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In This Issue —

Certainty and Uncertaintly in Plant Identification

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[Communicated to The New Mexico Botanist by Tim Lowrey, UNM.]

Summary Many plant specimens are not identified correctly or many of the names used for them are not applied correctly. There is a need for plant identifications to be checked by specialists and specimens to be stored for future reference. This is particularly important for survey data and the only adequate long term storage appears to be in herbaria. Identifications are made in the light of current taxonomic knowledge and this is constantly being revised. Without access to the original specimens, results of previous surveys and research may not be of much use. Voucher specimens should therefore be a requirement for all plant research and this also applies to all weed research. Problems associated with use of data-based collections and long term storage of specimens, particularly the expense of maintaining collections, are discussed.

INTRODUCTION

Even for those species that we now regard as being nomenclaturally stable or biologically well known, we have no idea what the future may bring in regards to new information and subsequent improvement in our biological understanding. These principles apply to weed species possibly more than any other. Weeds are often first recorded as a problem in the field, passed on in the form of an inadequate specimen to an identification authority, with little or no idea of their origin. They are frequently either identified with species that have proven troublesome elsewhere or identified from inappropriate publications from wrong geographical areas.

For species that have had a simple change of name there is not much problem. The synonymy can be quite straightforward and easily transferable. Where there has been a misidentification, at whatever level, or our knowledge has changed such that we now recognise two or more species in what was formerly one species (a good example is the 10 species and a number of hybrids of blackberry that were formerly all called *Rubus fruticosus*) then it can be very difficult, if not impossible to track down what was the species actually being referred to.

Collecting and lodging relevant voucher specimens in recognised herbaria is the only process that allows the biological integrity of any particular survey or study to be checked or updated. We present examples below of some of the commonly confused species and some examples where confusion has clouded the literature, we discuss the processes involved in storing and maintaining the specimens and some of the techniques or information sources that can be misused. Species names used here are as in Harden (1990–1993) except where that species is not covered, and then the authority is given.

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Botanice est Scientia Naturalis quae Vegetabilium cognitiorem tradit.
— Linnaeus

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CONFUSION

There are many species that have been confused in the past and at present. Some examples of weed species commonly confused are given in Table 1.

