

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

**Plant Abstract**

**Element Code:** PDFAB2A0Q1

**Data Sensitivity:** No

**CLASSIFICATION, NOMENCLATURE, DESCRIPTION, RANGE**

**NAME:** *Lotus mearnsii* var. *equisolensis*  
**COMMON NAME:** Horseshoe Deer Vetch, Mearns' bird's-foot-trefoil  
**SYNONYMS:** *Acmispon mearnsii* var. *equisolensis*  
**FAMILY:** Fabaceae

**AUTHOR, PLACE OF PUBLICATION:** Anderson, John L. Madrono 43(2) 261-263.  
1996.

**TYPE LOCALITY:** Arizona: Maricopa County, Lower Verde River South of Horseshoe Reservoir, 0.3 mi West of road to Reservoir on FS 205. 2100 feet.

**TYPE SPECIMEN:** ASU 19168 (holotype). J.L. Anderson, #87-21. April 4, 1987.

**TAXONOMIC UNIQUENESS:** NatureServe (2015) list 43 species of *Lotus* in the United States and Canada. There are an additional 39 varieties. Fourteen of the species are found in Arizona. *L. mearnsii* and *L. alamosanus* are two species only found in the state. *L. mearnsii* has two varieties: *L.m. equisolensis* and *L.m. mearnsii*. According to NatureServe (2019) this plant was recently placed in the genus *Acmispon* by Brouillet (2008), but is not accepted by all taxonomists.

**DESCRIPTION:** Spreading to prostrate perennial herb arising from subterranean caudex; stems clustered, procumbent, 1-3 dm long; pubescence silvery to less dense at distal end of stems, sericeous; leaves shorter than to as long as internodes, subpinnate to palmate, sericeous on both surfaces, petiole 2-5 mm, leaflets 3-5, broadly obovate or obcordate, 6-16 mm long, 4-12 mm wide, length to width ratio less than 2; peduncles prolonged beyond the leaves, 25-75(95) mm long; umbels with 2-7 flowers, 14-20 mm long; calyx tube narrowly campanulate, 4-7 mm long, teeth 2-4 mm long; corolla bright yellow, petals subequal; ovary pubescent, ovules 16-20; pod erect to ascending, oblong, 25-35(40) mm long, 4-6 mm wide, subsistent, dehiscent, valves strigulose, coriaceous; seeds few (Anderson 1996).

**AIDS TO IDENTIFICATION:** Differs from the typical variety, *L. mearnsii* var. *mearnsii*, found near Prescott and Ashfork, by the larger size of the elongated peduncle, larger corolla, fruits, and leaflet, and the more compact growth habit with shorter internodes, its endemism to lacustrine deposits, and its 50 mile (80 km) separation from the nearest populations (Anderson 1996).

**ILLUSTRATIONS:**

Herbarium Mounts:

<http://swbiodiversity.org/seinet/taxa/index.php?taxon=Lotus%20mearnsii%20var.%20equisolensis>.

Line Drawing and Photos:

[http://www.aznativeplantsociety.org/rareplants/Lotus\\_mearnsii\\_var\\_equisolensis.pdf](http://www.aznativeplantsociety.org/rareplants/Lotus_mearnsii_var_equisolensis.pdf).

