

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

Plant Abstract

Element Code: PPASP02030

Data Sensitivity: No

CLASSIFICATION, NOMENCLATURE, DESCRIPTION, RANGE

NAME: *Asplenium adiantum-nigrum*
COMMON NAME: Black Spleenwort
SYNONYMS: *A. andrewsii*, *A. chihuahuense*, *A. dubiosum*
FAMILY: Aspleniaceae

AUTHOR, PLACE OF PUBLICATION: Linnaeus, Carl von. Species Plantarum 2:
1081. 1753.

TYPE LOCALITY:

TYPE SPECIMEN:

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.

DESCRIPTION: Roots not proliferous. Stems ascending or short-creeping, infrequently branched; scales dark brown to blackish throughout, narrowly deltate, 2--4(--5) × 0.2--0.5 mm, margins entire or shallowly denticulate to serrulate. Leaves monomorphic. Petiole dark reddish brown proximally, often fading to green distally, lustrous, 2--20 cm, 2/3--2 times length of blade; indument of black filiform scales and minute hairs. Blade deltate, 2--3-pinnate, 2.5--10 × 2--6.5 cm, thick, hairs dark, scattered, minute; base truncate; apex acute to acuminate, not rooting. Rachis greenish throughout or sometimes reddish brown proximally, lustrous, sparsely pubescent. Pinnae in 4--10 pairs, deltate to lanceolate; most proximal (largest) pinnae 1.5--4 × 1--2.5 cm; base obliquely obtuse; segment margins coarsely incised; apex acute. Veins free, evident. Sori 1--numerous pairs per pinna [1--6 pairs per segment], on both basiscopic and acroscopic sides. Spores 64 per sporangium. 2 n = 144. Flora of North America 2016.

AIDS TO IDENTIFICATION: The extended brown color of the stipe/rachis on the lower side only is unique (HardyFernLibrary 2016).

ILLUSTRATIONS:

Photos and Herbarium Mounts:

<http://www.tropicos.org/Name/26602479?tab=images>.

<http://swbiodiversity.org/seinet/taxa/index.php?taxon=Asplenium%20adiantum-nigrum>.

<http://eol.org/pages/597667/media>.

TOTAL RANGE: Hawaii (indigenous), Arizona, Utah and Colorado (introduced, Esser 1994, and rare); Eurasia and Africa (frequent and widespread).

RANGE WITHIN ARIZONA: Known from one area on Mount Elden, NE of Flagstaff, Coconino County.

SPECIES BIOLOGY AND POPULATION TRENDS

GROWTH FORM: Evergreen perennial fern.

PHENOLOGY: Sporangia maturity: mid to late summer.

BIOLOGY: Black spleenwort fern reproduces from spores and short rhizomes (Esser 1994).

HABITAT: Sandstone cliffs, open rocky places, in deep pockets and crevices of rhyolite rock and limestone canyons up to 2000 meters (NatureServe 2016).

ELEVATION: 5495 -7545 feet (1675-2300m) according to Flora of North America 2016. The Arizona collection site is at 7250 feet (2210m).

EXPOSURE: One of the Arizona collections was from a SW facing slope.

SUBSTRATE: Sandstone, rhyolite and limestone. Volcanic substrates in Hawaii.

PLANT COMMUNITY: Juniperus, Quercus and Cercocarpus community on Mount Elden. Ponderosa pine community in southern Utah.

POPULATION HISTORY AND TRENDS: Considered to be very rare in the continental United States. Known from one area each in Colorado, Utah and Arizona and ranked as critically imperiled in each of these states by NatureServe (2016). There are three collections from the Arizona site dating from 1935 to 1979, but none since.

SPECIES PROTECTION AND CONSERVATION

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

MANAGEMENT FACTORS: Easily extirpated by human activity on-site, or by the development of the recharge area for the plant's water supply (NatureServe 2016). Probably top-killed by fire, but may re-sprout from rhizomes. The cliff-and-ledges preferred habitat of this species may offer protection from most fires (Esser 1994).

PROTECTIVE MEASURES TAKEN: None, although the only known Arizona collection area is within the Coconino National Forest. However, *Asplenium adiantum-nigrum* is not listed as a sensitive species by the Forest Service.

SUGGESTED PROJECTS: Re-visit collection sites to determine if the species is still extant within Arizona.

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

SOURCES OF FURTHER INFORMATION**REFERENCES:**

- Esser, Lora L. 1994. *Asplenium adiantum-nigrum*. In: Fire Effects Information System, [Online]. U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station, Fire Sciences Laboratory (Producer). Available: <http://www.fs.fed.us/database/feis/plants/fern/aspadi/all.html> / [2016, May 20].
- Flora of North America, eFloras, accessed 5/18/2016, http://www.efloras.org/florataxon.aspx?flora_id=1&taxon_id=200004099.
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- Kearney, Thomas H.; Peebles, Robert H.; Howell, John Thomas; McClintock, Elizabeth. 1960. Arizona flora. 2d ed. Berkeley, CA: University of California Press. 1085 p.
- NatureServe Explorer, accessed 5/20/2016, www.natureserve.org.
- Phillips, B. G. 1988. Status Report *Asplenium adiantum-nigrum*. Unpublished report prepared for the US Fish and Wildlife Service, Albuquerque, NM.
- Tropicos, accessed 5/18/2016, <http://www.tropicos.org/Name/26602479>.
- Valier, K. 1995. Ferns of Hawaii. University of Hawaii Press, Honolulu, HI.
- Welsh, Stanley L.; Atwood, N. Duane; Goodrich, Sherel; Higgins, Larry C., eds. 1987. A Utah flora. Great Basin Naturalist Memoir No. 9. Provo, UT: Brigham Young University. 894 p.

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ADDITIONAL INFORMATION: *Asplenium adiantum-nigrum* is principally a Eurasian species and occurs extremely rarely in North America (see M. G. Shivas 1969 and M. D. Windham 1983 for a discussion of the conspecificity of Western Hemisphere and Eastern Hemisphere material). It is an allotetraploid derived from hybridization of two European taxa, *A . cuneifolium* Viviani and *A . onopteris* Linnaeus (M. G. Shivas 1969). Hybrids involving *A . adiantum-nigrum* and other *Asplenium* species occur in Europe but are unknown in North America (Flora of North America 2016).

Revised: 2016-05-20 (BDT)

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