Table 1. Weed species commonly confused and often incorrectly identified

Family	Genus	Species
Asteraceae	*Aster*	*subulatus*
	Conyza	spp.
	Erigeron	spp.
	Bidens	spp.
	Carduus	*tenuiflorus*
	Carduus	*pycnocephalus*
	Cassinia	*laevis*
	Cassinia	*quinquefaria*
	Centaurea	*melitensis*
	Centaurea	*solstitialis*
	Euchiton	spp. (prev. part of *Gnaphalium*)
	Gamochaeta	spp. (prev. part of *Gnaphalium*)
	Gnaphalium	spp.
	Hypochaeris	*glabra*
	Hypochaeris	*radicata*
	Onopordum	*acanthium*
	Onopordum	*illyricum*
	Senecio	*lautus* subspecies
	Senecio	*madagascariensis*
	Xanthium	*cavanillesii*
	Xanthium	*italicum*
	Xanthium	*occidentale*
	Xanthium	*orientale*
Caryophyllaceae	*Arenaria*	*leptoclados*
	Stellaria	*media*
	Stellaria	*pallida*
	Cerastium	spp.
Convolvulaceae	*Cuscuta*	spp.
Cyperaceae	*Cyperus*	*bifax*
	Cyperus	*rotundatus*
	Cyperus	*victoriensis*
Euphorbiaceae	*Chamaesyce*	spp.
Fabaceae		
(Faboideae)	*Cytisus*	*scoparius*
	Genista (or *Teline*)	*monspessulana*
	Genista (or *Teline*)	*stenopetala*
	Vicia	spp.
(Mimosoideae)	*Prosopis*	spp.
Fumariaceae	*Fumaria*	spp.
Iridaceae	*Homeria*	spp.
	Watsonia	spp.
Juncaceae	*Juncus*	spp.
Malaceae	*Cotoneaster*	spp.
	Crataegus	spp.
	Pyracantha	spp.
Oleaceae	*Ligustrum*	*sinense*
	Ligustrum	*vulgare*
Oxalidaceae	*Oxalis*	*chnöodes*
	Oxalis	*corniculatus*
	Oxalis	*exilis*
	Oxalis	*perennans*
	Oxalis	*radicans*
	Oxalis	*rubens*
	Oxalis	sp. A
Papaveraceae	*Argemone*	*mexicana*
	Argemone	*ochroleuca*
	Argemone	*subfusiformis*
Poaceae	*Avena*	spp.
	Digitaria	*ciliaris*
	Digitaria	*sanguinalis*
	Echinochloa	spp.
	Eragrostis	spp.
	Panicum	spp.
	Phalaris	spp.
	Vulpia	spp.
Polygonaceae	*Persicaria*	spp.
	Polygonum	*arenastrum*
	Polygonum	*aviculare*
	Rumex	spp.
Rosaceae	*Rubus*	*'fruticosus'*
	Rubus	*chloocladus*
	Rubus	*discolor* [=*R. procerus*]
	Rubus	*leightonii*
	Rubus	*polyanthemus*
	Rubus	*pyramidalis*
	Rubus	*radula*
	Rubus	*rosaceus*
	Rubus	*selmeri*
	Rubus	*ulmifolius*
	Rubus	*ulmifolius* hybrids
	Rubus	*vestitus*
Salicaceae	*Salix*	spp.
Scrophulariaceae	*Orobanche*	spp.
	Striga	spp.
Solanaceae	*Physalis*	spp.
	Solanum	*elaegnifolium*
	Solanum	*esuriale*
Thymelaeaceae	*Pimelea*	spp.
Typhaceae	*Typha*	spp.
Verbenaceae	*Phyla*	spp.
	Stachytarpheta	spp.
	Verbena	*bonariensis*
	Verbena	*incompta* P.W. Michael
	Verbena	*caracasana* Kunth
	Verbena	*litoralis*
	Verbena	*officinalis*
	Verbena	*quadrangularis* Vell. (= *brasiliensis* misapplied)
Zygophyllaceae	*Tribulus*	*micrococcus*
	Tribulus	*minutus*
	Tribulus	*terrestris* (introduced)
	Tribulus	*terrestris* (native)

In some cases confusion occurs between families, for example between *Cuscuta* spp. (Convolvulaceae) and *Cassytha* spp. (Lauraceae or Cassythaceae). It is also interesting to note that due to difficulty in identifying species of *Cuscuta*, all species in this genus have been declared noxious in many States of Australia (Parsons and Cuthbertson 1992). Native *Cuscuta* spp. are not considered to be a problem whereas *C. campestris* is considered to be a major problem (Parsons and Cuthbertson 1992). There are still a number of examples where species limits still need to be defined, for example at least two distinct entities are covered by the name *Tribulus terrestris* in Australia (Morrison and Scott 1993).

Misidentifications have resulted in delays to control programs for various weeds. This occurred in South Australia where *Solanum elaeagnifolium* was collected by J. M. Black in 1918

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but it was believed to be *Solanum esuriale* at the time. In 1947 Black sent specimens to Kew and they were identified as *S. elaeagnifolium* (R. Carter personal communication). Co-ordinated control did not start until 1958 when the South Australian Department of Agriculture started to refer to the species as introduced (R. Carter personal communication).

Rapid spread of weeds may also occur through misidentifications. A recent example is the rapid distribution of alligator weed, *Alternanthera philoxeroides*, by the Sri Lankan community in Australia. The species was distributed in the mistaken belief that it was the vegetable, mukunawanna, *Alternanthera sessilis* (J. Dellow and R. Carter personal communications).

Herbaria The only way to minimise the problems of misidentifications or subsequent classification changes is to collect voucher specimens and to lodged them in a herbarium where there is some chance of the collections being maintained in the long term.