**TOTAL RANGE:** See Range within Arizona**RANGE WITHIN ARIZONA:** Endemic to Arizona. Originally known from only a single locality southwest of Horseshoe Reservoir, Maricopa County. A second collection was later made southeast of Camp Verde (north of the Verde River) in Yavapai County.**SPECIES BIOLOGY AND POPULATION TRENDS****GROWTH FORM:** Spreading to prostrate perennial herb.**PHENOLOGY:** Flowering/fruiting period, mid-March to mid-May.**BIOLOGY:** The edaphic island (late tertiary lacustrine deposits of interbedded white limestone and ash) on which the rare Horseshoe lotus grows does not support Sonoran Desert dominants such as creosote bush and foothill palo verde which allows it an ecological opening; occurs with other rare plants such as *Purshia subintegra* and *Eriogonum ripleyi* (Anderson 1996).**HABITAT:** Desert scrub growing on late tertiary lacustrine deposits.**ELEVATION:** 2100 and 3200 feet (640 and 975m).**EXPOSURE:** Not specified.**SUBSTRATE:** Uniquely associated with late tertiary lacustrine deposits (interbedded white limestone and ash). Second location to north described as calciferous/limestone soil.**PLANT COMMUNITY:** Desert scrub defined by *Purshia*, *Canotia*, *Dodonea*, *Eriogonum*, *Nolina* and *Encelia*. Other species associated with the collections include: *Cowania*, *Canotia holacantha*, *Dodonea viscosa*, *Purshia subintegra*, *Chamaesyce chaetocalyx*, *Eriogonum wrightii pringlei*, *Opuntia engelmannii*, *Simmondsia chinensis*, *Echinocereus engelmannii*, *Parkinsonia microphylla*, *Anemone tuberosa*, *Melampodium leucanthum*, *Opuntia phaeacantha*, *Lesquerella cinerea*, *Baileya multiradiata*, *Calliandra eriophylla*, *Erodium texanum*, *Lotus rigidus*, *Polygala macradenia*, *Eriogonum fasciculatum*, *Thamnosma texana*,

*Cuscuta indecora*, *Salvia columbariae*, *Parietaria pensylvanica*, *Linum lewisii*, *Calandrinia ciliata*, *Emmenanthe penduliflora*, *Mentzelia multicaulis*, *Mentzelia multiflora*, *Juniperus sp.*, *Hedeoma nanum*, *Yucca elata*, *Fouquieria splendens*, *Eriogonum ripleyi*, *Packera neomexicana*, *Sphaeralcea ambigua*, *Bromus rubens*, *Prosopis velutina*, *Ambrosia deltoidea*, *Bouteloua trifida*, *Centaurea melitensis*, *Astragalus tephrodes var chloridae*.

A second collection site to the north was described as a Canotia – Juniper open woodland. Associated species included: *Canotia holacantha*, *Berberis haematocarpa*, *Juniperus*, *Bromus rubens*, *Rhus trilobata var. anisophylla*, *Purshia subintegra*, *Dalea formosa*, *Lappula redowskii var. cupulata*, *Dichelostemma capitatum subsp. pauciflorum*, *Erysimum capitatum*, *Phacelia crenulata*, *Ephedra aspera*, *Polygala scoparioides*, *Silene antirrhina*, *Melampodium leucanthum*, *Oenothera albicaulis*.

**POPULATION HISTORY AND TRENDS:** Unknown. *L.m. var. equisolensis* was first collected in 1986, and has been re-collected several times, the latest in 2005. It is known only from its type locality and is an endemic. It does seem uniquely adapted to its lacustrine deposit soils. No data for population abundance or trends is available.

## **SPECIES PROTECTION AND CONSERVATION**

**ENDANGERED SPECIES ACT STATUS:** None.  
**STATE STATUS:** None.  
**OTHER STATUS:** Forest Service Sensitive (USDA FS Region 3 2013)  
[Forest Service Sensitive (USDA FS Region 3 2007)]

**MANAGEMENT FACTORS:** None specified.

**PROTECTIVE MEASURES TAKEN:** Listed as Forest Service Sensitive.

**SUGGESTED PROJECTS:** Monitor periodically and collect data on population density and trend.

**LAND MANAGEMENT/OWNERSHIP:** USDA Forest Service, Tonto and Coconino National Forest.

## **SOURCES OF FURTHER INFORMATION**

**REFERENCES:**

- Anderson, John L. 1996. Floristic patterns on late tertiary lacustrine deposits in the Arizona Sonoran Desert. *Madrono* 43(2): 255-272.
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- USDI, Forest Service Region 3. 2007. Regional Forester's List of Sensitive Plants.
- USDI, Forest Service Region 3. 2013. Regional Forester's List of Sensitive Plants.

**MAJOR KNOWLEDGEABLE INDIVIDUALS:**

John L. Anderson, USDI Bureau of Land Management, Phoenix AZ (retired).

**ADDITIONAL INFORMATION:**

**Revised:** 2011-12-27 (JGM)  
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