

***Wolffia columbiana*** Karst.

Columbia water-meal  
Lemnaceae (Duckweed Family)

**Status:** State Review Group 1

**Rank:** G5SNR

**General Description:** Adapted from Hitchcock et al. (1969) and Hickman (1993): *Wolffia columbiana* is a tiny, perennial, floating plant without roots or definite leaves or stems. The plant floats just below the surface of the water with the rounded upper surface just touching the surface film. The nearly spherical plant body is less than 1/16 in. (0.8-1.3 mm) long and transparent green. The upper surface has 1 to 10 stomata (pores). The two flowers occur on the upper surface of the frond and are extremely reduced, naked, and either male or female. The fruit has one naked minute seed. This genus is colonial and primarily reproduces vegetatively.

**Identification Tips:** The two other species of *Wolffia* that occur in Washington are *W. borealis* and *W. brasiliensis*; both of these species have been found in association with *W. columbiana*. *W. columbiana* can be distinguished from these species by its color, shape, and number of pores. Both *W. borealis* and *W. brasiliensis* are dark green, ovoid, and have 50 to 100 pores, while *W. columbiana* is transparent green, spheric, and has only 1-10 stomata (pores) on its upper surface. When found in association, *W. columbiana* is much less abundant than the other two species. A microscope may be needed to identify this species.

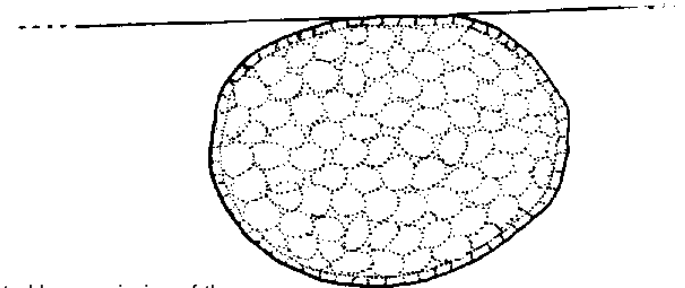
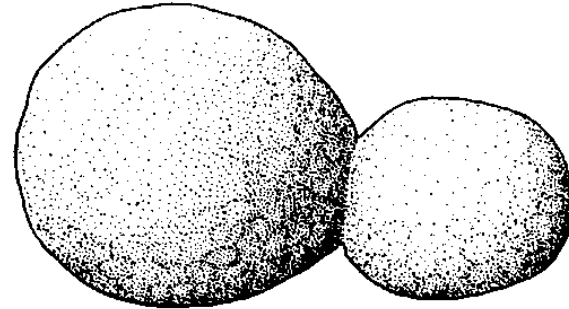
**Phenology:** This species' bloom time in Washington is unknown, and unnecessary for identification. *Wolffia columbiana* has been observed in Washington in July, August, and September, but flowers were not apparent.

**Range:** *Wolffia columbiana* is found from California to British Columbia, east to Quebec, and south to Florida, excluding the interior southwestern states. It is also found in South America. In Washington, this species has been found in Clark, Cowlitz, and Wahkiakum counties.

**Habitat:** This species is found in freshwater lakes, ponds, and slow streams below 650 feet (200 m). In Washington, it is found at elevations from 10 to 250 feet (3-75 m). Associated species found in Clark County include northern water-meal (*Wolffia borealis*), common duckweed (*Lemna minor*), common duckmeat (*Spirodela polyrhiza*),

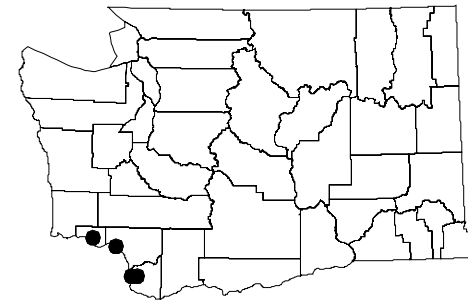
***Wolffia columbiana***

Columbia water-meal



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Known distribution of  
*Wolffia columbiana*  
in Washington



- Current (1980+)
- Historic (older than 1980)

***Wolffia columbiana.***

Columbia water-meal



A. Murray

***Wolffia columbiana.***

Columbia water-meal

Brazilian water-meal (*W. brasiliensis*), and mosquito fern (*Azolla* sp).

**Ecology:** *Wolffia columbiana* is an obligate wetland species.

**State Status Comments:** This species is known in Washington from less than five occurrences. Because *Wolffia columbiana* was recently added to the Washington rare plant list, not much is known about the degree of its rarity in the state at this time. Its minute size may mean that it is frequently overlooked.

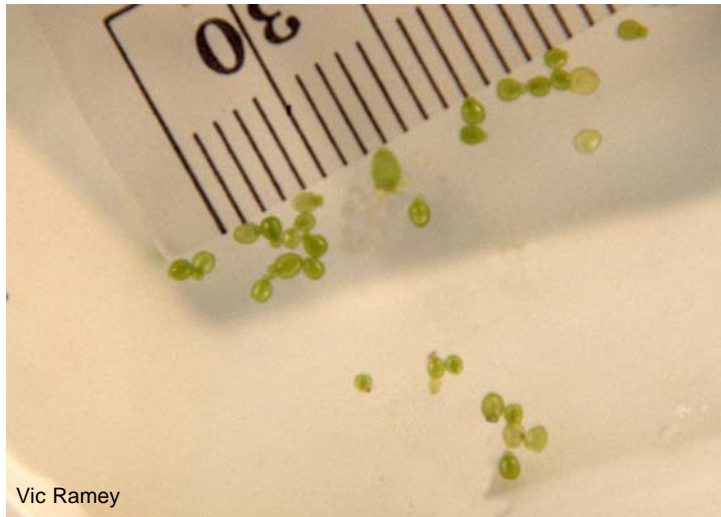
**Inventory Needs:** Other wetland habitats in southwestern Washington should be investigated.

**Threats and Management Concerns:** The greatest threat to this species is hydrologic alteration.

**References:**

Hickman, J.C. 1993. *The Jepson Manual: Higher Plants of California*. University of California Press, Berkeley. 1400 pp.

Hitchcock, C.L., A. Cronquist, M. Ownbey, J.W. Thompson. 1969. *Vascular Plants of the Pacific Northwest Part 1: Vascular Cryptogams, Gymnosperms, and Monocotyledons*. University of Washington Press, Seattle, WA. 914 pp.



Vic Ramey