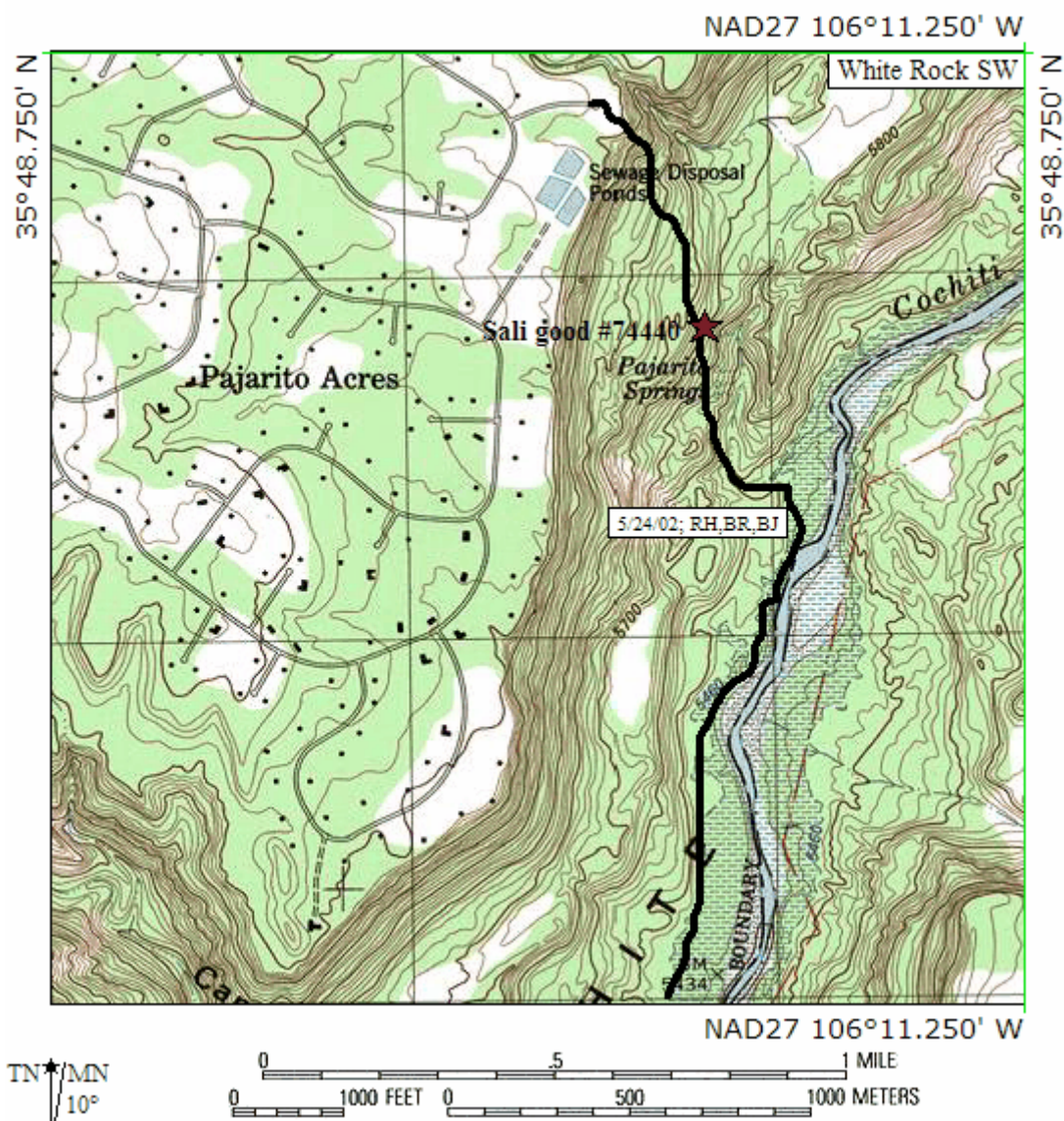
County Road 77 (Buckman Road) at Rio Grande River and Buckman, 2 air mi due E of White Rock. N35.836 W106.161 SW 0.4 air mi along riverbank. SE1/4 S35; also W1/2 S36.

Russian olive and tamarisk, also, steep and loose west-facing sedimentary slope.

1 Jun 2004 Elev. 5,470 ft.

Brian Reif # 9767

ROCKY MOUNTAIN HERBARIUM (RM), University of Wyoming



Salicaceae NEW MEXICO, U.S.A.

Salix gooddingii C. R. Ball

LOS ALAMOS COUNTY

Santa Fe National Forest and Vicinity:

Jemez Mountains: White Rock Canyon. Red Dot Trail to Pajarito Springs, the Rio Grande and down stream ca 1 mi; 2 - 2.5 air mi S of White Rock.

Rocky slopes along trail, stream, wet areas.

N35 48.594' W106 12.208' to river at N35 48.272' W106 11.677'

24 May 2002 Elev. 5,400-5,800 ft.

Ronald L. Hartman # 74440
with Brian Reif and Brian Jacobs

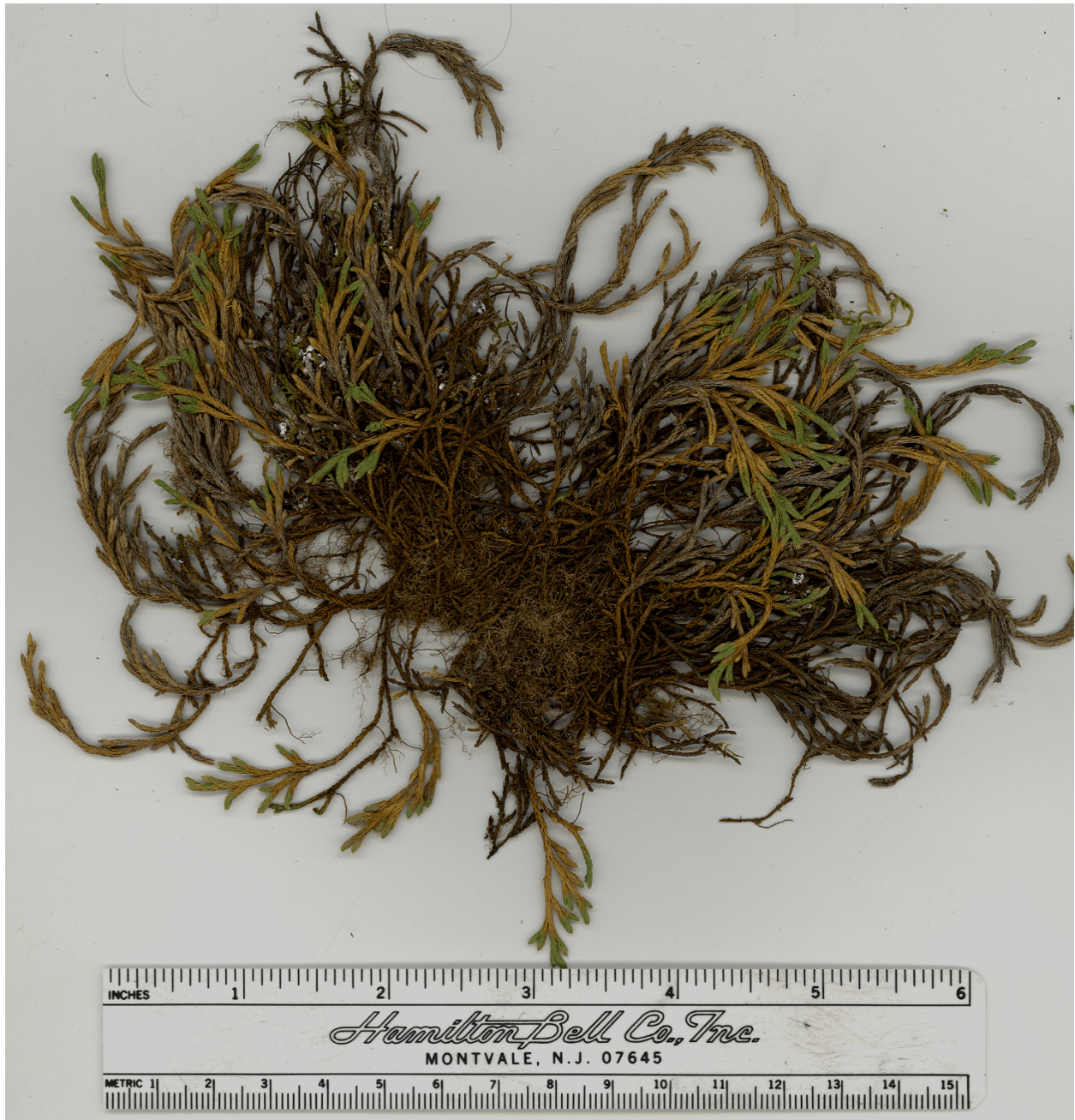
ROCKY MOUNTAIN HERBARIUM (RM), University of Wyoming

***Selaginella weatherbiana* R. Tryon (Selaginellaceae)**

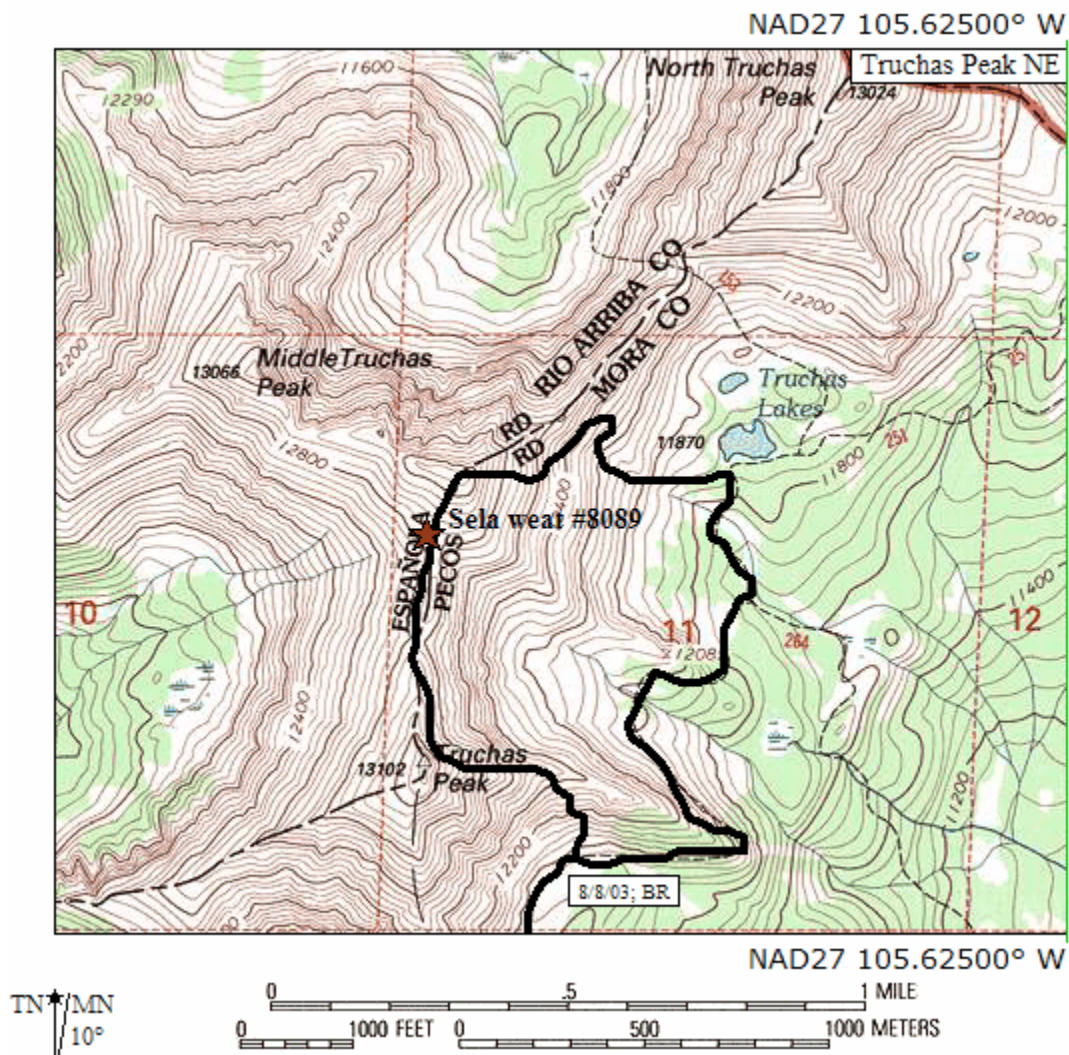
Habitat: *S. weatherbiana* is found on granite cliffs, ledges, and outcrops, both shaded and exposed, from about 5,000 to 10,000 feet (Valdespino, 1993).

Distribution: This species is narrowly distributed through southcentral Colorado and into northcentral New Mexico where it occurs in Colfax, San Miguel, Santa Fe, and Taos counties.

Diagnostic Features: *S. weatherbiana* forms cushion-like mats with long individual branches that remain somewhat erect and unrooted. Some leaves are ciliate on the margins, but all are bristle-tipped at the apex.



Scanned Specimen: BR, #3876



Selaginellaceae NEW MEXICO, U.S.A.

Selaginella weatherbiana R. Tryon

SANTA FE COUNTY T20N R12E S11

Santa Fe National Forest and Vicinity:

Sangre de Cristo Mountains: Pecos

Wilderness: east flank of Middle Truchas

Peak, 10 air mi N of Cowles. W1/2 S11

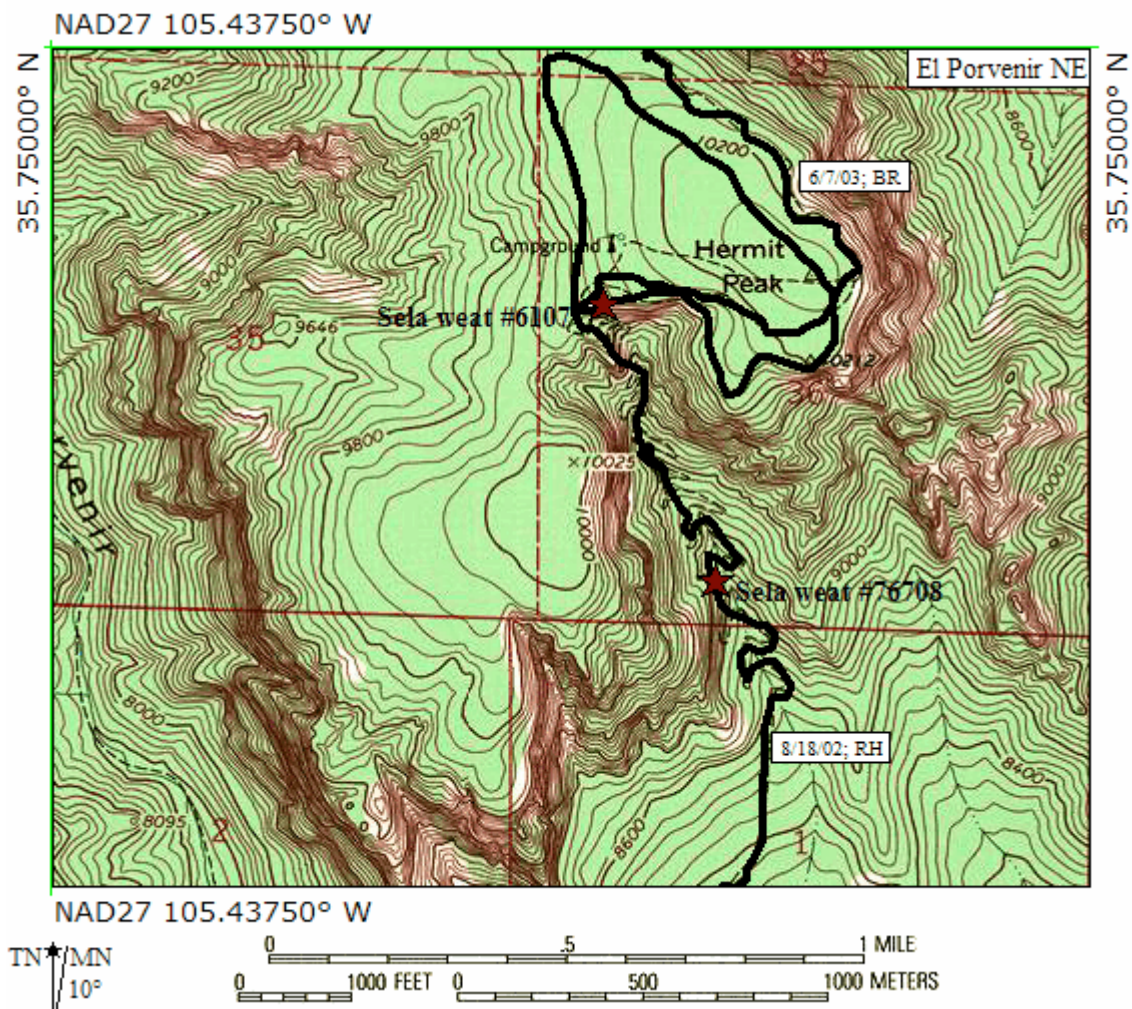
Fractured bluffs and ridges of loose granite on steep east-facing, alpine slope.

N35.9679 W105.6446

8 Aug 2003 Elev. 12,800-13,000 ft.

Brian Reif # 8089

ROCKY MOUNTAIN HERBARIUM (RM), University of Wyoming



Selaginellaceae NEW MEXICO, U.S.A.

Selaginella weatherbiana R. Tryon

SAN MIGUEL COUNTY T18N R14E S36
Santa Fe National Forest and Vicinity:
Sangre de Cristo Mountains: Hermit Peak
summit, 9 air mi W of Sapello. N1/2 S36.
On immediate edge or in fissures of sheer
granite cliff.
N35.744 W105.422

6 Jul 2003 Elev. 10,100-10,200 ft.

Brian Reif # 6107

ROCKY MOUNTAIN HERBARIUM (RM), University of Wyoming

Selaginellaceae NEW MEXICO, U.S.A.

