The New Mexico Botanist

Number 27 **April 1, 2003**

A Newsletter for the flora of New Mexico, from the Range Science Herbarium and Cooperative Extension Service, College of Agriculture and Home Economics, New Mexico State University.

In This Issue —

ANNOTATED CHECKLIST OF THE GENUS *ALLIUM* (LILIACEAE) IN NEW MEXICO

Robert C. Sivinski

New Mexico Forestry Division, P.O. Box 1948, Santa Fe, New Mexico 87504

Reprinted from New Mexico Naturalist Notes 1(1):43-56. 1998

The genus *Allium* is distributed throughout the state of New Mexico and represented by thirteen distinct taxa. Most are widespread species, but several are rare here or reach a distribution limit just inside the New Mexico borders. Marion Ownbey produced comprehensive studies of the genus *Allium* for the adjacent states of Arizona and Texas (1947, 1950 respectively). In his Arizona study, Ownbey (1947) says the species are well marked and "No careful student should experience difficulty in determining them easily and accurately". Yet my recent review of the same species in New Mexican herbaria found an unusually high percentage of inaccurate specimen determinations. Therefore, the following taxonomic key and checklist annotations are offered as aids for identification of New Mexican wild onions. Complete species descriptions are not reiterated here and can be found in the above Ownbey references.

Three *Allium* species are added since the publication of the most recent state flora (Martin and Hutchins, 1980). In addition, the county distributions and some of the names used by Martin and Hutchins (1980) are corrected. A verified, representative specimen from herbarium collections at the University of New Mexico (UNM), New Mexico State University (NMC), or Southwestern New Mexico University (SNM) is cited for each county occurrence. Synonymy is only listed for those names that differ from the present treatment, but were accepted by Wooton and Standley (1913), Ownbey (1947, 1950), or Martin and Hutchins (1980).

KEY AND CHECKLIST OF *ALLIUM* IN NEW MEXICO

1 Outer bulb coat persisting as a conspicuous reticulum of coarse, anastomosing fibers; rhizomes lacking
  2 Bracts of the involucre 2- to 5-nerved (occasionally coalescent into what appears to be a single wide nerve in *A. macropetalum*)
    3 Ovary conspicuously crested with 3 pairs of short, flat projections; leaves usually 2 per scape; a desert and plains species of western and central NM.....***A. macropetalum***
    3 Ovary crestless; leaves usually 3 per scape; a desert and plains species of eastern NM ....***A. perdulce***
  2 Bracts of involucre mostly 1-nerved
    4 Perianth spreading-rotate; epidermal cells of inner bulb coats (under outer reticulum)intricately contorted; portions of outer bulb coat fused into irregular, solid pieces except along the ragged top and bottom edges of the bulb; common on hills and plains of southeastern NM ....***A. drummondii***
    4 Perianth urceolate; epidermal cells of the innermost bulb coats rectangular and vertically elongate; entire outer bulb coat a reticulate fabric of coarse fibers with open interstices
      5 Leaves usually 2 per scape; spring flowering; rare in northwestern and northeastern NM..... .....***A. textile***
      5 Leaves usually 3 or more per scape; summer flowering; widespread
        6 Umbel wholly floriferous; flowers fertile; widespread in most NM mountain ranges ....***A. geyeri*** var. ***geyeri***

(Continued on page 2, Allium)

Botanice est Scientia Naturalis quae Vegetabilium cognitiorem tradit.
— Linnaeus

(Allium , continued from page 1)

6 Most of the flowers replaced by bulbils; remaining flowers sterile; scattered in several western and northern NM mountain ranges ..... ***A. geyeri*** var. ***tenerum***

1 Outer bulb coat without fibers or with parallel fibers, never fibrous reticulate; with or without rhizomes

7 Bulbs attached to stout, dark, *Iris*-like rhizomes; leaves flat, strap-shaped, 5-10 mm wide; mountains in western and south-central NM..... ***A. gooddingii***

7 Bulbs with or without rhizomes, if rhizomes present, then slender and pale; leaves linear-channeled or broadly u-shaped in cross section, usually <5 mm wide, (occasionally flat and >5 mm wide in *A. cernuum*)

8 Umbel nodding from a decurved bend in the scape below the involucral bracts; tepals obtuse; stamens exserted from corolla; in all NM mountain ranges and on northeastern plains ..... ***A cernuum***

8 Umbel erect; perianth segments acute or acuminate; stamens shorter than the perianth segments

9 Inner whorl of perianth segments long acuminate with recurved tips, margins minutely serrulate-dentate; outer segments similar, but conspicuously broader and usually entire; outer bulb coat cells relatively square with thick walls (waffle-like); rare in western NM ..... ***A. acuminatum***

9 Inner and outer whorls of perianth segments entire and not conspicuously wider or narrower; other characters never combined as above

10 Ovary and capsule conspicuously crested

11 Scape usually <10 cm tall; perianth 8-14 mm long; lacking rhizomes; outer bulb coats dark brown, cells elongating vertically; a desert species of southwestern NM ..... ***A. bigelovii***

11 Scape taller (10-30 cm); perianth segments 6-10 mm long; proliferating from slender rhizomes at the base of the bulb; outer bulb coats grayish, cells elongating horizontally; rare in the mountains of western NM ..... ***A. bisceptrum***

10 Ovary and capsule not crested

12 Bulb subspherical, often (not always) proliferating from the base by slender, scaled rhizomes; corolla campanulate-spreading; tepals white (often drying pinkish) with a dark red-purple midrib on outer surface; anthers red-purple (drying brown); igneous ridges and canyons in southwestern NM..... ..... ***A. rhizomatum***

12 Bulb ovoid, without rhizomes; corolla spreading-rotate; tepals white to pale pink (drying pink), outer midrib absent or vague; anthers yellow; calcareous ridges and canyons in southern NM ..... ***A. kunthii***

ALLIUM ACUMINATUM Hooker, Fl. Boreali-Amer. 2:184. 1838.

