ARIZONA GAME AND FISH DEPARTMENT
HERITAGE DATA MANAGEMENT SYSTEM

Plant Abstract **Element Code:** PDAST3M4X0
Data Sensitivity: No

CLASSIFICATION, NOMENCLATURE, DESCRIPTION, RANGE

NAME: *Erigeron piscaticus*
COMMON NAME: Fish Creek Fleabane
SYNONYMS: *Erigeron lemmoni* Gray (in part)
FAMILY: Asteraceae

AUTHOR, PLACE OF PUBLICATION: Nesom, G.L. 1989. Phytologia 67(4):304-306.

TYPE LOCALITY: Fish Creek Canyon, Maricopa County, Arizona.

TYPE SPECIMEN: HT: ARIZ-BOT 04374. Peebles, R.H. and E.D. Eaton (#7953). 16 July 1931.

TAXONOMIC UNIQUENESS: One of at least 29 species of *Erigeron* occurring in Arizona, and about one-third of these, including *E. piscaticus*, are endemic to the state. *E. piscaticus* was originally considered as part of *E. lemmoni* Gray.

DESCRIPTION: Annual, up to 40 cm (16 in.) tall from slender tap root with numerous branches. Entire plant minutely but densely stipitate-glandular. Sparsely but evenly pilose (soft hairs) with stiffly spreading trichomes. Leaves obovate, sessile or with a short petiolar region, not clasping; mostly 10.0-22.0 mm (0.4-0.88 in.) long, 2.0-7.0 mm (0.08-0.28 in.) wide; leaves entire or rarely with single tooth; apex apiculate (small, broad point). Ray flowers 4-58 in 1-2 series (layers), corollas white. Disc corollas 1.5-1.8 mm (0.06-0.07 in.) long, inflated and white-indurated just above the tube. Achenes 0.8-1.0 mm (0.03-0.04 in.) long, tan, sparsely strigose to glabrate; pappus of 8-11 bristles about two-thirds as long as disc corollas, with a few but prominent outer setae, 0.1-0.2 mm (0.004-0.008 in.) long. Rays typically blue when dried. Phyllaries (toothed bracts surrounding heads) in 2-3 series of nearly equal length, other species unequal.

AIDS TO IDENTIFICATION: *E. piscaticus* lacks lobed leaves, has only sparse hairs on the upper stem. Heads (disc area) 4.0-5.0 mm (0.16-0.20 in.) wide. All of co-occurring species (*E. divergens, E. lobatus, E. lemmonii* and *E. piscaticus*) have much larger heads. Gori (1994, page 3) provides a comparison chart for these species:

E. divergens	*E. lobatus*	*E. lemmoni*	*E. piscaticus*
Canyon bottoms (can be wider)	Canyon bottoms (can be wider)	Next to cliffs, (only 1 population)	Shady canyon bottoms.
Leaves mostly entire	All lobed	Lobed and entire	All entire

(base of plant may be lobed)

Heads: 8.0-10.0 mm. (0.32-0.4 in.) Erect, taller plant	Heads: 8.0-10.0 mm (0.32-0.4 in.)	Heads: 6.0-10.0 mm (0.24-0.40 in.)	Heads: 4.0-5.0 mm (0.16-0.20 in.) Low growing with very small flowers

ILLUSTRATIONS: Line drawing, photos (plant and habitat): Falk et al 2001.

TOTAL RANGE: The type locality is Fish Creek Canyon in the Superstition Mountains, Maricopa County. There is another confirmed specimen from Box Canyon in the Santa Catalina or possibly Rincon Mountains in Pima County. The precise location is in question. There are two other collections from the Galiuro Mountains, Aravaipa Canyon Preserve, in Graham County: Oak Grove Canyon (two populations) and Turkey Creek.

RANGE WITHIN ARIZONA: The Fish Creek Canyon population has not been observed since the early 1990s and is now considered an historical site. The exact location of the Box Canyon site in the Santa Catalina (or possibly Rincon) Mountains has never been confirmed. In the Aravaipa Canyon Preserve, the Turkey Creek population has not been observed since the early 1990s either. According to Dave Gori (1999), the only extant populations are found in Oak Grove Canyon. These populations have been surveyed from 1992 to 2008.

SPECIES BIOLOGY AND POPULATION TRENDS

GROWTH FORM: Herbaceous Annual

PHENOLOGY: Flowers and fruits May - August, probably continuing until October, and possibly even through December when conditions are favorable.

