ARIZONA GAME AND FISH DEPARTMENT
HERITAGE DATA MANAGEMENT SYSTEM

Plant Abstract **Element Code: PDGEN07090**
Data Sensitivity: No

CLASSIFICATION, NOMENCLATURE, DESCRIPTION, RANGE

NAME: *Gentianella wislizeni* (Engelm.) J. M. Gillett
COMMON NAME: Wislizeni Gentian; Chiricahua Mountain Dwarf Gentian
SYNONYMS: *Gentiana wislizeni* Engelm.; *Amarella wislizeni* Emgelm.
FAMILY: Gentianaceae

AUTHOR, PLACE OF PUBLICATION: Gillett, J. M. 1954. Annals of the Missouri Botanical Garden. 44(3):195-269.

TYPE LOCALITY: Mexico: "Llanos Mountains west of Chihuahua".

TYPE SPECIMEN: MO 2750482. F. A. Wislizenus #206. 5 October 1846.

TAXONOMIC UNIQUENESS: The genus *Gentianella* contains about 250 species. These are distributed worldwide, except Africa (Hickman 1993). In Arizona there are 4 species of *Gentianella* (Mason 1998).

DESCRIPTION: Herbaceous annual, 3 - 40 cm tall. Stems rectangular, branch branching above the base. Basal leaves oblanceolate, widest toward the tip, 5 - 20 mm long, 3 - 6 mm wide, petiolate, short-lived and soon withering; median leaves ovate, with cordate bases that are somewhat clasping, 15 - 30 mm long, 5 - 15 mm wide; upper leaves similar to median leaves but becoming progressively more lanceolate and reduced above. Flowers 4 - 5 parted, 8 - 14 mm long, nearly sessile or on long pedicels, in compound umbellate cymes; calyx 2 - 5 mm long, split along 1 side forming a spathaceous sheath with 4 - 5 minute teeth along the rim; corolla white or pale lavender, tubular, the tube 6 - 10 mm long, the lobes 2 - 4 mm long, with or without coronal hairs; stamens included; pistil sessile or very short-stipitate, cylindric or fusiform. Fruit a capsule, to 14 mm long, dehiscing in the upper one-sixth, recurving at the tip. Seeds ovoid, 0.75 mm long, 0.5 mm wide, distinctly flattened, the surface smooth, minutely wrinkled under high magnification, light brown (Gillett 1957, Mason 1998).

AIDS TO IDENTIFICATION: A key character of this species that distinguishes it from the other species of *Gentianella* in Arizona is that its calyx tube is split along one side, forming a spathaceous sheath with 4 - 5 minute teeth (Gillett 1957, Kearney and Peebles 1960, Mason 1998). See page 236 of Gillett's 1957 article on *Gentianella* for a line drawing of the calyx and corolla of *G. wislizeni* and *G. microcalyx*.

ILLUSTRATIONS: Line drawing of calyx and corolla (Gillett 1957); USFWS Line Drawing.

TOTAL RANGE: Southeastern Arizona and northern Mexico (Chihuahua, Sonora, and Durango).

RANGE WITHIN ARIZONA: Cochise County: Chiricahua Mountains; Greenlee County: White Mountains, near Hannagan Meadow.

SPECIES BIOLOGY AND POPULATION TRENDS

GROWTH FORM: Herbaceous annual.

PHENOLOGY: Flowers and sets fruit September to October.

BIOLOGY: Bees have been observed visiting the flowers of this species (Malusa et al. 1993).

HABITAT: Open meadows, roadsides, and steep unstable slopes in pine-oak and mixed-conifer forests. High-elevation clearings appear to be the primary essential habitat of this species.

ELEVATION: Approximately 6,880 - 9,600 feet in Arizona (2064-2880 m).

EXPOSURE: Various, but usually with open sunlight.

SUBSTRATE: Igneous derived, shallow rocky soils and dry loamy soils (Malusa et al. 1993).

PLANT COMMUNITY: Madrean/Rocky Mountain montane conifer forest communities, as defined by Brown (1994). Within these communities, *G. wislizeni* is found in pine, pine-oak, and mixed-conifer forest. Commonly associated trees include *Pseudotsuga menziesii*, *Pinus ponderosa*, *Pinus strobiformis*, *Picea engelmannii*, and *Populus tremuloides*. Other associated plants include *Senecio macdougalii, Conyza schiedeana, Iris missouriensis, Arenaria confusa, Carex vallicola, Monarda* sp., *Malaxis* sp., *Muhlenbergia montana, Erigeron neomexicanus, Hedeoma* sp., *Monardella odoratissima, Blapharoneuron tricholepis, Koelaria pyramidata, Stellaria* sp., *Dugaldia hoopsii, Allium* sp., *Halenia recurva,* and *Pteridium aquilinum* (Malusa et al. 1993, Bennett et al. 1996).