A common species of the western U.S. that barely enters the New Mexico borders from southwestern Colorado and eastern Arizona. It occurs on relatively arid soils at elevations up to piñon-juniper woodland. This small onion is readily distinguished by its bright reddish-purple flowers with minutely serrulate petals (use a hand lens) that spread outward at the tips and are narrower than the outer perianth whorl. The small, smooth bulb is spherical and the outer bulb coat cells are nearly square with thick walls (like a waffle pattern). Its leaves are withered by the time the plant is in full flower.

REPRESENTATIVE SPECIMENS: **Hidalgo Co.**: Black Mountain, 5 miles NE of Virden, 6 Apr 1986, *R. Spellenberg et al. 8409* (NMC); **Rio Arriba Co.**: Turkey Creek, Carson National Forest, 27 May 1987, *P. Knight 3501* (UNM); **San Juan Co.**: Middle Mesa near Navajo Reservoir, 14 May 1992, *Sivinski 1851* (UNM).

ALLIUM BIGELOVII S. Watson, King U.S. Geol. Expl. 40th Par. 5:487. 1871.

Although short in stature, this spring-flowering, desert species produces large, colorful umbels that are worthy of cultivation. Live plants have a distinctive corolla coloration (inner perianth segments white to pale pink with red tips and outer segments white to pale pink with red midribs) that cannot be confused with any other New Mexican *Allium*. Dried specimens of *A. bigelovii*, however, can be faded or have red tips and midribs on all tepals. Other species can also dry with red-tipped tepals. It can only be confused with *A. bisceptrum*, which is easily distinguished by its slender rhizomes, horizontally elongate bulb coat cells, and taller scape. The bulb coat cells of *A. bigelovii* are often elongated vertically and many of the squarish cells have contorted (zig-zagged) cell walls. *Allium bigelovii* is occasionally abundant in igneous, gravelly soils on the foot-slopes of desert mountains and hills in southwestern New Mexico and adjacent Arizona.

REPRESENTATIVE SPECIMENS: **Doña Ana Co.**: Sierra de las Uvas, 13 Apr 1985, *T. Todsen 8507-1* (NMC); **Grant Co.**: near Faywood Hotspring, 20 Apr 1993, *Sivinski 2080* (UNM); **Luna Co.**: east foot-slope of Florida Mts., 10 Apr 1991, *Sivinski 1631* (UNM);

ALLIUM BISCEPTRUM S. Watson, King U.S. Geol. Expl. 40th Par. 5:351. 1871

Allium palmeri S. Watson, King U.S. Geol. Expl. 40th Par. 5:487. 1871.

Allium bisceptrum var. *palmeri* (S. Watson) Cronquist, Intermountain Flora 6:515. 1977.

This wild onion is very rare here, having been seen only a few times in the Zuni Mountains of west-central New Mexico and once in the southwest corner of the state near the Mexico border. It has ovary crests like *A. bigelovii*, but its slender rhizomes, horizontally elongate bulb coat cells, and taller scape readily distinguish it from that species. The flowers of *A. bisceptrum* are also smaller and evenly colored pink-lavender when fresh. However, dried specimens may have pink-tipped tepals like *A. bigelovii* and often lack rhizomes, if the plant was not carefully collected.

The *palmeri* form of this plant has been distinguished from *bisceptrum* by possessing rhizomes and a tetraploid level of chromosomes. The two taxa, however, cannot be consistently distinguished and only *bisceptrum* will be accepted for the up-coming *Flora of North America* treatment (Dale McNeal, Univ. of the Pacific, pers. comm.).

REPRESENTATIVE SPECIMENS: **Cibola Co.**: Cebolla Creek, Zuni Mts., 13 Jun 1981, *A. McCallum 1096* (UNM); **Hidalgo Co.**: San Luis Pass, 13 May 1955, *E. Castetter 7586* (UNM); **McKinley Co.**: Nutria Canyon, Zuni Mts., 3

(*Continued on page 3, Allium*)

(Allium , continued from page 2)
Jun 1988, *R. Spellenberg et al. 9506* (NMC).

ALLIUM CERNUUM Roth, Roemer, Archiv. Bot. (Leipzig) 1(3):40. 1798.

Allium cernuun var. *neomexicanum* (Rydberg) Macbride, Gray Herb. Contrib. N.S., No. 56, p. 5. 1918.

Allium cernuum var. *obtusum* Cockerell *ex* Macbride, Gray Herb. Contrib. N.S., No. 56, p. 5. 1918.

Allium neomexicanum Rydberg, Bull. Torrey Bot. Club 26:541. 1899.

Allium recurvatum Rydberg, Mem. N.Y. Bot. Gard. 1:94. 1900.

This is the most common wild onion in New Mexico, occurring in all of our mountain ranges. Its nodding umbel, and exserted stamens make it the easiest to accurately identify. Usually, it is a montane forest species, but also occasionally is found at lower elevations in piñon-juniper woodland or the high prairies in the northeastern part of the state.

