ARIZONA GAME AND FISH DEPARTMENT
HERITAGE DATA MANAGEMENT SYSTEM

Plant Abstract **Element Code:** PDFAB0F721
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CLASSIFICATION, NOMENCLATURE, DESCRIPTION, RANGE

NAME: *Astragalus preussii* var. *laxiflorus*
COMMON NAME: Lancaster Milkvetch
SYNONYMS: *Astragalus crotalariae* var. *davidsonii*
FAMILY: Fabaceae

AUTHOR, PLACE OF PUBLICATION: Gray, Asa. Proceed Amer. Acad. Arts and Sciences 13: 369-370. 1878.

TYPE LOCALITY: Beaverdam [on the Rio Virgen, northeast corner of Arizona]

TYPE SPECIMEN: GH 58885 (holotype). Edw. Palmer, #104. 1877.

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, 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. preussii* has three varieties, *A.p. cutleri*, *A.p. laxiflorus*, and *A.p. preussii*, and all occur within Arizona.

DESCRIPTION: For the species, *A. preussii* (from Welsh et al 1993): Perennial or annual, caulescent, mostly 12 – 45 cm long, from a woody caudex; pubescence basifixed; stems erect or ascending, forming clumps; stipules 2-7 mm long, all distinct; leaves 3.5-13 cm long; leaflets 7-25, 6-28 mm long, 1-6 mm wide, obovate or obcordate to oblong, narrowly elliptic, lanceolate, or linear, emarginated to rounded, obtuse, or acute, glabrous; peduncles 2-15 cm long; racemes 3- to 22 flowered, the flowers ascending, the axis 1-20 cm long in fruit; bracts 1.5-4 mm long; pedicels 1-5.5 mm long; bracteoles 2; calyx 6.4-12.3 mm long the tube5.1-9.7 mm long, cylindric, thinly strigose, purple, the teeth 1.3-2.6 mm long, subulate; flowers 14-24 mm long, pink purple, bicolored, or white; pods erect to ascending, stipulate or subsessile, the stipe 2-7 mm long, the body oblong-ellipsoid, inflated, 12-34 mm long, 6-13 mm thick, glabrous or pubescent, stiffly papery to leathery, unilocular; ovules 20-44; 2n=24 (Welsh et al 1993),

A.p. laxiflorus: Perennial but sometimes flowering the first season, rather coarse and robust, glabrous or nearly so below the inflorescence, the few hairs when present, either filiform or scalelike, appressed up to 0.1-0.5 mm. long, confined to the margins and midrib of the leaflets, the malodorous herbage green or yellowish-green, somewhat leathery; stems several, erect and ascending, (0.7) 1-3.5 dm long, simple or few-branched below the middle. Leaves

(3.5) 4.5-18 cm long, shortly petioled or the uppermost subsessile, with stiff rachis and (7) 11-25 rather distant leaflets 1.5-27 mm long, these varying in shape from suborbicular-obcordate through oblong-obovate to linear-elliptic, narrowly lanceolate, or linear and acute. Inflorescence open; racemes loosely (3) 4-16 (22)-flowered, the axis 4-23 cm long in fruit; bracts membranous, pallid or purplish, ovate or lanceolate, 1.5-4mm long; pedicels ascending, straight, at anthesis (1) 1.5-2.8 mm; bracteoles nearly always 2, sometimes minute; calyx (6.4) 8-9.4 mm long, thinly strigulose with black or mixed black and white hairs. Flowers pink or when dried bluish-purple, sometimes pallid but distally suffused with lilac-purple, banner about 14 mm. Pod sessile or nearly so, oblong-ellipsoid; more or less round in cross-section, stiffly papery. Ovules smooth or nearly so, sometimes mottled with dull purple, 2.4-3.7 mm long (NatureServe 2016).

AIDS TO IDENTIFICATION: There are three distinct varieties of *A. preussii*. These can be separated by the following traits provided by Welsh et al 1993:

Leaflets 5-13(17), (5)7-12 mm wide; flowers white or merely tinged or drying purplish; pods thin-textured often drying straw-colored……variety *cutleri*
Leaflets mostly 7-25, 1-6 mm wide; flowers vivid purple, drying dark purple; pods cartilaginous, mostly mottled or diffused with purple or drying brownish:

Pods sessile or nearly so; racemes 4-20 cm long in fruit……..... variety *laxiflorus*
Pods stipitate; racemes 1-9 cm long in fruit……..… variety *preussii*

Diagnostic Characteristics: Fruit base not stalk-like; inflorescence open, axis in fruit 4-23 cm; banner more or less 14 mm. Plant ill-scented.

