

**ARIZONA GAME AND FISH DEPARTMENT
HERITAGE DATA MANAGEMENT SYSTEM**

Plant Abstract

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CLASSIFICATION, NOMENCLATURE, DESCRIPTION, RANGE

NAME: *Astragalus pinonis* var. *atwoodii*
COMMON NAME: Duane's Milkvetch
SYNONYMS: *Astragalus atwoodii*
FAMILY: Fabaceae

AUTHOR, PLACE OF PUBLICATION: Barneby, Rupert Charles and Duane Isely.
Intermountain Flora 3(B): 67. 1989.

TYPE LOCALITY: Arizona: Coconino County: 17 miles S of Fredonia sawmill, along logging road to Ryan.

TYPE SPECIMEN: BRY:V 180 (holotype). N.D. Atwood, #6794. June 15, 1976.

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. *Astragalus pinonis* var. *atwoodii* is another of several *Astragalus* endemic to Arizona.

DESCRIPTION: For the species, *Astragalus pinonis* (from David Bogler, USDA NRCS Plants Database, in Encyclopedia of Life, 2016): Perennial, Herbs, Stems woody below, or from woody crown or caudex, Plants with rhizomes or suckers, Taproot present, Nodules present, Stems erect or ascending, Stems less than 1 m tall, Stems solid, Stems or young twigs sparsely to densely hairy, Stems hairs pilose or spreading, Stems with 2-branched hairs, dolabriform, Leaves alternate, Leaves petiolate, Stipules conspicuous, Stipules membranous or chartaceous, Stipules persistent, Stipules free, Leaves compound, Leaves odd pinnate, Leaf or leaflet margins entire, Leaflets opposite, Leaflets 5-9, Leaflets 10-many, Leaves hairy on one or both surfaces, Inflorescences racemes, Inflorescence axillary, Bracts very small, absent or caducous, Flowers zygomorphic, Calyx 5-lobed, Calyx hairy, Petals separate, Co rolla papilionaceous, Petals clawed, Petals ochroleucous, cream colored, Petals blue, lavender to purple, or violet, Petals bicolored or with red, purple or yellow streaks or spots, Banner petal narrow or oblanceolate, Wing petals narrow, oblanceolate to oblong, Wing tips obtuse or rounded, Keel petals auriculate, spurred, or gibbous, Keel tips obtuse or rounded, not beaked, Stamens 9-10, Stamens diadelphous, 9 united, 1 free, Filaments glabrous, Style terete, Style persistent in fruit, Fruit a legume, Fruit unilocular, Fruit freely dehiscent, Fruit oblong or ellipsoidal, Fruit or valves persistent on stem, Fruit coriaceous or becoming woody, Fruit

exserted from calyx, Fruit beaked, Fruit glabrous or glabrate, Fruit hairy, Fruit 11-many seeded, Seeds cordiform, mit-shaped, notched at one end, Seed surface smooth, Seeds olive, brown, or black. Additional description from Cronquist et al 1989, p. 65-66.

The species is differentiated into two geographic races, separated as follows (Cronquist et al 1989):

Pod linear-ellipsoid, (4.5) 5-8 (8.5) mm diameter; ovules 28-42; terminal leaflet of all leaves jointed to rachis; relatively widespread in Nevada (White Pine, northeast Nye and Lincoln counties) east in Utah to the south and east margins of Bonneville Basin (east Juab to Iron counties).....var. *pinonis*

Pod narrowly linear in profile; 3-4.5 mm diameter; ovules 18-25; terminal leaflet of some leaves (but not of every plant) decurrent; north foothills of Kaibab Plateau in northwest Coconino County, Arizona.....var. *atwoodii*

AIDS TO IDENTIFICATION: See Description, above.

ILLUSTRATIONS:

Herbarium Mounts:

<http://swbiodiversity.org/seinet/taxa/index.php?taxon=Astragalus%20pinonis%20var.%20atwoodii>.

TOTAL RANGE: Endemic to Arizona.

RANGE WITHIN ARIZONA: South and southeast of Fredonia on the Kaibab Plateau to Marble Canyon vicinity, Coconino County.

SPECIES BIOLOGY AND POPULATION TRENDS

GROWTH FORM: Perennial herb.

PHENOLOGY: Flowering: May to July.

BIOLOGY:

HABITAT: Hillsides and valley floors, in low sagebrush and pinyon-juniper woodlands, commonly on limestone.

ELEVATION: Range-wide for the species (Cronquist et al 1989): 5085 – 7380 feet (1550-2250m). For the variety *A. p.* var. *woodsii* based on Arizona collections: 5110 – 7040 feet (1560-2150m).

EXPOSURE: Not specified.

SUBSTRATE: Limestone.

PLANT COMMUNITY: Sagebrush and pinyon-juniper. Other plants noted in collection records include: *Yucca baccata*, *Chaetopappa ericoides*, *Purshia*, *Ephedra*.

POPULATION HISTORY AND TRENDS: Unknown. There are only seven mappable collection records. No data on population sizes or trends is available. The plant is noted as inconspicuous.

SPECIES PROTECTION AND CONSERVATION

ENDANGERED SPECIES ACT STATUS: None.

STATE STATUS: None.

OTHER STATUS: None.

MANAGEMENT FACTORS: None specified.

PROTECTIVE MEASURES TAKEN: No specific measures in place. Most collections are found on national forest land; one from within the Grand Canyon National Park.

SUGGESTED PROJECTS:

LAND MANAGEMENT/OWNERSHIP: USDA Forest Service – Kaibab National Forest five of seven know collections); USDI National Park Service – Grand Canyon NP; and USDI Bureau of Land Management – Arizona Strip Field Office.

SOURCES OF FURTHER INFORMATION

REFERENCES:

- Cronquist, Arthur, Arthur H. Holmgren, Noel H. Holmgren, James L. Reveal and Patricia K. Holmgren. 1989. Intermountain Flora: Vascular Plants of the Intermountain West, U.S.A. Vol. 3, Part B. Fabales by Rupert C. Barneby. New York Botanical Garden, Bronx, NY.
- NatureServe Explorer, accessed 1/28/2016, <http://explorer.natureserve.org/>.
- Tropicos, accessed 1/28/2016, <http://www.tropicos.org/Name/13071463>.

MAJOR KNOWLEDGEABLE INDIVIDUALS:

ADDITIONAL INFORMATION:

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