ARIZONA GAME AND FISH DEPARTMENT
HERITAGE DATA MANAGEMENT SYSTEM

Plant Abstract **Element Code:** PDFAB0FA90
Data Sensitivity: No

CLASSIFICATION, NOMENCLATURE, DESCRIPTION, RANGE

NAME: *Astragalus piscator*
COMMON NAME: Fisher Milkvetch, Fisher Tower Milkvetch
SYNONYMS: none
FAMILY: Fabaceae

AUTHOR, PLACE OF PUBLICATION: Barneby, Rupert Charles and Stanley Larson Welsh. Great Basin Naturalist 45(3): 551–552. 1985.

TYPE LOCALITY: Utah: San Juan County, Salt Canyon, above jump, [SE of confluence of Grren [sic] and Grand Rivers, W of Moab-Monticello Highway]. T31S R20E s31/32; 1700 m.

TYPE SPECIMEN: NY 5658 (isotype). S.L. Welsh, G. Moore and S.G. Cantor, #2979. June 2, 1964.

TAXONOMIC UNIQUENESS: *Astragalus* is believed to be the largest genus of flowering plants in the world, with over 2500 species worldwide and over 400 species in North America alone, primarily in arid regions of the western U.S. There are an additional 200 plus varieties found in the U.S. and Canada as well. *A. piscator* is a relatively newly described species (1985) of limited distribution in Utah, Colorado and Arizona.

DESCRIPTION: Acaulescent or subacaulescent herbs from vertical taproot, perennial of short duration flowering the first year, the leaves and scapiform peduncles arising from root-crown at soil level, this more or less clothed with a persistent thatch of leaf bases, strigose throughout with appressed dolabriform hairs, the leaflets yellow-green above, gray beneath; stipules ovate-acuminate 3-9 mm, usually closely imbricated, strigose dorsally, persistent; leaves (3)4-10(16) cm; leaflets of most leaves 5-11(13), elliptic or lance-elliptic, acute or subobtuse (5)7-17(32) x 2-4(6) mm, those of some eophylls only 1-3 and rhombic ovate; peduncles (1)2-6(9) cm, ascending at anthesis, procumbent in fruit, the pods humistrate; racemes shortly loosely 3-10-flowered, the axis becoming 4-15(20) mm in fruit; calyx 11-14.5 mm, either black- or partly white strigose, the cylindric tube 8..5-ll X 3-4 mm, the linear-subulate teeth 2-3.5(4) mm; corolla of A. amphioxys, the banner 18-24 mm, the obtuse keel 16-18 mm; ovary strigulose, the ovules +/- 40; pod ascending, sessile, deciduous from receptacle, in profile lance-elliptic, shallowly lunate-incurved, obtuse at base, acuminate distally, 24-40 x 8-15 mm, somewhat laterally compressed but the valves dilated near middle into an obtuse longitudinal ridge, both sutures becoming sharply prominulous at maturity, the

moderately fleshy, densely strigose, purplish mottled valves becoming stiffly chartaceous or subcoriaceous (but not pithy) and +/- 0.5 mm thick when dry, dehiscent after falling through the gaping beak (Barneby and Welsh 1985).

AIDS TO IDENTIFICATION: *Astragalus piscator* is a short-lived perennial, with 4-10 lavender or pale lilac flowers on leafless, or mostly leafless stems. Stems are erect when in flower, and often spread out at the base of the leaves when in fruit. The foliage is covered with appressed, dolabriform hairs and is yellowish-green on top and gray-green below. Leaves are pinnately compound with 5-11 leaflets. Pods are somewhat laterally compressed and densely strigose (Spackman et al. 1997, Ackerfield 2015).

Astragalus musiniensis is similar in appearance but has dorsiventrally compressed pods. *Astragalus chamaeleuce* also has similar pods but they lack the prominent dorsal structure and elliptic cross section of *A. piscator* (Spackman et al. 1997). *Astragalus piscator* is related to *A. chamaeleuce*, *A. musiniensis*, and *A. amphioxis*. It differs from the first two in having chartaceous, not alveolate-pithy pod walls, and differs from the third in flower color which is pale lilac as opposed to vivid pink. The habit and shape of its leaflets suggests *A. musiniensis* (Cronquist 1989).

Differs from the related and sympatric *A. amphioxys* in its more pointed leaflets, lighter flower color, and pods that are sharply carinate at both sutures (Utah Native Plant Society 2003-2015).

ILLUSTRATIONS:
Photos of Plant and Habitat:
http://www.cnhp.colostate.edu/download/projects/rareplants/guide_print.asp?id=22735.
Photos and Line Drawing: http://www.utahrareplants.org/pdf/Astragalus_piscator.pdf.
Herbarium Mounts:
http://swbiodiversity.org/seinet/taxa/index.php?taxon=Astragalus%20piscator.

TOTAL RANGE: Utah (Garfield, Grand, San Juan and Wayne Counties), Colorado (four occurrences in Mesa County), and Arizona.

