

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

Plant Abstract

Element Code: PDPOR080A0

Data Sensitivity: No

CLASSIFICATION, NOMENCLATURE, DESCRIPTION, RANGE

NAME: *Phemeranthus humilis* (Greene) Kiger
COMMON NAME: Pinos Altos flame flower, Pinos Altos flameflower, Pinos Altos Mountains
flameflower
SYNONYMS: *Talinum humile* Greene
FAMILY: Portulacaceae

AUTHOR, PLACE OF PUBLICATION: E.L. Greene, Bot. Gaz. 6(3): 183-185. 1881.

TYPE LOCALITY: New Mexico: Grant County: Near the southern base of the Pinos Altos
Mountains.

TYPE SPECIMEN: HT: ?NDG 015823. E.L. Greene 217, 11 August 1880. IT: GH, K, MO,
NY.

TAXONOMIC UNIQUENESS: Price (2012) recognizes ca. 25 species of *Phemeranthus*.
Six species of *Phemeranthus* occur in Arizona. Kiger (2001) confirmed transfer of 13 species
from *Talinum* to *Phemeranthus* due to differences in leaf, pollen, fruit, and seed structure.

DESCRIPTION: Small perennial herb, with round succulent leaves, rarely exceeding 10 cm
(4 in) in height. The main roots are fleshy, turbinate, near the soil surface, and sometimes
bifurcated; occasionally forked. Main stems are usually simple, erect, and simple; rarely
branched. Occasionally stem may be elongated when soil surface is raised by erosion
deposition. Leaves sessile, glabrous, and terete, give the appearance of a tuft or rosette, and
are without obvious petioles. Leaves are light glaucous-green to yellowish green, 1-5 mm in
diameter and up to 10 cm in length. Inflorescence is cymose, with 5-10 flowers in terminal
clusters, and shorter than the height of the leaves. Sepals 2, ovate, obtuse, 3 mm long, falling
off as the ovary matures. Petals 5, yellow, about 5 mm long, elliptic to obovate; stamens
usually 5-8 and the stigma subcapitate (small rounded head). The green seed capsules are 4-5
mm long, ellipsoid to subglobose, and sometimes triquetrous. Black seeds are ringed with
concentric ridges, and are about 1-1.5 mm long. (Neal 1987).

AIDS TO IDENTIFICATION: The yellow flowers of *Phemeranthus humilis* distinguish it
from all other members of the genus in the area except *P. marginatus* and *P. aurantiacum*. *P.*
marginatus is very similar in flower color, morphology, and general appearance except that it
has distinctly long-petiolate leaves while *P. humilis* has no apparent petiole. The
inflorescence of *P. humilis* does not generally overtop or exceed the length of the leaves. The

inflorescence of *P. marginatus* in contrast is usually longer than the leaves and stands above the level of the leaves. *P. aurantiacum* may also have yellow flowers, but they are inserted singly or occasionally in 2- or 3- flowered cymes rather than in pedunculate cymes as in *P. humilis* (Neal 1987).

ILLUSTRATIONS: Line drawing (NMNPPAC 1984).
Line drawing (Harsberger 1897).
Color photo of Isotype collection (NYBG, accessed 5/5/2004 from http://scisun.nybg.org:8890/searchdb/owa/wwwcatalog.detail_list?this_id=4433065)
Line drawing (M. Essig, in Falk, Jenkins et al. 2001)
Color photo (K. Heil, accessed 5/5/2004 from <http://nmrareplants.unm.edu/photoimages/collage/talhum.htm>)
Color photo of habitat (USFWS, accessed 5/5/2004 from <http://nmrareplants.unm.edu/photoimages/collage/talhum.htm>)

TOTAL RANGE: Two populations known from Grant County, New Mexico, and two populations known from Canelo Hills, Santa Cruz County, Arizona. Several localities in Durango and western Chihuahua, Mexico.

RANGE WITHIN ARIZONA: Sierra Grande Ranch southeast of Sonoita, in Santa Cruz County. A transplanted population is present (since 1985) on the Audubon Research Ranch, in the Canelo Hills, Santa Cruz County.

