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In This Issue —

Some Southeastern Range Extremes for Plants in the Northwestern Chihuahuan Desert.

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The encinals and conifer forests in the Apachean Highlands archipelago of "sky island" mountains in southeastern Arizona and southwestern New Mexico are well known as the northern-most habitats in the distributions of many plant and animal species from the "mainland" of the Sierra Madre Occidentale. From the opposite direction, this area also represents the southern range extremes for some Rocky Mountain species, such as *Pinus edulis* Engelmann and *Juniperus scopulorum* Sargent. The "ocean" of semi-arid lands surrounding these "sky islands" is predominantly composed of the northwestern-most part of the Chihuahuan Desert ecoregion.

Several plant species from the adjacent Sonoran Desert reach their eastern range extremes in the Chihuahuan Desert of southwestern New Mexico. A significant subset of these are associated with the northern extreme of the Sonoran Desert in the central Arizona highlands, yet have their centers of distribution further to the west and north in the Mojave and Great Basin deserts, and other arid areas of the Intermountain floristic region. The southwestern range extremes of these plants appear to be concentrated in the New Mexico Gila River Basin of northern Hidalgo County and western Grant County, including the Gila River breaks and canyons, northern Peloncillo Mountains, hills around Black Mountain, and foothills of the Burro Mountains. Spellenberg and Mahrt (1991) were the first to comment on this curious distribution pattern. They reported *Lomatium foeniculatum* Coulter & Rose subsp. *macdougalii* (Coulter & Rose) Theobald, *Astragalus eremiticus* Sheldon, and *Allium acuminatum* Hooker all growing together at the same location near Black Mountain (north of Virden) as "an indication of a hitherto unrecognized extension of a more western flora into this portion of NM".

Subsequent searches by botanists in this same general area have discovered additional elements of more western and northern floras that seem out of place in this small area of Chihuahuan Desert (Spellenberg et al. 1993, Sivinski et al. 1994, Worthington 2005, Sivinski 2006). These include *Calochortus flexuosus* S. Watson (mostly Mojave and Great Basin deserts and Colorado Plateau), *Gilia stellata* Heller (predominantly Mojave and Great Basin deserts), *Caulanthus lasiophyllus* (Hooker & Arnold) Payson (Mojave, Great Basin and western Sonoran deserts), *Phacelia cryptantha* Greene (mostly Mojave and Great Basin deserts), and *Cryptantha nevadensis* Nelson & Kennedy var. *rigida* I.M. Johnston (predominantly Mojave Desert).

These plants have sporadic distributions across Arizona, except for *A. eremiticus*, which is apparently disjunct in Hidalgo County from its nearest locations in northwestern Arizona. The arid southern flank of the Mogollon Rim may have provided the corridor for these plants to reach the Gila River Basin and then east into the Chihuahuan Desert of southwestern New Mexico. This small part of the state may hold additional plants from more northern and western floras and is a worthy area for further searches by New Mexico botanists.

Literature Cited

Sivinski, R., T. Lowrey and R. Peterson. 1994. Additions to the native and adventive flora of New Mexico. Phytologia 76(6):473-479.

Sivinski, R. 2006. Plant distribution reports: *Cryptantha nevadensis* var. *rigida*. The New Mexico Botanist (this issue).

Spellenberg, R. and M. Mahrt. 1991. Noteworthy collections: New Mexico. Madroño 38:298-301.

Spellenberg, R., L. McIntosh and L. Brouillet. 1993. New records of angiosperms from southwestern New Mexico. Phytologia 75(3):224-230.

Worthington, R. 2005. Plant distribution reports: *Phacelia cryptantha*. The New Mexico Botanist 34:7.

Two ferns not occurring in New Mexico

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Two ferns, *Asplenium palmeri* and *Cheilanthes horridula*, have often been listed as occurring in New Mexico, but there do not appear to be reliable records of either in the state. As a result, I suggest omitting them from the flora of New Mexico until and unless this deficit is remedied.

Asplenium palmeri was first listed in the state by Dittmer, Castetter, and Clark ("The Ferns and Fern Allies of New Mexico", 1954). Regarding its distribution, they say, "Our only listing for this species is from the Organ Mountains," but cite no specimens or other source. Martin and Hutchins ("A Flora of New Mexico", 1980) list the species as occurring in "southern New Mexico" but include only Doña Ana Co. on their map, presumably basing their inclusion on Dittmer *et al*.'s account. The map in the Flora of North America also shows *A. palmeri* in New Mexico, but R.C. Moran, one of the authors of the F.N.A. treatment for *Asplenium*, indicates that he is unaware of any specimens from New Mexico and that its inclusion in the map was probably by W.H. Wagner Jr. (unfortunately now deceased), who may have been relying on the Dittmer *et al*. account. The nearest documented localities in the US are from the Davis Mts. of western Texas and near Bisbee in southeastern Arizona. In both states it is scarce and sporadic, occurring on moist igneous rock in narrow canyons. Though reasonably appropriate habitat occurs in southern New Mexico, without a specimen there is little basis for its inclusion in the state. Difficulties in distinguishing *A. palmeri* from fragmentary specimens of *A. resiliens* (of which there are several from the Organ Mts.) suggest that this may be the cause of the Dittmer *et al.* listing of *A. palmeri* in the state.