BIOLOGY: Environmental cues to initiate germination are unknown; data is insufficient. The trigger can be either summer or winter rains, and possibly residual ground moisture from a flood. As an annual, this species may not emerge in some years. Pollination has not been studied in this species, though other Erigeron species are typically pollinated by bees and wasps. Seed is dispersed by both wind and water; this species may also depend on flooding events to create suitable early-successional habitat (Gori 1992, p. 2). Seed bank longevity has not been studied in *E. piscaticus*.

HABITAT: Moist, sandy canyon bottoms associated with perennial or intermittent streams. Plants are found on sandy terraces just above the floodplain and are subject to larger flood events; there is little associated understory (Gori 1992) Oak Grove Canyon, where the remaining known population is found, is a narrow slot canyon with intermittent stream flow and a riparian gallery forest of sycamore, alder, and black walnut.

ELEVATION: 2,250 to 3,500 feet (686-1068 m). Includes all known and historic locations.

EXPOSURE:

SUBSTRATE: Sand/silt alluvium.

PLANT COMMUNITY: Southwest riparian community. Oak Grove Canyon has a riparian gallery forest of sycamore, alder, and black walnut.

POPULATION TRENDS: There are four known collection sites for *E. piscaticus*. However, the type locality in Fish Creek Canyon and the population in Turkey Creek (Aravaipa Canyon Preserve) have not been seen since the early 1990s. The precise location of a verified specimen from the Santa Catalina Mountains (or possibly Rincon Mountains) has never been determined. The only extant populations of the species are now in Oak Grove Canyon in the Aravaipa Canyon Preserve.

The Oak Grove Canyon populations have been periodically monitored from 1992 to 2008, and should be again in 2012 (USFWS 2011). During this period, the tallied population numbers fluctuated from 87 to 4 and back to 81. In 1994, a July survey found 30 plants, but a second survey in September brought the total to 79. These results revealed that the species can germinate and flower later in the season (it was previously believed to respond only to winter rains).

NatureServe ranks this species as critically imperiled, but the USFWS declined to list the plant in 2011 (see below).

SPECIES PROTECTION AND CONSERVATION

ENDANGERED SPECIES ACT STATUS: None (USDI, FWS 1996)
[Category 2 USDI, FWS 1993]

STATE STATUS: Salvage Restricted (ARS, ANPL 1993, 2010, 2016)

OTHER STATUS: Forest Service Sensitive (USDA, FS Region 3 1990, 1999, 2007, 2013)
Bureau of Land Management Sensitive (USDI, BLM AZ 2000, 2005, 2008, 2010, 2017)

MANAGEMENT FACTORS: Extremely limited range and population size of this species make it susceptible to natural and man-caused disturbances. Other factors that could affect the species include poor watershed conditions; Oak Grove Canyon hiking traffic and recreational activities (ATV utilization and camping); and extreme flooding. The most

significant issue is that there is only one population known with about 80+ plants. Light grazing does **not** seem to affect plant.

USDI FWS (2011) presented its 12-month finding on a petition to list three species, including *E. piscaticus*. Based on their 5-Factor Analysis, summarized below, they concluded that **a listing of either endangered or threatened was not warranted for this species at this time.**

Factor A. The Present or Threatened Destruction, Modification, or Curtailment of Its Habitat or Range, with potential factors being: (1) Flooding; (2) recreation; (3) watershed degradation; and (4) climate change.

Flooding. *Erigeron piscaticus* is an annual riparian species that occurs above the inundation zone on shallow terraces that are subject to larger flooding events. Based on the species persistence, and its population fluctuations relative to both precipitation and flooding events, the FWS concludes that *E. piscaticus* is tolerant of moderate disturbance and may need periodic flooding for successful seed germination. Therefore, based on the best available information, they determined that flooding is not a threat to the continued existence of the species, nor is it likely to become so. The FWS does note that this conclusion is derived from the behavior of only a single population.

Recreation. These activities in the Aravaipa Canyon Preserve include hiking, camping and ATV use. As previously noted, *E. piscaticus* seems to tolerate moderate levels of disturbance, and observations that plants were found in various stages of germination and growth on an actively eroding site add support to this thesis. The FWS concludes that recreation is not a threat to the continued existence of this species, nor is it likely to become so.

Watershed Degradation. Although abused and degraded by grazing for over a century, improvements made during the past few decades have resulted in uplands that are fairly healthy with increases in native perennial grasses, and reduced runoff and erosion. The FWS concludes that watershed degradation is not a threat to the continued existence of this species, nor is it likely to become so.