It is difficult for generalist Identification Officers, who are not specialists in any particular group, to correctly identify large numbers of specimens accurately. Such Officers deal with large numbers of enquiries for little or no charge, and are often very skilled. Mind reading, however, is not one of their skills and if you have some critical voucher specimens that should be retained then this information needs to be communicated. Most herbaria will not retain poor quality collections for any reason. If you have a research project where the lodging of voucher specimens is relevant, then you should arrange for the collaboration of an appropriate specialist beforehand. These days this often means including funds for identification.

There is also a cost associated with storage of plant specimens and this needs to be recognised. This cost should particularly be built into projects where many specimens will be collected and stored for future reference. The need for constant curation of collections is also necessary as anyone who has looked at specimens in herbaria will realise. It is difficult for Identification Officers who are not specialists in particular groups to be able to give the correct identification when a number of distinct species are included under the same name in collections. This is a common occurrence in herbaria and results in a number of misidentifications, but it is also how progress is made in understanding the group. The need to constantly update names and identifications in the light of current taxonomic knowledge and to increase funding to maintain collections cannot be overemphasised.

Collection of specimens There is a need for high quality plant specimens to be lodged in herbaria. In most cases this will mean flowering and fruiting sections of plants and in some cases other parts such as roots and bulbs. In some cases it is also desirable for collection of vegetative stages. This is particularly important for identification of forms of *Chondrilla juncea* (R. Groves personal communication). In this case natural enemies such as the rust fungus, *Puccinia chondrillina* Bubak & Syd., and the chondrilla gall mite, *Aceria chondrillae* (Canestrini) show specificity to particular forms of *C. juncea* (Groves and Cullen 1981).

Databases are no substitute for looking at the specimens Databasing of collections is increasing around Australia and this is desirable but it is no substitute for checking the specimens. Plants have often been misidentified, details from the collection typed in incorrectly and the location vague (could be applied to many areas). If using databases at least check outlying locations as these are most likely to be incorrect. It also pays to check whether there have been any problems with the database. This may mean that changes have been made in the collection but do not appear on the database.

Use of voucher specimens Voucher specimens can be used to check previous identifications in the light of current taxonomic knowledge. For example the photograph of *Verbena bonariensis* in Auld and Medd (1987) was redetermined as *Verbena incompta* (Michael 1995) because voucher specimens were lodged at the NSW Herbarium.

Many species are not sent to herbaria for identification because people think that they know the species they are dealing with. This was the case with *Chromolaena odorata* (L.) R. M. King & H. Robinson, from the Tully area, which locals called giant billy goat weed in the mistaken belief that the species was a large form of *Ageratum conyzoides*.

Many plant surveys, including weed surveys, have been published in the past where voucher specimens have not been lodged in a herbarium. We often have difficulty in believing some of the names on lists but there is no way to check the accuracy. Without specimens many of these records have to be disregarded. Good voucher specimens take time to collect but are essential. No survey should be published without vouchers being lodged in a designated herbarium.

Some plant books have excellent voucher specimens for the species photographed. For example Cunningham *et al*. (1981) and Auld and Medd (1987). A number of lists of plant species for various areas also have large numbers of voucher specimens lodged at various herbaria, for example McBarron (1955), Williams (1979) and Hosking (1990).

Misuse of voucher specimens It is essential that the policy of a herbarium with regard to specimens is understood. In some cases the number of specimens collected over time has been used to indicate whether a weed problem is increasing or decreasing. This is of little use if a herbarium considers that they have plenty of specimens for a particular area of the State and no longer retain additional collections. Most specimens sent in for identification are not retained by herbaria. Presence or absence of a species from an area based on herbarium specimens is also fraught with danger. So-called well known species are often rarely sent in for identification resulting in absence of specimens from various locations.

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Importance of correct identifications In a number of cases the correct plant identification, and an understanding of its taxonomy and biogeography are important. These are particularly important for biological control programs. For example:

1. Various strains of the blackberry rust, *Phragmidium violaceum*, are likely to be more effective than others on different introduced *Rubus* spp. in Australia (Bruzzese and Hasan 1986, Bruzzese 1995).