SPECIES BIOLOGY AND POPULATION TRENDS

GROWTH FORM: Dwarf succulent perennial.

PHENOLOGY: Flowers June-September (FNA online 2004). At Sierra Grande Ranch: Initial growth and leaves become visible in late June or early July. Flowers mid-July to mid-August, but appears indeterminate (flowers throughout season). Senesce in mid- or late-August. Germination period unknown. Flowers open only on bright sunny days. Anthesis begins about noon and the flowers close 3-4 hours later. By early September only dried flowering stalks remain visible above ground (Neal 1987).

BIOLOGY: *P. humilis* can apparently withstand fire during the dry season (Corral-Diaz 1990). Plants quickly disappear following the first frost. The long dormancy period of 9-10 months and succulent habit are adaptations which allow the species to persist in thin, well drained soils. Many times, only a few individuals are found at a given site, which makes it unclear if this reflects the true population or is only due to timing. Plants grow actively only after rains during the warm summer, and usually for short periods. (Ferguson 1999). This plant can be propagated in the spring by seed and division, and in the summer by cuttings.

HABITAT: Dry, shallow, gravelly, well-drained, rhyolitic soil terraces, often overlying bedrock. Known populations occur in semi-desert grassland/Madrean evergreen woodland transition communities in Arizona. In New Mexico and Mexico, this species occurs in pine-oak woodland habitat. In New Mexico, it is known to occur in shallow pockets of soil associated with rhyolite outcrops.

ELEVATION: 6,000 - 8,000 ft. (1830-2440 m); 5,100 feet (1,556 m) in Arizona. Flora of North America (online 2004) reports elevation from 1600-1800 m (5,250-5,900 ft). Falk, Jenkins et al. (2001), report elevation range from 4,000-5,000 ft (1220-1525 m).

EXPOSURE: Various. Rocky south facing slopes (NatureServe 2004).

SUBSTRATE: In Arizona, this species is apparently restricted to shallow, coarse, rhyolitic soil terraces overlying bedrock, where it is free from competition from other perennial plants. In New Mexico, this species occurs in pockets of soil that accumulate among rhyolite boulders and outcrops.

PLANT COMMUNITY: In Arizona, this species occurs in openings of shallow soil in the transition zone between semi-desert grassland and Madrean evergreen woodland communities, as defined by Brown (1994). Ferguson (1999), reports that this plant is found in Madrean grassland, oak woodland, or piñon-juniper woodland. Associated species at the Sierra Grande Ranch site include: *Bouteloua gracilis* (blue grama), *Dyschoriste decumbens* (spreading decumbens), *Eragrostis intermedia* (plains lovegrass), *Hilaria belangeri* (common curly-mesquite), *Ipomoea* sp. (morning-glory), *Juniperus* sp. (juniper), *Linum* sp. (flax), *Macropitium gibbosifolium* (variableleaf bushbean), and *Quercus* sp. (oak). Associated species in New Mexico include: *Agave parryi* (Parry's agave), *Anthericum torreyi* (*Echeandia flavescens*=Torrey's crag-lily), *Bommeria hispida* (copper fern), *Carex* spp. (sedge), *Cercocarpus montanus* (Colorado birch-leaved mountain-mahogany), *Commelina dianthifolia* (birdbill day-flower), *Echinocereus coccineus* (hedgehog cactus), *Fallugia paradoxa* (Apache-plume), *Garrya wrightii* (Wright's silktassel), *Ipomoea longifolia* (pink-throat morning-glory), *Juniperus deppeana* (alligator juniper), *Muhlenbergia emersleyi* (bullgrass), *Nolina microcarpa* (sacahuista bear-grass), *Notholaena sinuata* (= *Astrolepis sinuata*), *Opuntia engelmannii* (prickly-pear), *O. spinosior* (cane prickly-pear), *Oxalis metcalfei* (*O. alpina*=Alpine woodsorrel), *Pellea atropurpurea* (purple cliff brake), *Pinus ponderosa* (ponderosa pine), *Quercus* spp. (oak), *Talinum parviflorum* (small-flowered flame-flower), *Tradescantia pinetorum* (pinewoods spiderwort), and *Yucca baccata* (fleshy-fruit yucca). In Mexico, this species occurs in Madrean evergreen woodland communities, as defined by Brown (1994), in pine-oak forest with *Arctostaphylos* sp. (manzanita), *Arbutus* sp. (madrone), *Cupressus* sp. (cypress), and *Juniperus* sp. (juniper).

