

ARIZONA GAME AND FISH DEPARTMENT  
HERITAGE DATA MANAGEMENT SYSTEM

Plant Abstract

Element Code: PDFAB330E0

Data Sensitivity: No

**CLASSIFICATION, NOMENCLATURE, DESCRIPTION, RANGE**

**NAME:** *Phaseolus ritensis*  
**COMMON NAME:** Santa Rita Mountain Bean  
**SYNONYMS:** *Phaseolus maculatus* subsp. *ritensis*  
**FAMILY:** Fabaceae

**AUTHOR, PLACE OF PUBLICATION:** Jones, Marcus Eugene. Contributions to Western Botany 12: 14. 1908.

**TYPE LOCALITY:** " ... Santa Rita Mts., Arizona, ... 4,500 feet alt., Aug. 24, 1903."

**TYPE SPECIMEN:** POM: #28786 (holotype). Jones (s.n.), August 24, 1903.

**TAXONOMIC UNIQUENESS:** There are 13 species of *Phaseolus* in the United States, and an additional five varieties. Eight of these species are found in Arizona, and two species, *P. ritensis* and *P. supinus* are found only in Arizona (and Mexico) according to NatureServe 2019. Kearney and Peebles (1960) noted that *P. ritensis* and *Metcalfei* are closely related and perhaps only "varietally distinct," but *Metcalfei* has subsequently been included with *P. maculatus*.

**DESCRIPTION:** The original description for the new species, *Phaseolus ritensis*, by Jones (1903) is as follows:

This closely resembles *P. retuses*, but the leaves are phomboid-ovate with a very broadly deltoid base and acute and strongly apiculate tip, rarely obtuse, never retuse, smooth; whole plant smooth except the minutely pubescent peduncles, pedioles and stems; peduncles slender, 1-2 feet long; pods glaucous, 1 ½ inches long, with a sharply falcate and triangular rather long stipitate base, about 3-4 lines wide, tip strongly beaked; bracts minute.

**AIDS TO IDENTIFICATION:** Kearney and Peebles (1960) provide the following key to identify *P. ritensis*:

- Flowering stems not from a globose tuber; trailing or twining, usually more than 30 cm long; calyx subtended by a pair of bractlets, these often deciduous long before anthesis.
- Keel more or less curled or coiled.
- Plants perennial, with a more or less thickened taproot or if annual, then the pods less than 3 cm long and the leaflets more deeply lobed.
- Pods broader than linear, commonly more than 5 mm wide.

- Leaflets broadly rounded-ovate, entire or very nearly so, the veins reticulate and somewhat prominent beneath; corolla deep rose purple; seeds smooth or nearly so.
- Pods 7 – 10 mm wide, short-stipitate; bractlets 1 mm long or shorter..... *P. ritensis*
- Pods 12 – 18 mm wide, sessile in the calyx or nearly so; bractlets 1.5 long or longer.....*P. metcalfei*

The Arizona Natural highlights the key characteristics of the Santa Rita Mountain Bean:

Flowers: Spikes of pink to purple pea-flowers.

Leaves: The trifoliolate leaves have broad, triangular leaflets.

Fruit: A weakly curved bean pod, smooth and not constricted between beans, holding two several seeds.

Most plants are less than 100 cm in length, clamber over soil and adjacent plants, vine-like.

#### **ILLUSTRATIONS:**

Photos and Herbarium Mounts: <http://swbiodiversity.org/seinet/taxa/index.php?tid=15767>.

Photos: Flowers and Leaves:

[http://www.arizonensis.org/sycamore/nature/flora/phaseolus\\_ritensis.html](http://www.arizonensis.org/sycamore/nature/flora/phaseolus_ritensis.html).

**TOTAL RANGE:** The Santa Rita Mountain Bean is found in the south-eastern quarter of Arizona and south into Mexico along the Sierra Madre Mountains to Zacatecas.

**RANGE WITHIN ARIZONA:** From north-central Arizona along the Mogollon Rim to the Sky Island Mountains of southern Arizona including the Santa Catalina, Atascosa, Patagonia and Huachuca Mountains in Coconino, Gila, Greenlee, Pima, Santa Cruz and Cochise Counties.

### **SPECIES BIOLOGY AND POPULATION TRENDS**

**GROWTH FORM:** Herbaceous vine.

**PHENOLOGY:** Flowers: July to September (Kearney and Peebles 1960). Most collections in the HDMS database indicate most flowering occurs in August, but a few records do extend into September and even early October. May germinate in late spring if winter rains have been good, otherwise growth begins after start of summer rains (Arizona Naturalist).

#### **BIOLOGY:**

**HABITAT:** Valley floors and rocky hillsides, mostly Upper Sonoran and Transition Zones in the pine and oak belts, but occasionally straggling to the upper margins of the desert (NatureServe 2019). Kearney and Peebles (1960) describes its habitat as among live oaks and

lower limit of pine belt, and the Arizona Naturalist adds Canyon bottoms with deeper, moist soils.

