ARIZONA GAME AND FISH DEPARTMENT
HERITAGE DATA MANAGEMENT SYSTEM

Plant Abstract **Element Code:** PDAST0S1E0
Data Sensitivity: No

CLASSIFICATION, NOMENCLATURE, DESCRIPTION, RANGE

NAME: *Artemisia pygmaea* Gray
COMMON NAME: Pygmy sagebrush, pigmy sagebrush
SYNONYMS: *Seriphidium pygmaeum* (A. Gray) W.A. Weber
FAMILY: Asteraceae

AUTHOR, PLACE OF PUBLICATION: A. Gray, Proc. Amer. Acad. Arts and Sci. 21(2): 413. 1886.

TYPE LOCALITY: Fish Creek, Eureka, Nevada, United States of America.

TYPE SPECIMEN: Holotype: GH-2731. T.S. Brandegee s.n., August 1885.

TAXONOMIC UNIQUENESS: The species *pygmaea* is 1 of 53 species in the genus *Artemisia* in North America, and 1 of 16 in Arizona. USDA, NRCS (2004) reports 58 species in the genus *Artemisia*.

DESCRIPTION: A small cushion-like, depressed, evergreen shrub, with erect stems from 5-20 cm (2-8 in) tall, from superficial woody caudexlike branches and stout taproots; vegetative stems to 5 cm (2 in) long. The bark on older stems becomes dark brown and fibrous with age, while on younger branches, the bark is nearly white to straw-colored and somewhat puberulent. Leaves on vegetative stems are green, nearly glabrous, viscidulous, and are pinnatified with 3-11 lobes, or sometimes may be toothed. Leaf dimensions range between 2-4 mm wide and 1-10 mm long. The leaves on flowering branches are usually reduced and may be entire. Inflorescence is spicate or narrowly paniculate, less than 2 cm wide, with three to five disc flowers per flower head. Ray flowers are lacking. Involucres are 5-6 mm high, 3-4.5 mm wide, cylindric or becoming campanulate upon drying. The involucral bracts number 15 or more, oblong, sparingly villous to glabrous, green, the margins stramineous hyaline. The outer involucral bracts are linear to lanceolate. Marginal flowers are lacking; central flowers 3-5, perfect, fertile, the corollas cream colored, glandular. The receptacle and achenes are glabrous.

AIDS TO IDENTIFICATION:

ILLUSTRATIONS: Line drawing (SBC, *in* McArthur and Taylor date unknown)
Line drawing (Berniece A. Anderson, 1996 revised)

TOTAL RANGE: From the Great Basin of eastern Nevada, central to western Utah, through the Uinta Basin of Utah and Colorado, and in northern Arizona and northwestern New Mexico (McKinley Co.).

RANGE WITHIN ARIZONA: Kanab Plateau, south and southeast of Fredonia, Coconino County. Also reported from Apache and Mohave counties.

SPECIES BIOLOGY AND POPULATION TRENDS

GROWTH FORM: Perennial shrub/subshrub, that forms low mats up to 25 cm in diameter.

PHENOLOGY: Flowers in late summer during August and September; seed matures in October.

BIOLOGY: The seeds of *Artemisia pygmaea* are relatively large compared to those of other species of *Artemisia* (Tirmenstein 1988). Seeds are wind dispersed during late fall or winter. Seedlings emerge during the spring. In research plantings, shrubs have spread naturally. Divided transplanted plants also establishes well. Although it spreads through naturally dispersed seed, artificial seedings have been unsuccessful. (McArthur and Taylor, date unknown). Pygmy sagebrush does not resprout after fire or other disturbances.

HABITAT: Found in desert grassland, pinyon-juniper, and salt desert shrub communities of the Great Basin and Uinta Basin. At some mesic, less saline, salt desert sites *A. pygmaea*, along with *A. nova* (black sagebrush) and/or *A. spinescens* (budsage) dominates the plant community. (Tirmenstein, 1987).

ELEVATION: In Arizona, elevation ranges from 4,680-4,740 ft (1427-1446 m). Grows from 4,000 to 6,000 feet (1200-1830 m) throughout its range (Tirmenstein, 1987). In Utah, Welsh et al. (1993) reports elevation ranges from 5,249-7,546 ft (1600-2300 m).

EXPOSURE: About 5% slope on southwest exposure.

SUBSTRATE: Gray gypseous gravelly loam of the Moenkopi formation. Also reported on calcareous desert soils. Lowrey (1998), reports use of "dry, barren soils often on white clay or shale, tolerant of alkali." According to Welsh et al. (1993), "This dwarf sagebrush occurs in peculiar edaphic situations on Green River Shale, in clay soils forming the matrix in igneous gravels, on calcareous gravels, and on dolomitic outcrops and gravels, where it often is the dominant species in local areas."

PLANT COMMUNITY: Great Basin desertscrub. Has been found in black sagebrush, rabbitbrush, shadscale, greasebush, juniper, pinyon-juniper, and ponderosa pine communities (Welsh et al., 1993). In Nevada, this species is often associated with halophytic threadleaf rubber

rabbitbrush [*Chrysothamnus nauseosus* (Pallus ex Pursh) Britton ssp. *consimilis* (Greene) Hall & Clements]. In Utah, some relatively large stands are mixed with black sagebrush (*Artemisia nova* A. Nelson). (McArthur and Taylor, date unknown). Often associated with Artemisia tridentata (big sagebrush), *Eriogonum* sp. (buckwheat), E. corymbosum (corymbed buckwheat), *Atriplex* (saltbush), *Ephedra* (Mormon tea), *Gutierrezia* (snakeweed), *Chrysothamnus* (rabbitbrush), and *Pediocactus* (hedgehog cactus).

