

ARIZONA GAME AND FISH DEPARTMENT  
HERITAGE DATA MANAGEMENT SYSTEM

Plant Abstract

Element Code: PPPSI01020

Data Sensitivity: No

**CLASSIFICATION, NOMENCLATURE, DESCRIPTION, RANGE**

**NAME:** *Psilotum nudum*  
**COMMON NAME:** Whisk Fern, Bush Moss  
**SYNONYMS:** *Lycopodium nudum* L. See “Taxonomic Uniqueness”  
**FAMILY:** Psilotaceae

**AUTHOR, PLACE OF PUBLICATION:** *Psilotum nudum* (L.) P. Beauv, Prodromes des Cinquieme et Sixieme Familles de L’Aetheogamie 112, 1805. *Lycopodium nudum* L., Species Plantarum 2: 1100-1101. 1753.

**TYPE LOCALITY:**

**TYPE SPECIMEN:** Type: “In indiis”, Without data (lectotype: Linn 1257.1). Lectotypified by Proctor, in R.A. Howard, Fl. Less. Antill., Pterid. 16. 1977.

**TAXONOMIC UNIQUENESS:** The species *nudum* is 1 of 3 in the genus *Psilotum*. The genus is one of only two genera in the whole phylum Psilotophyta. According to the Atlas of Florida Vascular Plants there are 18 synonyms: *Bernhardia antillarum*, *Bernhardia capensis*, *Bernhardia deppeana*, *Bernhardia dichotoma*, *Bernhardia mascarenica*, *Hoffmannia aphylla*, *Lycopodium nudum*, *Psilotum domingense*, *Psilotum flabellatum*, *Psilotum floridanum*, *Psilotum natalense*, *Psilotum novae-hollandiae*, *Psilotum nudum* var. *normale*, *Psilotum nudum* var. *fallacinum*, *Psilotum triquetrum*, *Psilotum triquetrum* Sw. forma *insulare*, *Psilotum triquetrum* Sw. var. *gracile*, *Psilotum triquetrum* Sw. var. *fallacinum*.

**DESCRIPTION:** Plant with neither roots nor leaves; slender stems creeping underground and also arising from a slender, creeping, branched, dark, hairy, rootless rhizome (coral-like). Erect, photosynthetic green stems dichotomously branched 3 to 5 times, usually about 6 to 16 in (15-40 cm) tall, rarely to 20 in (50 cm) tall. Common stalks simple 3-angled, up to 4mm thick, branches lightly winged along the three angles; scale like leaves about 1 mm. long; sporophylls rudimentary. Their sperm are multiflagellate and their gametophytes are subterranean, resembling a piece of rhizome. Their homosporous, eusporangiate are two or three chambered and borne at the apex of small side branches and their synangia are borne on short lateral branches.

**AIDS TO IDENTIFICATION:** The whisk fern, *Psilotum nudum*, has very primitive morphology. It best represents what some of the first vascular land plants in the Devonian would have looked like. It has only dichotomously branching stems, sporangia, and leaf-like enations. In

that respect it resembles the other Devonian vascular plants as *Rhynia* and *Cooksonia*. There are some, however, who think it is a specialized fern-ally. (<http://botit.botany.wisc.edu/>).

**ILLUSTRATIONS:** Color photo (Carr *in* [http://www.botany.hawaii.edu/faculty/carr/images/psi\\_nud\\_hab.jpg](http://www.botany.hawaii.edu/faculty/carr/images/psi_nud_hab.jpg))  
Color photos (Botit *in* [http://botit.botany.wisc.edu/images/401/Psilotophyta/Psilotum\\_nudum/](http://botit.botany.wisc.edu/images/401/Psilotophyta/Psilotum_nudum/))  
Color photo (Moody *in* [http://florawww.eeb.uconn.edu/images/byspecies/PSILOTUM\\_NUDUM01.JPG](http://florawww.eeb.uconn.edu/images/byspecies/PSILOTUM_NUDUM01.JPG))  
Color photo (Fagg *in* [http://www.anbg.gov.au/images/photo\\_cd9J18G1460463/063.html](http://www.anbg.gov.au/images/photo_cd9J18G1460463/063.html))  
Color photo (*In* <http://www.hiddenforest.co.nz/plants/forkferns/tmesi05a.htm>)

**TOTAL RANGE:** North Carolina, South Carolina, Georgia, Florida, Alabama, Mississippi, Louisiana, Arkansas, Texas, Arizona, Hawaii, Puerto Rico, Virgin Islands, and Sonora and Chihuahua, Mexico, Japan, Australia, and New Zealand.

**RANGE WITHIN ARIZONA:** Santa Cruz County.

## **SPECIES BIOLOGY AND POPULATION TRENDS**

**GROWTH FORM:** Terrestrial, sometimes epiphytic perennial.

**PHENOLOGY:**

**BIOLOGY:**

**HABITAT:** In northwestern Mexico and southern Arizona, all plants are on rocks, whereas the species is mostly epiphytic throughout the rest of its range (Martin et al, 1998). In the rest of its range, it has been found in swamps and low wet woods about the base of trees and stumps, more or less partly saprophytic. In Arizona, this plant has been found in crevices of exposed rock faces, in a canyon bottom along the stream.

**ELEVATION:** 3,850 ft (1173 m), AGFD HDMS unpublished database records (accessed 2003).

**EXPOSURE:** Found on west facing aspects in Arizona.

**SUBSTRATE:** Rocky cliff-faces in Arizona and Mexico.

**PLANT COMMUNITY:**

**POPULATION HISTORY AND TRENDS:** In Arizona, this plant is restricted to a small canyon near the Mexican/U.S. border. Health of this population is unknown.

**SPECIES PROTECTION AND CONSERVATION****ENDANGERED SPECIES ACT STATUS:****STATE STATUS:**

Highly Safeguarded (ANPL 1999)

**OTHER STATUS:**

**MANAGEMENT FACTORS:** This plant is grown as an ornamental in some areas, particularly Japan.

**PROTECTIVE MEASURES TAKEN:****SUGGESTED PROJECTS:**

**LAND MANAGEMENT/OWNERSHIP:** USFS - Coronado National Forest.

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

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<http://www.plantatlas.usf.edu/main.asp?plantID=2108>.

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Fagg, M. Available: [http://www.anbg.gov.au/images/photo\\_cd9J18G1460463/063.html](http://www.anbg.gov.au/images/photo_cd9J18G1460463/063.html)

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Martin, P.S. et al, Eds. 1998. Gentry's Rio Maya Plants, the tropical deciduous forest & environs of Northwest Mexico. The Southwest Center Series, The University of Arizona Press, Tucson. P. 178.

Mickel, J.T. 1979. How to Know the Ferns and Fern Allies. Wm. C. Brown Company Publishers, Dubuque, Iowa. Pp:180-181.

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<http://www.mun.ca/biology/rlee/b2120/psilotum.html>.

USDA, NRCS. 2002. The PLANTS Database, Version 3.5 (<http://plants.usda.gov>). National Plant Data Center, Baton Rouge, LA 70874-4490 USA.

#### **MAJOR KNOWLEDGEABLE INDIVIDUALS:**

#### **ADDITIONAL INFORMATION:**

The common name, Whisk-Fern, comes from the much-branched leafless stems which give the plant the appearance of a whisk broom. *Psilotum* based on *psilos* (Greek): naked, smooth, or bare, either in reference to the leafless stems or to the “naked” sporangia which are not covered by indusia. The epithet comes from the Latin *nudus* (naked), in reference to the synangia.

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