Although unique, this is a very variable species. Two weak, geographically overlapping varieties have been recognized in New Mexico (Martin and Hutchins 1980). *Allium cernuum* var. *neomexicanum* (Rydberg) Macbride supposedly is distinguish by thin, nearly flat leaves which are broader than the narrow, thick, channeled leaves of *A cernuum* var. *obtusum* Cockerell *ex* Macbride. Also the inner bulb coats of var. *obtusum* are supposed to be redder than the white to pale pink bulb coats of var. *neomexicanum*. However, the leaf characteristics grade into one another and are not reliably diagnostic. White or dark pink bulb coats can be found on adjacent plants within the same population and on most leaf forms. These infraspecific distinctions for *A. cernuum* are not made here because they overlap and are indistinguishable in much of New Mexico.

REPRESENTATIVE SPECIMENS: **Bernalillo Co.**: Tree Springs, Sandia Mts., 7 Sep 1965, *C. Bronson 7* (UNM); **Catron Co.**: Madre Mt., Datil Range, 23 Jul 1957, *E. Fleharty 40* (UNM); **Cibola Co.**: Zuni Canyon, Zuni Mts., 10 Aug 1968, *N. Riffle 596* (UNM); **Colfax Co.**: Johnson Mesa, 28 Aug 1967, *C. Jones 92* (UNM); **Doña Ana Co.**: Organ Mts., 17 Sep 1893, *E. Wooton s.n.* (NMC); **Eddy Co.**: Gunsight Canyon, Guadalupe Mts., 15 Sep 1982, *P. Knight 2360* (UNM); **Grant Co.**: east of Santa Rita in Black Range, 16 Aug 1942, *O. Clark 10512* (UNM); **Harding Co.**: Mills Canyon, 19 Sep 1994, *Sivinski & Lowrey 2879* (UNM); **Hidalgo Co.**: upper Indian Creek, Animas Mts., 13 Sep 1975, *W. Wagner 1557* (UNM); **Lincoln Co.**: North Fork Eagle Creek, White Mts., 22 Jul 1981, *D. Ward 81-423* (NMC; Cytological Voucher n=7); **Los Alamos Co.**: Water Canyon, Jemez Mts., 2 Aug 1978, *Tierney & Fox 22* (UNM); **McKinley Co.**: south of Fort Wingate Village, Zuni Mts, 13 Aug 1981, *Ward & Spellenberg 81-493* (NMC; Cytological Voucher n=7); **Mora Co.**: Las Feberas Canyon near Ocate, 15 Jul 1976, *J. Calvert 73* (UNM); **Otero Co.**: NW of Mayhill, 13 Aug 1949, *Gordon & Norris 575* (UNM); **Rio Arriba Co.**: Navajo Canyon SW of Canjilon, 13 Aug 1963, *K. Goodrow 697* (UNM); **Sandoval Co.**: North Sandia Peak, 7 Aug 1995, *Sivinski 3171* (UNM); **San Miguel Co.**: Los Trigos Canyon near Pecos, 21 Jul 1993, *Sivinski 2439* (UNM); **Santa Fe Co.**: Upper Glorieta Creek, 14 Jul 1993, *Sivinski 2395* (UNM); **Sierra Co.**: Kingston, 13 Sep 1904, *O. Metcalfe 1370* (NMC, UNM); **Socorro Co.**: 1 mile west of Trinity Crater, 28 Aug 1948, *D. Dunn 4647* (UNM); **Taos Co.**: Hondo Canyon, Sangre de Cristo Mts., 12 Aug 1967, *H. Mackay 6T-34* (UNM); **Torrance Co.**: Trigo Canyon, Manzano Mts., 2 Sep 1963, *E. Bedker 1546* (UNM); **Union Co.**: Sierra Grande near Des Moines, 3 Sep 1963, *E. Castetter 20105* (UNM).

ALLIUM DRUMMONDII Regel, Acta Horti Petropolitani 3:112. 1875.

Allium helleri Small, Fl. Southeast U.S. pg. 264. 1903

Allium nuttallii S. Watson, Proc. Amer. Acad. 14:227. 1879.

This wild onion is fairly common in the hills and plains of southeastern New Mexico from piñon-juniper woodland down to Chihuahuan Desert grasslands. It is distinctive among the New Mexican species with fibrous outer bulb coats. Portions of its light reddish-brown outer coat are fused into solid pieces that have no openings between fibers except at the ragged edges around the top and bottom of the bulb. The other fibrous-coated species have an outer bulb coat fabric with open interstices between the fibers. The contorted bends and turns of the epidermal cell walls on the inner bulb coats of *A. drummondii* is a unique diagnostic feature. However, this feature has limited value since the innermost epidermal layers are difficult to find on dried specimens without damaging the outer bulb coat. The most obvious characteristics of *A. drummondii* are its unique outer bulb coat and spreading-rotate corolla.

In the field, *A. drummondii* is also distinguishable by inflorescence characteristics from other spring-flowering species in that region of the state. The narrowly urceolate flowers of *A. perdulce* sharply contrast with the campanulate to spreading corolla of *A. drummondii*. *Allium macropetalum* is easily differentiated by its multiple-nerved bracts and crested capsules, but also is not expected to occur in southeastern New Mexico.

REPRESENTATIVE SPECIMENS: **Eddy Co.**: lower Rocky Arroyo, Guadalupe Mts., 20 Apr 1992, *Sivinski 1822* (NMC, UNM); **Lea Co.**: plains north of Arkansas Junction, 24 Apr 1992, *Sivinski 1831* (NMC, UNM); **Otero Co.**: Brokeoff Mts., 17 Apr 1990, *Sivinski 1365* (UNM).

ALLIUM GEYERI S. Watson var. ***GEYERI***, Proc. Amer. Acad. 14:227. 1879.

