

ARIZONA GAME AND FISH DEPARTMENT
HERITAGE DATA MANAGEMENT SYSTEM

Plant Abstract

Element Code: PDONA060L0

Data Sensitivity: No

CLASSIFICATION, NOMENCLATURE, DESCRIPTION, RANGE

NAME: *Epilobium nevadense*

COMMON NAME: Nevada Willowherb

SYNONYMS:

FAMILY: Onagraceae

AUTHOR, PLACE OF PUBLICATION: Philip Alexander Munz, Bulletin of the
Torrey Botanical Club 56(3): 166-167. 1929.

TYPE LOCALITY: Nevada, Cathedral Rock, Charleston Mountains, elevation 9200
feet (2804 m.)

TYPE SPECIMEN: Rancho Santa Ana Botanic Garden, POM-152780. E.C. Jaeger (s.n.) Sept.
4, 1927.

TAXONOMIC UNIQUENESS: *Epilobium* is a large genus with over 200 species
worldwide and 45 in North America. *E. nevadense* is one of 13 species known to occur in
Arizona.

DESCRIPTION:

Habit: Suffruticose perennial herb, with many stems arising from a thick woody long-lived
caudex; stems 10-50 cm tall, 2-3.2 mm thick, erect or ascending, branched at base and
sometimes on the inflorescence, often straw-colored, the basal parts often leafless, with
exfoliating epidermis, covered throughout with short incurved strigillose pubescence,
sometimes mixed with longer villous hairs.

Leaves: Leaves opposite only on lower half, alternate above, shorter than internodes, often with
a pair or fascicle of small (0.16-0.5 cm long, 0.1-0.14 cm wide) leaves at base of main leaves,
on petioles 0.1-0.4 cm long, cauline leaves 0.9-1.7 cm long, 0.18-0.6 cm wide, lanceolate-
elliptic to narrowly so, becoming sublinear on inflorescence, often folded along midvein,
lateral veins inconspicuous or absent, glabrescent with scattered hairs on abaxial midrib or
rarely strigillose and/or villous throughout, denticulate with 6-10 low teeth per side, apex
acute with deciduous rigid mucronate gland, base attenuate or narrowly cuneate.

Flowers: Inflorescence erect, with 3-12 flowers in loose racemes, strigillose, often mixed with
short glandular hairs, flowers erect to somewhat nodding, buds 5-6 mm long, 3-4 mm in

diameter, rounded and blunt, pedicels 0.5-1.2 mm long, pubescent, with bracts often fused to basal part, floral tube 2.7-3.2 (-5.0) mm deep, 1.8-2.5 (-3.1) mm across, with slight constriction 2/3 up from the base, glabrous and lacking ring or scales within, sepals 2.6-4.2 mm long, 0.9-1.3 mm across, lanceolate, green or reddish, sometimes deflexed in older flowers, petals 5-7.2 mm long, 3.2-4.1 mm wide, obcordate, deep rose-purple, the notch 2-3 mm deep, staminal filaments cream or white, those of the longer stamens 5-7.5 mm long, those of the shorter ones 3.5-5.5 mm long, anthers 1-1.8 mm long, 0.5-0.8 mm wide, cream-colored, scarcely apiculate, ovaries 2.5-3.8 mm long, densely strigillose and/or glandular, style 6-9.5 mm long, cream, glabrous, stigma 0.8-1.2 mm tall, 1-1.5 mm across, the four shallow triangular lobes forming a squared cup-like shape, sometimes strongly reflexed, exerted beyond the longer stamens.

Fruit: Capsule loculicidal, 8-12 mm long, 1.5-2.8 mm in diameter, subfusiform, glandular and/or strigillose, borne on pedicels 1-1.8 mm long.

Seeds: Seeds many, 4-10 per locule, in 1 row per locule, 2.1-2.9 mm long, 1.2-1.5 mm wide, obovate with constriction 0.6-1 mm from micropilar end, with very inconspicuous chalazal collar 0.05-0.06 mm long, dark brown, the surface low papillose, the papillae often centrally pitted, tuft of hairs 6-7.5 mm long, white, easily detached.

Chromosomes: Chromosome number: $n = 15$, (Wagner and Hoch, 2005).

AIDS TO IDENTIFICATION: The following characteristics can be used to distinguish *E. nevadense* from other species: plants perennial, petals < 10mm long; stigma 4-lobed; plants from arid sites (Welsh et al, 1993).