2. The seed-feeding weevil, *Erytenna consputa* Pascoe, used to control *Hakea sericea* in South Africa was collected from Wilson's Promitory Peninsula in the mistaken belief that this was the same plant as the one causing the problem in South Africa (Kluge and Neser 1991). Recent taxonomic study has shown that the plant from Wilson's Promitory is *Hakea decurrens* R. Br. (Barker 1996). Populations of this weevil collected from *H. sericea* from south-eastern New South Wales, from the correct plant taxon, have successfully established on this plant in South Africa.

3. Early attempts to control this *Salvinia molesta* were not successful because the weevil, *Cyrtobagous singularis* Hustache was collected from *Salvinia auriculata* Aubl. in the mistaken belief that the plant species were the same (Room 1986). Salvinia weevil, *Cyrtobagous salviniae* Calder & Sands, collected from *Salvinia molesta* now successfully controls this water fern in many areas around the world.

Correct identifications may also be important for chemical control of weeds. For example various *Fumaria* spp. appear to have different susceptibilities to herbicides (McQuinn 1990). Another example is where irrigation managers at Emerald in the 1970s noted that *Vallisneria gigantea* was not being controlled by the accepted concentration of acrolein (C. Julian personal communication). An investigation concluded that the 'form' of *Vallisneria* present in the Emerald channels had a thicker than usual leaf and required a higher dose rate. This 'form' has been known as *Vallisneria spiralis* var. *denseserrulata* Makino.

CONCLUSION

Collect voucher specimens and others will know with certainty the species being referred to. Do not collect vouchers and you may as well not publish your results.

ACKNOWLEDGMENTS

We would like to thank Bill Barker for information on *Hakea* species in Australia. Suggestions and comments received from Richard Carter, Jim Dellow, Richard Groves, Rick Roush and Andy Sheppard have been noted and their assistance is acknowledged.

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Botany is the natural science that transmits the knowledge of plants.

— Linnaeus

Notes on *Sparganium emersum* and *S. angustifolium*

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There is some confusion regarding two closely related species of *Sparganium*: *Sparganium emersum* Rehmann and *S. angustifolium* Michx. Kartesz (1994) considers *S. emersum* and *S. multipedunculatum* (Morong) Rydb. As synonyms of *S. angustifolium.* Martin and Hutchins (1980) does not include *S. emersum*, listing only *S. multipedunculatum* as a synonym of *S. angustifolium*. Correll and Correll (1972) recognize both *S. angustifolium* and *S. emersum*, stating that the North American variety of *S. emersum* is var. *multipedunculatum*, and indicate that New Mexico is part of the range of *S. emersum*. They call attention to the similarity of these species: "It is quite possible that this concept [*S. angustifolium*] should be united with *S. emersum*. Their separation, based primarily on size differences, is most tenuous."

Some recent floras, however, all recognize *Sparganium angustifolium* and *S. emersum* as two separate species (Hickman 1993; Weber & Wittmann 1996; Welsh et al. 1993).

Finally, my experience supports the proposition that *Sparganium angustifolium* and *S. emersum* are two separate species. I have collect *S. angustifolium* from a population in a pond at the base of the eastern slope of the Brazos Ridge (10,600 ft) and at two other ponds in the Lagunitas Lakes area (10,400 ft). The leaves are narrow and thin and float on top of the water. Only the inflorescences stick above the water.

In contrast, I have seen *Sparganium emersum* (growing without *S. angustifolium*) in ponds near Canjilon Creek (9300 ft) and also at Trout Lakes (9300 ft). These plants have very rigid, thick stems and leaves that project vertically above the water. This feature is characteristic of all the plants in the population. Similarly, the weak, narrow, floating leaves of *S. angustifolium* are characteristic of all the plants in their populations.

On the basis of the above observations, I propose that *Sparganium emersum* be considered a separate species from *S. angustifolium*, and be added to the list of New Mexico plants.

