

**ARIZONA GAME AND FISH DEPARTMENT
HERITAGE DATA MANAGEMENT SYSTEM**

Plant Abstract

Element Code: PMLIL02070

Data Sensitivity: No

CLASSIFICATION, NOMENCLATURE, DESCRIPTION, RANGE

NAME: *Allium bigelovii* Watson
COMMON NAME: Bigelow Onion, Bigelow's Onion
SYNONYMS: *Allium bigelovi*
FAMILY: Liliaceae

AUTHOR, PLACE OF PUBLICATION: S. Watson, U.S. Geological Exploration [sic] of the Fortieth Parallel. Botany 5:487, pl. 38, f. 8-9. 1871.

TYPE LOCALITY: United States of America: SW New Mexico: Luna County: Cook's Spring.

TYPE SPECIMEN: HT: NY. J.M. Bigelow s.n., Apr 1851. IT: NY. Isotypes also deposited at US, collected by S.B. Parish and W.F. Parish, 1344, -- May 1882, USA, California, Mojave Desert, Cushenberry Springs.

TAXONOMIC UNIQUENESS: *Allium bigelovii* is a very distinct species without obvious affinity to other North American species. It is 1 of 104 species in the genus *Allium*.

DESCRIPTION: Herbaceous perennial usually from a solitary bulb, not clustered on stout primary rhizomes, 1-1.5 x 1.2-1.5 cm. The outer bulb scales enclosing, dark brown, prominently reticulate, membranous, with very small, rather thin-walled meshes (vertically elongate or contorted). The walls are not sinuous, and the inner coat is thin and white, with obscure cells. Leaves are 1 or 2, persistent, green at anthesis, often longer than the scape, basally sheathing with sheaths not extending much above soil surface; blades solid, flat or involute, 16-21 cm x 2-4 mm, margins entire; the bracts are broadly ovate, 5-12 mm long. The scape is persistent, solitary, erect, solid, terete, 5-12 cm x 1.4 mm. Umbel persistent, erect, loose to compact, 10-25 flowered, hemispheric, bulbils unknown; spathe bracts persistent, 2, 2-11 veined, lance-ovate to ovate, equal, apex acute to acuminate. Flowers campanulate, (8-)10-14 mm; tepals erect, pink or white, and pink or reddish at tip or along midvein, lanceolate, equal, becoming papery and rigid in fruit, margins entire, apex acute; stamens included; anthers purple; pollen yellow. The ovary is crested; processes 6, prominent, flat, triangular, margins entire to coarsely toothed; style linear, equaling stamens; stigma capitate, scarcely thickened, obscurely 3-lobed; pedicels 5-20 mm long, all erect or ascending in fruit. Seed coat shining; cells smooth. (FNA 1993+).

AIDS TO IDENTIFICATION: According to Brian (2000), *Allium bigelovii* is "similar to *A. biseptum* var. *palmeri* and *A. nevadense*, but differs by having leaves two or more per stem, flat, and channeled, and flowering stems short, and flowers pink or white with a pink

midrib (not purple). It might be confused with *Calochortus* species, but differs by the six perianth segments composed of calyx and corolla being nearly all alike, none bearing glands, and having the odor of an onion.”

According to FNA (1993+), “*Allium bigelovii* is an anomalous species that does not appear to be closely related to any other from North America. With its prominent ovarian crests, a relationship with the group of species around *A. fimbriatum*, *A. nevadense*, and *A. sanbornii* is suggested. *Allium bigelovii* differs from this group, however, in having two leaves and a seed coat with smooth cells. In addition its bulb-coat reticulation is unlike that of any other North America species.”

ILLUSTRATIONS: Color photos (Robert Sivinski 2005, in CalPhotos at http://elib.cs.berkeley.edu/cgi/img_query)

Color photos of Isotypes (NYBG, in <http://207.156.243.8/emu/vh/specimen.php?irn=359473>, also 359474 & 359475)

TOTAL RANGE: Southwest New Mexico, northwestward across central Arizona to Mohave County, into extreme southeastern Nevada. (FNA 1993+).

RANGE WITHIN ARIZONA: Found in Coconino, Gila, Greenlee, Maricopa, Navajo, and Yavapai counties. Per McDougall (1973), they are found in all counties except Apache County.