POPULATION TRENDS: In 1992, there were 5 populations known from the Chiricahua Mountains. Population sizes ranged from 22 plants in one population, to over 1100 plants in another. An estimated 2,500 - 3,000 plants were present in all of the populations together. Two historic locations in the Chiricahuas were searched extensively for this species during 1991 and 1992, without success (Malusa et al. 1993). The populations survived the Rattlesnake Fire of 1994 and increased in number at some locations that experienced low intensity fire damage. In 1999, one historic population was rediscovered, with about 15 plants

observed. A new population was discovered in 1997 in the Turkey Creek drainage. About 50 plants were observed in this new population, at the lowest elevation this species has been found at yet. The only population in the White Mountains (near Hannagan Meadow) has not been relocated.

SPECIES PROTECTION AND CONSERVATION

ENDANGERED SPECIES ACT STATUS: None (USDI, FWS 1996)
[C2 USDI, FWS 1993]

STATE STATUS: Salvage Restricted, 1993, Arizona Native Plant Law.

OTHER STATUS: Forest Service Sensitive (USDA, FS Region 3 1999)

MANAGEMENT FACTORS: Because of its limited distribution in the United States, the lack of detailed information on its distribution in Mexico, and potential conflicts between humans/livestock and its mountain meadow habitat, the populations in the Chiricahua Mountains should be monitored to determine population trends. During surveys for this species in 1991 and 1992 by Malusa et al., many plants in one population had been "cropped" by cattle. This species has been found in areas of disturbances such as burned areas and "recently lumbered" areas. However, it appears that heavy human use of two sites in the Chiricahua Mountains may have extirpated this species (Malusa et al. 1993).

CONSERVATION MEASURES TAKEN: Rustler Park and Barfoot Park were fenced, to prevent further grazing impacts on these mountain meadow habitats (in September, 1991?). Apparently, *G. wislizeni* has only re-colonized one of these meadows. Populations in the Chiricahua Mountains are monitored by Coronado National Forest personnel, to some extent.

SUGGESTED PROJECTS: All areas with suitable habitat in the Chiricahua Mountains should be surveyed for this species. Grazing along the crest of the Chiricahuas should be managed in such a way as to not impact palatable sensitive species during crucial growing periods.

LAND MANAGEMENT/OWNERSHIP: United States Forest Service - Coronado National Forest (Douglas Ranger District) and Apache-Sitgreaves National Forest (Alpine Ranger District). Land ownership in Mexico is not known.

SOURCES OF FURTHER INFORMATION

LITERATURE CITATIONS:

Bennett, P., Johnson, R. R. and M. R. Kunzmann. 1996. An annotated list of the vascular plants of the Chiricahua Mountains. USGS Biological Resources Division, Cooperative Park Studies Unit/University of Arizona, Tucson. p. 131.

Brown, D. E. ed. 1994. Biotic communities: southwestern United States and northwestern Mexico. University of Utah Press. Salt Lake City. 342 pp.

Hickman, J. C. ed. The Jepson manual, higher plants of California. University of California Press. Berkeley. p. 669.

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Kearney, T.H. and R.H. Peebles. 1960. Arizona flora (with supplement). University of California Press. Berkeley. p. 646-649.

Mason, C. T. 1998. A new flora for Arizona in preparation: Gentianaceae. Journal of the Arizona-Nevada Academy of Science Volume 30(2): 87-88.

Malusa, J., Warren, P., and D. Gori. 1993. Population studies of sensitive plants of the Coronado National Forest, Arizona. Unpublished report completed under cost-share agreement between the Coronado National Forest and The Nature Conservancy. The Arizona Nature Conservancy, Tucson. p. 32 - 39.

USDA, Forest Service Region 3. 1999. Regional Forester's Sensitive Species List.

USDI, Fish and Wildlife Service. 1996. Endangered and Threatened Wildlife and Plants: Review of Plant and Animal Taxa that are Candidates for Listing as Endangered or Threatened Species; Notice of Review. Proposed Rule. Federal Register 61(40):7595-7613.

USDI, Fish and Wildlife Service. 1993. Plant Taxa for Listing as Endangered or Threatened Species; Notice of Review. Federal Register 58(188):51166.

MAJOR KNOWLEDGEABLE INDIVIDUALS:

Mima Falk - U. S. Fish and Wildlife Service, Tucson, Arizona.

Jim Malusa - private consultant, Tucson, Arizona.

ADDITIONAL INFORMATION:

This species will be included in the Arizona Rare Plant Field Guide, which will probably be published in the year 2000. This will include a line drawing of the plant, a photo of the plant, and a habitat photo.

Revised: 1991-10-30 (PLW)
1998-01-08 (SSS)
1999-11-16(DJG)

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