BLECHNACEAE CHAIN FERN FAMILY

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Perennial herbs with branched or unbranched rhizomes, these scaly, the scales not clathrate. ROOTS adventitious, usually branched. AERIAL STEMS absent. LEAVES narrowly or widely spaced along the rhizome, ours monomorphic (dimorphic elsewhere), the vernation circinate. BLADES variously pinnately compound, herbaceous to somewhat papery or leathery in texture, usually sparsely scaly and with minute glandular trichomes when young, glabrous or nearly so at maturity, the developing leaves often reddish- or purplish-tinged. VENATION with a single series of elongate areoles parallel to the costa, otherwise usually free, the veinlets irregularly and/or dichotomously branched. SORI on the abaxial leaf surface, surficial or more commonly from shallow pits in the blade surface, ours discrete (confluent elsewhere), restricted to the costal areoles, narrowly oblong to linear in outline. INDUSIA narrowly oblong, attached under the sorus but appearing lateral, opening along the side opposite the costa. PARAPHYSES absent. SPORANGIA with a stalk usually 3 cells wide, the capsule with a vertical ring-like annulus, glabrous. SPORES usually 64 per sporangium, monomorphic, monolete, bean-shaped, usually brown. GAMETOPHYTES surficial, cordate, green, sometimes glandular, potentially bisexual. —Ca. 10 genera and 250 spp., nearly worldwide.

Woodwardia Sm. Chain Fern

RHIZOMES moderately stout, compact to short-creeping in ours, densely scaly toward the tip, the scales concolorous. LEAVES closely spaced and evergreen in ours. PETIOLES usually shorter than the blade, usually grooved adaxially. BLADES somewhat papery or leathery, ovate to elliptic-ovate, mostly pinnate-pinnatifid. PINNAE acuminate at the tip, with numerous lobes, the margins otherwise serrulate, glabrous at maturity. SORI forming a chain-like row on either side of the costa. INDUSIA papery, more or less persistent. X = 34. —Ca. 14 spp., Can. s to C. Amer., Eur., Asia. (for Thomas J. Woodward, British botanist).

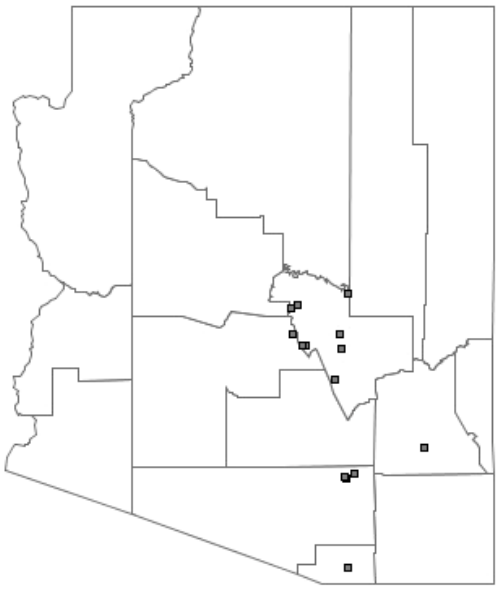
Vascular Plants of Arizona: Blechnaceae. *CANOTIA* 4 (2): 35–37, 2008.

Woodwardia fimbriata Sm. (fringed). Giant Chain Fern. —RHIZOMES stout, forming a short ascending caudex, usually unbranched, the scales 10–30 mm long, lanceolate, acuminate at the the tip, monomorphic, light brown, somewhat shiny, the margins entire or nearly so. LEAVES densely clustered at the rhizome apex, 40–170 cm long (Fig. 3). PETIOLES straw-colored, brown at the base, glabrous distally, thickened and densely scaly at the persistent base, the scales 5–25 mm long, lanceolate, orangish brown. RACHISES similar to petioles, straw colored to green, glabrous. BLADES 15–45 cm wide, broadly elliptic-lanceolate, pinnate-pinnatifid proximally grading to pinnatifid distally, with usually numerous lateral pinnae, the basal few pairs of pinnae somewhat reduced. PINNAE mostly 8–40 cm long, 2.5–8.0 mm wide, with numerous deep lobes (Fig. 2). LOBES with minute glandular trichomes, especially adaxially, when young, glabrous at maturity, the margins mostly minutely serrulate. SORI sunken into relatively deep pits in the blade surface, narrowly oblong. INDUSIA thick-papery, persistent, glabrous. SPORES 57–68 µm long, the surface rugose, dark brown. $2n = 68$. —Mesic canyon bottoms, usually among boulders along streams: Gila, Graham, Maricopa, Pima, Santa Cruz cos. (Fig. 1); 1550–2200 m (5000–7000 ft). WA, OR, CA, NV, AZ, sw Can., nw Mex.

We were unable to substantiate Morton's (in Kearney and Peebles 1960) report of this species from Apache and Cochise Counties.

LITERATURE CITED

KEARNEY, T.H., R.H. PEEBLES, J.T. HOWELL and E. McCLINTOCK. 1960. *Arizona Flora* (with supplement). 2nd. edn. University of California Press, Berkeley, California.



Blechnaceae Figure 1. Distribution of: *Woodwardia fimbriata*.

Blechnaceae Figure 2. *Woodwardia fimbriata*, pinnae.

Blechnaceae Figure 3. *Woodwardia fimbriata*, leaves.