SPECIES BIOLOGY AND POPULATION TRENDS

GROWTH FORM: Perennial forb/herb.

PHENOLOGY: Flowers (Mar-)April - May.

BIOLOGY:

HABITAT: On gentle slopes between 2000 – 5000 feet. Open, dry rocky soil in grassland and open chaparral, and desertscrub communities.

ELEVATION: 1,500 - 5,574 ft. (458-1700 m).

EXPOSURE: Open

SUBSTRATE: In the Lower Gila River Drainage, occurs on tertiary lake bed deposits that consist of fine-grained, sedimentary rocks (Stallings 1980). Collected on lake deposits with siltstone, sandstone, limestone in sonoran desertscrub (SEINet accessed 2005).

PLANT COMMUNITY: In the Lower Gila River Drainage, associated with Sonoran desertscrub and Sonoran-Mohave desertscrub vegetation (Stallings 1980). Associated species

in a few undisturbed areas in this drainage include: *Acamptopappus sphaerocephalus* (rayless goldenhead), *Ambrosia dumosa* (white bursage), *Calochortus flexuosus* (weak-stemmed Mariposa lily), *Calycoseris wrightii* (Wright's cup-fruit), *Canotia holacantha* (crucifixion-thorn), *Gaillardia arizonica* (Arizona blanket-flower), *Eriogonum fasciculatum* (California wild buckwheat), *Eschscholzia mexicana* (= *E. californica* ssp. *mexicana*, Mexican goldenpoppy), *Ferocactus acanthodes* (= *F. cylindraceus* var. *eastwoodiae*, Eastwood's barrel-cactus), *Fouquieria splendens* (Ocotillo), *Hilaria* (= *Pleuraphis*) *rigida* (big galleta), *Juniperus deppeana* (alligator juniper), *Krameria parvifolia* (= *K. erecta*, littleleaf ratany), *Lesquerella gordonii* (Gordon's bladderpod), *Machaeranthera tortifolia* (= *Xylorhiza tortifolia* var. *tortifolia*, Mojave aster), *Nemacladus glanduliferus* (glandular threadplant), *Nolina bigelovii* (Bigelow's bear-grass), *Opuntia acanthocarpa* (stag-horn cholla), *Orthocarpus purpurascens* (= *Castilleja exserta* ssp. *exserta*, exserted Indian paintbrush), *Parkinsonia microphylla* (little-leaf paloverde), *Porophyllum gracile* (slender pore-leaf), *Psilostrophe cooperi* (white-stem paper-flower), *Psorothamnus fremontii* (Fremont's psorothamnus), *Salazaria mexicana* (Mexican bladder-sage), and *Yucca brevifolia* (Joshua tree). (Stallings 1980; SEINet accessed 2005).

POPULATION TRENDS: Unknown

SPECIES PROTECTION AND CONSERVATION

ENDANGERED SPECIES ACT STATUS:
STATE STATUS:

None
Salvage Restricted (ARS, ANPL 1999)
[Salvage Restricted (ARS, ANPL 1993)]

OTHER STATUS:

None

MANAGEMENT FACTORS:

PROTECTIVE MEASURES:

SUGGESTED PROJECTS: Monitoring studies to determine the species mode(s) of reproduction, pollination, seed dispersal, seed biology, and seed ecology.

LAND MANAGEMENT/OWNERSHIP: BIA – Hopi Reservation; BLM – Kingman, Phoenix and Safford Field Offices; NPS – Grand Canyon National Park; USFS – Coconino National Forest, and possibly Prescott and Tonto NF; State Land Department; Private.

SOURCES OF FURTHER INFORMATION

REFERENCES:

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Arizona Revised Statutes, Chapter 7. 1999. Arizona Native Plant Law. Appendix A:

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MAJOR KNOWLEDGEABLE INDIVIDUALS:

ADDITIONAL INFORMATION:

Allium is from the Latin word for garlic and *bigelovii* honors John Milton Bigelow, 1804-1878, a botanist and surgeon with the Mexican Boundary Survey in 1853.

Native species of *Allium*, including *A. bigelovii*, are considered edible. The bulbs were much sought after by Native Americans for food and seasoning (Kearney and Peebles 1951).

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