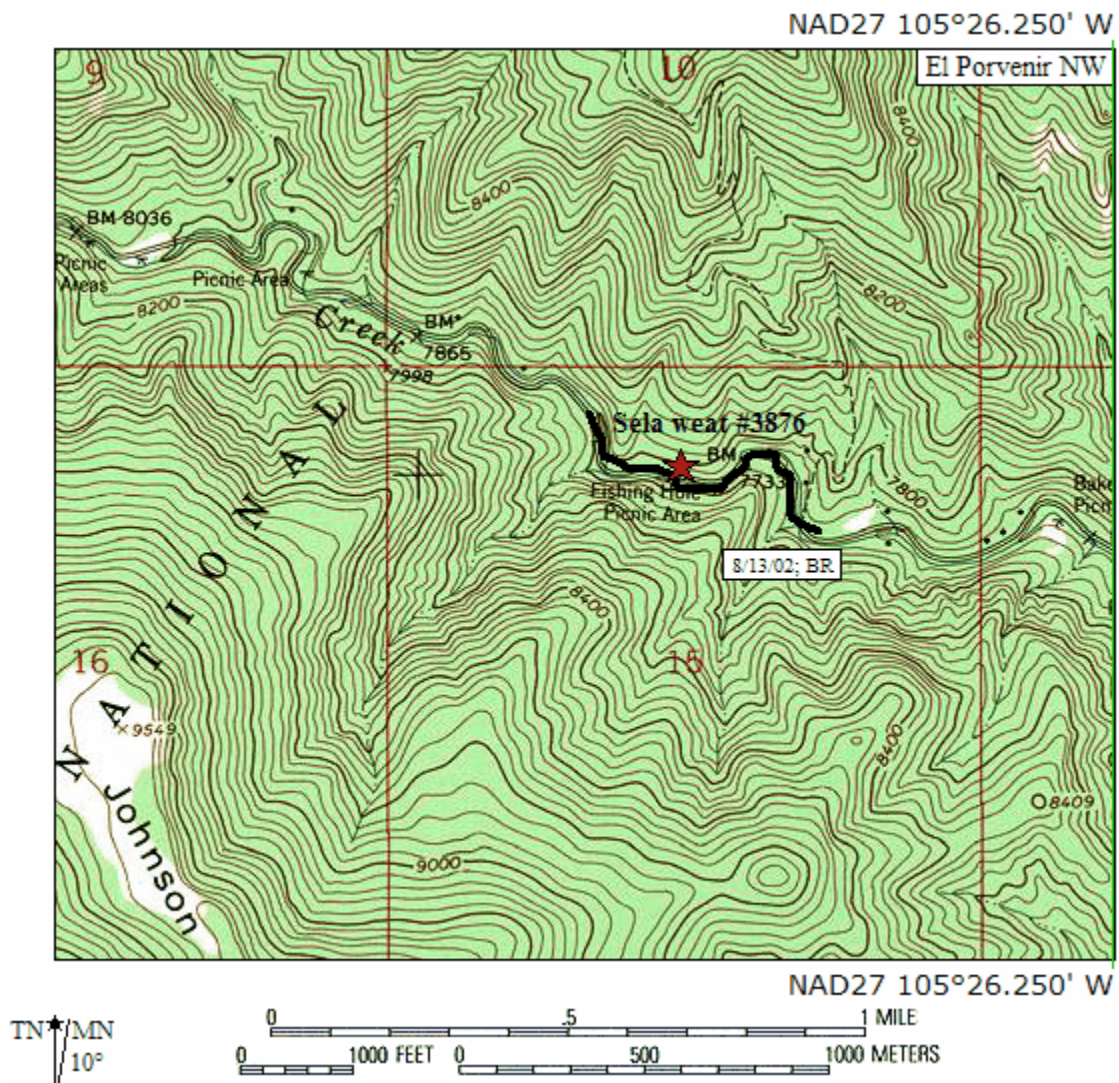
Selaginella weatherbiana R. Tryon

SAN MIGUEL COUNTY T17N R14E S1
Santa Fe National Forest and Vicinity:
Sangre de Cristo Mountains: Hermit Peak.
Coniferous overstory.
N35 44.211' W105 25.078' to 35 44.648'
W105 25.467'

18 Aug 2002 Elev. 8,900-9,500 ft.

Ronald L. Hartman # 76708

ROCKY MOUNTAIN HERBARIUM (RM), University of Wyoming



Selaginellaceae NEW MEXICO, U.S.A.

Selaginella weatherbiana R. Tryon

SAN MIGUEL COUNTY T17N R14E S15

Santa Fe National Forest and Vicinity:

Sangre de Cristo Mountains: NM Hwy 263
along Gallinas Creek, 16 air mi NW of Las
Vegas. From Fishing Hole Picnic Area 0.3
mi in both directions along creek. N1/2
S15.

Canyon bottom roadside, riparian, and
bluffs of volcanic rock in mixed conifer
forest.

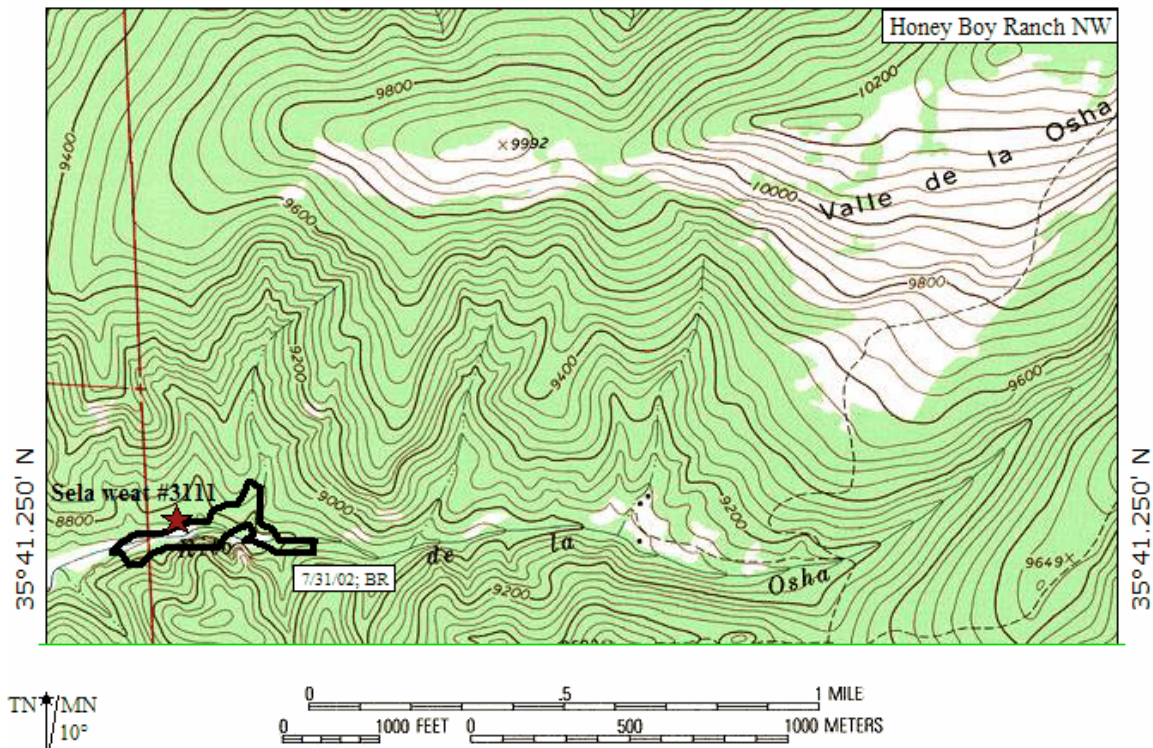
N35 42.495' W105 27.031' at picnic area.

13 Aug 2002

Elev. 7,750 ft.

Brian Reif # 3876

ROCKY MOUNTAIN HERBARIUM (RM), University of Wyoming



Selaginellaceae NEW MEXICO, U.S.A.

Selaginella weatherbiana R. Tryon

SAN MIGUEL COUNTY T17N R13E S19

Santa Fe National Forest and Vicinity:

Sangre de Cristo Mountains: NM Hwy 92 in

Rito de la Osha, 4.5 air mi SE of

Terrero, at side road heading N along

perpendicular drainage. NW1/4 S19; also

T17N R12E NE1/4 S24.

Granitic cliffs to immediate E of creek.

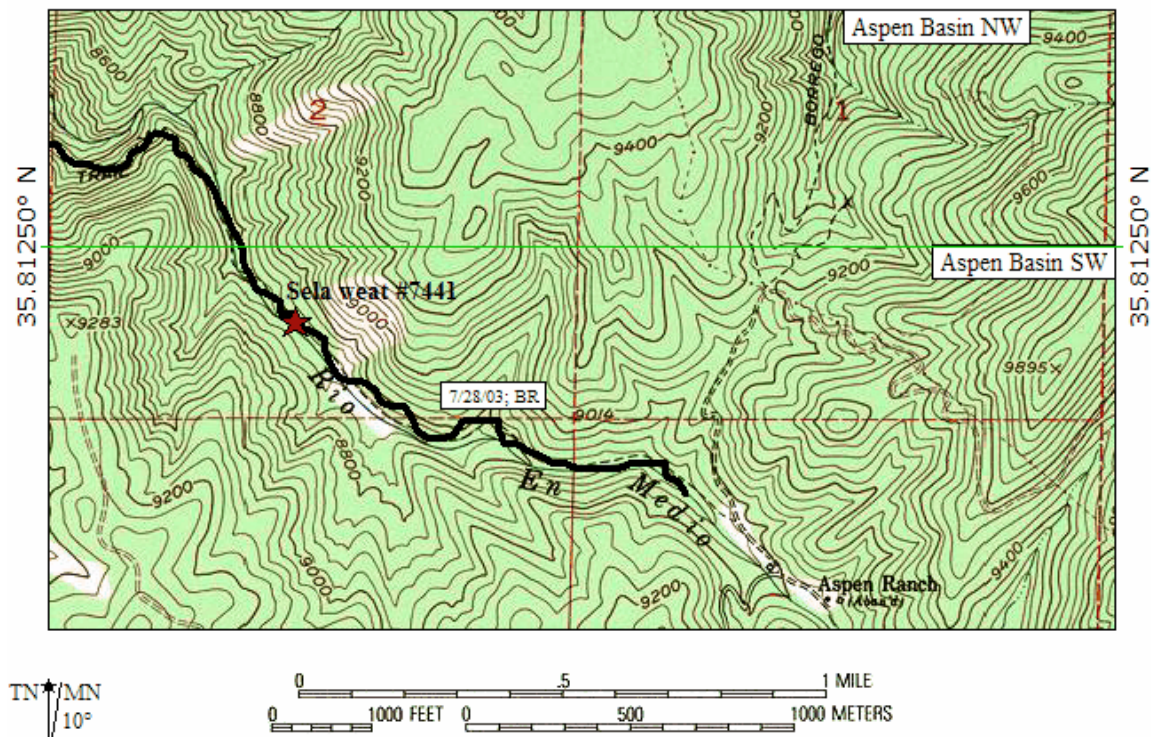
N35 41.464' W105 36.860'.

31 Jul 2002

Elev. 8,770-8,840 ft.

Brian Reif # 3111

ROCKY MOUNTAIN HERBARIUM (RM), University of Wyoming



Selaginellaceae NEW MEXICO, U.S.A.

Selaginella weatherbiana R. Tryon

SANTA FE COUNTY T18N R10E S12

Santa Fe National Forest and Vicinity:

Sangre de Cristo Mountains: Rio en Medio

Trail 163, 4.5 air mi NE of Tesuque;

N35.806 W105.836 at Aspen Ranch NW 1.1

air mi to N35.816 W105.853 at granite

constriction. NW1/4 S12; also NE1/4 S11,

South 1/2 S2.

Cracks of granite boulder; trailside canyon
bottom or lower slopes of mixed conifer
forest.

28 Jul 2003

Elev. 8,640-8,940 ft.

Brian Reif # 7441

ROCKY MOUNTAIN HERBARIUM (RM), University of Wyoming

Appendix B. Checklist of collected specimens for a general floristics inventory of Santa Fe National Forest and the surrounding hydrographic region, 2002-2004.

This list is based on determination of all 2002 and 2003 material for which funding was provided (6,248 and 5,081 specimens respectively). Also included are an additional 581 identified SFNF specimens from 2004, although some material from this year must still be identified. Brian Jacobs also contributed 128 collections from SFNF bringing the total count of identified specimens to 12,038. Taxa found only on the VCNP are designated **[VCNP]** and included because of the preserve's nearly contiguous border with forest land.

Nomenclature follows A Checklist of the Vascular Plants of Colorado (Hartman & Nelson, 2001). Substantive departures in nomenclature—e.g beyond rank or authority—by A Working Index to New Mexico Vascular Plant Names (Allred, 21 Sept 2004) are provided below the accepted name, indented, and in square brackets [].

General references used in plant identification:

- Allred, K. W. 1997. A Field Guide to the Grasses of New Mexico. 2nd ed. Agric. Exp. Sta., New Mexico State University, Las Cruces.
Cronquist, A. et al. Intermountain Flora. 5 vols. Various publishers.
Dorn, R. D. 2001. Vascular Plants of Wyoming. 3rd ed. Mountain West Publ. 3rd ed. Cheyenne.
Harrington, H. D. 1954. Manual of the Plants of Colorado. Sage Books, Denver.
Flora of North America Editorial Committee. 1993-2004. Flora of North America. Vols. 1, 2, 3, 4, 5, 22, 23, 25, 26. Oxford Univ. Press, New York.
Great Plains Flora Association. 1986. Flora of the Great Plains. Univ. of Kansas, Lawrence.
Martin, W. C. and C. R. Hutchins. 1980. A Flora of New Mexico. 2 vols. J. Cramer, Germany.
Weber, W. A. and R. C. Wittmann. 2001. Colorado Flora: East Slope. 3rd ed. Univ. Press of Colorado.
Weber, W. A. and R. C. Wittmann. 2001. Colorado Flora: West Slope. 3rd ed. Univ. Press of Colorado.
Welsh, S. L., N. D. Atwood, S. Goodrich, and L. C. Higgins. 2003. A Utah Flora. 3rd ed. Brigham Young Univ., Provo, Utah

Taxonomic monographs and revisions used:

See citations in Allred (2004) and Hartman & Nelson (2001).

Checklists employed:

- Allred, K. 2004, 12 September. A Working Index to New Mexico Vascular Plant Names.
(<http://web.nmsu.edu/~kallred/herbweb>)
Hartman, R. L. and B. E. Nelson. March 2001. A Checklist of the Vascular Plants of Colorado.
(<http://www.rmh.uwyo.edu>)

Key: **[VCNP]** = Taxa documented only on the preserve.
 [#] = Number of collections of each taxon
 * = exotic taxa
 Bold = noxious weeds
 _____ = conservation concern
 + = endemic taxa
 ! = Not appearing in 'A Working Index to New Mexico Vascular Plant Names'.

Taxa marked with an exclamation point (!, 17) may represent state records at both specific and intraspecific levels but await verification. These collections should be noted either because they constitute 'new finds' or because they highlight differences in nomenclature which can be resolved.

FERN ALLIES

Equisetaceae

- Equisetum arvense L. (46)
- Equisetum x ferrissii Clute (4)
- Equisetum hyemale L. var. affine (Engelm.) A. A. Eaton (16)
- Equisetum laevigatum A. Braun (25)

Selaginellaceae

- Selaginella densa Rydb. (1)
- Selaginella mutica D. C. Eaton ex Underw. var. mutica (4)
- Selaginella peruviana (Milde) Hieron (1)
- Selaginella underwoodii Hieron. (2)
- Selaginella weatherbiana R. Tryon (6)

FERNS

Aspleniaceae

- Asplenium resiliens Kunze (1)
- Asplenium septentrionale (L.) Hoffm. (1)
- Asplenium trichomanes L. subsp. trichomanes (2)

Dennstaedtiaceae

- Pteridium aquilinum (L.) Kuhn var. pubescens Underw. (26)

Dryopteridaceae

- Athyrium filix-femina (L.) Roth ex Mert. var. californicum Butters (11)
- Cystopteris fragilis (L.) Bernh. (21)
- Cystopteris reevesiana Lellinger (36)
- Dryopteris filix-mas (L.) Schott (17)
- Woodsia neomexicana Windham (3)
- Woodsia oregana D. C. Eaton var. cathcartiana (B. L. Rob.) Morton (1)
- Woodsia plummerae Lemmon (1)

Pteridaceae

- Argyrochosma fendleri (Kunze) Windham (3)
- Cheilanthes eatonii Baker (4)
- Cheilanthes feei T. Moore (4)
- Cheilanthes fendleri Hook. (2)
- Cheilanthes wootonii Maxon (1)
- Cryptogramma acrostichoides R. Br. (3)
- Notholaena standleyi Maxon (2)
- Pellaea atropurpurea (L.) Link (1)

GYMNOSPERMS

Cupressaceae

- Juniperus communis L. var. depressa Pursh (71)
- Juniperus deppeana Steud. (4)
- Juniperus monosperma (Engelm.) Sarg. (35)
- Juniperus scopulorum Sarg. (32)

Pinaceae

- Abies arizonica Merriam (25)
- Abies concolor (Gord. & Glend.) Hildebr. (79)
- Picea engelmannii Parry ex Engelm. var. engelmannii (28)
- Picea pungens Engelm. (46)
- Pinus aristata Engelm. (7)
- Pinus edulis Engelm. (52)
- Pinus flexilis E. James (22)
- Pinus ponderosa Douglas ex P. & C. Lawson var. scopulorum Engelm. (82)
- Pinus strobiformis Engelm. (26)
- Pseudotsuga menziesii (Mirb.) Franco var. glauca (Beissn.) Franco (75)

ANGIOSPERMS

Aceraceae

Acer glabrum Torr. var. *glabrum* (64)

[*Acer glabrum* Torr. var. *neomexicanum* (Greene) Keraney & Peebles]

Acer negundo L. var. *interius* (Britton) Sarg. (7)

Adoxaceae

Adoxa moschatellina L. (4)

Agavaceae

Nolina microcarpa S. Watson (1)

Yucca angustissima Engelm. ex Trel. (9)

Yucca baccata Torr. var. *baccata* (8)

Yucca baileyi Wooton & Standl. var. *baileyi* (6)

Yucca harrimaniae Trel. var. *neomexicana* (Wooton & Standl.) Reveal (6)

[*Yucca neomexicana* Wooton & Standl.]