ILLUSTRATIONS:
Line Drawing and Photos: http://herbaria4.herb.berkeley.edu/eflora_display.php?tid=54898.
Line Drawing: Cronquist et al 1989, p. 115.

TOTAL RANGE: Known only from the area around Lake Mead (Clark County Nevada, and Mohave County Arizona) and another disjunct population in NE Las Angeles County (Lancaster) California. Reports from Utah are likely erroneous. (NatureServe 2016).

RANGE WITHIN ARIZONA: Vicinity of the northern extension of Lake Mead (Grand Wash Bay) and drainages around the Gyp Hills (Pigeon, Grand and Black Washes), NW Mohave County.

SPECIES BIOLOGY AND POPULATION TRENDS

GROWTH FORM: Perennial herb.

PHENOLOGY: Flowering: March - May

BIOLOGY: This very rare native plant has had very little research done on its basic biology and its needs are almost completely unknown.

HABITAT: Gravelly or sandy washes and along gullied badlands. Also grows on alkaline clay flats in the southwest Mohave Desert. May prefer selenium rich soils. Shadscale (*Atriplex confertifolia*) scrub.

ELEVATION: 1200 – 2500 feet (360-760m).

EXPOSURE: Not specified, probably open (based on habitat type).

SUBSTRATE: Gravelly or sandy washes. Alkaline clay flats. Gypsum soils noted at some Arizona collection sites. Possibly selenium rich soils. Note that shadscale landscapes are often poorly drained.

PLANT COMMUNITY: Shadscale (*Atriplex confertifolia*) communities. Associated species include: *Larrea, Lycium andersonii, Ephedra torreyana, Psorothamnus fremontii, Ambrosia, Atriplex, Krameria, Franseria, Hilaria, Acacia, Tamarix, Phacelia fremontii.*

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POPULATION HISTORY AND TRENDS: Unknown for Arizona. Range-wide there are only about 15 occurrences believed to be extant. Four of these are in Arizona. Although population data is not included with the Arizona collections, Morefield (2008 personal communication to NatureServe) states that Nevada botanists are seeing the plant frequently in the Lake Mead area, and Welsh et al (1993) state that it is a common plant along the road south of Overton, NV toward Lake Mead. This information might suggest that although there are few actual occurrences, the plant is apparently common at some of these. However, NatureServe also states that the short term population trend is a decline of 10-30%, but the longer term is believed to be relatively stable. Presently, *Astragalus preussii* var. *laxiflorus* is considered to be critically imperiled in all three States: Arizona, Colorado and Nevada.

SPECIES PROTECTION AND CONSERVATION

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

MANAGEMENT FACTORS: There is very little known about the biology and ecology of this plant. Any additional studies would shed light on this topic.

PROTECTIVE MEASURES TAKEN: None specific. However, three of the four mapped occurrences in Arizona are found within Lake Mead National Recreation Area.

SUGGESTED PROJECTS: The historical and potential habitat of this plant, especially in California portion of its range, should be surveyed (NatureServe 2016). It would also be useful to know if there is a definitive relationship between the species and selenium rich soils, where it often grows.

LAND MANAGEMENT/OWNERSHIP: USDI National Park Service – Lake Mead National Recreation Area; Bureau of Land Management – Arizona Strip Field Office.

SOURCES OF FURTHER INFORMATION

REFERENCES:

CNPS (California Native Plant Society), Rare and Endangered Plant Inventory, accessed 2/3/2016, http://www.rareplants.cnps.org/detail/332.html.

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NatureServe Explorer, accessed 2/5/2016, http://explorer.natureserve.org/.

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Tropicos, accessed 2/3/2016, http://www.tropicos.org/Name/13063364.

Welsh S.L., N.D. Atwood, L.C. Higgins and S. Goodrich. 1993. A Utah flora, 2nd ed. Brigham Young University Press, Provo, Utah.

MAJOR KNOWLEDGEABLE INDIVIDUALS:

ADDITIONAL INFORMATION:

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