**ELEVATION:** 4,500-7,000 feet (1372 – 2134 m) is reported in Kearney and Peebles (1960). Arizona Heritage Data Management Systems (HDMS) collections records range from 3,400 – 6,665 feet (1037 – 2032 m).

**EXPOSURE:** Not specified.

**SUBSTRATE:** Not specified.

**PLANT COMMUNITY:** Pine-oak woodlands (NatureServe 2019). The following list of associated species was compiled from several collecting reports:

*Mimosa dysocarpa*, *Bouteloua chondrosioides*, *Melinis repens*, *Quercus oblongifolia*, *Heteropogon contortus*, *Ipomoea thurberi*, *Bouteloua radicata*, *Bouteloua hirsuta*, *Bouteloua repens*, *Salvia subincisa*, *Machaeranthera gracilis*, *Gomphrena sonora*, *Tephrosia thurberi*, *Melampodium longicorne*, *Juniperus deppeana*, *J. coahuilensis*, *Pinus cembroides*, *Populus fremontii*, *Rhus choriophylla*, *Salix lasiolepis*, *S. taxifolia*, *Amorpha fruticosa*, *Quercus rugosa*, *Q. hypoleucoides*, *Arbutus arizonica*, *Lasianthea podocephala*, *Bidens aurea*, *Eryngium lemmoni*, *Lobelia cardinalis*, *Ipomopsis thurberi*, *Quercus emoryi*, *Cercocarpus montanus* var. *paucidentatus*, *Rhus trilobata*, *Nolina microcarpa*, *Garrya*, *Yucca schottii*, *Opuntia chlorotica*, *Cylindropuntia spinosior*, *Brickellia betonicifolia*, *Amaranthus palmeri*, *Glandularia bipinnatifida*, *Viguiera cordifolia*, *Viguiera dentata* var. *dentata*, *Euphorbia brachycera*, *Eragrostis cilianensis*, *Heliomeris longifolia*, *Acacia angustissima*, *Carminatia tenuiflora*, *Brickellia californica*, *Lycurus setosus*, *Hedeoma dentata*, *Galactia wrightii*, *Salvia subincisa*, *Artemisia ludoviciana*, *Bothriochloa barbinodis*, *Bouteloua curtispindula*, *Eragrostis intermedia*, *Diplachne dubia*, *Eragrostis lehmanniana*, *Bouteloua gracilis*, *Garrya wrightii*, *Rhus virens*, *Fendlera rupicola*, *Muhlenbergia emersleyi*, *Ericameria larcifolia*, *Schizachyrium*, *Pseudognaphalium*, *Carphochaete bigelovii*, *Heliomeris longifolia*, *Mirabilis albida*, *Heterosperma pinnatum*, *Desmodium rosei*, *Ipomopsis thurberi*, *Porophyllum ruderale*, *Cheilanthes lindheimeri*, *Selaginella*, *Prosopis velutina*, *Celtis reticulata*, *Sambucus* sp., *Ziziphus obtusifolia*, *Pinus leiophylla* var. *chihuahuana*, *Quercus arizonica*, *Platanus wrightii*, *Vitis arizonica*, *Yucca madrensis*,

**POPULATION HISTORY AND TRENDS:** Unknown. There are 22 occurrences in Arizona, with more than half of these having been collected more than 15 years ago. *Phaseolus ritensis* is rather widely distributed from the Mogollon Rim in north-central Arizona down to the Mexican border. A few of the collection records noted the species was locally common. NatureServe (2019) considers it to be imperiled in Arizona. There is inadequate information available to determine population status or trend.

**SPECIES PROTECTION AND CONSERVATION**

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

**MANAGEMENT FACTORS:** Not specified.

**PROTECTIVE MEASURES TAKEN:** None.

**SUGGESTED PROJECTS:** More than half of the occurrences are 15 years or older and another quarter were collected 5 – 10 years ago. Accordingly, it is recommended to return to known locations and attempt to verify if the species is still extant.

**LAND MANAGEMENT/OWNERSHIP:** Dept of Agriculture - US Forest Service (Coronado, Coconino, Apache-Sitgreaves and Tonto National Forests), Dept of Interior - US National Park Service (Saguaro National Park), Dept of Defense (Fort Huachuca Military Reservation), Arizona State Parks, and private land holdings.

**SOURCES OF FURTHER INFORMATION****REFERENCES:**

Arizona Naturalist. Accessed July 7, 2019.

[http://www.arizonensis.org/sycamore/nature/flora/phaseolus\\_ritensis.html](http://www.arizonensis.org/sycamore/nature/flora/phaseolus_ritensis.html).

Jones, Marcus Eugene. 1908. Contributions to Western Botany 12: 14.

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**MAJOR KNOWLEDGEABLE INDIVIDUALS:****ADDITIONAL INFORMATION:**

**Revised:** 2019-07-03 (BDT)

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Arizona Game and Fish Department. 20XX (= **year of last revision as indicated at end of abstract**). X...X (= **taxon of animal or plant**). Unpublished abstract compiled and edited by the Heritage Data Management System, Arizona Game and Fish Department, Phoenix, AZ. X pp.