Alismataceae

Sagittaria cuneata E. Sheld. (1)

Amaranthaceae

**Amaranthus albus* L. (2)

Amaranthus powellii S. Watson (3)

**Amaranthus retroflexus* L. (7)

Amaranthus wrightii S. Watson [VCNP]

Guilleminea densa (Humb. & Bonpl. ex Willd.) Moq. var. *aggregata* Uline & Bray (1)

Anacardiaceae

Rhus aromatica Aiton var. *trilobata* (Nutt.) A. Gray ex S. Watson (40)

[*Rhus trilobata* Nutt. var. *trilobata*]

Rhus glabra L. (2)

Toxicodendron rydbergii (Small ex Rydb.) Greene (13)

Apiaceae

Aletes acaulis (Torr.) J. M. Coult. & Rose (8)

Angelica grayi (Coult. & Rose) Coult. & Rose (5)

Berula erecta (Huds.) Coville var. *incisa* (Torr.) Cronq. (2)

[*Berula erecta* (Huds.) Coville]

Cicuta maculata L. var. *angustifolia* Hook. (17)

Conioselinum scopulorum (A. Gray) J. M. Coult. & Rose (22)

**Conium maculatum* L. (2)

Cymopterus alpinus A. Gray (2)

Cymopterus bakeri (J. M. Coult. & Rose) M. E. Jones (1)

Cymopterus bulbosus A. Nelson (1)

Cymopterus constancei R. L. Hartm. (1)

Cymopterus lemmonii (J. M. Coult. & Rose) Dorn (96)

[*Pseudocymopterus montanus* (A. Gray) J. M. Coult. & Rose]

Cymopterus montanus Torr & A. Gray (1)

Heracleum sphondylium L. var. *lanatum* (Michx.) Dorn (44)

[*Heracleum maximum* W. Bartram]

Ligusticum porteri J. M. Coult. & Rose (26)

Osmorhiza chilensis Hook & Arn. (1)

Osmorhiza depauperata Phil. (50)

Oxypholis fendleri (A. Gray) A. Heller (56)

Podistera eastwoodiae (J.M. Coult. & Rose) Math. & Const. (2)

Apocynaceae

Apocynum androsaemifolium L. (17)

[*Apocynum androsaemifolium* L. var. *androsaemifolium*]

[*Apocynum androsaemifolium* L. var. *glabrum* Macoun]

Apocynum cannabinum L. (9)

Apocynum x floribundum Greene (9)

[*Apocynum medium* Greene var. *floribundum* (Greene) Woodson]

Araliaceae

Aralia racemosa L. subsp. *bicrenata* (Woot. & Standl.) Welsh & Atwood (8)

Asclepiadaceae

Asclepias asperula (Decne.) Woodson var. *asperula* (4)

Asclepias speciosa Torr. **(10)**
Asclepias subverticillata (A. Gray) Vail **(6)**
Asclepias tuberosa L. var. *interior* (Woodson) Shinnars **(3)**
Asteraceae
Achillea millefolium L. var. *lanulosa* (Nutt.) Piper **(95)**
 [*Achillea millefolium* L.]
Agoseris aurantiaca (Hook.) Greene var. *aurantiaca* **(1)**
 [*Agoseris aurantiaca* (Hook.) Greene]
Agoseris aurantiaca (Hook.) Greene var. *purpurea* (A. Gray) Cronquist **(18)**
 [*Agoseris aurantiaca* (Hook.) Greene]
 !*Agoseris glauca* (Pursh) Raf. var. *dasycephala* (Torr. & A. Gray) Jeps. **(3)**
Agoseris glauca (Pursh) Raf. var. *glauca* **[VCNP]**
Agoseris glauca (Pursh) Raf. var. *laciniata* (D. C. Eaton) Smiley **(2)**
Ambrosia artemisiifolia L. **(3)**
 [*Ambrosia artemisiifolia* L. var. *elatior* (L.) Desc.]
Ambrosia psilostachya DC. **(9)**
Ambrosia tomentosa Nutt. **(4)**
Anaphalis margaritacea (L.) Benth. & Hook. **(3)**
Antennaria corymbosa E. Nelson **(1)**
Antennaria marginata Greene **(20)**
Antennaria microphylla Rydb. **(1)**
Antennaria parvifolia Nutt. **(21)**
Antennaria rosea Greene **(10)**
 [*Antennaria microphylla* Rydb.]
Antennaria rosulata Rydb. **[VCNP]**
Antennaria umbrinella Rydb. **(3)**
 Arctium minus* Bernh. **(1)
Arnica chamissonis Less. var. *foliosa* (Nutt.) Maguire **(2)**
Arnica cordifolia Hook. **(1)**
Artemisia campestris L. var. *pacifica* (Nutt.) M. Peck **(3)**
Artemisia carruthii A. W. Wood ex Carruth **(8)**
Artemisia dracunculus L. **(1)**
Artemisia franserioides Greene **(13)**
Artemisia frigida Willd. **(1)**
Artemisia ludoviciana Nutt. var. *ludoviciana* **(9)**
Artemisia ludoviciana Nutt. var. *mexicana* (Willd. ex Spreng.) A. Gray **(2)**
Artemisia parryi A. Gray **[VCNP]**
Artemisia tridentata Nutt. var. *tridentata* **(1)**
Aster ascendens Lindl. **(3)**
 [*Symphotrichum ascendens* (Lindl.) G. L. Nesom]
Aster falcatus Lindl. var. *commutatus* (Torr. & A. Gray) A. G. Jones **(3)**
 [*Symphotrichum falcatum* (Lindl.) G. L. Nesom var. *commutatum* (Torr. & A. Gray) G. L. Nesom]
Aster foliaceus Lindl. ex DC. var. *canbyi* A. Gray **(1)**
 [*Symphotrichum foliaceum* (DC.) G. L. Nesom var. *canbyi* (A. Gray) G. L. Nesom]
Aster laevis L. var. *geyeri* A. Gray **(14)**
 [*Symphotrichum laeve* (L.) A. Löve & D. Löve var. *geyeri* (A. Gray) G. L. Nesom]
Aster laevis L. var. *laevis* **(1)**
 [*Symphotrichum laeve* (L.) A. Löve & D. Löve var. *laeve*]
Aster lanceolatus Willd. subsp. *hesperius* (A. Gray) Semple & Chmiel. **(3)**
 [*Symphotrichum lanceolatum* (Willd.) G. L. Nesom var. *hesperium* (A. Gray) G. L. Nesom]
Aster pauciflorus Nutt. **(1)**
 [*Almutaster pauciflorus* (Nutt.) A. Löve & D. Löve]
Baccharis pteronioides A. DC. **(1)**
Baccharis salicina Torr. & A. Gray **(3)**
Baccharis wrightii A. Gray **(1)**
Bahia dissecta (A. Gray) Britton **(20)**
Berlandiera lyrata Benth. **(2)**
 Bidens cernua* L. **[VCNP]
Bidens tenuisecta A. Gray **(3)**
Brickellia brachyphylla (A. Gray) A. Gray **(1)**

Brickellia californica (Torr. & A. Gray) A. Gray var. *californica* **[VCNP]**
Brickellia eupatorioides (L.) Shinnery var. *chlorolepis* (Wooton & Standl.) B. L. Turner **(2)**
Brickellia fendleri A. Gray **(14)**
Brickellia grandiflora (Hook.) Nutt. var. *grandiflora* **(11)**
Brickellia rusbyi A. Gray **[VCNP]**
***Carduus nutans L. (6)**
***Centaurea repens L. (2)**
 [*Acroptilon repens* (L.) DC.]
Chaenactis douglasii (Hook.) Hook. & Arn. **(1)**
Chaetopappa ericoides (Torr.) G. L. Nesom **(24)**
***Chrysanthemum leucanthemum L. (8)**
 [*Leucanthemum vulgare* Lam.]
Chrysothamnus linifolius Greene **(4)**
 [*Ericameria linifolia* (Greene) L. C. Anderson]
Chrysothamnus pulchellus (A. Gray) Greene var. *baileyi* (Wooton & Standl.) S. F. Blake **(2)**
 [*Ericameria pulchella* (A. Gray) L. C. Anderson subsp. *Baileyi* (Wooton & Standl.) L. C. Anderson]
Chrysothamnus viscidiflorus (Hook.) Nutt. var. *viscidiflorus* **(1)**
 [*Ericameria viscidiflora* (Hook.) L. C. Anderson var. *viscidiflora*]
***Cichorium intybus L. (2)**
***Cirsium arvense (L.) Scop. (1)**
Cirsium calcareum (M. E. Jones) Wooton & Standl. **(2)**
Cirsium neomexicanum A. Gray **(6)**
Cirsium ochrocentrum A. Gray **(2)**
 [*Cirsium ochrocentrum* A. Gray subsp. *ochrocentrum*]
Cirsium pallidum (Wooton & Standl.) Wooton & Standl. **(38)**
Cirsium parryi (A. Gray) Petrak subsp. *parryi* **(1)**
Cirsium scopulorum (Greene) Cockerell ex Daniels **(2)**
Cirsium undulatum (Nutt.) Spreng. var. *undulatum* **(11)**
***Cirsium vulgare (Savi) Ten. (6)**
***Conyza canadensis (L.) Cronquist var. canadensis (10)**
 [*Conyza canadensis* (L.) Cronquist var. *glabrata* (A. Gray) Cronquist]
Coreopsis lanceolata L. **(1)**
Cosmos parviflorus (Jacq.) Pers. **(2)**
Crepis runcinata (E. James) Torr. & A. Gray var. *barberi* (Greene) B. L. Turner **(1)**
Crepis runcinata (E. James) Torr. & A. Gray var. *runcinata* **[VCNP]**
Dyssodia papposa (Vent.) Hitchc. **(1)**
Ericameria nauseosa (Pall. ex Pursh) Nesom & Baird var. *bigelovii* (A. Gray) Nesom & Baird **(1)**
Ericameria nauseosa (Pall. ex Pursh) G. L. Nesom & G. I. Baird **[VCNP]**
 var. *glabrata* (A. Gray) G. L. Nesom & G. I. Baird
 [*Ericameria nauseosa* (Pall. ex Pursh) G. L. Nesom & G. I. Baird var. *graveolens* (Nutt.) Reveal & Schuyler]
Erigeron acris L. var. *asteroides* (Andrz. ex Besser) DC **[VCNP]**
Erigeron bellidiastrum Nutt. var. *bellidiastrum* **(1)**
Erigeron colomexicanus A. Nelson **(12)**
 [*Erigeron tracyi* Greene]
Erigeron coulteri Porter **(10)**
Erigeron divergens Torr. & A. Gray var. *divergens* **(35)**
Erigeron elatior (A. Gray) Greene **(1)**
Erigeron eximius Greene **(19)**
Erigeron flagellaris A. Gray **(85)**
Erigeron formosissimus Greene var. *formosissimus* **(10)**
 [*Erigeron formosissimus* Greene]
Erigeron formosissimus Greene var. *viscidus* (Rydb.) Cronquist **(12)**
 [*Erigeron formosissimus* Greene]
Erigeron lonchophyllus Hook. **[VCNP]**
Erigeron melanocephalus (A. Nelson) A. Nelson **(1)**
Erigeron peregrinus (Banks ex Pursh) Greene var. *callianthemus* (Greene) Cronquist **(3)**
Erigeron philadelphicus L. var. *philadelphicus* **(1)**
Erigeron simplex Greene **(2)**
 [*Erigeron grandiflorus* Hook.]
Erigeron speciosus (Lindl.) DC. **(9)**

[Erigeron speciosus (Lindl.) DC. var. macranthus (Nutt.) Cronquist]
 [Erigeron speciosus (Lindl.) DC. var. speciosus]
 +Erigeron subglaber Cronquist (1)
 Erigeron subtrinervis Rydb. ex Porter & Britton var. subtrinervis (24)
 Erigeron vreelandii Greene (6)
 Eupatorium herbaceum (A. Gray) Greene [VCNP]
 [Ageratina herbacea (A. Gray) R. M. King & H. Rob.]
 Gaillardia aristata Pursh (2)
 Gaillardia pinnatifida Torr. (7)
 Gaillardia pulchella Foug. var. pulchella (2)
 Gnaphalium exilifolium A. Nelson [VCNP]
 Grindelia nuda A. W. Wood var. aphanactis (Rydb.) Nesom (15)
 Grindelia nuda A. W. Wood var. nuda (2)
 Gutierrezia sarothrae (Pursh) Britton & Rusby (7)
 Haplopappus spinulosus (Pursh) DC. var. spinulosus (15)
 [Xanthisma spinulosum (Pursh) Morgan & R. L. Hartm. var. spinulosum]
 Helianthella parryi A. Gray (9)
 Helianthella quinquenervis (Hook.) A. Gray (3)
 Helianthus annuus L. (5)
 Helianthus nuttallii Torr. & A. Gray (1)
 Helianthus petiolaris Nutt. var. fallax (Heiser) B. L. Turner (1)
 Helianthus petiolaris Nutt. var. petiolaris (1)
 Helianthus rigidus (Cass.) Desf. var. subrhomboideus (Rydb.) Cronquist (2)
 Heliopsis helianthoides (L.) Sweet var. occidentalis (T. R. Fisher) Steyererm. (7)
 Heterotheca villosa (Pursh) Shinnery var. foliosa (Nutt.) Harms (24)
 Heterotheca villosa (Pursh) Shinnery var. minor (Hook.) Semple (27)
 Heterotheca villosa (Pursh) Shinnery var. nana (A. Gray) Semple (19)
 Hieracium fendleri Sch. Bip. var. fendleri (11)
 Hieracium gracile Hook. var. gracile (2)
 [Hieraceum triste Willd. ex Spreng. var. gracile (Hook.) A. Gray]
Hieracium pringlei A. Gray (1)
 Hymenopappus filifolius Hook. var. cinereus (Rydb.) I. M. Johnst. (16)
 Hymenopappus flavescens A. Gray var. canotomentosus A. Gray (4)
 Hymenopappus newberryi (A. Gray) I. M. Johnst. (38)
 Hymenopappus tenuifolius Pursh (1)
 Hymenoxys hoopesii (A. Gray) Bierner (33)
 Hymenoxys richardsonii (Hook.) Cockerell var. floribunda (A. Gray) Parker (35)
 Iva axillaris Pursh (1)
 Iva xanthifolia Nutt. (1)
 [Cyclachaena xanthifolia (Nutt.) Fresen.]
 Krigia biflora (Walt.) S. F. Blake var. viridis (Standl.) Kim (1)
 !Lactuca biennis (Moench) Fernald (3)
 Lactuca canadensis L. var. longifolia (Michx.) Farw. (1)
 [Lactuca canadensis L.]
 Lactuca graminifolia Michx. var. arizonica McVaugh (6)
 Lactuca oblongifolia Nutt. (1)
 [Lactuca tatarica (L.) C. A. Mey. subsp. pulchella (Pursh) Stebbins]
 *Lactuca serriola L. (5)
 Laennecia schiedeana (Less.) Nesom (2)
 Liatris punctata Hook. (2)
 [Liatris punctata Hook. var. nebraskana Gaiser]
 [Liatris punctata Hook. var. punctata]
 Lygodesmia juncea (Pursh) D. Don ex Hook. (3)
 Machaeranthera bigelovii (A. Gray) Greene var. bigelovii (4)
 [Dieteria bigelovii (A. Gray) Morgan & R. L. Hartm.]
 Machaeranthera canescens (Pursh) A. Gray var. ambigua B. L. Turner (3)
 [Dieteria canescens (Pursh) Nutt. var. ambigua (B. L. Turner) Morgan & R. L. Hartm.]
 Machaeranthera canescens (Pursh) A. Gray var. glabra A. Gray (4)
 [Dieteria canescens (Pursh) Nutt. var. glabra (A. Gray) Morgan & R. L. Hartm.]
 Machaeranthera gracilis (Nutt.) Shinnery (3)

[Xanthisma gracile (Nutt.) Morgan & R. L. Hartm.]
 Machaeranthera grindelioides (Nutt.) Shinnars var. grindelioides **(1)**
 [Xanthisma grindelioides (Nutt.) Morgan & R. L. Hartm. var. grindelioides]
 Machaeranthera tanacetifolia (Kunth) Nees **(1)**
 Madia glomerata Hook. **[VCNP]**
 *Matricaria matricarioides (Less.) Porter **(4)**
 [Matricaria discoidea DC.]
 Melampodium leucanthum Torr. & A. Gray **(2)**
 Microseris nutans (Hook.) Sch. Bip. **[VCNP]**
 Oreochrysum parryi (A. Gray) Rydb. **(25)**
 Packera dimorphophylla (Greene) W. A. Weber & A. Löve var. dimorphophylla **(1)**
 [Senecio dimorphophyllus Greene]
 Packera fendleri (A. Gray) W. A. Weber & A. Löve **(45)**
 [Senecio fendleri A. Gray]
 Packera hartiana (A. Heller) W. A. Weber & A. Love **(2)**
 [Senecio hartianus Heller]
 Packera multilobata (T. & G. ex A. Gray) Weber & A. Löve **(3)**
 [Senecio multilobatus (T. & G. ex A. Gray)]
 Packera neomexicana (A. Gray) W. A. Weber & A. Löve var. mutabilis (Greene) W. A. Weber & A. Löve **(19)**
 [Senecio neomexicanus A. Gray var. mutabilis (Greene) T. M. Barkley]
 Packera pseud aurea (Rydb.) W. A. Weber & A. Löve var. flavula (Greene) D. Trock & T. M. Barkley **(1)**
 [Senecio pseud aureus Rydb. var. flavulus (Greene) Greenman]
 +Packera sanguisorboides (Rydb.) W. A. Weber & A. Love **(21)**
 [Senecio sanguisorboides Rydb.]
 Packera streptanthifolia (Greene) W. A. Weber & A. Löve **(7)**
 [Senecio streptanthifolius Greene]
 Packera tridenticulata (Rydb.) W. A. Weber & A. Löve **(2)**
 [Senecio tridenticulatus Rydb.]
 Palafoxia sphacelata (Nutt ex Torr.) Cory **(1)**
 Pericome caudata A. Gray **[VCNP]**
 Pseudognaphalium stramineum (Kunth) W. A. Weber **(2)**
 Pseudognaphalium viscosum (Kunth) W. A. Weber **(6)**
 [Pseudognaphalium macounii (Greene) Kartesz]
 Psilostrophe tagetina (Nutt.) Greene **(2)**
 [Psilostrophe tagetina (Nutt.) Greene var. cerifera (A. Nelson) B. L. Turner]
 [Psilostrophe tagetina (Nutt.) Greene var. tagetina]
 Pyrrhopappus pauciflorus (D. Don) DC. **(1)**
 Pyrrocoma crocea (A. Gray) Greene var. crocea **(5)**
 Ratibida columnifera (Nutt.) Wooton & Standl. **(11)**
 [Ratibida columnifera (Nutt.) Woot. & Standl. forma columnifera]
 [Ratibida columnifera (Nutt.) Woot. & Standl. forma pulcherrima (DC.) Fern.]
 Rudbeckia hirta L. var. pulcherrima Farw. **(35)**
 [Rudebeckia hirta L.]
 Rudbeckia laciniata L. var. ampla (A. Nelson) Cronquist **(52)**
 [Rudebeckia laciniata L.]
 !Rudbeckia laciniata L. var. laciniata **(2)**
 [Rudebeckia laciniata L.]
 Schkuhria multiflora Hook. & Arn. **[VCNP]**
 *Scorzonera laciniata L. **(8)**
 Senecio amplexans A. Gray var. amplexans **(3)**
 Senecio amplexans A. Gray var. holmii (Greene) Harrington **(2)**
 Senecio atratus Greene **(2)**
 Senecio bigelovii A. Gray var. hallii A. Gray **(12)**
 Senecio crassulus A. Gray **(1)**
 Senecio eremophilus Richardson var. kingii (Rydb.) Greenm. **(16)**
 Senecio flaccidus Less. var. douglasii (DC.) Turner & T. M. Barkley **(7)**
 Senecio fremontii Torr. & A. Gray var. blitoides (Greene) Cronquist **(3)**
 Senecio pudicus Greene **(1)**
 Senecio triangularis Hook. **(7)**
 Senecio wootonii Greene **(16)**

