

*Azolla* Lam. WATER FERN, MOSQUITO FERN

*Azolla filiculoides* Lam. Aquatic annual or perennial herb, clonal, fibrous-rooted, repeatedly forked and easily fragmented, free-floating or stranded on mud, prostrate to ca. 25 mm long (vegetative form), or ascending to 50 mm long (fertile form); shoots with partially overlapping leaves, papillate with short, 1-celled, water-repellent hairs; adventitious root often at stem fork, unbranched, typically < 20 mm long. **Stems (rhizomes):** threadlike, zigzagged, internodes < 0.5 mm long on prostrate shoots and < 1 mm long on ascending shoots. **Leaves:** alternate distichous in 2 rows on upper side of stem, strongly 2-lobed, sessile, without stipules; exposed lobe ascending, aerial or emergent, fleshy, ovate, 0.4–0.8 mm long, green to rose-tinged especially when stressed but colorless on thinner margins, acute at tip, upper surface papillate with papillae arranged in rows; ascending lobe with cavity at base on lower surface housing symbiotic cyanobacteria (*Anabaena*); floating to submersed lobe ovate, upper < lower lobe, flat, ± colorless with greenish midrib and base, not papillate. **Sori** (= sporocarps or sporangium cases; sporocarp wall = modified indusium): dimorphic, on ascending shoots only, axillary, generally in pairs of either male or female, on first leaf of lateral branch. **Male sporocarp:** spheric, 1.2–2 mm, pointed, wall transparent with dark tip, with 20–100+ male sporangia; **male sporangia** stalked, containing 32 or 64 spores, spores 0.015–0.025 mm, released as 3–6 disclike masses, each microspore mass with projecting hairs having barbed tips; male gametophyte minute, ca. 15-celled including 8 sperm. **Female sporocarp:** hemispheric or spheric, 0.2–0.4 mm, obtuse, covered by dark, conic, spongy flotation structure, wall ± opaque; **female sporangium** 1, sessile, at maturity 1-spored; megaspore spheric; female gametophyte within megaspore with raised angular bumps, pitted and with some long filaments.

Native. Floating aquatic herb occasionally observed and abundant during summer covering the surface on standing fresh water, such as near the mouth of Topanga Creek and Malibu Creek. Plants clone via fragmentation and can persist over winter where freezing does not occur. Fertilization occurs underwater on the bottom, where the embryo forms before rising to the surface. Some workers treat Azollaceae as part of Salviniaceae.

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