Climate Change. A reduction in precipitation or increase in temperature-related stress could preclude recruitment and therefore seed set in this annual species. Seed bank longevity for *E. piscaticus* has not been determined, although other *Erigeron* species' seeds have been reported to last for approximately 10 years. Based on the species' life history and observed tolerances, it appears that the effects of climate change may be limited. In conclusion, based on the best available information, the FWS has determined that climate change is not a threat to the continued existence of the species.

Factor B. Overutilization for Commercial, Recreational, Scientific, or Educational Purposes. *Erigeron piscaticus* is not a plant of horticultural interest. There is no evidence of any instances in which *E. piscaticus* was collected from the wild other than as voucher specimens. Accordingly, the FWS concludes that Overutilization is not a threat to the continued existence of the species, nor is it likely to become so.

Factor C. Disease or Predation. There is no indication that any disease affects *Erigeron piscaticus*. There is no livestock grazing in Oak Grove Canyon and Turkey Creek within the Aravaipa Canyon Preserve, and there is no information about any other source of predation on the species. The FWS have determined that disease or predation is not a threat.

Factor D. The Inadequacy of Existing Regulatory Mechanisms. Both the Bureau of Land Management and U.S. Forest Service list *E. piscaticus* as a Sensitive species. This listing means that these agencies must address this species in their management plans in order to maintain its viability. The FWS has determined that these listings adequately protect the species and its habitat and that *E. piscaticus* is not threatened by inadequate existing regulatory mechanisms.

Factor E. Other Natural or Manmade Factors Affecting Its Continued Existence.

Small Population Size. Small populations can be especially vulnerable to environmental disturbances, but plants that are historically rare may have certain adaptations to rarity (e.g., early blooming, extended flowering, or mixed-mating systems) that enable them to persist. There is no indication that *Erigeron piscaticus* was ever present on the landscape over a more extensive range than it is today. Existing sites are monitored, and surveys have located no new occurrences. There is no information indicating that random demographic or environmental events are a threat to the continued existence of the species because of its small population size.

Genetic Diversity. Limited information is available regarding the genetic diversity of the *Erigeron* genus. No information is available regarding the genetic diversity exhibited by *E. piscaticus*. Therefore, the FWS has determined that a lack of genetic diversity is not a threat to the continued existence of the species.

CONSERVATION MEASURES TAKEN: Two federal agencies, the U.S. Forest Service and the Bureau of Land Management have listed *Erigeron piscaticus* as a Sensitive species, which affords it consideration in their management plans. The State of Arizona lists the species as Salvage Restricted. However, in 2011, the US Fish and Wildlife Service declined to list the species, even though it is now represented by only a single population with fewer than 100 known plants. This population resides in the Aravaipa Canyon Preserve, which is administered by The Nature Conservancy and the BLM. The historic Turkey Creek population site is also within the Preserve. The original type locality along Fish Creek Canyon is occurs within the Superstition Wilderness Area, but no plants have been observed for decades.

SUGGESTED PROJECTS: The periodic monitoring of the remaining population in Oak Grove Canyon must be continued. When possible, other downstream surveys should be conducted to see if other populations can be located. Similarly, when possible the original type locality at Fish Creek Canyon should also be surveyed. These surveys should try to represent different environmental conditions with the hope that plants may germinate from residual seed bank seeds, if still extant. Generally, July and August are good months for surveys.

LAND MANAGEMENT/OWNERSHIP: USFS - Tonto National Forest; TNC - Aravaipa Canyon Preserve; BLM - Safford District.

SOURCES OF FURTHER INFORMATION

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MAJOR KNOWLEDGEABLE INDIVIDUALS:

David F. Gori, retired - The Nature Conservancy, New Mexico.

Jim Malusa – The University of Arizona, School of Natural Resources and the Environment, Tucson, Arizona.

Guy L. Nesom – botanist and writer, Philadelphia, PA. guynesom@sbcglobal.net

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ADDITIONAL INFORMATION:

Erigeron piscaticus incorrectly included in the flora of the Pinaleño Mountains (W.T. Johnson, M.S. thesis, Arizona State University, 1986?), but this misidentification was corrected in Johnson, 1988. Flora of the Pinaleno Mountains. Desert Plants 8:147-191.

Revised: 1990-01-23 (SST)
1990-12-04 (SR)
1992-09-16 (BKP)
1994-09-08 (PLW)
1994-03-28 (DBI)
2001-12-18 (SMS)
2019-10-22 (BDT)