- Solidago canadensis* L. var. *scabra* Torr. & A. Gray (1)
 [Solidago canadensis L. var. canadensis]
Solidago gigantea Aiton (3)
Solidago missouriensis Nutt. var. *fasciculata* Holz. (1)
Solidago missouriensis Nutt. var. *missouriensis* (1)
Solidago missouriensis Nutt. var. *tenuissima* (Woot. & Standl.) C. & J. Taylor (1)
Solidago mollis Bartl. var. *mollis* (1)
Solidago nana Nutt. (1)
Solidago nemoralis Aiton var. *longipetiolata* (Mack. & Bush) Palmer & Stey. (5)
Solidago simplex Kunth var. *simplex* (30)
Solidago speciosa Nutt. var. *pallida* Porter (1)
Solidago velutina DC. subsp. *sparsiflora* (A. Gray) Semple (5)
Solidago wrightii A. Gray var. *adenophora* S. F. Blake (11)
 **Sonchus asper* (L.) Hill (4)
Stephanomeria pauciflora (Torr.) A. Nelson var. *pauciflora* (7)
 **Taraxacum laevigatum* (Willd.) DC. (9)
 **Taraxacum officinale* Weber ex F. H. Wigg. (35)
Tetraneuris acaulis (Pursh) Greene var. *acaulis* (1)
Tetraneuris acaulis (Pursh) Greene var. *caespitosa* A. Nelson (1)
Tetraneuris argentea (A. Gray) Greene (14)
Tetraneuris brandegeei (Porter ex A. Gray) Parker (4)
Tetraneuris ivesiana Greene (6)
Thelesperma filifolium (Hook.) A. Gray var. *intermedium* (Rydb.) Shinnars (2)
Thelesperma megapotamicum (Spreng.) Kuntze (24)
Tonestus pygmaeus (Torr. & A. Gray) A. Nelson (2)
Townsendia eximia A. Gray (26)
Townsendia exscapa (Richardson) Porter (1)
Townsendia fendleri A. Gray (3)
Townsendia leptotes (A. Gray) Osterh. (2)
 **Tragopogon dubius* Scop. (52)
 **Tragopogon porrifolius* L. (4)
 **Tragopogon pratensis* L. (16)
Verbesina encelioides (Cav.) Benth. & Hook. f. ex A. Gray var. *exauriculata* B. L. Rob. & Greenm. (2)
Viguiera multiflora (Nutt.) S. F. Blake var. *multiflora* (16)
 [Viguiera multiflora (Nutt.) S. F. Blake]
Viguiera multiflora (Nutt.) S. F. Blake var. *nevadensis* (A. Nelson) S. F. Blake (4)
 [Viguiera multiflora (Nutt.) S. F. Blake]
Wyethia arizonica A. Gray (2)
 **Xanthium spinosum* L. (1)
Xanthium strumarium L. var. *canadense* (Mill.) Torr. & A. Gray (2)
Zinnia grandiflora Nutt. (1)
Berberidaceae
Berberis fendleri A. Gray (41)
Mahonia repens (Lindl.) G. Don (33)
 [Berberis repens Lindl.]
Betulaceae
Alnus incana (L.) Moench var. *occidentalis* (Dippel) C. L. Hitchc. (57)
 [Alnus incana (L.) Moench subsp. *tenuifolia* (Nutt.) Breitung]
Alnus oblongifolia Torr. (2)
Betula glandulosa Michx. [VCNP]
Betula occidentalis Hook. (3)
Boraginaceae
Cryptantha cinerea (Greene) Cronquist var. *cinerea* (11)
Cryptantha cinerea (Greene) Cronquist var. *jamesii* Cronquist (7)
Cryptantha fendleri (A. Gray) Greene (1)
Cryptantha flava (A. Nelson) Payson (2)
Cryptantha minima Rydb. (1)
 **Cynoglossum officinale* L. (1)
Hackelia besseyi (Rydb.) J. L. Gentry (2)
Hackelia floribunda (Lehm.) I. M. Johnst. (11)

+*Hackelia hirsuta* (Wooton & Standl.) I. M. Johnst. (1)
Lappula occidentalis (S. Watson) Greene var. *cupulata* (A. Gray) L. C. Higgins (3)
Lappula occidentalis (S. Watson) Greene var. *occidentalis* (31)
Lithospermum incisum Lehm. (10)
Lithospermum multiflorum Torr. ex A. Gray (45)
Macromeria viridiflora A. DC. var. *thurberi* (A. Gray) I. M. Johnst. (3)
Mertensia franciscana A. Heller (58)
Mertensia lanceolata (Pursh) DC. (31)
[Mertensia lanceolata (Pursh) DC. var. *lanceolata*]
Mertensia viridis (A. Nelson) A. Nelson (1)
[Mertensia lanceolata (Pursh) DC. var. *nivalis* (S. Watson) L. C. Higgins]
Plagiobothrys scouleri (Hook. & Arn.) I. M. Johnst. var. *hispidulus* (Greene) Dorn [VCNP]

Brassicaceae

! *Alyssum alyssoides* (L.) L. (1)
**Alyssum parviflorum* M. Bieb. var. *micranthum* (C. A. Mey.) Dorn (3)
[Alyssum minus (L.) Rothm. var. *micranthum* (C. A. Mey.) Dudley]
Arabis x divaricarpa A. Nelson (3)
[*Boechea x divaricarpa* (A. Nelson) A. Löve & D. Löve]
Arabis drummondii A. Gray (17)
[*Boechea angustifolia* (Nutt.) Dorn]
Arabis fendleri (S. Watson) Greene var. *fendleri* (4)
[*Boechea fendleri* W. A. Weber var. *fendleri*]
Arabis fendleri (S. Watson) Greene var. *spatifolia* (Rydb.) Rollins (1)
[*Boechea fendleri* (S. Watson) W. A. Weber var. *spatifolia* (Rydb.) W. A. Weber]
Arabis glabra (L.) Bernh. var. *glabra* (13)
[Turritis glabra L.]
Arabis hirsuta (L.) Scop. var. *pyncocarpa* (M. Hopkins) Rollins (4)
Barbarea orthoceras Ledeb. (1)
**Barbarea vulgaris* R. Br. (2)
**Berteroa incana* (L.) DC. [VCNP]
**Camelina microcarpa* Andr. ex DC. (4)
**Capsella bursa-pastoris* (L.) Medik. (29)
Cardamine cordifolia A. Gray var. *cordifolia* (19)
! *Cardamine cordifolia* A. Gray var. *incana* A. Gray ex M. E. Jones (1)
**Cardaria chalepensis* (L.) Hand.-Mazz. (2)
[Lepidium chalapense L.]
**Choripora tenella* (Pall.) DC. (1)
**Conringia orientalis* (L.) Dumort. (1)
Descurainia incana (Bernh. ex Fisch. & C. A. Mey.) Dorn var. *incana* (1)
[*Descurainia incana* (Bernh. ex Fisch. & C. A. Mey.) Dorn]
Descurainia incana (Bernh. ex Fisch. & C. A. Mey.) Dorn var. *incisa* (3)
[*Descurainia incisa* (Engelm. ex A. Gray) Britton subsp. *incisa*]
Descurainia incana (Bernh. ex Fisch. & C. A. Mey.) Dorn var. *macrosperma* (O. E. Schulz) Dorn (3)
[*Descurainia incana* (Bernh. ex Fisch. & C. A. Mey.) Dorn subsp. *procera* (Greene) Kartesz & Gandhi]
Descurainia incana (Bernh. ex Fisch. & C. A. Mey.) Dorn var. *viscosa* (Rydb.) Dorn (13)
[*Descurainia incisa* (Engelm. ex A. Gray) Britton subsp. *viscosa* (Rydb.) Rollins]
Descurainia obtusa (Greene) O. E. Schulz subsp. *obtusa* (1)
[*Descurainia obtusa* (Greene) O. E. Schulz subsp. *adenophora* (Wooton & Standl.) Detling]
[*Descurainia obtusa* (Greene) O. E. Schulz subsp. *obtusa*]
! *Descurainia pinnata* (Walter) Britton var. *nelsonii* (Rydb.) M. Peck (1)
Descurainia pinnata (Walter) Britton var. *osmearum* (Cockerell) Shinnars (6)
[*Descurainia pinnata* (Walter) Britton subsp. *halictorum* (Cockerell) Detling]
**Descurainia sophia* (L.) Webb ex Prantl (18)
Dimorphocarpa wislizenii (Engelm.) Rollins (7)
Draba aurea Vahl ex Hornem. (1)
Draba helleriana Greene var. *helleriana* (33)
Draba helleriana Greene var. *patens* (Heller) O. E. Schulz (10)
Draba rectifruca C. L. Hitchc. (1)
Draba spectabilis Greene var. *spectabilis* (1)
Draba streptocarpa A. Gray (2)

- Erysimum capitatum* (Douglas ex Hook.) Greene var. *argillosum* (Greene) R. J. Davis (39)
 [Erysimum capitatum (Douglas ex Hook.) Greene var. *purshii* (T. Durand) Rollins]
Erysimum capitatum (Douglas ex Hook.) Greene var. *capitatum* (6)
Erysimum inconspicuum (S. Watson) MacMill. (2)
 **Erysimum repandum* L. (1)
Lepidium alyssoides A. Gray var. *alyssoides* (1)
Lepidium alyssoides A. Gray var. *eastwoodiae* (Wooton) Rollins (3)
Lepidium densiflorum Schrad. var. *densiflorum* (8)
Lepidium densiflorum Schrad. var. *ramosum* (A. Nelson) Thell. (8)
 ****Lepidium latifolium* L. (1)**
 !*Lepidium ramosissimum* A. Nelson var. *bourgeauanum* (Thell.) Rollins (1)
Lepidium virginicum L. var. *medium* (Greene) C. L. Hitchc. (1)
Lepidium virginicum L. var. *pubescens* (Greene) Thell. (7)
Lesquerella fendleri (A. Gray) S. Watson (2)
 [Physaria fendleri (A. Gray) O’Kane & Al-Shehbaz]
Lesquerella montana (A. Gray) S. Watson (1)
 [Physaria montana (A. Gray) Greene]
Lesquerella rectipes Wooton & Standl. (9)
 [Physaria rectipes (Wooton & Standl.) O’Kane & Al-Shehbaz]
 **Nasturtium officinale* R. Br. (8)
Noccaea montana (L.) F. K. Mey. (25)
 [Thlaspi montanum L. var. *montanum*]
Pennellia longifolia (Benth.) Rollins (5)
Pennellia micrantha (A. Gray) Nieuwl. [VCNP]
Rorippa curvipes Greene var. *curvipes* (1)
Rorippa palustris (L.) Besser var. *fernaldiana* (Butters & Abbe) Stuckey (2)
Rorippa sphaerocarpa (A. Gray) Britton (4)
Schoenocrambe linearifolia (A. Gray) Rollins (12)
 **Sisymbrium altissimum* L. (11)
 **Sisymbrium loeselii* L. [VCNP]
Streptanthella longirostris (S. Watson) Rydb. var. *longirostris* (1)
 +*Thelypodopsis vaseyi* (S. Watson ex B. L. Rob.) Rollins (7)
Thelypodium integrifolium (Nutt.) Endl. ex Walp. var. *gracilipes* B. L. Rob. [VCNP]
Thelypodium wrightii A. Gray subsp. *wrightii* (3)

Cactaceae

- Coryphantha vivipara* (Nutt.) Britton & Rose var. *vivipara* (1)
Echinocereus coccineus Engelm. var. *coccineus* (3)
Echinocereus fendleri (Engelm.) F. Seitz var. *fendleri* (2)
Echinocereus triglochidiatus Engelm. var. *triglochidiatus* (4)
Echinocereus viridiflorus Engelm. var. *viridiflorus* (1)
Opuntia imbricata (Haw.) DC. var. *imbricata* (13)
 [Cylindropuntia imbricata (Haw.) Knuth var. *imbricata*]
Opuntia phaeacantha Engelm. var. *phaeacantha* (16)
Opuntia polyacantha Haw. var. *hystricina* (Engelm. & Bigelow) B.D. Parfitt (1)
Opuntia polyacantha Haw. var. *juniperina* (Britton & Rose) L. D. Benson (2)
 [Opuntia polyacantha Haw. var. *polyacantha*]
Opuntia polyacantha Haw. var. *polyacantha* (4)
Opuntia polyacantha Haw. var. *trichophora* (Engelm. & Bigelow) J. M. Coult. (1)
 [Opuntia polyacantha Haw. var. *polyacantha*]

Callitrichaceae

- Callitriche hermaphrodita* L. [VCNP]
Callitriche palustris L. [VCNP]

Campanulaceae

- Campanula parryi* A. Gray var. *parryi* (7)
Campanula rotundifolia L. (72)

Cannabaceae

- **Cannabis sativa* L. (1)
Humulus lupulus L. var. *neomexicanus* A. Nelson & Cockerell (11)

Capparaceae

- Cleome serrulata* Pursh (2)

Polanisia dodecandra (L.) DC. var. *trachysperma* (Torr. & A. Gray) H. H. Iltis (3)

Caprifoliaceae

Linnaea borealis L. var. *longiflora* Torr. (3)

Lonicera involucrata (Richardson) Banks ex Spreng. var. *involucrata* (36)

Sambucus racemosa L. var. *melanocarpa* (A. Gray) McMinn (12)

Sambucus racemosa L. var. *microbotrys* (Rydb.) Kearns. & Peeb. (38)

Symphoricarpos oreophilus A. Gray var. *oreophilus* A. Gray (40)

[*Symphoricarpos rotundifolius* A. Gray]

Symphoricarpos oreophilus A. Gray var. *utahensis* (Rydb.) A. Nelson (11)

[*Symphoricarpos rotundifolius* A. Gray]

Caryophyllaceae

Arenaria eastwoodiae Rydb. var. *eastwoodiae* (3)

[*Eremogone eastwoodiae* (Rydb.) Ikonn.]

Arenaria fendleri A. Gray var. *fendleri* (26)

[*Eremogone fendleri* (A. Gray) Ikonn.]

Arenaria lanuginosa (Michx.) Rohrb. var. *saxosa* (A. Gray) Zarucchi, R. L. Hartm., & Rabeler (26)

[*Spergulastrum lanuginosum* Michx. subsp. *saxosum* (A. Gray) W. A. Weber]

Cerastium arvense L. (14)

[*Cerastium arvense* L. subsp. *strictum* (L.) Ugbor.]

Cerastium brachypodum (Engelm. ex A. Gray) B. L. Rob. (3)

**Cerastium fontanum* Baumg. subsp. *vulgare* (Hartm.) Greuter & Burdet (18)

**Dianthus armeria* L. subsp. *armeria* [VCNP]

Drymaria molluginea (Lag.) Didr. [VCNP]

Minuartia obtusiloba (Rydb.) House (6)

Moehringia macrophylla (Hook.) Fenzl (2)

Pseudostellaria jamesiana (Torr.) W. A. Weber & R. L. Hartm. (11)

Sagina saginoides (L.) H. Karst. (2)

**Saponaria officinalis* L. (1)

Silene acaulis (L.) Jacq. var. *subacaulescens* (F. N. Wms.) Fern. & St John (1)

Silene antirrhina L. (1)

Silene drummondii Hook. var. *drummondii* (12)

Silene latifolia Poir. subsp. *alba* (Mill.) Greuter & Burdet (6)

Silene menziesii Hook. var. *menziesii* (5)

**Silene noctiflora* L. (1)

!*Silene scouleri* Hook. subsp. *hallii* (S. Watson) C. L. Hitchc. (1)

Silene scouleri Hook. var. *pringlei* (S. Watson) C. L. Hitchc. & Maguire ex Kartesz & Gandhi (11)

**Spergularia rubra* (L.) J. Presl & C. Presl (1)

Stellaria calycantha (Ledeb.) Bong. [VCNP]

[*Stellaria calycantha* (Ledeb.) Bong. var. *simcoei* (Howell) Fernald]

Stellaria longifolia Muhl. ex Willd. (4)

Stellaria longipes Goldie var. *longipes* (6)

Stellaria umbellata Turcz. ex Karel. & Kir. (1)

Celastraceae

Paxistima myrsinites (Pursh) Raf. (44)

[*Pachystima myrsinites* (Pursh) Raf.]