A common species that is frequently encountered in most New Mexico mountain ranges from moist alpine meadows down to drier piñon-juniper woodlands. The lower elevation populations usually occur on unusual soils such as sandy gypsum or shale. *Allium geyeri* distinguishes itself from other fibrous bulb coat species by its relatively slender pedicles and absence of dark midribs on the tepals. It is highly variable in stature and its ovaries can be moderately crested to nearly crestless in fruit. The corolla is always urceolate, but varies in size and from white to bright pink.

While morphologically distinct, *A. geyeri* is most easily separated from other related species by its higher elevation habitats and later flowering season. All other fibrous bulb coat species in New Mexico are spring-bloomers that are in fruit by the end of May, while *A. geyeri* does not begin blooming until mid-June.

REPRESENTATIVE SPECIMENS: **Bernalillo Co.**: Sandia Mts., 8 Jul 1931, *E. Castetter 2031* (UNM); **Catron Co.**: Salvador Spring, Mangus Mts., 14 Jul 1991, *Sivinski 1745* (UNM); **Cibola Co.**: 4 miles south of Prewitt, 12 Jun 1997, *Sivinski 3795* (UNM); **Colfax Co.**: Chicorica Canyon, 27 Jun 1974, *L. Higgins 8863* (NMC); **Doña Ana Co.**: Van Patten's, Organ Mts., 10 Sep 1899, *E. Wooton s.n.* (NMC); **Grant Co.**: Little Bear Mt., 10 Sep 1980, *R. Fletcher 4942* (UNM); **Lincoln Co.**: Sierra Blanca Ski Area, 9 Jul 1977, *S.*

(*Continued on page 4, Allium*)

(Allium, continued from page 3)
Cox 644 (UNM); **McKinley Co.**: Dalton Pass, 18 Aug 1976, *W. Wagner 2426* (UNM); **Otero Co.**: Fresnal Canyon, Sacramento Mts., 22 Jul 1981, *D. Ward 81-417* (NMC, NY, RSA; Cytological Voucher n=7); **Rio Arriba Co.**: SW of Tres Piedras, 24 Jul 1991, *Sivinski 1753* (UNM); **Sandoval Co.**: North Sandia Peak, 7 Aug 1995, *Sivinski 3186* (UNM); **San Miguel Co.**: upper Pecos watershed in Dalton Canyon, 28 Jun 1991, *Sivinski 1732* (UNM); **Santa Fe Co.**: Santa Fe Baldy, Sangre de Cristo Mts., 17 Jul 1997, *Sivinski 3883* (UNM); **Sierra Co.**: Hillsboro Peak, 24 Jun 1904, *O. Metcalfe 1185* (NMC); **Socorro Co.**: Hoot Owl Canyon, Chupadera Mesa, 22 Aug 1990, *Sivinski 1572* (UNM); **Taos Co.**: Twining Canyon, Wheeler Peak, 7 Aug 1949, *Gordon & Norris 327* (UNM); **Torrance Co.**: Mosca Peak, Manzano Mts., 23 Oct 1963, *E. Bedker 1346* (UNM); **Union Co.**: Sierra Grande, 30 Jun 1976, *J. Hubbard s.n.* (UNM).

ALLIUM GEYERI var. ***TENERUM*** M.E. Jones, Contr. West. Bot. 10:28. 1902.

Allium rubrum Osterhout, Bull. Torrey Bot. Club 27:506. 1900.

Allium sabulicola Osterhout, Bull. Torrey Bot. Club 27:506. 1900.

A sporadic, asexual variation of *A. geyeri* that replaces most of its flowers with bulbils. The few flowers that are produced in the umbel always appear to be sterile, at least in New Mexico populations. Variation *tenerum* frequently occurs in boggy areas that are generally wetter habitats than those occupied by var. *geyeri.*

REPRESENTATIVE SPECIMENS: **Catron Co.**: Indian Creek Canyon, Mogollon Mts., 27 Aug 1967, *W. Hess 1404* (SNM); **Mora Co.**: west of Santa Barbara Peak, Sangre de Cristo Mts., 15 Jul 1982, *T. Andrews 199C13* (UNM); **Rio Arriba Co.**: Brazos River Box, 3 Jul 1991, *Sivinski 1733* (UNM); **San Miguel Co.**: Panchuela Creek near Cowles, 5 Jul 1931, *A. Nelson 2047* (UNM); **Taos Co.**: East Fork of Red River, 5 Aug 1982, *R. Fletcher 4732* (UNM).

ALLIUM GOODDINGII M. Ownbey, Res. Stud. State College Wash. 15:222. 1947.

This is a tall, beautiful onion with reddish-purple flowers. It is distinctive for its thick, *Iris*-like rhizomes and wide, flat leaves. It is usually a montane forest species that occurs on moist soils along streams and in small shaded drainages from ponderosa pine to spruce-fir forest elevations. There are several populations of this onion in the Mogollon Mountains of southwestern New Mexico and the adjacent White Mountains of southeastern Arizona. A disjunct population occurs in the alpine meadows of Sierra Blanca Peak in the White Mountains of south-central New Mexico. This population was misidentified in the New Mexico Flora (Martin and Hutchins 1980) as *A. brevistylum* which is a related montane species from Colorado and northward. The Chuska Mountains of northwestern New Mexico and adjacent Arizona also contain a few scattered populations of *A. gooddingii*.

REPRESENTATIVE SPECIMENS: **Catron Co.**: upper Indian Creek drainage, Mogollon Mts., 31 Aug 1980, *Spellenberg & Soreng 5848* (NMC); **Lincoln Co.**: South Fork of Rio Bonito, White Mts., 23 Aug 1985, *R. Fletcher 8347* (UNM); **McKinley Co.**: Little Water Creek, Chuska Mts., 11 Jul 1995, *B. Hevron et al. 2360* (NMC, UNM); **Otero Co.**: Sierra Blanca in glacial cirque, 16 Aug 1980, *R. Worthington 6341* (UNM); **San Juan Co.**: SE of Crystal, Chuska Mts, 26 Jul 1995, *B. Hevron 2398* (NMC, UNM).

