ARIZONA GAME AND FISH DEPARTMENT
HERITAGE DATA MANAGEMENT SYSTEM

Plant Abstract **Element Code:** PPASP020D0
Data Sensitivity: No

CLASSIFICATION, NOMENCLATURE, DESCRIPTION, RANGE

NAME: *Asplenium exiguum*
COMMON NAME: Sonoran Spleenwort, Little Spleenwort
SYNONYMS: *Asplenium fontanum, A. glenniei, A. gracile, Athyrium gracile*
FAMILY: Aspleniaceae

AUTHOR, PLACE OF PUBLICATION: Beddome, Richard Henry. The Ferns of Southern India 49, pl. 146. 1864.

TYPE LOCALITY: Mexico: Bochers de Pedregal, pres San Angel. [19deg,19min,12secN, 099deg,11min,24secW]

TYPE SPECIMEN: MO 102955 (isotype). M. Bourgeau, #252. May 11, 1865.

TAXONOMIC UNIQUENESS: *Asplenium* is a large genus with about 650 species distributed throughout the world, but mostly in the tropics and subtropics. NatureServe (2016) lists some 48 species in the U.S. and Canada, with another 17 varieties and subspecies, and at least 16 named hybrids. Nine species and one variety are found in Arizona. Two of these species, *A. exiguum* and *A. dalhousiae* occur only within the State. Both of these species, according to Kearney and Peebles 1951, are an example of sporadic (or disjunct) population distribution. The Arizona specimens of *A. exiguum* are indistinguishable from the specimens collected from the Himalayan Mountains.

DESCRIPTION: Roots not proliferous. Stems erect or ascending, unbranched; scales black throughout, narrowly deltate, 2--3 × 0.2--0.3 mm, margins mostly with widely spaced, shallow teeth. Leaves monomorphic. Petiole dark reddish brown throughout, dull, 1--3 cm, 1/10--1/6 length of blade; indument of black filiform scales. Blade lanceolate, 2-pinnate to 2-pinnate-pinnatifid, 4--10 × 1--3 cm, thin, sparsely pubescent; base tapering; apex acute to acuminate, often bearing minute, scaly, proliferous bud. Rachis basally reddish brown, fading to green in distal 1/2 to 3/4, dull, sparsely pubescent and with a few filiform scales. Pinnae 10--20 pairs, narrow, oblong; medial pinnae 5--12 × 4--7 mm; base acute to obtuse; margins coarsely incised; apex notched, bearing proliferous bud. Veins free, obscure. Sori 1--4 pairs per pinna, on both basiscopic and acroscopic sides. Spores 64 per sporangium. 2 n = 72. Flora of North America 2016.

AIDS TO IDENTIFICATION: The following diagnostic characteristics for *Asplenium exiguum* are excerpted from a key in Kearney and Peebles (1951):

Rachis green throughout or dark only in the basal half on the lower side, without 2 ridges on the upper side.
Fronds fern-like (not grasslike).
Stipes much shorter than the blades; blades narrowed toward base.
Blades membranaceous, pinnate-pinnatifid, the ultimate segments incised; rachis not scaly

ILLUSTRATIONS:
Photo and Herbarium Mounts:
http://swbiodiversity.org/seinet/taxa/index.php?taxon=Asplenium%20exiguum.
http://eol.org/pages/597657/media.

TOTAL RANGE: Arizona, Mexico (Sonora, Chihuahua and Coahuila), Asia in the Himalayas, Pacific Islands in the Philippines. *Asplenium exiguum* has an interesting disjunct distribution, its range barely extending into the United States (Flora of North America 2016).

RANGE WITHIN ARIZONA: Known from two main areas: Sycamore Canyon in the Pajarita Wilderness Area, Santa Cruz County, and Garden Canyon in the Huachuca Mountains, Cochise County.

SPECIES BIOLOGY AND POPULATION TRENDS

GROWTH FORM: Evergreen perennial fern-like plant.

PHENOLOGY:

BIOLOGY: Its vegetative propagation by buds scattered on the blade was reported by J. T. Mickel (1976). These buds, situated at the tip of each pinna, can develop into a new plant

HABITAT: Steep canyons and ravines, on cliff faces and in crevices; in moist shade. Tends to prefer the more mesic exposures (N and NE) in Arizona sites.

ELEVATION: 3960 – 4020 feet (1207-1225m) in Sycamore Canyon, and 5875 – 5925 feet (1790-1806m) in the Huachuca Mountains.

EXPOSURE: Of the six reported collection sites (two element occurrences), four sites note N or NE facing exposures.

SUBSTRATE: Occurs on rhyolite in Sycamore Canyon, and quartzite or granite-quartzite in Garden Canyon, in crevices or on thin soils

PLANT COMMUNITY: Associated plants identified include: *Rubus, Quercus, Draba, Cheilanthes, Selaginella, Heuchera sanguinea, Aquilegia triternata, Crytomium, Prunus, Alspenium palmeri, Dasylirion wheeleri.*

POPULATION HISTORY AND TRENDS: Unknown for Arizona. Known from several nearby sites within two element occurrences. All historical, collected from the late 1930s to 1981. Kearney and Peebles (1951) note an even early 1882 collection by Lemmon. Notes from collection records state that the species was very rare to uncommon, to abundant. One collection indicated that less than 30 plants were observed. Given the favorable habitat and protective nature of the collection sites (cliff faces and crevices) it is presumed that this species is still extant, but this should be verified in the field. Given the time frame, if presence can be re-verified at some of the known collection sites, the population trend might also be better evaluated.

SPECIES PROTECTION AND CONSERVATION

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

MANAGEMENT FACTORS: None specified.

PROTECTIVE MEASURES TAKEN: None, but locations within either the Pajarita Wilderness Area or the Fort Huachuca Military Reservation offer some level of protection.

SUGGESTED PROJECTS: Re-visit known collection sites to determine if the species is still extant (last collected in 1981). These visits might also help to define the trend of the populations.

LAND MANAGEMENT/OWNERSHIP: Dept. of Defense, Fort Huachuca Military Preserve, and USDA Forest Service, Coronado National Forest, Pajarita Wilderness Area.

SOURCES OF FURTHER INFORMATION

REFERENCES:

Flora of North America, eFloras, accessed 5/17/2016, http://www.efloras.org/florataxon.aspx?flora_id=1&taxon_id=200004125.

JStor Global Plants, accessed 5/17/2016, http://plants.jstor.org/stable/10.5555/al.ap.specimen.mo-102955?searchUri=plantName%3D%2522Asplenium%2Bexiguum%2522%26syn%3D1.

Kearney, Thomas H. and Robert H. Peebles. 1951 with Supplement, 1960. Arizona Flora. 2nd ed. University of California Press, Berkeley. 1085 pp.

Mickel, J. T. 1979. How to Know the Ferns and Fern Allies. Wm. C. Brown, Dubuque, Ia. 229 pp.

NatureServe Explorer, accessed 5/17/2016, www.natureserve.org.

Tropicos, accessed 5/17/2016, http://www.tropicos.org/Name/26602494.

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ADDITIONAL INFORMATION:

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