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On *Dalea compacta* in New Mexico

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Dalea compacta Sprengel vars. *compacta* and *pubescens* (A. Gray) Barneby, as well as *D. cylindriceps* Barneby, are listed for New Mexico in the current draft of "A Working Index of New Mexico Vascular Plant Names" (Allred, ed., 1999). There's a mix-up.

Petalostemon macrostachyum Torrey is (or was) a species extending from South Dakota and Wyoming south to New Mexico. Torrey and Gray in 1840 opined that it might be the same as *D. compacta*, a species of southeastern Oklahoma and adjacent areas. Wooton and Standley (1915, Flora of New Mexico) and others accepted that speculation as fact. But according to Barneby (1977, N.Y. Bot. Gard. Memoirs 27: 227 and 268-270) the two species do not occur close to one another and are different; he separates them at Step 4 on p. 223. Also, the corollas of *D. cylindriceps* are ochroleucous to pink, those of *D. compacta* red-purple to rose. To put the species in *Dalea*, Barneby provides a new name (*D. cylindriceps*), since there was already a *D. macrostachya*. The species is widespread in the eastern half of New Mexico. C. Keller, G. Cox, and I collected it in White Rock Canyon 10 July 1999, adding Los Alamos County to its distribution.

Dalea compacta var. *compacta* has not been reported for New Mexico except on the out-of-date assumption that it is the correct name for *P. macrostachyum*.

Dalea compacta var. *pubescens*, which includes *D. helleri* Shinners (and its obligate synonym *Petalostemon pulcherrimum* A. Heller), occurs in Oklahoma and eastern Texas west to Amarillo. Barneby thinks that Wemple's records (1970, Iowa State Jour. Sci. 45: 1-102) of it in Trans-Pecos Texas and the Rio Grande valley are perhaps from introductions or misidentifications. Isely's map (1998, Native and Naturalized Leguminosae p. 507) does show it in Torrance County, New Mexico, although his text has "Se and c TX (-s OK, -nw LA)."

I believe that *Dalea compacta* should be omitted from the New Mexico flora until a definite specimen is located.

Botanical Literature of Interest

TAXONOMY AND FLORISTICS:

Dorn, R.D. 2000. **A taxonomic study of *Salix* sections *Mexicanae* and *Viminella* subsection *Sitchenses* (Salicaceae) in North America.** Brittonia 52(1):1-19.

Flora of North America Editorial Committee. 2000. **Flora of North America, vol. 22.** Oxford Univ. Press. 352 pp. [Butomales, Hydrocharitales, Najadales, Arecales, Arales, Commelinales, Eriocaulales, Juncales, Typhales, Bromeliales, Zingiberales]

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MISCELLANEOUS:

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RARE, THREATENED, AND ENDANGERED PLANTS:

[See New Mexico Rare Plants, presented by the NM Rare Plant Technical Council: http://nmrareplants.unm.edu]

WEB SITES OF INTEREST:

Photo Gallery of flora of the Corona Ranch, New Mexico State University, Lincoln/Torrance Cos.: http://web.nmsu.edu/~kallred/corona/ka_plants.htm

Topographic maps for the entire United States available for free: http:..www.topozone.com

Location of herbaria in the 48 contiguous states of the U.S. and the southern provinces of Canada are mapped at http://biology.usu.edu/herbarium/herbne.htm

Locate places, geographic features, counties, etc. at the Geographic Names Information System hosted by USGS: http://mapping.usgs.gov/www/gnis/ 🕮

Annual Meeting
Native Plant Society of New Mexico
Sep 29-Oct 1, 2000
Las Cruces, New Mexico
Holiday Inn

Presentations:

- Why creosotebush, Larrea tridentata, is "El Gubenador" in the Chihuahuan Desert by Walter G. Whitford
- Lincoln County's Changing Faces, A photographic documentation of historic vegetation changes by E. Hollis Fuchs
- Landscape Processes and the Recovery of Desert Grasslands by Debra Peters
- The Chihuahuan Desert Nature Park: K-12 Environmental Science Education on the US-Mexico Border by Stephanie Bestelmeyer
- Integrating Land Cover Mapping, Animal Distribution Prediction, and Stewardship Analysis for Conservation Planning in the Southwestern Landscape by Bruce C. Thompson
- New Mexico's First Botanist: TDA Cockerell by Carolyn Dodson and David L. Bleakly
- SWEC proposes Mesilla Valley Bosque Park by Beth Bardwell
- Birds of the Chihuahuan Desert by Mary Alice Root and Dale and Marian Zimmerman
- National Park Service's new Chihuahuan Desert/Southern Shortgrass Prairie Exotic Plant Management Team by Renée West
- The Vascular Flora of White Sands Missile Range by David Lee Anderson
- Endangered Desert Diversity by Laura Foster Huenneke
- Computer-aided Residential Landscape Design by Rolston St. Hilaire

Keynote Speaker: Richard Spellenberg, "Charles Wright and the Native Plant Society of New Mexico."

Field Trips to the Organ Mountains, Bishop's Cap area, and the Chihuahuan Desert Centennial Gardens in El Paso

Information and a **Registration Form** may be obtained at the Native Plant Society of New Mexico web site (http://npsnm.unm.edu/programs/newstate.htm#Section2)

Contact: NPS/NM Annual Meeting 2000
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New Plant Distribution Records

New records for New Mexico are documented by the county of occurrence and the disposition of a specimen (herbarium).

— James McGrath [P.O. Box 2605, Tijeras, NM 87059]

Antennaria corymbosa Nelson (Asteraceae): Rio Arriba Co. (UNM).

Carex geyeri Boott (Cyperaceae): Rio Arriba Co. (MICH, UNM).

Carex jonesii Bailey (Cyperaceae): Rio Arriba Co. (MICH, UNM).

Potamogeton alpinus Balbis (Potamogetonaceae): Rio Arriba Co., Lagunitas Lakes wetland complex (UNM).

Lemna turionifera Landolt (Lemnaceae): Rio Arriba Co., pond near Canjilon Creek (UNM).

— Kelly Allred [MSC Box 3-I, New Mexico State University, Las Cruces, NM 88003] & Ken Heil [San Juan College, Farmington, NM 87402]

Stipa arida Jones (Gramineae): San Juan Co., Navajo Nation, about 1.5 miles south of Beclabito on Beclabito Dome, near top of dome, Wingate formation, desert scrub community, T30N R21W, 5800 ft, 26 May 1995, K. Heil 8885 (SJC).

Stipa speciosa Trin. & Rupr. (Gramineae): San Juan Co., Ute Mountain Indian Reservation, Cottonwood Canyon, T31N R15W Sec 5, 24 June 1985, M. Porter 1421 (SJC). This species was reported by Wooton & Standley (Flora of New Mexico), who cited Standley 7515 from the Carrizo Mts. in northwestern San Juan County, but this specimen has not been located. Martin & Hutchins (A Flora of New Mexico) also listed the species. No specimens validating these reports have been found until now.

— Kelly Allred [MSC Box 3-I, New Mexico State University, Las Cruces, NM 88003]

Ciclospermum leptophyllum (Pers.) Britton & E. Wilson (Apiaceae): Lea Co. (NMCR). This is the second occurrence in New Mexico for this cosmopolitan weed (previous report from Hidalgo Co.).

— George W. Cox [13 Vuelta Maria, Santa Fe, NM 87501] & Roger S. Peterson [1750 Camino Corrales, Santa Fe, NM 87505; NMNHI is at the Randall Davey Audubon Center, Santa Fe.]

Hesperis matronalis L. (Brassicaceae): San Miguel Co. (NMC, NMNHI).

— Roger S. Peterson [1750 Camino Corrales, Santa Fe, NM 87505; NMNHI is at the Randall Davey Audubon Center, Santa Fe.]

Agalinus calycina Pennell (Scrophulariaceae): Chaves Co. (NMC, NMNHI, Bitter Lake N.W.R.)

Campanula rapunculoides L. (Campanulaceae): Colfax Co. (NMC, NMNHI); documents with a specimen the records of Atlas of the Flora of the Great Plains from Colfax, Taos, and Santa Fe counties.