ALLIUM KUNTHII G. Don, Mem. Wernerian Soc. 6:82. 1827.

Allium scaposum Bentham, Pl. Hartweg., pg. 26. 1840.

Although sporadic in distribution, rather large populations of this wild onion inhabit some of the desert mountain ranges in southern New Mexico. It appears to be restricted to calcareous outcrops (limestone or limy sandstone) and most frequent in the southeastern part of the state. It usually occurs at elevations with piñon-juniper woodland. In New Mexico, the white to pale pink flowers open for about a week during August.

This is a relatively tall plant (usually 20-50 cm) and is often confused with *A. rhizomatum* which also lacks ovary crests and is sometimes tall. The flowers of *A. kunthii* are more rotate-spreading, lack red outer midribs on the tepals, and have yellow anthers compared to the reddish anthers, red-purple midribs on the tepal backs, and spreading-campanulate corollas of *A. rhizomatum*. The pedicles of *A. kunthii* are shorter and more slender resulting in an umbel with a somewhat capitate appearance. *Allium kunthii* always lacks rhizomes and has a more elongated bulb that is rarely vertical and often nearly horizontal in the soil. The bulb of *A. rhizomatum* is nearly spherical and frequently has a thin, scaly rhizome at the base.

REPRESENTATIVE SPECIMENS: **Doña Ana Co.**: upper Ash Canyon, San Andres Mts., 12 Aug 1975, *J. Von Loh 520* (UNM); **Eddy Co.**: Black Canyon, Guadalupe Mts., 28 Aug 1991, *Sivinski 1793* (UNM); **Hidalgo Co.**: Thompson Canyon, Big Hatchet Mts., 17 Aug 1976, *J. Cook 143* (SNM); **Otero Co.**: Fresnal Canyon, Sacramento Mts., 14 Aug 1991, *Sivinski 1785* (NMC, UNM);

ALLIUM MACROPETALUM Rydberg, Bull. Torrey Bot. Club 31:401. 1904.

Allium deserticola (M.E. Jones) Wooton & Standley, Contr. U.S. Nat. Herb. 16:114. 1913.

This is the most widespread and common species of our arid-land wild onions. It occurs throughout western and central New Mexico in gravelly or sandy soils generally at elevations below piñon-juniper woodland. This is a spring-blooming, fibrous bulb coat species that, in New Mexico, can only be confused with *A. textile* where their ranges overlap in northwestern part of the state. Both have fibrous bulb coats and usually two leaves per scape. *Allium macropetalum* is distinguished by its multiple-nerved bracts and strongly crested ovary becoming three pairs of flattened projections at the top of the capsule. *Allium textile* has mostly single-nerved bracts and the ovary is often crestless or may develop three small (sometimes bifid) processes at the top of the capsule. Although their ranges are not expected to overlap in New Mexico, *A. perdulce* is differentiated by its crestless ovary, tightly urceolate corolla, and greater tendency to produce three leaves per scape.

Magnification may be needed to assess bract venation because *A.*

(Continued on page 5, Allium)

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

(Allium, continued from page 4)

macropetalum can occasionally have bract nerves that coalesce into what appears to be a single wide nerve. The size and shape of the corolla are also variable. Most New Mexico populations have spreading-campanulate corollas, but several scattered locations have plants have with relatively smaller, narrow corollas. The tepals always have dark midribs, but general flower color varies from white to pale pink.

REPRESENTATIVE SPECIMENS: **Bernalillo Co.**: foothills of Sandia Mts., 6 May 1977, *Wagner & Sabo 2831* (UNM); **Catron Co.**: near Glenwood, 14 May 1960, *W. Martin 4069* (UNM); **Doña Ana Co.**: Soledad Canyon, Organ Mts., 8 Apr 1981, *Spellenberg & Singer 5956* (NMC; Cytological Voucher n=7); **Grant Co.**: slopes above Faywood Cienega, 20 Apr 1993, *Spellenberg & Brouillet 11785* (NMC); **Hidalgo Co.**: lower Indian Creek, Animas Mts., *W. Wagner 564* (UNM); **Lincoln Co.**: Three Rivers Campground, White Mountains, 2 May 1970, *Hutchins 2885* (UNM); **Los Alamos Co.**: mesa between Water and Ancho Canyons, 31 May 1978, *Tierney & Foxx 12* (UNM); **Luna Co.**: near Deming, 27 Apr 1937, *Nielson 15* (UNM); **McKinley Co.**: Crownpoint, 17 May 1977, *W. Wagner 2942* (UNM); **Rio Arriba Co.**: 3 miles west of Medanales, 7 May 1997, *Sivinski 3648* (UNM); **Sandoval Co.**: west of San Ysidro, 13 May 1993, *Sivinski 2138* (UNM); **San Juan Co.**: near Archuleta, 8 May 1995, *Sivinski 2977* (UNM); **Sierra Co.**: 23 miles north of Truth or Consequences, 11 Apr 1995, *Sivinski 2929* (UNM); **Socorro Co.**: Chupadera Mesa, 21 Apr 1987, *P. Knight 3432* (UNM).

ALLIUM PERDULCE S.V. Fraser, Trans. Kansas Acad. Sci. 42:124. 1939.

