ARIZONA GAME AND FISH DEPARTMENT
HERITAGE DATA MANAGEMENT SYSTEM

Plant Abstract **Element Code:** PDASC02220
Data Sensitivity: No

CLASSIFICATION, NOMENCLATURE, DESCRIPTION, RANGE

NAME: *Asclepias uncialis* Greene
COMMON NAME: Greene milkweed, dwarf milkweed, wheel milkweed
SYNONYMS: *Asclepias uncialis* Greene var. *uncialis*, *Asclepias uncialis* Greene ssp. *uncialis*
FAMILY: Asclepiadaceae

AUTHOR, PLACE OF PUBLICATION: E.L. Greene, Botanical Gazette 5: 64. 1880.

TYPE LOCALITY: Near Silver City, Grant County, New Mexico, U.S.A.

TYPE SPECIMEN: HT: MO. E.L. Greene s.n., 25 Apr 1880. IT: CAS (20 Apr 1880), GH.

TAXONOMIC UNIQUENESS: There are 26 species of *Asclepias* in Arizona, 76 in North America. *Asclepias* is an American and African genus with about 150 species, mostly in the United States and Mexico (Hickman 1993, Lehr 1978, Sundell 1994). Some botanists consider this species to include 2 subspecies, *A. u. uncialis* (southern AZ) and *A. u. ruthiae* (northern AZ). The HDMS is tracking this plant at the full species.

DESCRIPTION: Herbaceous perennial with several to many spreading or erect stems, from 1-2.5 inches tall; stems appear to elongate somewhat when in fruit; contains milky sap. Leaves primarily opposite; lower leaves oval to lance shaped, 0.5-0.75 inches long; upper leaves much narrower, 0.75-1.5 inches long and about 1/8 of an inch wide; no hairs except occasionally along the leaf margins. Flowers grouped in clusters of 7 to 12 (sometimes as many as 18) at the tips of the stems; clusters occasionally occur below the stem tip. Flowers about 0.25 inches wide and rose-purple in color. Fruit is spindle-shaped, about 2 inches long and 0.5 inches thick; seeds about 0.25 inches long, tipped by a tuft of silky hairs about 1 inch long. (Locklear 1991).

AIDS TO IDENTIFICATION: In Arizona and New Mexico, the range of *A. uncialis* overlaps that of *A. involucrata*. The characteristics of *A. involucrata* that distinguish it from *A. uncialis* include larger leaves that are uniformly linear to lanceolate, longer hoods that noticeably surpass the anther head in height, and a somewhat later blooming period (May-June). In the Great Plains, the range of *A uncialis* overlaps that of *A. pumila*, another sized milkweed. The whitish flowers, uniformly filiform leaves, and later blooming period (July-

September) of *A. pumila* easily distinguish it from *A. uncialis* (Kearney and Peebles 1951, Locklear 1991, Sundell 1994, Spackman et al. 1997).

ILLUSTRATIONS: Color photo (Rickett 1970).
Color photos of plant and habitat; line drawing of flower (Locklear 1991).
Color photo of plant and habitat; line drawing of plant (Spackman et al. 1997).
Color drawing of plant and flower (Venning 1984).
Color photo (Robert Sivinski 2004, *in* http://npsnm.unm.edu/photos/Ascunc.html)

TOTAL RANGE: Arizona, Colorado, New Mexico, Oklahoma, and Texas (Locklear 1991, Spackman et al. 1997, Sundell 1994). A historical collection from Wyoming was probably mis-labeled as to location, and was not actually collected in that state. Though this species occurs over a large geographical area, it is currently only known from about 25-30 localities (Locklear 1991, Locklear 1996).

RANGE WITHIN ARIZONA: In Arizona, known from Coconino, Pima and Santa Cruz counties.

SPECIES BIOLOGY AND POPULATION TRENDS

GROWTH FORM: Perennial herb.

PHENOLOGY: Flowering late March-late May; fruiting May-early July. Locklear (1991), reports blooming generally occurring late April to mid May, but specimens have been collected as early as late March; fruits usually in late May and early June.

BIOLOGY: The flowers of *Asclepias* ssp. are highly modified in structure and require insect visitor for pollination. Due to the early flowering period and variable springtime weather, *A. uncialis* is probably pollinated by resident generalized pollinators. Seeds mature at a relatively fast rate of approximately 40 days after pollination. This could be an adaptation for summer drought avoidance in this species (Locklear 1991).

HABITAT: Often in plains grassland - shortgrass communities on open hills and lower side slopes at the base of mesas, canyons, and bluffs. Also found in open pinyon-juniper woodland communities and, in Arizona, in open grassland areas within madrean evergreen woodland communities. This species has most often been found on bare, open patches of soil between clumps of grasses within these habitats (Locklear 1991). It has also been found in areas with vehicular and other disturbances.

ELEVATION: Approximately 4,000 - 6,400 feet (1220-1952 m). Based on collections in SEINet (accessed 2006), elevation ranged from 4790 – 5000 feet (1461-1525 m).

EXPOSURE: All.

SUBSTRATE: This species does not appear to be consistently associated with a particular soil type. In northeastern New Mexico and southeastern Colorado this species is primarily associated with Travesilla sandy loam soils from sandstone of the Dakota formation. Other occurrences of *A. uncialis* in Colorado and New Mexico are on sandy loam derived from red sandstone and interbedded shale formations. In Pueblo County, Colorado this species is found in association with channery loams derived from interbedded limestone and shale. Other occurrences in Fremont County, Colorado, have been found on clay soils. Common characteristics where this species is known to occur are shallow depth to bedrock and the presence of small stone chips or gravel. (Maxwell et al. 1981 in Locklear 1991, Larsen et al. 1979 in Locklear 1991). Substrates where this species occurs in Arizona are unknown.