Chenopodiaceae

Atriplex canescens (Pursh) Nutt. var. *canescens* (13)

Atriplex confertifolia (Torr. & Frem.) S. Watson (1)

Chenopodium atrovirens Rydb. (4)

Chenopodium berlandieri Moq. var. *zschackei* (Murray) Murr ex Asch. (11)

**Chenopodium capitatum* (L.) Asch. [VCNP]

[*Chenopodium capitatum* (L.) Ambrosi var. *parvicapitatum* S. L. Welsh]

Chenopodium fremontii S. Watson (7)

Chenopodium graveolens Willd. (4)

[*Dysphania graveolens* (Willd.) S. Mosyakin & Clemants]

[*Teloxys graveolens* (Willd.) W. A. Weber]

Chenopodium incanum (S. Watson) A. Heller var. *incanum* (2)

Chenopodium leptophyllum (Moq.) Nutt. ex S. Watson (2)

**Chenopodium overi* Aellen (15)

[*Chenopodium capitatum* (L.) Ambrosi var. *parvicapitatum* S. L. Welsh]

Chenopodium pratericola Rydb. [VCNP]
 *Kochia scoparia (L.) Schrad. (2)
 Krascheninnikovia lanata (Pursh) Meeuse & Smit (2)
 Monolepis nuttalliana (Sault.) Greene (1)
 Salsola australis R. Br. (3)
 [Salsola tragus L.]
 Sarcobatus vermiculatus (Hook.) Torr. var. vermiculatus (1)
Clusiaceae {Hypericaceae}
 Hypericum formosum Kunth var. nortoniae (M. E. Jones) C. L. Hitchc. (9)
Commelinaceae
 Commelina dianthifolia Delile (4)
 Tradescantia occidentalis (Britton) Smyth var. occidentalis (1)
Convolvulaceae
 *Convolvulus arvensis L. (22)
 Evolvulus nuttallianus Schult. (2)
 Ipomoea cristulata H. Hall (1)
Cornaceae
 Cornus canadensis L. var. canadensis (4)
 Cornus sericea L. var. sericea (34)
Crassulaceae
 Sedum cockerellii Britton (14)
 Sedum integrifolium (Raf.) A. Nelson (10)
 [Sedum integrifolium (Raf.) A. Nelson subsp. integrifolium]
 [Sedum integrifolium (Raf.) A. Nelson subsp. procerum Clausen]
 Sedum rhodanthum A. Gray (2)
Cucurbitaceae
 Cucurbita foetidissima Kunth (3)
Cyperaceae
 Carex aquatilis Wahlenb. var. aquatilis (6)
 Carex atherodes Spreng. (1)
 Carex aurea Nutt. (3)
 Carex bella L. H. Bailey (6)
 Carex brunnescens (Pers.) Poir. subsp. brunnescens [VCNP]
 Carex canescens L. var. canescens (6)
 Carex conoidea Willd. [VCNP]
 !Carex deweyana Schwein. var. deweyana (2)
 Carex disperma Dewey (4)
 Carex douglasii Boott (1)
 Carex ebenea Rydb. (5)
 Carex echinata Murray subsp. echinata [VCNP]
 Carex emoryi Dewey (2)
 Carex filifolia Nutt. (1)
 Carex foenea Willd. var. foenea (5)
 [Carex siccata Dewey]
 Carex geophila Mack. (2)
 Carex hystricina Muhl. ex Willd. (1)
 Carex interior L. H. Bailey (1)
 Carex lanuginosa Michx. (10)
 [Carex pellita Muhl. Ex Willd.]
 Carex lenticularis Michx. var. pallida (Boott) Dorn (2)
 [Carex lenticularis Michx. var. lipocarpa (Holm) L. A. Standl.]
 Carex microptera Mack. var. microptera (41)
 Carex nebrascensis Dewey (4)
 Carex norvegica Retz. var. stevenii (Holm) Dorn (4)
 [Carex stevenii (Holm) Dorn]
 Carex obtusata Lilj. [VCNP]
 Carex occidentalis L. H. Bailey (48)
 Carex pensylvanica Lam. var. digyna Boeck. (4)
 [Carex inops L. H. Bailey subsp. heliophila (Mack.) Crins]
 Carex petasata Dewey [VCNP]

Carex pityophila Mack. (2)
 [*Carex geophila* Mack.]
Carex praegracilis Boott (1)
Carex rossii Boott (5)
Carex scoparia Schkuhr ex Willd. var. *scoparia* (1)
Carex simulata Mack. (1)
Carex sprengelii Dewey ex Spreng. (2)
Carex stenophylla Wahlenb. [VCNP]
 [*Carex duriuscula* C. A. Mey.]
Carex stipata Muhl. ex Willd. var. *stipata* (16)
Carex subfusca Boott (6)
Carex utriculata Boott (9)
Carex vulpinoidea Michx. (2)
Carex wootonii Mack. (3)
Cyperus fendlerianus Boeck. (15)
Cyperus schweinitzii Torr. (4)
Eleocharis acicularis (L.) Roem. & Schult. (1)
Eleocharis palustris (L.) Roem. & Schult. (6)
Eleocharis pauciflora (Lightf.) Link [VCNP]
 [*Eleocharis quinquefolia* (F. X. Hartm.) O. Schwarz]
Schoenoplectus acutus (Muhl. ex Bigelow) A. & D. Löve var. *occidentalis* (S. Watson) S. G. Sm. (1)
Schoenoplectus pungens (Vahl) Palla var. *pungens* (7)
 [*Schoenoplectus pungens* (Vahl) Palla var. *longispicatus* (Britton) S. G. Sm.]
Scirpus microcarpus J. Presl & C. Presl (10)
Scirpus pallidus (Britton) Fernald (2)

Elaeagnaceae

**Elaeagnus angustifolia* L. (10)
Shepherdia argentea (Pursh) Nutt. (2)
Shepherdia canadensis (L.) Nutt. (22)

Ericaceae

Arctostaphylos uva-ursi (L.) Spreng. var. *adenotricha* Fernald & J. F. Macbr. (25)
 [*Arctostaphylos uva-ursi* (L.) Spreng.]
Arctostaphylos uva-ursi (L.) Spreng. var. *uva-ursi* (9)
 [*Arctostaphylos uva-ursi* (L.) Spreng.]
Chimaphila umbellata (L.) W. P. C. Barton var. *occidentalis* (Rydb.) S. F. Blake (8)
 [*Chimaphila umbellata* (L.) Nutt. var. *acuta* (Rydb.) S. F. Blake]
Moneses uniflora (L.) A. Gray var. *uniflora* (2)
Monotropa hypopithys L. (2)
 [*Monotropa hypopitys* L.]
Orthilia secunda (L.) House (15)
Pterospora andromedea Nutt. (9)
Pyrola asarifolia Michx. var. *asarifolia* (1)
Pyrola chlorantha Sw. var. *chlorantha* (3)
Pyrola elliptica Nutt. (1)
Pyrola minor L. (6)
Pyrola picta Sm. var. *picta* (3)
Vaccinium cespitosum Michx. (1)
Vaccinium myrtillus L. var. *oreophilum* (Rydb.) Dorn (18)
Vaccinium scoparium Leiberg ex Coville (3)

Euphorbiaceae

Chamaesyce fendleri (Torr. & A. Gray) Small var. *chaetocalyx* (Boiss.) Shinnars (12)
Chamaesyce fendleri (Torr. & A. Gray) Small var. *fendleri* (5)
Chamaesyce glyptosperma (Engelm.) Small (1)
Chamaesyce serpyllifolia (Pers.) Small (7)
Chamaesyce serrula (Engelm.) Wooton & Standl. (1)
Croton texensis (Klotzsch) Muell. Arg. (9)
Euphorbia brachycera Engelm. (3)
Euphorbia dentata Michx. (3)
 [*Euphorbia cuphosperma* (Engelm.) Boisser]
 [*Euphorbia davidii* Subils]

Tragia nepetifolia Cav. (1)
Fabaceae
Amorpha canescens Pursh (2)
Amorpha fruticosa L. (1)
Amorpha nana Nutt. (1)
Astragalus adsurgens Pall. var. *robustior* Hook. (1)
 [Astragalus *laxmannii* Jacq. var. *robustior* (Hook.) S. L. Welsh & Barneby]
Astragalus albulus Wooton & Standl. (1)
Astragalus amphioxys A. Gray var. *amphioxys* (1)
Astragalus bisulcatus (Hook.) A. Gray var. *haydenianus* (A. Gray) Barneby (6)
Astragalus flexuosus (Hook.) Douglas ex G. Don var. *flexuosus* (1)
Astragalus flexuosus (Hook.) Douglas ex G. Don var. *greenei* (A. Gray) Barneby (1)
Astragalus gilensis Greene (2)
Astragalus humistratus A. Gray var. *humistratus* (3)
Astragalus iodopetalus (Rydb.) Barneby (1)
+*Astragalus kentrophyta* A. Gray var. *neomexicanus* (Barneby) Barneby (1)
Astragalus lonchocarpus Torr. (13)
Astragalus missouriensis Nutt. var. *missouriensis* (1)
+*Astragalus mollissimus* Torr. var. *matthewsii* (S. Watson) Barneby (1)
Astragalus nuttallianus A. DC. var. *austrinus* (Small) Barneby (2)
Astragalus praelongus E. Sheld. var. *praelongus* (2)
Astragalus proximus (Rydb.) Wooton & Standl. (1)
Astragalus scopulorum Porter (2)
Astragalus tenellus Pursh (5)
Calliandra humilis Benth. var. *humilis* (1)
Dalea candida Michx. var. *oligophylla* (Torr.) Shinnars (6)
Dalea filiformis A. Gray (1)
Dalea formosa Torr. (4)
Dalea jamesii (Torr.) Torr. & A. Gray (3)
Dalea lanata Spreng. var. *terminalis* (M. E. Jones) Barneby (2)
Dalea purpurea Vent. var. *purpurea* (1)
**Gleditsia triacanthos* L. (1)
Glycyrrhiza lepidota Nutt. ex Pursh (7)
Lathyrus eucosmus Butters & H. St. John (5)
Lathyrus lanszwertii Kellogg var. *leucanthus* (Rydb.) Dorn (22)
 [Lathyrus *arizonicus* Britton]
 [Lathyrus *leucanthus* Rydb.]
**Lathyrus latifolius* L. (1)
**Lotus corniculatus* L. (1)
Lotus plebeius (Brandeggee) Barneby (3)
Lotus wrightii (A. Gray) Greene (5)
Lupinus argenteus Pursh var. *argophyllus* (A. Gray) S. Watson (12)
Lupinus argenteus Pursh var. *fulvomaculatus* (Payson) Barneby (4)
Lupinus argenteus Pursh var. *parviflorus* (Nutt. ex Hook. & Arn.) Hitchc. (2)
Lupinus kingii S. Watson (1)
Lupinus polyphyllus Lindl. var. *ammophilus* (Greene) Barneby (3)
Lupinus pusillus Pursh var. *pusillus* (1)
Lupinus sericeus Pursh var. *sericeus* (13)
**Medicago lupulina* L. (44)
**Medicago sativa* L. (28)
**Melilotus albus* Medik. (22)
**Melilotus officinalis* (L.) Pall. (54)
Oxytropis lambertii Pursh var. *bigelovii* A. Gray (6)
Oxytropis sericea Nutt. var. *sericea* (2)
Oxytropis splendens Douglas ex Hook. (1)
Parryella filifolia Torr. & A. Gray ex A. Gray (1)
Phaseolus angustissimus A. Gray var. *latus* M. E. Jones (1)
Prosopis glandulosa Torr. var. *torreyana* (L. D. Benson) M. C. Johnst. (1)
Psoralidium lanceolatum (Pursh) Rydb. (4)
Psoralidium tenuiflorum (Pursh) Rydb. (2)

Robinia neomexicana A. Gray var. *neomexicana* (41)

**Sphaerophysa salsula* (Pall.) DC. (1)

Thermopsis montana Nutt. var. *divaricarpa* (A. Nelson) Dorn (8)

[*Thermopsis rhombifolia* (Nutt. ex Pursh) Nutt. ex Richardson var. *divaricarpa* (A. Nelson) Isely]

Thermopsis montana Nutt. var. *montana* (40)

[*Thermopsis rhombifolia* (Nutt. ex Pursh) Nutt. ex Richardson var. *montana* (Nutt.) Isely]

Trifolium dasyphyllum Torr. & A. Gray (3)

Trifolium gymnocarpon Nutt. var. *gymnocarpum* (1)

**Trifolium hybridum* L. (1)

Trifolium longipes Nutt. var. *reflexum* A. Nelson (1)

**Trifolium pratense* L. var. *pratense* (39)

**Trifolium repens* L. (52)

Vicia americana Muhl. ex Willd. var. *americana* (48)

[*Vicia americana* Muhl. ex Willd.]

Vicia americana Muhl. ex Willd. var. *minor* Hook. (12)

[*Vicia americana* Muhl. ex Willd.]

Vicia pulchella Kunth (9)

Fagaceae

Quercus gambelii Nutt. (116)

Quercus grisea Liebm. (9)

Quercus turbinella Greene (2)

Quercus x undulata Torr. (7)

Fumariaceae

Corydalis aurea Willd. var. *aurea* (16)

Corydalis aurea Willd. var. *occidentalis* Engelm. ex A. Gray (6)

Gentianaceae

Frasera speciosa Douglas ex Griseb. (25)

Gentiana aquatica L. [VCNP]

[*Gentiana fremontii* Torr.]

Gentiana bigelovii A. Gray (3)

Gentiana parryi Engelm. (9)

Gentianella amarella (L.) Börner var. *acuta* (Michx.) Herder (3)

Gentianella amarella (L.) Börner var. *heterosepala* (Engelm.) Dorn (1)

Gentianopsis detonsa (Rottb.) Ma var. *elegans* (A. Nelson) N. H. Holmgren (2)

[*Gentianopsis thermalis* (Kuntze) H. H. Iltis]

Swertia perennis L. (6)

Geraniaceae

**Erodium cicutarium* (L.) L'Her. ex Aiton (20)

Geranium caespitosum E. James (62)

[*Geranium caespitosum* E. James var. *caespitosum*]

[*Geranium caespitosum* E. James var. *fremontii* (Torr. ex A. Gray) Dorn]

Geranium richardsonii Fisch. & Trautv. (84)

Grossulariaceae

Ribes aureum Pursh var. *aureum* (1)

Ribes cereum Douglas (43)

Ribes inerme Rydb. var. *inerme* (46)

Ribes leptanthum A. Gray (13)

Ribes montigenum McClat. (15)

Ribes wolfii Rothrock (21)

Hydrangeaceae

Fendlera rupicola A. Gray var. *falcata* (Thornber) Rehder (1)

Fendlera rupicola A. Gray var. *wrightii* A. Gray (2)

Jamesia americana Torr. & A. Gray var. *americana* (59)

Philadelphus microphyllus A. Gray (7)

[*Philadelphus microphyllus* A. Gray subsp. ??]

Hydrocharitaceae

Elodea bifoliata H. St. John [VCNP]

Elodea canadensis Michx. (3)

Hydrophyllaceae

- Hydrophyllum fendleri (A. Gray) A. Heller var. fendleri (32)
- Nama retrorsum J. T. Howell (3)
- Phacelia alba Rydb. (6)
- Phacelia heterophylla Pursh var. heterophylla (37)
- Phacelia integrifolia Torr. var. integrifolia (3)

Iridaceae

- Iris missouriensis Nutt. (58)
- Sisyrinchium demissum Greene (3)
- Sisyrinchium idahoense E. P. Bicknell var. occidentale (E. P. Bicknell) D. M. Hend. (2)
- Sisyrinchium montanum Greene (3)

Juncaceae

- Juncus arcticus Willd. var. balticus (Willd.) Trautv. (34)
- Juncus arcticus Willd. var. mexicanus (Willd. ex R. & S.) Balslev (8)
- Juncus bufonius L. (1)
- Juncus drummondii E. Mey. (5)
- Juncus dudleyi Wiegand (10)
- Juncus ensifolius Wikstr. var. montanus (Engelm.) C. L. Hitchc. (34)
- Juncus hallii Engelm. (1)
- Juncus interior Wiegand (5)
- Juncus longistylis Torr. (13)
- Juncus mertensianus Bong. (3)
- Juncus nevadensis S. Watson [VCNP]
- Juncus nodosus L. (2)
- Juncus tenuis Willd. [VCNP]
- Juncus torreyi Coville [VCNP]
- Luzula comosa E. Mey. (2)
- Luzula parviflora (Ehrh.) Desv. (22)
- Luzula spicata (L.) DC. (2)

Juncaginaceae

- Triglochin maritima L. (2)
- Triglochin palustre L. [VCNP]

Lamiaceae

- +Agastache pallidiflora (A. Heller) Rydb. var. neomexicana (Briq.) R. W. Sanders (1)
- Clinopodium vulgare L. (6)
 - [Satureja vulgaris (L.) Fritsch]
- Dracocephalum parviflorum Nutt. (35)
- Hedeoma drummondii Benth. (3)
- Hedeoma nana (Torr.) Briq. (1)
- *Marrubium vulgare L. (7)
- Mentha arvensis L. (9)
- Monarda fistulosa L. var. menthifolia (Graham) Fernald (19)
- Monarda pectinata Nutt. (2)
- Poliomintha incana (Torr.) A. Gray (1)
- Prunella vulgaris L. var. lanceolata (W. P. C. Barton) Fernald (48)
- Salvia reflexa Hornem. (1)
- *Scutellaria galericulata L. (1)
- Teucrium laciniatum Torr. (2)

Lemnaceae

- Lemna minor L. (2)

Lentibulariaceae

- Utricularia vulgaris L. (1)
 - [Utricularia macrorhiza LeConte]

Liliaceae

- Allium bisceptrum S. Watson (1)
- Allium cernuum Roth (48)
- Allium geyseri S. Watson var. geyseri (12)
- Allium geyseri S. Watson var. tenerum M. E. Jones (1)
- Allium macropetalum Rydb. (2)
- *Asparagus officinalis L. (4)

- Calochortus gunnisonii S. Watson var. gunnisonii (2)
+Calochortus gunnisonii S. Watson var. perpulcher Cockerell (4)
Calochortus nuttallii Torr. & A. Gray (2)
- Disporum trachycarpum (S. Watson) Benth. & Hook. (2)
[Prosartes trachycarpum S. Watson]
Lilium philadelphicum L. var. andinum (Nutt.) Ker-Gawl. (2)
[Lilium philadelphicum L.]
Maianthemum racemosum (L.) Link var. amplexicaule (Nutt.) Dorn (38)
Maianthemum stellatum (L.) Link (33)
Polygonatum biflorum (Walter) Elliott var. commutatum (Schult. & Schult. f.) Morong (1)
[Polygonatum biflorum (Walter) Elliott]
Streptopus amplexifolius (L.) DC. (16)
Veratrum californicum T. Durand (11)
Zigadenus elegans Pursh (27)
- Linaceae**
Linum aristatum Engelm. (2)
Linum australe A. Heller var. australe (6)
Linum lewisii Pursh var. lewisii (14)
- Loasaceae**
Mentzelia humilis (A. Gray) J. Darl. var. humilis (1)
Mentzelia laciniata (Rydb.) J. Darl. (3)
Mentzelia multiflora (Nutt.) A. Gray var. multiflora (17)
Mentzelia rusbyi Wooton (5)
+Mentzelia springeri (Standl.) Tidestr. (1)
- Malvaceae**
*Malva neglecta Wallr. (7)
Sidalcea candida A. Gray var. candida (41)
Sidalcea neomexicana A. Gray var. neomexicana (1)
Sphaeralcea angustifolia (Cav.) G. Don (1)
Sphaeralcea coccinea (Nutt.) Rydb. var. coccinea (13)
Sphaeralcea fendleri A. Gray var. fendleri (12)
Sphaeralcea grossulariifolia Hook. & Arn. var. pedata (Torr. ex A. Gray) Kearney (5)
Sphaeralcea incana Torr. ex A. Gray var. cuneata Kearney (3)
Sphaeralcea incana Torr. ex A. Gray var. incana (2)
Sphaeralcea parvifolia A. Nelson (4)
- Moraceae**
*Morus alba L. (2)
- Nyctaginaceae**
Abronia fragrans Nutt. ex Hook. var. fragrans (2)
Mirabilis albida (Walter) Heimerl [VCNP]
Mirabilis glabra (S. Watson) Standl. (2)
Mirabilis linearis (Pursh) Heimerl var. decipiens Standl. (1)
Mirabilis linearis (Pursh) Heimerl var. linearis (12)
Mirabilis melanotricha (Standl.) Spellb. (18)
Mirabilis multiflora (Torr.) A. Gray var. multiflora (5)
- Oleaceae**
Forestiera pubescens Nutt. var. pubescens (10)
*!Syringa vulgaris L. (2)
- Onagraceae**
Calylophus hartwegii (Benth.) P. H. Raven subsp. fendleri (A. Gray) Towner & P. H. Raven (3)
Calylophus serrulatus (Nutt.) P. H. Raven (1)
Chamerion angustifolium (L.) Holub var. canescens (Wood) N. Holmgren & P. Holmgren (26)
[Chamerion angustifolium (L.) Holub subsp. circumvagum Mosquin]
Circaea alpina L. var. alpina (1)
Epilobium anagallidifolium Lam. (4)
[Epilobium alpinum L.]
Epilobium brachycarpum C. Presl [VCNP]
Epilobium ciliatum Raf. var. ciliatum (31)
[Epilobium ciliatum Raf.]