POPULATION TRENDS: Unknown. This once common species, is now becoming rare (NatureServe 2004), where it is found in New Mexico and Arizona with a total of eight element occurrences. The population on the Sierra Grande Ranch (formerly known as the Everhart Ranch and the Petschek Ranch) is apparently estimated to contain between 7,000

and 10,000 individuals (Neal 1987). In New Mexico, this species is currently known from two populations: one with approximately 150 plants and another with 65 plants. Corral-Diaz (1990) suggests *P. humilis* is common within the “Devil’s Backbone” region of Durango, Mexico. According to Corral-Diaz (1990), in Mexico, this species is known from approximately 8 disjunct populations, however, NatureServe (2004) reports “Possibly at a few sites in Mexico, but information is lacking.”

SPECIES PROTECTION AND CONSERVATION

ENDANGERED SPECIES ACT STATUS: None (USDI, FWS 1996)
 [C2 USDI, FWS 1993]
 [C2 USDI, FWS 1990]
 Petitioned for listing on October 15, 1985

STATE STATUS: Salvage Restricted (ARS, ANPL 1999)
 [Salvage Restricted (ARS, ANPL 1993)]

OTHER STATUS: Forest Service Sensitive (USDA, FS Region
 3 1999)
 [Forest Service Sensitive USDA, FS Region
 3 1990]

MANAGEMENT FACTORS: The limited distribution (only known naturally occurring U.S. population covers an area about 30 X 200 yards) of this species and the fact that all known occurrences occur on private land make this species one of concern. Trampling and soil disturbance by cattle, people, vehicles, etc. are a possible threat. This species is sensitive to trampling during the growing season from late June to early September. The succulent leaves of trampled plants quickly wilt and fall off and observations suggest that trampled plants are unlikely to reproduce that year. This species is also highly vulnerable to grazing and erosion disturbance (Neal 1987). Pigs were observed eating roots of the plants in Mexico (Corral-Diaz 1990).

CONSERVATION MEASURES TAKEN: Several plants have been transplanted onto the (Appleton-Whittel) Audubon Research Ranch, Elgin, Arizona. Some protection is afforded to the populations in the Coronado and Gila National Forests. This species has been listed as “Forest Service Sensitive” since 1985.

SUGGESTED PROJECTS: Field work is needed to determine its abundance and distribution. Potential habitat should also be surveyed, especially in areas adjacent to known populations. Existing populations should be monitored to some extent, if possible. Protect known populations of *T. humile* from all forms of soil disturbance and any activities which may cause erosion or alter soil deposition at the site.

LAND MANAGEMENT/OWNERSHIP: BLM – Tucson Field Office; Private. One site occurs on private inholding within Coronado National Forest.

SOURCES OF FURTHER INFORMATION

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ADDITIONAL INFORMATION:

Possible population reported in 1990 by Dave Ferguson on roadside at Kneeling Nun Vista, New Mexico.

Plants have not been seen at the type locality in New Mexico since 1880.

Corral-Diaz (1990) suggests that the species may occur in unsearched habitat over a distance of about 160 km along the Sierra Madre Occidental in Mexico. He considered the species not to be endangered in 1990, at the time he wrote his status report.

Revised: 1989-12-18 (SST)
1991-11-11 (SR)
1997-10-24 (SMS)
2000-01-05 (DJG)
2004-05-20 (SMS)
2020-06-10 (KSL)

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