PLANT COMMUNITY: Plains grassland shortgrass communities dominated by *Bouteloua gracilis* (blue gramma) and *Buchloe dactyloides* (Buffalo grass), adjacent open juniper-pinyon woodland communities, and grassland areas within or adjacent to madrean evergreen woodland communities. Some frequently associated species in plains grassland - shortgrass communities include *Bouteloua curtipendula* (sideoats grama), *B. hirsuta* (Hairy gramma), *Gutierrezia sarothrae* (broom snakeweed), *Hymenoxys scaposa* (=*Tetraneuris scaposa* var. *scaposa*, stemmy four-nerve daisy), *Juniperus monosperma* (one-seeded juniper), *Leucelene* (=*Chaetopappa*) *ericoides* (rose-heath), *Lithospermum incisum* (narrow-leaved puccoon), *Melampodium leucanthum* (plains blackfoot), *Polygala alba* (white milkwort), and *Yucca glauca* (small soapweed yucca), (Locklear 1991). Associated species at one site in Santa Cruz County, Arizona included *Bouteloua* sp., *Purshia* sp. (cliffrose), and *Quercus* sp. (oak).

POPULATION TRENDS: Unknown. It is possible that this species was more common in the past, since most collections were made in the late 1800's. Some of the sites where the plant was collected historically have been searched without success. Recently, some new locations have been located, including the largest known population, which is on the Pinon Canyon Army Tank Maneuver Area in New Mexico. It is also possible that this species has been overlooked by collectors, due to its extremely small size, early bloom period, and the lack of widespread botanical focus on the Great Plains. This species is usually quite uncommon where it occurs (Locklear 1991).

SPECIES PROTECTION AND CONSERVATION

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

STATE STATUS: None

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

MANAGEMENT FACTORS: Due to its apparent natural rarity and low population sizes, this species is naturally a species of concern. Low population sizes can result in low rates of reproduction, causing species to gradually become more and more rare. This species occurs most often in plant communities that appear to be stable and at climax or near-climax condition. Locklear (1991) states that, this species does not appear to tolerate competition from weedy annual species. It is unknown what impact livestock grazing has on this species. Overgrazing could alter the composition of native plant communities in an area, increasing competition from weedy species and possibly altering the spectrum of pollinators available to this species (Locklear 1991). In some cases, this species has been found on soils disturbed by vehicles or other activities.

CONSERVATION MEASURES TAKEN: Some areas with populations of *A. uncialis* have been fenced, such as those within the Pinon Canyon Army Tank Maneuver Area. Also, some populations have been monitored by Carolyn Crawford and others from the Colorado Native Plant Society.

SUGGESTED PROJECTS: Locklear (1991) suggests the monitoring of known sites for changes in population numbers, and to gain a better understanding of the phenology and pollination ecology of this species. He also suggests that all historical localities should be surveyed to determine the current status of this species there. Taxonomic, biosystematic, and genetic studies should be performed to determine whether the plants of this species from the Great Plains are the same taxon as those from western New Mexico and Arizona.

LAND MANAGEMENT/OWNERSHIP: Arizona: BLM – Tucson Field Office; USFS - Coronado National Forest (Sierra Vista Ranger District); State Land Department; Appleton-Whittel Research Ranch (Audubon Society); Private.

Colorado: Private; State of Colorado (Lake Pueblo State Recreation Area, Lathrop State Park, other). New Mexico: USFS Comanche National Grasslands, USFS Santa Fe National Forest, Department of Defense (Pinon Canyon Army Tank Maneuver Area and Fort Carson Army Base), etc.

SOURCES OF FURTHER INFORMATION

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MAJOR KNOWLEDGEABLE INDIVIDUALS:

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Carolyn Crawford - Colorado Native Plant Society, Louisville, CO.
Reggie Fletcher - U.S. Forest Service, Albuquerque, NM.
Ron Hartman - Rocky Mountain Herbarium, Laramie, WY.

James H. Locklear - Hesston College, Hesston, KS.
Eric Sundell - University of Arkansas at Monticello, Monticello, AR.
Stanley Welsh - Brigham Young University, Provo, UT.

ADDITIONAL INFORMATION:

Eric Sundell (1991, 1994) submerged the species *Asclepias ruthiae* and *A. sanjuanensis* (from the "Four Corners" area) into *A. uncialis*, calling it *A. uncialis* var. *ruthiae*. He treated the typical *A. uncialis* specimens as *A. uncialis* var. *uncialis*. Kartesz and Ghandi (Phytologia 71:270. 1991) recognized the two forms of *A. uncialis*, but instead treated the two as *A. uncialis* ssp. *uncialis* and *A. uncialis* ssp. *ruthiae*. Current genetic studies of this taxon by Jay Thierren (Univ. Kansas, research study) do not support these treatments, but instead support the recognition of *A. uncialis* at the full species level. Evidently Thierren's findings are being published in Southwestern Naturalist.

The genus *Asclepias* was named after Asklepios, a legendary Greek physician and god of medicine.

See Sundell (1994), pg. 170, for a drawing of a typical *Asclepias* flower with the flower parts labeled.

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