- Epilobium ciliatum* Raf. var. *glandulosum* (Lehm.) Dorn (1)
 [Epilobium ciliatum Raf.]
Epilobium halleanum Haussk. (7)
Epilobium hornemannii Rchb. subsp. *hornemannii* (2)
Epilobium lactiflorum Haussk. (1)
 [Epilobium hornemannii Rchb. var. *lactiflorum* (Haussk.) D. Löve]
Epilobium saximontanum Haussk. (4)
Gaura coccinea (Nutt.) Pursh (22)
Gaura parviflora Douglas ex Lehm. (3)
 [Gaura mollis E. James]
Gayophytum diffusum Torr. & A. Gray var. *strictipes* (Hook.) Dorn [VCNP]
Oenothera albicaulis Pursh (2)
 **Oenothera biennis* L. (5)
Oenothera cespitosa Nutt. var. *macroglottis* (Rydb.) Cronquist (3)
Oenothera cespitosa Nutt. var. *marginata* (Nutt. ex Hook. & Arn.) Munz (9)
Oenothera cespitosa Nutt. var. *navajoensis* (W. L. Wagner et al.) Cronquist (1)
Oenothera coronopifolia Torr. & A. Gray (13)
Oenothera elata Kunth var. *hirsutissima* (Gray ex S. Watson) Cronquist (23)
Oenothera flava (A. Nelson) Garrett (2)
Oenothera laciniata Hill (1)
Oenothera pallida Lindl. var. *runcinata* (Engelm.) Cronquist (3)
Oenothera villosa Thunb. var. *strigosa* (Rydb.) Dorn (5)
- Orchidaceae**
Calypso bulbosa (L.) Oakes var. *americana* (R. Br.) Luer (4)
Coeloglossum viride (L.) Hartm. var. *virescens* (Muhl. ex Willd.) Luer (1)
Corallorrhiza maculata (Raf.) Raf. var. *occidentalis* (Lindl.) Ames (19)
Corallorrhiza striata Lindl. (2)
 [Corallorrhiza striata Lindl. var. *striata*]
 [Corallorrhiza striata Lindl. var. *vreelandii* (Rydb.) L. O. Williams]
Corallorrhiza wisteriana Conrad (1)
Cypripedium parviflorum Salisb. var. *pubescens* O. W. Knight (1)
Epipactis gigantea Douglas ex Hook. (1)
 **Epipactis helleborine* L. (1)
Goodyera oblongifolia Raf. (13)
Goodyera repens (L.) R. Br. ex W. T. Aiton (4)
Listera cordata (L.) R. Br. (2)
 [Listera cordata (L.) R. Br. var. *nephrophylla* (Rydb.) Hultén]
Malaxis soulei L. O. Williams (1)
Platanthera huronensis (Nutt.) Lindl. (1)
Platanthera purpurascens (Rydb.) Sheviak & W. F. Jenn. (16)
Platanthera sparsiflora (S. Watson) Schltr. (3)
Spiranthes romanzoffiana Cham. [VCNP]
- Orobanchaceae**
Conopholis alpina Liebm. var. *mexicana* (A. Gray ex S. Watson) Haynes (5)
Orobanche fasciculata Nutt. (1)
Orobanche ludoviciana Nutt. var. *multiflora* (Nutt.) Beck (1)
- Oxalidaceae**
Oxalis corniculata L. var. *wrightii* (A. Gray) B. L. Turner (3)
Oxalis violacea L. (9)
- Parnassiaceae {Saxifragaceae}**
Parnassia palustris L. var. *montanensis* (Fernald & Rydb. ex Rydb.) C. L. Hitchc. [VCNP]
- Plantaginaceae**
Plantago argyraea Morris (4)
 **Plantago lanceolata* L. (17)
 **Plantago major* L. var. *major* (34)
Plantago patagonica Jacq. var. *patagonica* (2)
- Poaceae**
 **Aegilops cylindrica* Host (6)
 **Agropyron cristatum* (L.) Gaertn. var. *cristatum* (7)
 [Agropyron cristatum (L.) Gaertn.]

- **Agropyron cristatum* (L.) Gaertn. var. *desertorum* (Fisch. ex Link) Dorn **(14)**
[*Agropyron desertorum* (Fischer ex Link) Schultes]
- Agrostis exarata* Trin. **(12)**
[*Agrostis exarata* Trin. var. *minor* Hook.]
- **Agrostis gigantea* Roth **(21)**
- Agrostis scabra* Willd. var. *scabra* **(35)**
- **Agrostis stolonifera* L. **(15)**
- Agrostis variabilis* Rydb. **(1)**
- Alopecurus aequalis* Sobol. var. *aequalis* **(8)**
- **Alopecurus pratensis* L. **(3)**
- Andropogon hallii* Hack. **(1)**
[*Andropogon gerardii* Vitman subsp. *hallii* (Hack.) Wipff]
- Aristida adscensionis* L. **(3)**
- Aristida arizonica* Vasey **(2)**
- Aristida havardii* Vasey **(1)**
- Aristida purpurea* Nutt. var. *fendleriana* (Steud.) Vasey **(3)**
- Aristida purpurea* Nutt. var. *longiseta* (Steud.) Vasey **(25)**
- Aristida purpurea* Nutt. var. *nealleyi* (Vasey) Allred **(3)**
- Aristida purpurea* Nutt. var. *wrightii* (Nash) Allred **(1)**
- **Arrhenatherum elatius* (L.) P. Beauv. ex J. & K. Presl **(1)**
- **Avena fatua* L. **(1)**
- **Avena sativa* L. **(1)**
- Beckmannia syzigachne* (Steud.) Fernald **[VCNP]**
[*Beckmannia syzigachne* (Steud.) Fernald subsp. *baicalensis* (Kusn.) T. Koyama & Kuwano]
- Blepharoneuron tricholepis* (Torr.) Nash **(21)**
- **Bothriochloa ischaemum* (L.) Keng var. *ischaemum* **(1)**
- Bothriochloa laguroides* (DC.) Herter subsp. *torreyana* (Steud.) Allred & Gould **(6)**
- Bouteloua curtipendula* (Michx.) Torr. var. *caespitosa* Gould & Kapadia **(4)**
- Bouteloua curtipendula* (Michx.) Torr. var. *curtipendula* **(15)**
- Bouteloua gracilis* (Kunth) Lag. var. *gracilis* **(23)**
- Bouteloua hirsuta* Lag. var. *hirsuta* **(5)**
- Bouteloua simplex* Lag. **[VCNP]**
- Bromus anomalus* Rupr. ex E. Fourn. **(6)**
- Bromus carinatus* Hook. & Arn. **(13)**
- **Bromus catharticus* Vahl **(6)**
- Bromus ciliatus* L. **(43)**
- **Bromus commutatus* Schrad. **(8)**
[*Bromus japonicus* Thunb. ex Murray]
- **Bromus inermis* Leyss. var. *inermis* **(86)**
[*Bromus inermis* Leyss.]
- **Bromus inermis* Leyss. var. *purpurascens* (Hook.) Wagnon **(1)**
[*Bromus inermis* Leyss.]
- **Bromus japonicus* Thunb. ex Murray **(15)**
- Bromus lanatipes* (Shear) Rydb. **(2)**
- Bromus porteri* (J. M. Coult.) Nash **(4)**
- **Bromus tectorum* L. **(48)**
- Calamagrostis canadensis* (Michx.) P. Beauv. var. *canadensis* **(13)**
- Calamagrostis inexpansa* A. Gray **[VCNP]**
[*Calamagrostis stricta* (Timm) Koeler subsp. *inexpansa* (A. Gray) C. W. Greene]
- Cenchrus longispinus* (Hack.) Fernald **(3)**
- Chloris verticillata* Nutt. **(2)**
- **Chloris virgata* Sw. **(3)**
- Cinna latifolia* (Trev. ex Goepp.) Griseb. **(5)**
- **Dactylis glomerata* L. **(75)**
- Danthonia intermedia* Vasey **(5)**
- Danthonia parryi* Scribn. **(25)**
- Danthonia spicata* (L.) P. Beauv. ex Roem. & Schult. **(12)**
- Deschampsia cespitosa* (L.) P. Beauv. var. *cespitosa* **(19)**
- Dichanthelium oligosanthes* (Schult.) Gould var. *scribnerianum* (Nash) Gould **(1)**
- **Digitaria sanguinalis* (L.) Scop. **(1)**

Distichlis spicata (L.) Greene var. *stricta* (Torr.) Scribn. **(1)**
 Echinochloa crus-galli* (L.) P. Beauv. var. *crus-galli* **(2)
 Echinochloa muricata* (P. Beauv.) Fernald var. *microstachya* Wiegand **(2)

Elymus alaskanus (Scribn. & Merr.) A. Löve subsp. *latiglumis* (Scribn. & J. G. Sm.) A. Löve **(5)**
 [Elymus *trachycaulus* (Link) Gould ex Shinnars subsp. *violaceus* (Hornem.) A. & D. Löve]
Elymus bakeri (E. E. Nelson) A. Löve **(4)**
Elymus canadensis L. var. *canadensis* **(9)**
 Elymus elongatus* (Host) Runem. var. *elongatus* **(4)
Elymus elymoides (Raf.) Swezey var. *brevifolius* (J. G. Sm.) Dorn **(78)**
 [Elymus *longifolius* (J. G. Sm.) Gould]
 !*Elymus elymoides* (Raf.) Swezey var. *elymoides* **(1)**
Elymus glaucus Buckley var. *glaucus* **(15)**
 Elymus hispidus* (Opiz) Melderis var. *hispidus* **(16)
 Elymus hispidus* (Opiz) Melderis var. *ruthenicus* (Griseb.) Dorn **(8)
 [Elymus *hispidus* (Opiz) Melderis subsp. *barbulatus* (Schur) Melderis]
 Elymus junceus* Fisch. **(9)
 [*Psathyrostachys juncea* (Fisch.) Nevski]
Elymus lanceolatus (Scribn. & J. G. Sm.) Gould var. *riparius* (Scribn. & J. G. Sm.) Dorn **(1)**
 [Elymus *lanceolatus* (Scribn. & J. G. Sm.) Gould]
Elymus x pseudorepens (Scribn. & Sm.) Barkw. & Dewey **(7)**
 Elymus repens* (L.) Gould **(7)
Elymus x saxicolus Scribn. & J. G. Sm. ex Scribn. **[VCNP]**
Elymus scribneri (Vasey) M. E. Jones **(3)**
Elymus smithii (Rydb.) Gould **(32)**
Elymus spicatus (Pursh) Gould **[VCNP]**
Elymus trachycaulus (Link) Gould ex Shinnars var. *andinus* (Scribn. & J. G. Sm.) Dorn **(8)**
 [Elymus *trachycaulus* (Link) Gould ex Shinnars subsp. *subsecundus* (Link) A. Löve & D. Löve]
Elymus trachycaulus (Link) Gould ex Shinnars var. *trachycaulus* **(29)**
Eragrostis curtipedicellata Buckley **(1)**
 Eragrostis curvula* (Schrad.) Nees var. *curvula* **(4)
Eragrostis intermedia Hitchc. **(2)**
Eragrostis mexicana (Hornem.) Link subsp. *mexicana* **(1)**
Eragrostis pectinacea (Michx.) Nees ex Steud. var. *pectinacea* **(1)**
Erioneuron pilosum (Buckley) Nash **(1)**
Festuca arizonica Vasey **(16)**
 Festuca arundinacea* Schreb. **(23)
Festuca brachyphylla Schult. ex Schult. & Schult. f. subsp. *coloradensis* Frederiksen **[VCNP]**
Festuca idahoensis Elmer var. *idahoensis* **(12)**
Festuca minutiflora Rydb. **(4)**
 Festuca pratensis* Huds. **(8)
Festuca rubra L. var. *rubra* **(1)**
Festuca saximontana Rydb. var. *saximontana* **(2)**
Festuca sororia Piper **(1)**
Festuca thurberi Vasey **(14)**
Glyceria borealis (Nash) Batch. **(1)**
Glyceria elata (Nash ex Rydb.) M. E. Jones **(2)**
Glyceria grandis S. Watson **(4)**
Glyceria striata (Lam.) Hitchc. var. *stricta* (Scribn.) Fernald **(46)**
 [Glyceria *striata* (Lam.) Hitchc.]
Hierochloë odorata (L.) P. Beauv. **(2)**
Hilaria jamesii (Torr.) Benth. **(27)**
 [Pleuraphis *jamesii* Torr.]
Hordeum brachyantherum Nevski **(2)**
Hordeum x caespitosum Scribn. ex Pammel **(5)**
 [*Hordeum jubatum* L. subsp. *intermedium* Bowden]
Hordeum jubatum L. **(22)**
 [*Hordeum jubatum* L. subsp. *jubatum*]
 Hordeum murinum* L. subsp. *glaucum* (Steud.) Tzvelev **(4)
Hordeum pusillum Nutt. **(2)**

Koeleria macrantha (Ledeb.) Schult. **(65)**
 Lolium multiflorum* Lam. **(7)
 [*Lolium perenne* L. var. *aristatum* Willd.]
 Lolium perenne* L. **(5)
 [*Lolium perenne* L. var. *perenne*]
Lycurus setosus (Nutt.) C. Reeder **(6)**
Melica porteri Scribn. **(26)**
 [*Melica porteri* Scribn. var. *porteri*]
Monroa squarrosa (Nutt.) Torr. **(3)**
 [*Munroa squarrosa* (Nutt.) Torr.]
Muhlenbergia andina (Nutt.) Hitchc. **(1)**
Muhlenbergia arenicola Buckley **(2)**
Muhlenbergia arsenei Hitchc. **(1)**
Muhlenbergia asperifolia (Nees & Meyen ex Trin.) Parodi **(4)**
Muhlenbergia mexicana (L.) Trin. **(1)**
 [*Muhlenbergia mexicana* (L.) Trin. var. *mexicana*]
Muhlenbergia minutissima (Steud.) Swallen **(1)**
Muhlenbergia montana (Nutt.) Hitchc. **(15)**
Muhlenbergia pauciflora Buckley **(2)**
Muhlenbergia pungens Thurb. **(3)**
Muhlenbergia racemosa (Michx.) Britton, Sterns, & Poggenb **(1)**
Muhlenbergia ramulosa (Kunth) Swallen **[VCNP]**
Muhlenbergia repens (J. Presl) Hitchc. **[VCNP]**
Muhlenbergia richardsonis (Trin.) Rydb. **[VCNP]**
Muhlenbergia sinuosa Swallen **[VCNP]**
Muhlenbergia torreyi (Kunth) Hitchc. ex Bush **(4)**
Muhlenbergia wrightii Vasey ex J. M. Coult. **(9)**
Oryzopsis asperifolia Michx. **(20)**
Oryzopsis hymenoides (Roem. & Schult.) Ricker ex Piper **(38)**
 [*Achnatherum hymenoides* (Roem. & Schult.) Barkworth]
Oryzopsis micrantha (Trin. & Rupr.) Thurb. **(18)**
 [*Piptatherum micranthum* (Trin. & Rupr.) Barkworth]
Oryzopsis pungens (Torr. ex Spreng.) Hitchc. **[VCNP]**
 [*Piptatherum pungens* (Torr.) Barkworth]
Panicum bulbosum Kunth **(6)**
Panicum capillare L. **(1)**
 [*Panicum capillare* L. var. *barbipulvinatum* (Nash) McGregor]
 [*Panicum capillare* L. var. *brevifolium* Rydb. & Shear]
Panicum obtusum Kunth **(2)**
Paspalum setaceum Michx. **(1)**
 [*Paspalum setaceum* Michx. var. *stramineum* (Nash) Banks]
Phalaris arundinacea L. var. *arundinacea* **(3)**
Phleum alpinum L. var. *alpinum* **(10)**
 [*Phleum alpinum* L. var. *commutatum* (Gaudin) K. Richt.]
 Phleum pratense* L. var. *pratense* **(53)
Phragmites australis (Cav.) Trin. ex Steud. **(1)**
 [*Phragmites australis* (Cav.) Trin. ex Steud. var. *berlandieri* (Foumier) Reed]
Piptochaetium pringlei (Beal) Parodi **(3)**
Poa alpina L. **(1)**
 Poa annua* L. **(13)
Poa arida Vasey **(2)**
Poa bigelovii Vasey & Scribn. **(1)**
 Poa compressa* L. **(21)
Poa fendleriana (Steud.) Vasey **(19)**
 [*Poa fendleriana* (Steud.) Vasey subsp. ??]
Poa glauca Vahl var. *rupicola* (Nash ex Rydb.) B. Boivin **(2)**
Poa interior Rydb. **[VCNP]**
Poa leptocoma Trin. **(6)**
Poa occidentalis Vasey **(3)**
Poa palustris L. **(5)**

Poa pratensis* L. **(91)

[*Poa pratensis* L. subsp. ??]