This is the most common spring-blooming species on the desert and grassland plains of eastern New Mexico. It is distinguished from other fibrous bulb coat species by the combined characteristics of urceolate corolla, crestless ovary, multiple-nerved bracts, and usually three leaves per scape. The outer bulb coat fabric of this species is especially thick compared to other fibrous-coated onions in the state. It is also the only New Mexican wild onion with fragrant flowers, however, the sweet odor is sometimes difficult to detect. In northeastern New Mexico it is most likely to be confused with *A. textile* which is separated by its single-nerved bracts and usually fewer (2) leaves per scape. *Allium perdulce* also resembles *A. macropetalum*, but that species has ovary crests, usually two leaves per scape, and is not expected to occur in the eastern part of the state.

The variability within this species led Ownbey (1950) to describe *A. perdulce* var. *sperryi* M. Ownbey as a Texas Trans-Pecos endemic with white or pale pink perianth and nearly odorless flowers. Variety *perdulce* is supposed to have darker pink flowers with strong hyacinth-like fragrance. The populations of *A. perdulce* in eastern New Mexico have white to pale pink tepals (drying pink or violet) with reddish midribs which could easily be placed within variety *sperryi*. The only strongly scented plants I recall were in Eddy County, but these also had white tepals. Apparently, the distribution and demarcation of varieties *perdulce* and *sperryi* needs further study and less ambiguous circumscription.

REPRESENTATIVE SPECIMENS: **Chaves Co.**: Mescalero Ridge near Cedar Point, 22 Apr 1973, *N. Holmgren 6930* (NY, NMC, UNM); **Eddy Co.**: 15 miles NE of Carlsbad, 22 Mar 1995, *Sivinski 2927* (UNM); **Guadalupe Co.**: 7 mi SE of Vaughn, 18 May 1980, *Hutchins 8782* (UNM); **Harding Co.**: 6 miles SW of Yates, 27 Apr 1992, *Sivinski 1835* (UNM); **Roosevelt Co.**: Melrose Bombing Range, 26 Apr 1991, *Barlow et al. 19* (UNM); **San Miguel Co.**: El Pueblo Section of Santa Fe National Forest, 20 Apr 1965, *F. Broeske LI-31* (UNM); **Union Co.**: west of Grenville, 29 Apr 1992, *Sivinski 1842* (UNM).

ALLIUM RHIZOMATUM Wooton & Standley, Contr. U.S. Nat. Herb. 16:114. 1913.

Allium glandulosum sensu Ownbey, non Link & Otto.

The type locality of this species is the vicinity of Gila Hot Springs. It is fairly frequent on igneous soils in the mountains of southwestern New Mexico at medium elevations with ponderosa pine forest down to piñon-juniper-oak woodlands. This wild onion blooms in the late summer and can only be confused with *A. kunthii*. The distinctions between these two species are discussed under *A. kunthii*. Ownbey (1947) assigned *A. rhizomatum* (*glandulosum*) to "meadows and moister habitats," but this is not always the case in New Mexico where it occasionally occupies relatively dry ridges and pockets of sandy soil on rock outcrops.

Allium rhizomatum belongs to a highly variable group of mainly Mexican plants with complex and confusing nomenclature. Hamilton Traub (1967, 1968) caused much of this confusion by naming more than a dozen new species in Mexico, and only offering vague descriptions of their delimiting characteristics and distributions. He did, however, convincingly separate *A. rhizomatum* from *A. glandulosum*.

There are two distinctive forms of *rhizomatum*-like onions in southwestern New Mexico. The type collection represents the common form in the Black Range/Mogollon region that has rhizomes and is relatively fewer-flowered, slender, and usually shorter. Some *A. rhizomatum* specimen sheets from this area may lack evident rhizomes because they were not carefully collected and the rhizomes were broken off in the soil. The other form is represented in Hidalgo County and has a relatively greater number of flowers per umbel, is more robust, and lacks evident rhizomes. For instance, I am unable to locate any bulbs with rhizomes from *rhizomatum*-like plants in the Animas and Peloncillo Mountains no matter how frequently and carefully I dig them up. I can find no alternate name for these Hidalgo County plants in Traub's proliferation of epithets. T.D. Jacobson (Hunt Institute, pers. comm.) believes these are a rhizomeless form of *A. rhizomatum* that cannot be assigned a varietal name until the distribution of the rhizomeless character is studied and shown to warrant taxonomic status. Such a study would be difficult because many specimens that could have had rhizomes may lack them simply because the plants were improperly collected. If the rhizomeless form is found to be a taxonomically worthy variation, the specific epithet *rhizomatum* will prove to be an unfortunate choice.

REPRESENTATIVE SPECIMENS: **Catron Co.**: Datil Mts., 11 Sep 1976, *R. Fletcher 1461* (UNM); **Grant Co.**: Ridge above McKnight Creek, 15 Sep 1978, *J. Song 58* (SNM); **Hidalgo Co.**: Clanton Draw, Peloncillo Mts., 20 Aug 1993, *Sivinski 2524* (UNM); **Sierra Co.**: 20 miles west of Beaverhead, 20 Aug 1940, *A. Hershey s.n.* (NMC); **Socorro Co.**: Bear Trap Canyon, San Mateo Mts., 30 Aug 1975, *W. Wagner 1196* (UNM).

ALLIUM TEXTILE Nelson & Macbride, Bot. Gaz. 56:470. 1913.

This white-flowered, spring-blooming, fibrous bulb coat species is rare in New Mexico. It barely enters the state at the northwestern and northeastern corners where it occurs with sagebrush or other arid associations. *Allium geyeri*, *A. macropetalum* and *A. perdulce* have often

(Continued on page 6, Allium)

(Allium, Continued from page 5)

mistakenly been called *A. textile* in New Mexico collections. They can be distinguished by the characteristics already described under those species.