ILLUSTRATIONS:

Herbarium Mount, Holotype. <http://plants.jstor.org/specimen/viewer/rsa0004446>

TOTAL RANGE: Endemic to the Great Basin, with scattered imperiled populations in southeastern Nevada and critically imperiled populations in southwestern Utah. In 2008, *E. nevadense* was collected from a single location in Arizona's Grand Canyon National Park.

RANGE WITHIN ARIZONA: Known only from a single location in Arizona: Upper Twin Springs Canyon, southwest of Mt. Dellenbaugh, in Mohave County. This 2008 collection extends the species into Arizona for the first time.

SPECIES BIOLOGY AND POPULATION TRENDS

GROWTH FORM: Shrubby perennial herb, with many stems arising from a thick, woody, long-lived caudex; stems 10-50 cm tall, erect or ascending; deep tap root.

PHENOLOGY: Produces several pink-purple flowers from July to September.

BIOLOGY:

HABITAT: Pinyon-Juniper communities, on talus slopes or rocky limestone outcrops.

ELEVATION: In Utah, *E. nevadense* ranges from 5,200-9,000 feet (1,585-2,745 m). Actual collections (three source features) from the only known locality in Arizona range from 5,300-5,700 feet (1,616-1,738 m).

EXPOSURE: Its topographic position varies from near crest and upper slope to slope bottom; varying aspect and usually precipitous gradient.

SUBSTRATE: Soils are xeric, shallow and coarse. The plant can be found on loose scree slopes, limestone talus, or sandy soils at the base of steep rock faces. Although elsewhere in its range, *E. nevadense* can occur on tertiary volcanics, the Arizona occurrences are on Kaibab limestone.

PLANT COMMUNITY: *Epilobium nevadense* typically occurs in plant communities which vary in dominance between mixed-mountain brush and pinyon-juniper-mountain brush. Single-leaf pinyon, *Pinus monophylla*, seems to be a commonly associated species. Other plant species recorded at the Arizona collection sites include: *Robinia neomexicana*, *Artemisia tridentata*, *Juniperus osteosperma*, *Quercus gambelii*, *Fallugia paradoxa*, *Brickellia californica*, *Heuchera rubescens*, *Ericameria*, *Ipomopsis aggregata*, *Verbascum thapsus*, *Garrya flavescens*, *Quercus turbinella*, *Castilleja linariifolia*, *Holodiscus dumosa*, *Perityle congesta* and *Ptelea trifoliata*.

POPULATION HISTORY AND TRENDS: A rare plant known from few and scattered localities. Considered imperiled (S2) in Nevada (7 occurrences mapped, number of individuals estimated at 111+, total area occupied <35 acres – from Nevada Natural Heritage Program, 2001) and critically imperiled (S1) in Utah and Arizona. Known from only a single locality in Arizona, and first collected in 2008. There is no other population or trend data available.

SPECIES PROTECTION AND CONSERVATION

ENDANGERED SPECIES ACT STATUS: None

STATE STATUS: None

OTHER STATUS:

MANAGEMENT FACTORS: In Utah and Nevada, road construction, mineral exploration, and increased recreational use of the areas occupied by this plant are cited as management concerns that need to be addressed by the USFS or BLM land owners. At

present in Arizona, since the only known locality for *E. nevadense* is within the Grand Canyon National Park, these are not significant issues.

PROTECTIVE MEASURES TAKEN: None

SUGGESTED PROJECTS:

LAND MANAGEMENT/OWNERSHIP: U.S. National Park Service (Grand Canyon N.P.)

SOURCES OF FURTHER INFORMATION

REFERENCES:

NatureServe,

<http://www.natureserve.org/explorer/servlet/NatureServe?searchSciOrCommonName=Epilobium+nevadense&x=6&y=10>, accessed 6/3/2013.

Nevada Natural Heritage Program. 2001. Rare Plant Fact Sheet. *Epilobium nevadense*.

Wagner, W. L. and P. C. Hoch. 2005-. Onagraceae, The Evening Primrose Family website. <http://botany.si.edu/onagraceae/index.cfm> [accessed 6/3/2013].

Welsh, S.L., N.D. Atwood, S. Goodrich and L.C. Higgins, eds. 1993. A Utah Flora. Brigham Young University, Provo. Pp. 497, 500.

MAJOR KNOWLEDGEABLE INDIVIDUALS:

ADDITIONAL INFORMATION:

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