Poa secunda J. Presl **(1)**

[*Poa secunda* J. Presl subsp. *juncifolia* (Scribn.) R. J. Soreng]

[*Poa secunda* J. Presl subsp. *secunda*]

Polypogon monspeliensis* (L.) Desf. **(2)

Polypogon viridis* (Gouan) Breistr. **(2)

Schedonnardus paniculatus (Nutt.) Trel. **(5)**

Schizachne purpurascens (Torr.) Swallen **(2)**

Schizachyrium scoparium (Michx.) Nash var. *neomexicanum* (Nash) Gould **(2)**

[*Schizachyrium neomexicanum*]

Schizachyrium scoparium (Michx.) Nash var. *scoparium* **(13)**

Secale cereale* L. **(2)

Setaria leucopila (Scribn. & Merr.) K. Schum. **(2)**

Setaria viridis* (L.) P. Beauv. **(1)

Sorghastrum nutans (L.) Nash **(1)**

Sorghum bicolor* (L.) Moench subsp. *bicolor* **(1)

Sorghum halepense* (L.) Pers. **(1)

Sphenopholis obtusata (Michx.) Scribn. var. *obtusata* **(1)**

Sporobolus airoides (Torr.) Torr. var. *airoides* **(3)**

Sporobolus cryptandrus (Torr.) A. Gray **(17)**

Stipa comata Trin. & Rupr. var. *comata* **(11)**

[*Hesperostipa comata* (Trin. & Rupr.) Barkworth subsp. *comata*]

Stipa comata Trin. & Rupr. var. *intermedia* Scribn. & Tweedy **(8)**

[*Hesperostipa comata* (Trin. & Rupr.) Barkworth subsp. *intermedia* (Scribn. & Tweedy) Barkworth]

Stipa lettermanii Vasey **(2)**

[*Achnatherum lettermanii* (Vasey) Barkworth]

!*Stipa nelsonii* Scribn. var. *dorei* (Barkworth & J. Maze) Dorn **(3)**

[*Achnatherum perplexum* Hoge & Barkworth]

Stipa neomexicana (Thurb. ex J. M. Coult.) Scribn. **(4)**

[*Hesperostipa neomexicana* (Thurb.) Barkworth]

Stipa perplexa (Hoge & Barkw.) Wipff & S. D. Jones **(1)**

[*Achnatherum perplexum* Hoge & Barkworth]

Stipa robusta (Vasey) Scribn. **(18)**

[*Achnatherum robustum* (Vasey) Barkworth]

Stipa scribneri Vasey **(2)**

[*Achnatherum scribneri* (Vasey) Barkworth]

Stipa viridula Trin. **(6)**

[*Nassella viridula* (Trinius) Barkworth]

Torreyochloa pallida (Torr.) G. L. Church var. *pauciflora* (J. Presl) J. I. Davis **(10)**

Trisetum montanum Vasey var. *montanum* **(25)**

Trisetum spicatum (L.) K. Richt. **(9)**

Trisetum wolfii Vasey **[VCNP]**

Triticum aestivum* L. **(3)

Vulpia octoflora (Walter) Rydb. **(4)**

[*Vulpia octoflora* (Walter) Rydb. var. *glauca* (Nutt.) Fernald]

[*Vulpia octoflora* (Walter) Rydb. var. *hirtella* (Piper) Henrard]

[*Vulpia octoflora* (Walter) Rydb. var. *octoflora*]

Polemoniaceae

Aliciella pinnatifida (A. Gray) J. M. Porter **(3)**

Collomia linearis Nutt. **(1)**

Giliastrum acerosum (A. Gray) Rydb. **(1)**

Ipomopsis aggregata (Pursh) V. E. Grant subsp. *collina* (Greene) Wilken & Allard **(3)**

Ipomopsis aggregata (Pursh) V. E. Grant subsp. *formosissima* (Greene) Wherry **(73)**

Ipomopsis laxiflora (J. M. Coult.) V. E. Grant **(5)**

Ipomopsis longiflora (Torr.) V. E. Grant subsp. *neomexicana* Wilken **(8)**

Ipomopsis multiflora (Nutt.) V. E. Grant **(4)**

Leptosiphon nuttallii (A. Gray) J.M. Porter & L. Johnson subsp. *nuttallii* **(1)**

[*Leptosiphon nuttallii* (A. Gray) J.M. Porter subsp. *tenuilobus* (R. Patterson) ined.]

Linanthus pungens (Torr.) J. M. Porter & L.A. Johnson (1)
Microsteris gracilis (Hook.) Greene var. *humilior* (Greene) Cronquist (1)
 [*Microsteris gracilis* (Hook.) Greene]
Phlox austromontana Coville subsp. *densa* (Brand) Wherry (1)
 [*Phlox austromontana* Coville]
Phlox condensata (A. Gray) E. E. Nelson (3)
Phlox longifolia Nutt. subsp. *longifolia* (6)
Phlox nana Nutt. (14)
Polemonium foliosissimum A. Gray (23)
Polemonium pulcherrimum Hook. var. *delicatum* (Rydb.) Cronquist (1)
Polemonium viscosum Nutt. (1)

Polygalaceae
Polygala alba Nutt. var. *alba* (1)

Polygonaceae
Eriogonum alatum Torr. var. *alatum* (26)
Eriogonum annuum Nutt. (3)
Eriogonum jamesii Benth. var. *flavescens* S. Watson (1)
Eriogonum jamesii Benth. var. *jamesii* (24)
Eriogonum lonchophyllum Torr. & A. Gray var. *lonchophyllum* (1)
 +*Eriogonum lonchophyllum* Torr. & A. Gray var. *nudicaule* (Torr.) Reveal (1)
Eriogonum microthecum Nutt. var. *simpsonii* (Benth.) Reveal (2)
Eriogonum racemosum Nutt. var. *racemosum* (11)
Eriogonum tenellum Torr. var. *tenellum* (5)
Polygonum amphibium L. var. *stipulaceum* N. Coleman (1)
 **Polygonum aviculare* L. (12)
Polygonum bistortoides Pursh (8)
 **Polygonum convolvulus* L. var. *convolvulus* (1)
Polygonum douglasii Greene var. *douglasii* (3)
Polygonum erectum L. (1)
 **Polygonum lapathifolium* L. var. *lapathifolium* (3)
 **Polygonum persicaria* L. (4)
Polygonum ramosissimum Michx. var. *ramosissimum* (2)
Polygonum sawatchense Small [VCNP]
Polygonum viviparum L. (2)
 **Rumex acetosella* L. (35)
Rumex altissimus A. W. Wood (1)
 **Rumex crispus* L. (32)
 **Rumex patientia* L. (3)
Rumex salicifolius Weinm. var. *triangulivalvis* (Danser) J. C. Hickman (7)
 [*Rumex salicifolius* Weinm. var. *mexicanus* (Meisn.) C. L. Hitchc.]
Stenogonum salsuginosum Nutt. (1)

Portulacaceae
Montia chamissoi (Ledeb. ex Spreng.) Greene (2)
Phemeranthus confertiflorus (Greene) Hershkovitz (2)
 [*Talinum parviflorum* Nutt.]
 **Portulaca oleracea* L. (3)
 [*Portulaca oleracea* L. subsp. *impolita* Danin & H. G. Baker]
 [*Portulaca oleracea* L. subsp. *oleracea*]

Potamogetonaceae
Potamogeton alpinus Balb. [VCNP]
Potamogeton diversifolius Raf. (1)
Potamogeton foliosus Raf. var. *foliosus* [VCNP]
Potamogeton gramineus L. [VCNP]
Potamogeton natans L. [VCNP]
Potamogeton nodosus Poir. (1)
Potamogeton richardsonii (A. Benn.) Rydb. [VCNP]

Primulaceae
Androsace septentrionalis L. (42)
Dodecatheon pulchellum (Raf.) Merr. var. *pulchellum* (24)
Primula parryi A. Gray (2)

Ranunculaceae

- Aconitum columbianum* Nutt. var. *columbianum* (36)
- Actaea rubra* (Aiton) Willd. (62)
[*Actaea rubra* (Aiton) Willd. subsp. *arguta* (Nutt.) Hultén]
- Anemone cylindrica* A. Gray (2)
Anemone patens L. var. *multifida* Pritz. (1)
[*Pulsatilla patens* (L.) Mill. subsp. *multifida* (Pritz.) Zämelis]
- Aquilegia coerulea* E. James var. *coerulea* (16)
Aquilegia elegantula Greene (30)
Caltha leptosepala DC. (13)
Clematis bigelovii Torr. (1)
Clematis columbiana (Nutt.) Torr. & A. Gray var. *columbiana* (54)
Clematis hirsutissima Pursh var. *hirsutissima* (1)
Clematis ligusticifolia Nutt. (13)
Delphinium barbeyi (Huth) Huth (6)
Delphinium nuttallianum Pritz. (2)
+*Delphinium sapellonis* Cockerell (9)
Delphinium wootonii Rydb. (4)
Myosurus minimus L. (1)
Ranunculus abortivus L. (3)
!*Ranunculus alismifolius* Geyer ex Benth. var. *montanus* S. Watson (3)
Ranunculus aquatilis L. var. *diffusa* With. (2)
[*Ranunculus aquatilis* L. var. *diffusus* With.]
Ranunculus cardiophyllus Hook. (1)
Ranunculus cymbalaria Pursh (9)
Ranunculus inamoenus Greene var. *inamoenus* (18)
Ranunculus macauleyi A. Gray (2)
Ranunculus macounii Britton (23)
Ranunculus pensylvanicus L. f. (1)
Ranunculus ranunculinus (Nutt.) Rydb. (3)
*!*Ranunculus repens* L. (2)
Ranunculus sceleratus L. var. *multifidus* Nutt. (1)
Ranunculus uncinatus D. Don (5)
[*Ranunculus uncinatus* D. Don ex G. Don var. *earlei* (Greene) L. D. Benson]
Thalictrum fendleri Engelm. ex A. Gray (51)
Trautvetteria caroliniensis (Walter) Vail (14)

Rhamnaceae

- Ceanothus fendleri* A. Gray (35)

Rosaceae

- Agrimonia gryposepala* Wallr. (6)
Agrimonia striata Michx. (15)
Amelanchier alnifolia (Nutt.) Nutt. ex Roem. var. *alnifolia* (35)
Amelanchier utahensis Koehne (1)
Cercocarpus montanus Raf. var. *argenteus* (Rydb.) F. L. Martin (1)
Cercocarpus montanus Raf. var. *montanus* (52)
Crataegus macracantha Lodd. ex Loud. var. *occidentalis* (Britton) Eggleston (3)
Fallugia paradoxa (D. Don) Endl. ex Torr. (25)
Fragaria vesca L. (41)
Fragaria virginiana Mill. (34)
Geum aleppicum Jacq. (19)
Geum macrophyllum Willd. var. *perincisum* (Rydb.) Raup (25)
Geum rivale L. [VCNP]
Geum rossii (R. Br.) Ser. var. *turbinatum* (Rydb.) C. L. Hitchc. (5)
Geum triflorum Pursh var. *ciliatum* (Pursh) Fass. [VCNP]
!*Geum triflorum* Pursh var. *triflorum* (1)
Holodiscus dumosus (Nutt. ex Hook.) A. Heller var. *dumosus* (26)
**Malus pumila* Mill. (8)
Physocarpus monogynus (Torr.) J. M. Coults. (34)
Potentilla ambigua Greene (1)

Potentilla anserina L. **(10)**
Potentilla arguta Pursh var. *convallaria* (Rydb.) T. F. Wolf **(2)**
Potentilla concinna Richardson var. *concinna* **(2)**
Potentilla crinita A. Gray var. *crinita* **(3)**
Potentilla diversifolia Lehm. var. *diversifolia* **(1)**
Potentilla fissa Nutt. **(1)**
Potentilla fruticosa L. **(40)**
 [*Pentaphylloides fruticosa* (L.) O. Schwarz]
Potentilla gracilis Douglas ex Hook. var. *nuttallii* (Lehm.) E. Sheld. **(2)**
 [*Potentilla gracilis* Douglas ex Hook. var. *glabrata* (Lehm.) C. L. Hitchc.]
Potentilla gracilis Douglas ex Hook. var. *pulcherrima* (Lehm.) Fernald **(48)**
Potentilla hippiana Lehm. var. *hippiana* **(58)**
Potentilla hippiana x *P. gracilis* var. *pulcherrima* **(5)**
Potentilla norvegica L. subsp. *monspeliensis* (L.) Asch. & Graebn. **(12)**
 [*Potentilla norvegica* L.]
Potentilla pensylvanica L. var. *pensylvanica* **(14)**
Potentilla rivalis Nutt. var. *millegrana* (Engelm. ex Lehm.) S. Watson **(1)**
 [*Potentilla rivalis* Nutt.]
Potentilla thurberi A. Gray var. *atrorubens* (Rydb.) Kearney & Peebles **(4)**
Potentilla thurberi A. Gray var. *thurberi* **(1)**
Prunus persica* (L.) Batsch **(1)
Prunus virginiana L. var. *melanocarpa* (A. Nelson) Sarg. **(69)**
Purshia stansburiana (Torr.) Henr. **(1)**
Purshia tridentata (Pursh) DC. **(1)**
Rosa acicularis Lindl. subsp. *sayi* (Schwein.) W. H. Lewis **(33)**
 [*Rosa acicularis* Lindl. var. *sayana* Erlanson]
Rosa arkansana Porter var. *arkansana* **(39)**
Rosa arkansana Porter var. *suffulta* (Greene) Cockerell **(1)**
Rosa nutkana C. Presl **(11)**
Rosa woodsii Lindl. var. *ultramontana* (S. Watson) Jeps. **(14)**
Rubus idaeus L. var. *aculeatissimus* Regel & Tiling **(75)**
 [*Rubus idaeus* L. var. *strigosus* (Michx.) Focke]
Rubus parviflorus Nutt. var. *parviflorus* **(54)**
Sanguisorba minor* Scop. subsp. *muricata* Briq. **(1)
Sibbaldia procumbens L. **(4)**
Sorbus dumosa Greene **(3)**
Rubiaceae
Galium boreale L. **(36)**
Galium fendleri A. Gray **(11)**
Galium mexicanum Kunth var. *asperrimum* (A. Gray) Higgins & S. L. Welsh **(46)**
Galium trifidum L. var. *subbiflorum* Wiegand **(4)**
Galium triflorum Michx. **(21)**
Houstonia rubra Cav. **(6)**
Rutaceae
Ptelea trifoliata L. **(14)**
 [*Ptelea trifoliata* L. subsp. ??]
Salicaceae
Populus x acuminata Rydb. **(3)**
Populus angustifolia E. James **(30)**
Populus deltoides W. Bartram ex Marshall var. *wislizenii* (S. Watson) Dorn **(20)**
Populus tremuloides Michx. **(89)**
Salix arizonica Dorn **(2)**
Salix bebbiana Sarg. **(30)**
Salix brachycarpa Nutt. var. *brachycarpa* **(1)**
Salix drummondiana Barratt ex Hook. **(15)**
Salix eriocephala Michx. var. *ligulifolia* (C. R. Ball) Dorn **(13)**
Salix exigua Nutt. var. *exigua* **(33)**
Salix fragilis* L. **(1)
Salix gooddingii C. R. Ball **(3)**
Salix irrorata Andersson **(17)**

Salix lasiandra Benth. var. lasiandra (9)
 [Salix lucida Muhl. subsp. lasiandra (Benth.) Murray]
 Salix monticola Bebb (8)
 Salix planifolia Pursh var. planifolia (4)
 Salix reticulata L. var. nana Andersson (2)
 [Salix reticulata L. subsp. nivalis (Hook.) A. Löve, D. Löve, & B. M. Kapoor]
 Salix scouleriana Barratt ex Hook. (15)

Santalaceae

Comandra umbellata (L.) Nutt. var. pallida (A. DC.) M. E. Jones (10)

Saxifragaceae

Boykinia jamesii (Torr.) Engler (1)
 Heuchera parvifolia Nutt. ex Torr. & A. Gray (16)
 Heuchera rubescens Torr. var. rubescens (1)
 Saxifraga bronchialis L. var. austromontana (Wiegand) Piper ex G.N. Jones (23)
 Saxifraga cernua L. (1)
 Saxifraga odontoloma Piper (8)
 Saxifraga rhomboidea Greene (3)

Scrophulariaceae

Besseyia plantaginea (E. James) Rydb. (13)
 [Synthyris plantaginea (E. James) Benth.]
 Castilleja haydenii (A. Gray) Cockerell (1)
 Castilleja integra A. Gray var. integra (48)
 Castilleja linariifolia Benth. (18)
 Castilleja lineata Greene (2)
 Castilleja miniata Douglas ex Hook. var. miniata (53)
 Castilleja minor (A. Gray) A. Gray (2)
 Castilleja occidentalis Torr. (2)
 Castilleja rhexifolia Rydb. (1)
 Castilleja sulphurea Rydb. (11)
 Limosella aquatica L. (2)

***Linaria dalmatica (L.) Mill. subsp. dalmatica (3)**

***Linaria vulgaris Mill. (1)**

Mimulus glabratus Kunth var. jamesii (Torr. & A. Gray ex Benth.) A. Gray (6)
 Mimulus guttatus DC. var. guttatus (39)
 Mimulus tilingii Regel var. tilingii (8)
 Orthocarpus luteus Nutt. (5)
 Orthocarpus purpureoalbus A. Gray ex S. Watson (1)
 Pedicularis canadensis L. var. fluviatilis (A. Heller) Macbr. (7)
 Pedicularis centranthera A. Gray (5)
 Pedicularis groenlandica Retz. (9)
 Pedicularis parryi A. Gray var. mogollonica (Greene) Dorn (3)
 [Pedicularis parryi A. Gray]
 Pedicularis parryi A. Gray var. parryi (3)
 [Pedicularis parryi A. Gray]
 Pedicularis procera A. Gray (29)
 Pedicularis racemosa Douglas ex Benth. var. alba (Pennell) Cronquist (11)
 [Pedicularis racemosa Douglas ex Benth.]
 Penstemon ambiguus Torr. (1)
 [Penstemon ambiguus Torr. subsp. ambiguus]
 [Penstemon ambiguus Torr. subsp. laevissimus Keck]
 Penstemon angustifolius Nutt. ex Pursh var. caudatus (A. Heller) Rydb. (2)
 Penstemon barbatus (Cav.) Roth var. torreyi (Benth.) A. Gray (72)
 Penstemon barbatus (Cav.) Roth var. trichander A. Gray (10)
 Penstemon crandallii A. Nelson subsp. glabrescens (Pennell) D. D. Keck (7)
 [Penstemon crandallii A. Nelson subsp. glabrescens (Pennell) D. D. Keck
 var. glabrescens (Pennell) Nisbet & Jackson]
 Penstemon fendleri A. Gray (1)
 !Penstemon glaber Pursh var. glaber (1)
 Penstemon griffinii A. Nelson (3)
 +Penstemon inflatus Crosswhite (2)

Penstemon jamesii Benth. (13)
Penstemon linarioides A. Gray subsp. *coloradoensis* (A. Nelson) D. D. Keck (5)
Penstemon palmeri A. Gray (1)
Penstemon rydbergii A. Nelson var. *rydbergii* [VCNP]
Penstemon secundiflorus Benth. subsp. *secundiflorus* (6)
Penstemon strictus Benth. (8)
Penstemon virgatus A. Gray var. *virgatus* (6)
Penstemon whippleanus A. Gray (18)
Scrophularia lanceolata Pursh (1)
+*Scrophularia montana* Wootton (3)
**Verbascum thapsus* L. (26)
Veronica americana Schwein. ex Benth. (32)
**Veronica anagallis-aquatica* L. (8)
Veronica peregrina L. var. *xalapensis* (Kunth.) St. John & F. W. Warren (9)
**Veronica serpyllifolia* L. var. *humifusa* (Dickson) Vahl (16)
Veronica wormskjoldii Roem. & Schult. (3)

Simaroubaceae

**Ailanthus altissima* (Mill.) Swingle (2)

Solanaceae

Chamaesaracha coniodes (Moric.) Britton (3)
Chamaesaracha coronopus (Dunal) A. Gray (7)
Datura wrightii Regel (2)
Lycium pallidum Miers (9)
Nicotiana trigonophylla Dunal (1)
Physalis hederifolia A. Gray var. *comata* (Rydb.) Waterf. (1)
Physalis hederifolia A. Gray var. *fendleri* (A. Gray) Cronquist (6)
Physalis longifolia Nutt. var. *longifolia* (2)
Physalis subulata Rydb. var. *neomexicana* (Rydb.) Waterf. ex Kart. & Gandhi (4)
[*Physalis foetens* Poir. var. *neomexicana* (Rydb.) Waterf. ex Kartesz & Gandhi]
**Solanum dulcamara* L. (1)
Solanum elaeagnifolium Cav. (15)
**Solanum ptycanthum* Dunal ex DC. (1)
[*Solanum nigrum* L.]
Solanum rostratum Dunal (2)
**Solanum triflorum* Nutt. (1)

Sparganiaceae

Sparganium angustifolium Michx. (1)
Sparganium emersum Rehmann [VCNP]

Tamaricaceae

**Tamarix chinensis* Lour. (14)

Typhaceae

Typha latifolia L. (7)

Ulmaceae

**Celtis occidentalis* L. (1)
Celtis reticulata Torr. (4)
**Ulmus pumila* L. (27)

Urticaceae

Parietaria pensylvanica Muhl. ex Willd. [VCNP]
**Urtica dioica* L. var. *procera* (Muhl. ex Willd.) Wedd. (41)
[*Urtica dioica* L. subsp. *gracilis* (Aiton) Selander]

Valerianaceae

Valeriana acutiloba Rydb. var. *acutiloba* (13)
Valeriana arizonica A. Gray (5)
Valeriana edulis Nutt. ex Torr. & A. Gray var. *edulis* (34)

Verbenaceae

Glandularia bipinnatifida (Nutt.) Nutt. var. *bipinnatifida* (22)
Verbena bracteata Lag. & Rodr. (30)
Verbena hastata L. (1)
[*Verbena hastata* L. var. *hastata*]
[*Verbena hastata* L. var. *scabra* Moldenke]

Verbena macdougalii A. Heller (37)

Violaceae

Viola adunca J. E. Sm. (12)

Viola canadensis L. (52)

[*Viola canadensis* L. var. *rugulosa* (Greene) C. L. Hitchc.]