RANGE WITHIN ARIZONA: Vicinity of Paiute Canyon, extreme NE Coconino County and extreme NW Navajo County.

SPECIES BIOLOGY AND POPULATION TRENDS

GROWTH FORM: Short-lived perennial herb.

PHENOLOGY: Flowers late April to early June.

BIOLOGY:

HABITAT: In sandy, sometimes gypsiferous, soils of valley benches and gullied foothills.

ELEVATION: 4,511 - 5,581 feet (1,375 - 1,701 meters). Actual elevations of Arizona collections: 5425 – 6780 feet (1654-2070m).

EXPOSURE: Apparently open, based on habitat photos.

SUBSTRATE: Sandy, sometimes gypsiferous, soils. Moenkopi and Chinle formations noted from collection records.

PLANT COMMUNITY: Pinyon-Juniper in Arizona. Plants mentioned in collections include *Juniperus osteosperma, Pinus edulis, Gutierrezia sarothrae, Calochortus aureus, Astragalus lentiginosus, Tetraneuris ivesiana, Psilostrophe, Opuntia*.

Associated Plants in Colorado: *Juniperus osteosperma, Artemisia tridentata,Coleogyne ramosissima, Atriplex canescens, A. confertifolia, A. gardneri, Sarcobatus vermiculatus, Penstemon utahensis, Castilleja chromosa, C. scabrida, Physaria acutifolia, Cymopteris fendleri, Lepidium lasiocarpum, Arabis pulchra, Cryptantha gracilis, Bouteloua gracilis, Allium macropetalum, Erioneuron pulchellum, Townsendia incana, Oryzopsis hymenoides, Chrysothamnus viscidiflorus, Eriogonum inflatum, Astragalus lentiginosus, Oxytropis sericea, Astragalus flexuosus, Stephanomeria tenuifolia, Eriogonum corymbosum, Haplopappus nuttallii, Cryptantha fulvocanescens, Lepidium lasiocarpum, Cymopterus acaulis, Androstephium breviflorum, Townsendia incana, and Astragalus lonchocarpus.*

POPULATION HISTORY AND TRENDS: Unknown. Rangewide, the species is known only from some 15 locations. Although many sites have not been visited for over 20 years, three of the four Arizona sites were collected in 2004. No data was collected on population size or trend in Arizona, but NatureServe (last reviewed in 2014) states there are thousands of plants rangewide. The species is considered critically imperiled in Colorado and Arizona, and imperiled in Utah.

SPECIES PROTECTION AND CONSERVATION

ENDANGERED SPECIES ACT STATUS: None.
STATE STATUS: None.
OTHER STATUS: None.

MANAGEMENT FACTORS: The primary threat at this time is considered to be vehicular damage, road construction and maintenance (specifically stated for Colorado). Additional threats include invasive species including cheatgrass and Russian knapweed, and one Colorado site is heavily grazed (NatureServe 2014).

PROTECTIVE MEASURES TAKEN: None.

SUGGESTED PROJECTS: Revisit known collection sites to determine if species is still extant, and survey similar landscapes to try and determine if range can be extended.

LAND MANAGEMENT/OWNERSHIP: All Arizona collections are from USDI Bureau of Indian Affairs Navajo Nation lands.

SOURCES OF FURTHER INFORMATION

REFERENCES:

Ackerfield, J. 2015. Flora of Colorado. Brit Press, Botanical Research Institute of Texas.

Barneby, R. C., and S. L. Welsh. 1986. New species of *Astragalus* (Leguminosae) from southeastern Utah. Great Basin Naturalist 45(3):551-552.

Barneby, R.C. 1989. Fabales. In A. Cronquist, A.H. Holmgren, N.H. Holmgren, J.L. Reveal, and P.K. Holmgren (eds.). Intermountain flora: Vascular plants of the Intermountain West, U.S.A. Vol. 3, Part B. New York Botanical Garden, Bronx. 279 pp.

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Spackman, S., B. Jennings, J. Coles, C. Dawson, M. Minton, A. Kratz, and C. Spurrier. 1997. Colorado rare plant field guide. Prepared for Bureau of Land Management, U.S. Forest Service and U.S. Fish and Wildlife Service by Colorado Natural Heritage Program.

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Utah Native Plant Society. 2003-2015 [cited 1/29/2016]. Utah rare plant guide. [Internet]. Frates AJ, editor/coordinator. Salt Lake City, UT: Utah Native Plant Society. Available from: http://www.utahrareplants.org.

Welsh, S.L., N.D. Atwood, S. Goodrich, and L.C. Higgins. (Eds.) 1993. A Utah Flora. 2nd edition. Brigham Young Univ., Provo, Utah. 986 pp.

MAJOR KNOWLEDGEABLE INDIVIDUALS:

ADDITIONAL INFORMATION: The epithet "piscator" refers to Fisher Towers, a notable geological feature of the Grand Valley near the main body of the species.

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