POPULATION HISTORY AND TRENDS: Unknown. It is uncommon, but locally abundant, covering about 21 mi^2 or 54 km^2 in eastern Utah, western Nevada and northern Arizona. It is considered a peripheral species in New Mexico, and thus is not on the rare list (Lowrey 1998).

SPECIES PROTECTION AND CONSERVATION

ENDANGERED SPECIES ACT STATUS: None
STATE STATUS: None
OTHER STATUS: None (USDI, BLM AZ 2005)
[Bureau of Land Management Sensitive (USDI, BLM 2000)]

MANAGEMENT FACTORS: Pygmy sagebrush provides a valuable ground cover on dry alkaline sites where few other plants can survive (Tirmenstein, 1987), and is a good candidate to plant in clay soils, and may be of considerable value revegetating mine spoils and roadway disturbances. It is readily eaten when available, however, it provides little browse because of its scarcity and size.

PROTECTIVE MEASURES TAKEN:

SUGGESTED PROJECTS: Information on seed dispersal mechanisms, germination, and establishment is lacking.

LAND MANAGEMENT/OWNERSHIP: BLM – Arizona Strip Field Office; Private.

SOURCES OF FURTHER INFORMATION

REFERENCES:

Anderson, B.A. 1996 revised. Desert Plants of Utah. Utah State University Extension Electronic Publishing, HG 505. p. 65.

Harvard University Herbaria (HUH). 2001. Index of Botanical Specimens. Accessed: 7/20/2004, from http://brimsa.huh.harvard.edu/cms-wb/specimens.

http://nmrareplants.unm.edu/droplist/artpyg.htm.

Integrated Taxonomic Information System (ITIS). Retrieved 7/20/2004 from ITIS, http://www.itis.usda.gov.

Kearney, T.H., R.H. Peebles with collaborators. 1951. Arizona flora. Second edition with supplement by J.T. Howell, E. McClintock and collaborators. 1960. University of California Press. Berkeley, California. p. 942.

Lowrey, T., compiler. 1998. *Artemisia pygmaea* Gray. Accessed 7/20/2004 from http://nmrareplants.unm.edu/droplist/artpyg.htm.

McArthur, E.D. and J.R. Taylor. Date unknown. *Artemisia pygmaea* Gray, pygmy sagebrush, Asteraceae. U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station, Shrub Science Laboratory, Provo, UT 84606-1856.

McDougall, W.B. 1973. Seed plants of Northern Arizona. The Museum of Northern Arizona. Flagstaff, Arizona. P. 490.

Missouri Botanical Garden – TROPICOS, Nomenclatural Data Base. *Artemisia pygmaea* A. Gray. http://mobot.mobot.org/cgi-bin/search_vast. Accessed: 20 July 2004.

NatureServe. 2004. NatureServe Explorer: An online encyclopedia of life [web application]. Version 3.1. NatureServe, Arlington, Virginia. Available http://www.natureserve.org/explorer. (Accessed: July 20, 2004).

SEINet. Collections Search Result. Accessed 7/20/2004 at http://seinet.asu.edu/collections/list.jsp.

Slaby, P. 1900-2001. Rock Garden Plant Database, *Artemisia pygmaea* A. Gray. http://web.kadel.cz/flora/c/kvCard.asp?ID=3029.

Tirmenstein, D. 1987. *Artemisia pygmaea*. In: Fire Effects Information System, [Online]. http://www.fs.fed.us/database/feis/plants/shrub/artpyg/all.html.

Tirmenstein, D. 1988. *Artemisia pygmaea*. In: Fire Effects Information System, [Online]. U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station, Fire Effects Laboratory (Producer). Available: http://www.fs.fed.us/database/feis [2004, July 20].

USDA, NRCS. 2004. The PLANTS Database, Version 3.5 (http://plants.usda.gov). National Plant Data Center, Baton Rouge, LA 70874-4490 USA.

USDI, Bureau of Land Management. 2000. Arizona BLM Sensitive Species List. Introduction Memorandum No. AZ-2000-018.

USDI, Bureau of Land Management. 2005. Arizona BLM Sensitive Species List.

Welsh, S.L., N.D. Atwood, S. Goodrich, and L.C. Higgins, eds. 1993. A Utah Flora. Second Edition, revised. Print Services, Bringham Young University. Provo, Utah, U.S.A. pp. 166-167.

MAJOR KNOWLEDGEABLE INDIVIDUALS:

ADDITIONAL INFORMATION:

Pygmy sagebrush generally spreads well from naturally dispersed seed, although artificial seeding has to date been largely unsuccessful. Pygmy sagebrush does not resprout after fire or other disturbance. It does, however, establish readily when individual plants are divided and transplanted. (Tirmenstein, 1987).

Revised: 2002-05-16 (SMS)
2004-07-29 (SMS)

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Arizona Game and Fish Department. 20XX **(= year of last revision as indicated at end of abstract)**. X...X **(= taxon of animal or plant)**. Unpublished abstract compiled and edited by the Heritage Data Management System, Arizona Game and Fish Department, Phoenix, AZ. X pp.