REPRESENTATIVE SPECIMEN OR RELIABLE CITATION: **San Juan Co.**: Middle Mesa near Navajo Reservoir, 14 May 1992, *Sivinski et al. 1850* (UNM); **Union Co.**: near Folsom (Ownbey 1950, pg. 212).

ACKNOWLEDGEMENTS

Dale McNeal (Univ. of the Pacific) and Tim Lowrey (UNM) reviewed the manuscript and provided several helpful comments. I sent several specimens for identification to T.D. Jacobson (HUNT), who gave me the benifit of his opinion. I am grateful for their efforts.

LITERATURE CITED

Martin, W.C. and C.R. Hutchins. 1980. *A Flora of New Mexico*. Vol. 1., J. Kramer, Vaduz, Liechtenstein.

Ownbey, M. 1947. The genus *Allium* in Arizona. Research Studies of the State College of Washington 15:211-232.

Ownbey, M. 1950. The genus *Allium* in Texas. Research Studies of the State College of Washington 18:181-222.

Traub, H.P. 1967. Subsection *Mexicanae* of section *Amerallium*, genus *Allium* L. Plant Life 23:88-96, 110.

Traub, H.P. 1968. New Guatemalan and Mexican alliums. Plant Life 24:127-142.

Wooton, E.O. and P.C. Standley. 1915. Flora of New Mexico. Contributions to the U.S. National Herbarium 19:1-794.

What's In A Name?

From time to time we have run in this newsletter little biographies of New Mexico botanists, such as Charles Wright (number 22), A.L. Hershey (number 23), and John Bigelow (number 26). In addition, most of us are aware of some of the more notable botanical luminaries, such as E.O. Wooton and Paul C. Standley. There remains, however, a little-known New Mexico botanist who made tremendous contributions to the knowledge of our fair state's flora, in spite of being in the Land of Enchantment for an extremely short period of time.

Loof Lirpa was born of a Czech father (Duben Hlupák Lirpa) and a Hungarian mother (Inga Maloof) in the tiny burg of Tászladány, Hungary, about 1910. One can surmise that Lirpa's given name derives from his mother's family name, Maloof; perhaps it was a nickname. Political unrest and a floundering economy drove the family from Europe to the United States, where his father found employment as the delivery "boy" for a florist shop in the Bronx. It is here that Loof found his interest sparked in things botanical and biological. Family friends remember his early desires to have a garden and to collect specimens of the local flora, as well as a small obsession with sponges, which he found in the bays and estuaries near the Bronx. Details of his education and growing-up are unknown, but we find him in 1937 in the employ of a medical company, hired to search for rare plants of potential pharmaceutical value. It is presumably during this period that he spent time in Iowa cataloging their natural curiosities; the Loof Wildlife Management Area in Osceola County signals his activities there. Eventually he made his way to New Mexico, and it was while foraging along the banks of the Rio Grande for rare aquatic plants, that Lirpa came across what has come to be known as Lirpa's spring minnow-wort. This botanical anomaly produces a single underwater flower once each year, on a single day in the spring of the year. Numerous attempts to locate it at other times have been unsuccessful, though we now know that it occurs in numerous waters throughout the state, being particularly common around Santa Fe and in the aquatic gardens at The Round House. A related species is common in France, known as Poisson d'Avril (contrary to our species, reports indicate that the French species is flowering early this year). Lirpa's spring minnow-wort is in the Fatuaceae family, and, because of its spring-flowering, belongs to the genus *Aprilis*. The species discovered by Loof Lirpa carries the name, *Aprilis stultis*. ☺

Botanical Literature of Interest

Taxonomy and Floristics

Al-Shehbaz, I.A. & S.L. O'Kane. 2002. ***Lesquerella* is united with Physaria (Brassicaceae).** Novon 12:319-329.

Decker-Walters, D.S., S.-M. Chung, J. E. Staub, H. D. Quemada, A. I. López-Sesé. 2002. **The origin and genetic affinities of wild populations of melon (*Cucumis melo*, Cucurbitaceae) in North America.** Plant Syst. Evol. 233(3-4), 183-197.

Downie, S.R., R.L. Hartman, F.-J. Sun, & D.S. Katz-Downie. 2002. **Polyphyly of the spring-parsleys (*Cymopterus*): molecular and morphological evidence suggests complex relationships among the perennial endemic genera of western North American Apiaceae.** Can J. Bot. 80(12):1295-1324.

Gobert, V., S. Moja, M. Colson, & P. Taberlet. 2002. **Hybridization in the section *Mentha* (Lamiaceae) inferred from AFLP markers.** Amer. J. Bot. 89:217-223.

Griffith, M.P. 2001. **Experimental hybridization of northern Chihuahuan Desert region *Opuntia* (Cactaceae).** Aliso 20(1):37-42.

Henrickson, J. 2001. **Systematics and relationships of *Fallugia* (Rosoideae--Rosaceae).** Aliso 20(1):1-15.

Ivey, R.D. 2003. **Flowering Plants of New Mexico.** 4th ed. Publ. by the author: 9311 Headingly Ct., NE, Albuquerque, NM 87111.

Levin, R.A., W.L. Wagner, P.C. Hoch, M. Nepokroeff, J.C. Pires, E.A. Zimmer, & K.J. Sytsma. 2003. **Family-level relationships of Onagraceae based on chloroplast *rbcL* and *ndhF* data.** Amer. J. Bot. 90:107-115.