[*Viola canadensis* L. var. *scopulorum* A. Gray]

Viola nephrophylla Greene (1)

[*Viola sororia* Willd. var. ??]

Viola pedatifida G. Don [VCNP]

Viscaceae

Arceuthobium divaricatum Engelm. (3)

Arceuthobium douglasii Engelm. (1)

Arceuthobium vaginatum (Willd.) J. Presl var. *cryptopodium* (Engelm.) Cronquist (6)

Phoradendron juniperinum Engelm. (7)

Vitaceae

Parthenocissus vitacea (Knerr) Hitchc. (12)

Vitis arizonica Engelm. (9)

Zannichelliaceae

Zannichellia palustris L. (2)

Zygophyllaceae

**Tribulus terrestris* L. (8)

Appendix C. Work Order (02MESA1023, ref. 02330201023)

05/01/2002 19:16 FAX 9702289498		MESC		002			
ORDER FOR SUPPLIES OR SERVICES				PAGE	OF PAGES		
IMPORTANT: Mark all packages and papers with contract and/or order numbers.				1	7		
1. DATE OF ORDER 05/02/2002		2. CONTRACT NO. (if any) 02330201023		6. SHIP TO:			
3. ORDER NO. 02MESA1023		4. REQUISITION/REFERENCE NO. 02330201023		a. NAME OF CONSIGNEE DR CRAIG ALLEN: 505-672-3861 X541			
5. ISSUING OFFICE (Address correspondence to) U S GEOLOGICAL SURVEY, BRD MIDCONTINENT ECOLOGICAL SCIENCE CENTER 4512 MCMURRAY AVENUE FORT COLLINS CO 80525-3400		b. STREET ADDRESS USGS, Jemez Mountain Field Station Bandelier National Monument HCR 1, Box 1, Suite 15		c. CITY Los Alamos	d. STATE NM		
				e. ZIP CODE 87544			
7. TO:		f. SHIP VIA					
i. NAME OF CONTRACTOR DR. RONALD HARTMAN - Curator Rocky Mtn Herbarium		8. TYPE OF ORDER					
j. COMPANY NAME UNIVERSITY OF WYOMING		☒ a. PURCHASE		☐ b. DELIVERY - Except for billing instructions on the reverse, this delivery order is subject to instructions contained on this side only of this form and is issued subject to the terms and conditions of the above-numbered contract.			
k. STREET ADDRESS DEPARTMENT OF BOTANY, AVEN NELSON BUILDING, PO BOX 3165		REFERENCE YOUR:					
l. CITY LARAMIE		e. STATE WY		f. ZIP CODE 82071-3165			
i. ACCOUNTING AND APPROPRIATION DATA 002 - 2003 - - 3302 - - 252Z - - - - M4350 - - - - -		10. REQUISITIONING OFFICE U S GEOLOGICAL SURVEY, BRD					
1. BUSINESS CLASSIFICATION (Check appropriate box(es)) ☐ a. SMALL ☒ b. OTHER THAN SMALL ☐ c. DISADVANTAGED ☐ d. WOMEN-OWNED							
2. F.O.B. POINT Destination		14. GOVERNMENT B/L NO.		15. DELIVER TO F.O.B. POINT ON OR BEFORE (Date) 12/31/2004			
13. PLACE OF INSPECTION		b. ACCEPTANCE		16. DISCOUNT TERMS 10 days % 20 days % 30 days % days %			
17. SCHEDULE (See reverse for Rejections)							
ITEM NO. (a)	SUPPLIES OR SERVICES (b)		QUANTITY ORDERED (c)	UNIT (d)	UNIT PRICE (e)	AMOUNT (f)	QUANTITY ACCEPTED (g)
	SEE LINE ITEM DETAIL						
18. SHIPPING POINT		19. GROSS SHIPPING WEIGHT		20. INVOICE NO.			
21. MAIL INVOICE TO: BARBARA POLEY						17(h) TOT. (Cont. pages)	
a. NAME U S GEOLOGICAL SURVEY, BRD							
b. STREET ADDRESS (or P.O. Box) MIDCONTINENT ECOLOGICAL SCIENCE CENTER, 4512 MCMURRAY AVENUE							
c. CITY FORT COLLINS		d. STATE CO	e. ZIP CODE 80525-3400			\$18,690.00	17(i) GRAND TOTAL
UNITED STATES OF AMERICA BY (Signature) <i>Barbara Poley</i>				23. NAME (Typed) Barbara Poley			
				TITLE: CONTRACTING/ORDERING OFFICER			
IN 7540-01-152-9083 without edition not usable				OPTIONAL FORM 347 (REV. 6/86) Prescribed by GSA/FAR 48 CFR 53.213(e)			

ORDER FOR SUPPLIES OR SERVICES SCHEDULE - CONTINUATION

PAGE NO.
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IMPORTANT: Mark all packages and papers with contract and/or order numbers.

DATE OF ORDER

05/02/2002

CONTRACT NO.

ORDER NO.

02MESA1023

ITEM NO. (a)	SUPPLIES OR SERVICES (b)	QUANTITY ORDERED (c)	UNIT (d)	UNIT PRICE (e)	AMOUNT (f)	QUANTITY ACCEPTED (g)
0001	02-3302-01023 VENDOR CODE 022710763 SERVICES NON PERSONAL TO PROVIDE ALL PLANT EQUIPMENT LABOR AND MATERIALS UNLESS OTHERWISE PROVIDED CONDUCT A GENERAL FLORISTIC SURVEY OF THE SANTA FE NATIONAL FOREST AND VALLES CALDERA NATIONAL PRESERVE WITH EMPHASIS ON SPECIES OF CONSERVATION CONCERN AND INVASIVE PLANTS IN ORDER TO OBTAIN REPRESENTATIVE SPECIMENS OF ALL VASCULAR PLANTS PER THE ATTACHED STATEMENT OF WORK. Delivery Date Start Date End Date 12/31/2004 05/13/2002 12/31/2004 Reference Requisition: 02330201023	1.00	JOB	18,690.00	18,690.00	

TOTAL CARRIED FORWARD TO 1ST PAGE (ITEM 17) ➡ \$18,690.00

**Contract Level
Funding Summary**Document Number
02MESA1023Title
02-3302-01023Page
4 of 7

2002 - 2003 - - 3302 - - 252Z - - - - - M4350 - - - - -

\$18,690.00

Reference Requisition: 02330201023

Total Funding: \$18,690.00

STATEMENT OF WORK – VCNP Range Inventory and Monitoring

TASK

The overall purpose of this purchase order is to produce a detailed digital atlas of plant distributions and an extensive floral collection in the Valles Caldera National Preserve and the adjoining Santa Fe National Forest, in northern New Mexico.

This inventory shall focus on extensive documentation of all groups of vascular plants as well as species of conservation concern and exotic weeds. The accompanying data shall be stored in a Microsoft Access database for use with GIS in predictive modeling, plant geography, ground truthing of remotely sensed areas, managing species of special concern, and documenting invasive and noxious weeds.

This study shall do the following:

1) Conduct a detailed general floristic survey of the Santa Fe National Forest (SFNF) and Valles Caldera National Preserve (VCNP), with emphasis on species of conservation concern and invasive plants in order to obtain representative specimens of all vascular plants (ferns and fern allies, conifers, flowering plants).

This field survey and associated collections shall be done at frequent intervals and over the elevational range of the Forest and Preserve. An estimated 9,000 to 10,000 plant specimens shall be collected, requiring two field seasons. Data associated with each specimen include location (determined by GPS and GS topographical maps), habitat (e.g., substrate, aspect, slope, elevation, plant community type), and abundance. For sensitive plants, a voucher specimen shall be made only if more than 20 individuals occur in a population; for any federally listed plants, a permit shall be secured. Finally, the occurrence of invasive and noxious weeds shall be documented.

The specific area to be inventoried is the entire Santa Fe National Forest (1,600,000 acres; 2,500 mi²) and Valles Caldera National Preserve (89,000 acres, 139 mi²). The study area shall include the southern Sangre de Cristo Range with the Pecos Wilderness (223,333 acres; 249 mi²). Elevations range from near 6,000 feet to more than 13,000 feet (Trampas Peak, 12,170 feet, Lake Peak, 12,409 feet, Santa Fe Baldy, 12,622 feet, Jicarita Peak, 12,835 feet, Chimayosos Peak, 12,841 feet, and Truchas Peak, 13,103 feet, second in height in New Mexico to Wheeler Peak, 13,161 feet). The eastern portion of the Forest covers Mora, Rio Arriba, San Miguel, and Santa Fe counties in part. Also included in the study would be the portion of the Forest west of the Rio Grande River. The western segment contains the Jemez Mountains, Valle Grande, San Pedro Mountains, Sierra Nacimiento, Caja Del Rio Plateau, and Mesa Gurule. The relief varies from near 5,400 feet to more than 11,000 feet (Pajarito Mountain, 10,441 feet, San Pedro Peak, 10,523 feet, Polvadera Peak, 11,232 feet, Redondo Peak, 11,254 feet, and Chicoma Mountain, 11,561 feet). Wilderness areas are Chama River Canyon (50,300 acres; 79 mi²), Dome (5,200 acres; 8 mi²), and San Pedro Parks (41,132 acres; 64 mi²). The western area covers in part Los Alamos, Rio Arriba, Sandoval, and Santa Fe counties, and includes the VCNP.

2) Develop a plant database for use with GIS. This shall contain the scientific name, location (including latitude/longitude), habitat information, date of collection, collector and collection number, etc., for each specimen (standard plant specimen label information) and some additional fields (e.g., land ownership). It shall be in a format for use in ARC/INFO and ArcView and can be used as a layer with GIS for displaying the distribution of collections of any of the taxa obtained in the study. Copies of this database shall be made available to the Forest and VCNP.

3) Provide a set of representative plant specimens for the Forest and Valles Caldera National Preserve for use in plant identification. A set of one to three specimen representing each taxon for which duplicates are available shall be mounted (2000 specimens) for the Forest and VCNP. Additional, unmounted duplicates shall be made available to the herbaria of University of New Mexico, New Mexico State University, and others in the region. The original set of specimens, including unicates, shall be deposited at the Rocky Mountain Herbarium, which is the home of the National Herbarium of the U. S. Forest Service (USFS).

4) Data Entry, Analysis, and Report Writeup.

All field data shall be entered into computerized database formats, and then analyzed for patterns and trends. These results, combined with other field observations and maps, shall be interpreted and presented in a final report.

DELIVERABLES

The contractor shall deliver a preliminary reports by April 30 2003, and April 30 2004.

The contractor shall deliver two copies of a final summary report in both hardcopy and Word-compatible file forms by December 31, 2004, along with mounted plant specimens. The final report shall include all flora data in electronic form.

ACCEPTANCE CRITERIA

The preliminary reports must include descriptions of fieldwork conducted to that time (including a map of areas sampled), a count of number of plant specimens collected, and a text description of any noteworthy plant collections.

The final report must include: 1) a text summary of fieldwork activities; 2) a map indicating the locations of all collected plants; 3) a narrative discussion summarizing the management significance of the results from botanical, floristic, and ecological perspectives, particularly highlighting issues associated with any ecologically sensitive or invasive exotic species which may be found; 4) all flora data in electronic format; and 5) the mounted plant specimens. The report due date is June 30, 2004.

COST

Funding is requested **only for food (per diem), mileage (personal vehicles), and some supplies (\$500) for specimen mounting (below).** No funding for salaries or labor. Our time is contributed as part of the match

Summer 2002

Travel (personal vehicle) and food, graduate student	\$5,500
Travel (pers. vehicle) and food, 3, 2-week trips @ \$800 each, Hartman/Nelson	\$2,400
Subtotal	\$7,900

Summer 2003

Travel (personal vehicle) and food, graduate student	\$5,500
Travel (pers. vehicle) and food, 3, 2-week trips @ \$800 each, Hartman/Nelson	\$2,400
Subtotal	\$7,900
Total	\$15,800

Specimen Mounting

Cost of mounting 2,000 plant specimens @ \$1.00 each = **\$2,000**. Included in this value is \$500 in supplies for herbarium paper, glue, folders; and costs of shipping; the remainder is for experienced student help in processing specimens. This phase will not begin until September 2004 as identifications and final report must precede it and summers are required for field research.

Total with specimen processing	\$17,800
University of Wyoming Indirect Costs (5%)	\$ 890

Total Cost: \$18,690

GOVERNMENT RESPONSIBILITIES

1. The government will facilitate the provision of any necessary collection permits, and access to study sites on the Valles Caldera National Preserve and Santa Fe National Forest.
2. A plant specimen processing area, about 12 × 15' with electricity for two plant driers, with a concrete or wooden floor.
3. Access to a shower in support of fieldwork.
4. The government will send notification of acceptance or nonacceptance of summary report to vendor within 10 working days of receipt of report, or else the report will be deemed acceptable and payment due.

PAYMENT SCHEDULE

The one-third of the total project (\$ 6,230) can be paid upon receipt of acceptable preliminary reports of work documenting the accomplishment of each summer field season, to allow reimbursement of expenses incurred before completion of the project. The remainder of the money will be paid upon receipt of the final summary report in both hardcopy and electronic file forms. The final report due date is December 31, 2004.

Full payment will be made upon acceptance of a final summary report and receipt of invoice from the contractor.

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COMMERCIAL CLAUSES

1 FILE ACQUISITION - Oafa Online Instructions.doc MAY 2002

CLAUSES - PURCHASE ORDER FOR NON-COMMERCIAL ITEMS/SERVICES (FEB 2002)

1. REGULATORY CLAUSES. The below clause listing updates and supersedes any list of Federal Acquisition Regulation (FAR) clauses that may be preprinted on the back of the purchase order form.

FAR 52.252-02, Clauses Incorporated by Reference (FEB 1998). This contract incorporates one or more clauses by reference, with the same force and effect as if they were given in full text. Upon request, the Contracting Officer will make their full text available. Also the full text of a clause may be accessed electronically at this address: <http://www.arnet.gov/far/>

The below clauses are applicable to all orders except as noted.

52.211-05, Material Requirements (AUG 2000)
 52.211-16, Variation in Quantity (APR 1984) (No variation permitted unless shown on order.)
 52.213-04, Terms and Conditions--Simplified Acquisitions (Other Than Commercial Items) (FEB 2002)
 52.219-5, Very Small Business Set-Aside (MAR 1999) [Applies over \$25,000 to \$50,000 if checked by the Contracting Officer.]
 Alternate I to 52.219-5 [Applies over \$2,500 to \$50,000 if checked by the Contracting Officer.]
 Alternate II to 52.219-5 [Applies over \$2,500 to \$25,000 if checked by the Contracting Officer.]
 52.222-21, Prohibition on Segregated Facilities (FEB 1999) [Applies when 52.222-26 applies.]
 52.223-03, Hazardous Material Identification and Material Safety Data (JAN 1997) Alt. I (JUL 1995) [As applicable.]
 52.232-34, Payment by Electronic Funds Transfer--Other than Central Contractor Registration (MAY 1999)
 52.232-36, Payment by Third Party (MAY 1999) [Applies if contractor will be paid via Governmentwide commercial purchase card.]
 52.233-01, Disputes (DEC 1998) Alternate I (DEC 1991)
 52.243-01, Changes - Fixed-Price (AUG 1987) Alternate II (APR 1984)
 52.244-6, Subcontracts for Commercial Items and Commercial Components (DEC 2001)
 52.246-16, Responsibility for Supplies (APR 1984)
 52.247-32, F.o.b. Origin, Freight Prepaid (JUN 1988) [Applies in place of 52.247-29 if order shows f.o.b. origin.]

2. INSPECTION AND ACCEPTANCE will be at destination unless otherwise provided.

3. INVOICE REQUIREMENTS. Invoices must be submitted in original and 1 copy to the "Billing Office" designated on this order. To constitute a proper invoice, the invoice must include the following information and/or attached documentation: (a) name of business concern and invoice date; (b) purchase order number and, if applicable, contract number; (c) item number, description, quantity, unit price(s) and extended total(s) of property or services actually delivered or rendered; (d) shipping and payment terms; (e) name (where applicable), title, phone number and complete mailing address of responsible official to whom payment is to be sent; (f) other substantiating documentation or information as required by the order.

4. ELECTRONIC PAYMENT. Under the Debt Collection Improvement Act, agencies are required to make all payments by electronic methods unless the contractor certifies it has no bank account (31 CFR 208). If the vendor has not already provided current electronic payment instructions to the USGS, a signed Standard Form 3881, ACH Vendor/Miscellaneous Payment Enrollment Form, must be faxed (703-648-7687) or mailed to USGS Office of Financial Management, 270 National Center, Reston, VA 20192 (telephone: 703-648-7654).