Carex angustior L. (or included in *C. muricata* L.) (Cyperaceae): Santa Fe Co. (NMC). Collected by I. L. David.

Carex sprengelii Dewey (Cyperaceae): Colfax Co. (NMNHI). Determined by A. Reznicek, University of Michigan.

Carum carvi L. (Apiaceae): Colfax Co. (NMC, NMNHI).

Cuscuta warneri Yuncker (Cuscutaceae): Sierra Co. (NMC, NMNHI).

Cymopterus purpurascens (Gray) Jones (Apiaceae): San Juan Co. (NMNHI); documents with a specimen the report of Welsh et al. 1993, A Utah Flora.

Draba spectabilis Greene (Brassicaceae): Santa Fe Co. (collected by D. C. Lowrie in 1984), Mora Co. (NMC, NMNHI).

Hypericum perforatum L. (Clusiaceae): Colfax Co. (NMC, NMNHI). Recorded also from Mora Co. (L. La Grange, N. M. Highlands University).

Lonicera x ***bella*** Zabel (Caprifoliaceae): Santa Fe Co. (NMC, NMNHI).

Lupinus argenteus Pursh var. ***argentatus*** (Rydb.) Barneby (Fabaceae): Colfax Co. (NMNHI); documents with a specimen the report of Barneby (1989), Intermountain Flora, vol. 3, pt. B.

Osmorrhiza longistylis (Torrey) DC. (Apiaceae): Colfax Co. (NMC, NMNHI).

Saccharum ravennae (L.) Murray (Poaceae): Chaves Co. reported by G. Warrick, determined by K. Allred (NMC, NMNHI, Bitter Lake N.W.R.).

Silene latifolia Poir. subsp. ***alba*** (Miller) Greuter & Burdet (= *Lychnis alba* Miller) (Caryophyllaceae): Colfax, San Miguel counties (NMC, NMNHI).

Stanleya viridiflora Nutt. ex Torr. & Gray (Brassicaceae): Sandoval Co. (NMNHI); San Juan Co. collected by H. L. Cannon in 1962 (NMC).

Taraxacum scopulorum (A. Gray) Rydb. (Asteraceae): Mora Co. (NMC, NMNHI).

Vitex agnus-castus L. (Verbenaceae): Socorro Co. (NMC, NMNHI). Reported for N. M. by Britton and Brown in 1913.

— Richard Worthington [P.O. Box 13331, El Paso, TX 79913]

Acer grandidentatum Nutt. var. ***sinuosum*** (Rehder) Little (Aceraceae): Hidalgo Co. (UNM); Eddy Co. (UNM)

Oenothera triloba Nutt. (Onagraceae): Eddy Co. (TTC)

Packera obovata (Muhl. ex Willd.) W.A. Weber & A. Löve (Asteraceae): Eddy Co. (BRIT, UTEP)

— McArthur & Sanderson, 1999 [see Botanical Literature of Interest]

Artemisia tridentata Nutt. subsp. ***wyomingensis*** Beetle & Young (Asteraceae): Taos Co. (SSLP)

— Brady Allred [2015 Jordan Road, Las Cruces, NM 88001]

Ligustrum vulgare L. (Oleaceae): San Miguel Co., South San Ysidro, northeast banks of Pecos River at junction with county road B43B, N35º26'48.8" W105º34'52.9", 10.5 air miles southeast of Pecos; 27 June 2000, B. Allred 164 (NMCR). There were several plants persisting on both sides of the river, presumably as escapes from cultivation.

— Bill Hess [The Morton Arboretum, Lisle, IL 60532]

Spiranthes parasitica A. Rich. & Gal. (Orchidaceae): Grant Co: Black Range, Wright Cabin campground (WNMU).

— Carson National Forest, Forest Service, USDA [208 Cruz Alta Road, Taos, NM 87571], in an April 2000 "scoping document" on invasive weeds:

Carduus acanthoides L. (Asteraceae): Rio Arriba & Taos Cos.

Vernonia noveboracensis (L.) Michx. (Asteraceae): Rio Arriba Co.

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