Cheilanthes horridula's first listing in the state flora was by Wooton & Standley ("Flora of New Mexico"), under the synonym *Pellaea scabra*, with the note: "Collected by the Mexican Boundary Survey (no. 1581) near the Copper Mines." Dittmer *et al.* list its occurrence in the state as uncertain, stating that: "There is in the United States National Herbarium a specimen of this species collected by the Mexican Boundary Survey under the number 1581 'near the Copper Mines and along the San Pedro.' Standley described the Copper Mines locality but made no mention of the San Pedro; and Wooton and Standley reported this site as originally known as Santa Rita Del Cobre (now the town of Santa Rita), again making no mention of the San Pedro. It is thus presumed that Santa Rita is the site of the collection of specimen No. 1581, but one cannot be certain." Though the collection locality of the Mexican Boundary Survey specimen #1581 is indeed uncertain, other aspects of this account are mistaken. According to G. McKee of US, M.B.S. #1581 carries no locality information. "Near the Copper Mines and along the San Pedro" is instead the description given for the species in the survey's report ("Report on the United States and Mexican Boundary Survey", v. II, 1859, W.H. Emory) and refers to two separate localities. The Copper Mines referred to are indeed the Santa Rita copper mines, but "San Pedro" refers to Devil's River of western Texas, for which "Rio San Pedro" is an older name. The latter locality is well within the known range and the Gray Herbarium contains a un-numbered specimen from Thurber, lacking the official M.B.S. label but collected during the survey, with the locality "Head of the Rio San Pedro" (thanks to W. Kittredge of GH for this information), so there is no reason to doubt that *C. horridula* was ollected there by the survey. However, without any M.B.S. specimens of this species from the Copper Mines, this portion of the report's description cannot be verified. The nearest documented localities in the United States are in the Quitman Mountains of western Texas, about 200 miles southeast of Santa Rita, and it is common in the Big Bend region on limestone outcrops amidst Chihuahuan desert scrub. M. Windham of UT, primary author of the Flora of North America treatment for *Cheilanthes*, indicates that he is not aware of any specimens from New Mexico and considers it occurrence here "very questionable". As a result, the presence of *C. horridula* in the state is best regarded as undocumented and unlikely.

Botanical Literature of Interest

Taxonomy and Floristics

Allred, K.W. 2005. **Perennial *Festuca* (Gramineae) of New Mexico.** Desert Plants 21(2):3-12.

Allred, K.W. 2005. **A Field Guide to the Grasses of New Mexico, 3rd ed.** Agric. Exp. Sta. New Mexico State Univ. 388 pp.

Atwood, N.D. & S.L. Welsh. 2005. **New species of *Mentzelia* (Loasaceae) and *Phacelia* (Hydrophyllaceae) from New Mexico.** Western North American Naturalist 65(3):365-370.

Coleman, R.A. & M. Baker. 2006. ***Microthelys rubrocallosa*, a new addition to the orchid flora of the United States.** Orchids, Jan 2006:56-57.

Dicht, R.F. & A.D. Luthy. 2005. ***Coryphantha*.** Springer-Verlag, Berlin. 200 pp. [translated from 2003 German edition; copious illustrations]

Felger, R., T.L. Burgess, S. Dorsi, J.R. Reeder, & T.R. Van Devender. 2005. ***Dichanthium* (Poaceae) new to Arizona: open door for a potentially invasive species.** Sida 21(3): 1905-1908. [not yet known from New Mexico]

Finot, V.L., P.M. Peterson, R.J. Soreng, & F.O. Zuloaga. 2005. **A revision of *Trisetum* and *Graphephorum* (Poaceae: Pooideae: Aveninae) in North America north of Mexico.** Sida 21(3):1419-1453. [segregates one of our species, *T. wolfii*, into *Graphephorum*]

Holmgren, N.H., P.K. Holmgren, & A. Cronquist. 2005. **Intermountain Flora, Vol. 2, part B.** The New York Botanical Garden Press. 488 pp.

Nesom, G.L. 2005. **Taxonomy of the *Symphyotrichum* (*Aster*) *subulatum* group and *Symphyotrichum* (*Aster*) *tenuifolium* (Asteraceae: Astereae).** Sida 21(4):2125-2140.

Nesom, G.L. & B. Lipscomb. 2005. **ICBN clarification needed: Use of ranks.** Sida 21(4):2185-2191.