Nicholls, G. 2002. **Alpine Plants of North America: An Encyclopedia of Mountain Flowers from the Rockies to Alaska.** Timber Press, Portland, OR. 344 pp.

Peterson, P.M., J. Cayouette, Y.S.N. Ferdinandez, B. Coulman, & R.E. Chapman. 2001. **Recognition of *Bromus richardsonii* and *B. ciliatus*: Evidence from morphology, cytology, and DNA fingerprinting (Poaceae: Bromeae).** Aliso 20(1):21-36.

Sanchez-del Pino, I. & H. Flores Olvera. 2002. **New taxa and a new combination in *Tidestromia* (Amaranthaceae) from North America.** Novon 12:399-407.

Young, J.A & C.D. Clements. 2002. **Purshia: The Wild and Bitter Roses.** University of Nevada Press, Reno, NV. 280 pp.

Miscellaneous

Baldwin, B.G., S. Boyd, B.J. Ertter, R.W. Patterson, T.J. Rosatti, & D.H. Wilken (eds), Margriet Wetherwax (managing ed.). 2002. **The Jepson Desert Manual: Vascular Plants of Southeastern California**. University of California Press. 640 pp.

Cracraft, J. 2002. **The seven great questions of systematic biology: An essential foundation for conservation and the sustainable use of biodiversity.** Ann. Missouri Bot. Gard. 89(2):127-114. [Can't stand the suspense? Okay, here are the questions: What is a species? How many species are there? What is the Tree of Life? What has been the history of character transformation? Where are Earth's species distributed? How have species' distributions changed over time? How is phylogenetic history predictive?]

Frodin, D.G. 2001. **Guide to Standard Floras of the World, second edition**. Cambridge University Press, Cambridge, UK. 1100 + xxiv pp.

Gaskin, J.F. 2003. **Molecular systematics and the control of invasive plants: A case study of *Tamarix* (Tamaricaceae).** Ann. Missouri Bot. Gard. 90(1):109-118.

Kruckeberg, A.R. 2002. **Geology and Plant Life: The Effects of Land Forms and Rock Types on Plants.** University of Washington Press, PO Box 50096, Seattle, WA. 304 pp.

Laughlin, D.C. 2003. **Geographic distribution and dispersal mechanisms of *Bouteloua curtipendula* in the Appalachian Mountains.** American Midland Naturalist 149(2):268–281.

Mack, R.N. & M. Erneberg. 2002. **The United States naturalized flora: Largely the product of deliberate introductions.** Ann. Missouri Bot. Gard. 89(2):176-189.

Pellmyr, O. 2003. **Yuccas, yucca moths, and coevolution: A review.** Ann. Missouri Bot. Gard. 90(1):35–55.

Pimm, S.L. 2002. **The dodo went extinct (and other ecological myths).** Ann. Missouri Bot. Gard. 89(2):190-198.

Romero Rangel, S., E.C. Rojas Zenteno, & M.-de Lourdes Aguilar Enríquez. 2002. **El género *Quercus* (Fagaceae) en el Estado de México.** Ann. Missouri Bot. Gard. 89(4):551-593.

Reichard, S.H. & P.S. White. 2003. **Invasion biology: An emerging field of study.** Ann. Missouri Bot. Gard. 90(1):64–66.

Schofield, W.B. 2002. **Field Guide to Liverwort Genera of Pacific North America.** Global Forest Society, in association with University of Washington Press, Seattle, WA. 228 pp.

Spamer, E.E. & R.M. McCourt. 2002. **The Lewis & Clark Herbarium.** Special publication #19. The Academy of Natural Sciences of Philadelphia. Available at <www.acnatsci.org/library/scipubs/index.html>.

Publication and Subscription Information

"The New Mexico Botanist" is published irregularly (as information accrues) at no charge. You may be placed on the mailing list by sending your name and complete mailing address to the editor:

Kelly Allred
The New Mexico Botanist
MSC Box 3-I
New Mexico State University
Las Cruces, NM 88003
or
Email: kallred@nmsu.edu

Available on-line at http://web.nmsu.edu/~kallred/herbweb/

Kelly Allred

Notices

- **First International Conference of Neotropical Orchidology** in Costa Rica, **21-24 May 2003**. For more information contact <jbl@cariari.ucr.ac.cr>.
- **Evolution 2003, 20-24 June 2003, Chico, California.** The annual meetings of the Society for the Study of Evolution, the Society of Systematic Biologists, and the American Society of Naturalists will be held on the campus of California State University, Chico. For more information, see <http://www.evolution2003.org/>.
- **Botany 2003, 27-30 July 2003, Mobile, Alabama.** The theme for Botany 2003 is "Aquatic and Wetland Plants: Wet & Wild." Societies having their annual meetings in conjunction with Botany 2003 are the American Bryological and Lichenological Society, the American Fern Society, ASPT, and the Botanical Society of America. For more information see <http://www. botany2003.org/>.
- **Constancea** is an on-line journal that will specialize in presenting material that would benefit from an electronic medium. It is named after Lincoln Constance and supersedes *University of California Publications in Botany*, which published its first issue in1902 and its last in 2001. We anticipate publishing works that are image-rich, that cite numerous specimens and geographic records, that are ongoing projects, that are by their nature hypertextual, or that are particularly timely. The first issue of *Constancea* celebrates the 80th birthday of Paul Silva. The journal is accessible at <http://ucjeps.berkeley. edu/constancea/>

The New Mexico Botanist

COOPERATIVE EXTENSION SERVICE
U.S. Department of Agriculture
New Mexico State University
Las Cruces, NM 88003

OFFICIAL BUSINESS
PENALTY FOR PRIVATE USE $300