Peterson, P.M. & J. Valdes-Reyna. 2005. ***Eragrostis* (Poaceae: Chloridoideae: Eragrostideae: Eragrostidinae) from Northeastern Mexico.** Sida 21(3):1363-1418.

Powell, A.M. & J.F. Weedin. 2004. **Cacti of the Trans-Pecos & Adjacent Areas.** Texas Tech University Press, Lubbock. 509 pp.

Robart, B.W. 2005. **Morphological diversification and taxonomy among the varieties of *Pedicularis bracteosa* Benth.**

(Continued on page 4, Literature)

Plant Distribution Reports

New records and significant distribution reports for New Mexico plants should be documented by complete collection information and disposition of a specimen (herbarium). Exotic taxa are indicated by an asterisk (*), endemic taxa by a cross (+).

— Richard Worthington [P.O. Box 1333, El Paso, TX 79913]

Aphanostephus ramosissimus A.P. de Candolle var. ***ramosissimus*** (Asteraceae, faint crown): Otero County: Otero Mesa, hwy. 506 at mesa escarpment (T21S, R11E, Sec. 9, S 1/4), 4900 ft, roadside, 22 Sep 2005, R. Worthington 33758 (BRIT, UTEP, Ft. Bliss herbarium). [Det. by Guy Nesom]

— From Intermountain Flora, vol. 2B [thanks to Bob Sivinski]

****Cleomella obtusifolia*** Torrey & Frémont (Cleomaceae, Mojave stinkweed): Luna County, south of Deming, R. Barneby 2475 (NY). [presumably exotic here, and perhaps not persisting from this early collection?]

— Coleman & Baker (2006) [see literature reports]

Microthelys rubrocallosa (Robinson & Greenman) Garay (Orchidaceae): Otero County: Sacramento Mts, Hughes Canyon, 18 Aug 2004, Marc Baker 15754 (ARIZ). [Reported in issue 34, but this documents publication in "Orchids" magazine, with discussion and color photos. Basionym was spelled *rubrocalosa* in the original description, but *rubrocallosa* may be considered an orthographic correction]

— Robert Sivinski [New Mexico Forestry Division, P.O. Box 1948, Santa Fe, NM 87504]

****Colutea arborescens*** Linnaeus (Fabaceae, bladder senna): Bernalillo County: Sandia Mountains, Cañon Cienega; T11N R5E Sec 23 NW¼, 2250 m, disturbed roadside in forest of *Pinus ponderosa* and *Juniperus scopulorum*, 12 July 1999, R.C. Sivinski 4961 (UNM).

Cryptantha nevadensis A. Nelson & Kennedy var. ***rigida*** I.M. Johnston (Boraginaceae): Hidalgo County: east bajada of northern Peloncillo Mts., below Doubtful Canyon, T22S R21W Section 34 SE¼, 1360 m; arroyo bottom and sides with *Chilopsis linearis, Acacia greggii, Fallugia paradoxa*, 31 Mar 2005, R.C. Sivinski 5963 (UNM); northern Peloncillo Mts., Rustler Draw, T23S R21W Section 11 SW¼, 1320 m, arroyo bottom and sides with *Fallugia paradoxa, Rhus microphylla*, 13 Apr 2005, R.C. Sivinski 5985 (UNM). First report of this variety in New Mexico.

— Yvonne Chauvin [722 Candelaria Rd. NW, Albuquerque, NM 87107]

Loeflingia squarrosa Nuttall (Caryophyllaceae): Eddy County: Phantom Banks Quad, E: 616155, N: 3545139, Zone 13, NAD27, dry playa with dense mesquite, 22 June 2005, Yvonne Chauvin s.n. (UNM). [Verified by Ron Hartman]

— Ken Heil [San Juan College, 4601 College Blvd, Farmington, NM 87402]

Mertensia fusiformis E.L. Greene (Boranginaceae, bluebells): Rio Arriba County: Jicarilla Apache Reservation, Sagebrush Hill, road north of La Junta Canyon towards Barrella Canyon, S36 NW/SE, T32N, R3W, logged area, 2100 m, 20 May 1996 K. Heil 9625 (SJNM); Carson National Forest, north of Hwy US 64, about 2 mi SSE of Cedar Rock, S34 SE1/4 T32N R4W, ponderosa pine community, 2200 m, 21 May 1995, K. Heil 8796 (SJNM); Carson National Forest, north of Hwy US 64, Carracas Mesa, ca 1 mi west-southwest of Cedar Rock, S28 S1/2 T32N R4W, 2250 m, 21 May 1995, K. Heil 8808 (SJNM). [Det. Larry Higgins]

Mertensia lanceolata (Pursh) A.P. deCandolle var. ***coriacea*** (A. Nelson) Higgins & Welsh (Boraginaceae, bluebells): San Juan County: Navajo Nation, Chuska Mountains, ca 4.5 miles south of Toadalena Lake, closed canopy aspen grove with scattered ponderosa pine and bluegrass, dark humus soil with dead fall leaves, 8950 ft, 10 Jul 2000, Arnold Clifford 00-729 (SJNM). [Det. Larry Higgins]

— Ron Hartman [Rocky Mountain Herbarium, University of Wyoming, 1000 E. University Ave. Laramie, WY 82071-3165] and Robert Sivinski [NM Forestry Division, P.O. Box 1948, Santa Fe, NM 87504]

Minuartia macrantha (Rydberg) House (Caryophyllaceae): Bernalillo County: Sandia Mountains, Cibola National Forest, Sandia Crest, Kiwanis Point near stone cabin, T12N R5E S31, limestone caprock and adjacent coniferous forest, 10000-10200 ft, 28 Jul 1964, M. Baad 1035 (MICH); Same location: 23 Jun 1976, W. L. Wagner 2344 (MO); 9 Jul 1999, R.L. Hartman 65063 with F. Sun, T. Lowrey, & B. Sivinski (RM); 22 Jul 1999, R.C. Sivinski 4997 (RM, UNM).

— Atwood & Welsh (2005) [see literature reports]

+***Mentzelia todiltoensis*** Atwood & Welsh (Loasaceae): Cibola County: vicinity of I-40/hwy 6 junction, 4 Aug 2004, N.D. Atwood & A. Clifford 30538 (BRY type, NMC, SJNM). Bernalillo County: Canoncito Navajo Reservation, Gypsum Dome in Canada de los Apaches west of Day School, 1 Jul 1992, B. Hevron 1736 (BRY). Santa Fe County: Desert 32 km air miles northeast of I-25 at Exit 242, 2 Aug 2003, N.H. Holmgren et al. 15051 (BRY).

+***Phacelia sivinskii*** N.D. Atwood, P.J. Knight, & Lowrey (Boraginaceae): Sandoval County: 6 mi north of San Ysidro on hwy 44, 27 Sep 2004, N.D. Atwood 30757 (BRY type, NMC, SJNM); eight additional collections from this vicinity. Socorro County: ca. 20 miles west of Carrizozo on hwy 380, 6 Sep 2002, N.D. Atwood 28989 (BRY).

— Chick Keller [4470 Ridgeway, Los Alamos, NM 87544]

Saxifraga hirculus Linnaeus (Saxifragaceae, marsh saxifrage): Colfax County: marshy wetland just east of Little Costilla Peak, about 10,000 ft, 2 Aug 2002, Chick Keller 1600 (UNM).

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

— Linnaeus

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Kelly Allred

(Literature, Continued from page 2)

(Orobanchaceae). Syst. Bot. 30(3):644-656.

Roberts, R.P., L.E. Urbatsch, & K.M. Neubig. 2005. ***Nestotus* and *Toiyabea*, two new genera of Asteraceae: Astereae from the western United States and Canada.** Sida 21(3):1647-1655.

Semple, J.C. & J.L.A. Hood. 2005. **Pappus variation in North American Asters. I. Double, triple and quadruple pappus in *Symphyotrichum* and related *Aster* genera (Asteraceae: Astereae).** Sida 21 (4):2159-2005.

Turner, B.L. & A.M. Powell. 2005. **Chromosome numbers of *Glandularia* (Verbenaceae) from central and Trans-Pecos Texas.** Sida 21(3):1657-1661. [resurrects *G. wrightii* s.s, but still not known from New Mexico]

Urbatsch, L.E., R.P. Roberts, & K,M. Neubig. 2005. ***Cuniculotinus* and *Lorandersonia*, two new genera of Asteraceae: Astereae and new combinations in *Chrysothamnus*.** Sida 21(3):1615-1632. [includes a key]

Ward, D.B. 2005. **A case of disputed orthography: Is it *Echinochloa colona*; or is it *Echinochloa colonum* (Gramineae)?** Sida 21(4):2171-2183. [Can you stand it? Read the paper to find out!]

Whittemore, A.T. 2005. **Genetic structure, lack of introgression, and taxonomic status in the *Celtis laevigata* - *C. reticulata* complex (Cannabaceae).** Syst. Bot. 30(4):809-817. [upholds the segregation of the two species]

Miscellaneous

Kellman, K. 2005. **A newly designed dissection needle for making transverse leaf sections.** Evansia 22(4):118-121. [for moss leaves]

Piperno, D.R. & H.-D. Sues. 2005. **Dinosaurs dined on grass.** Science 310:1126-1128.

Prasad, V., C.A.E. Strömberg, H. Alimohammadian, & A. Sahni. 2005. **Dinosaur coprolites and the early evolution of grasses and grazers.** Science 310:1177-1180.

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