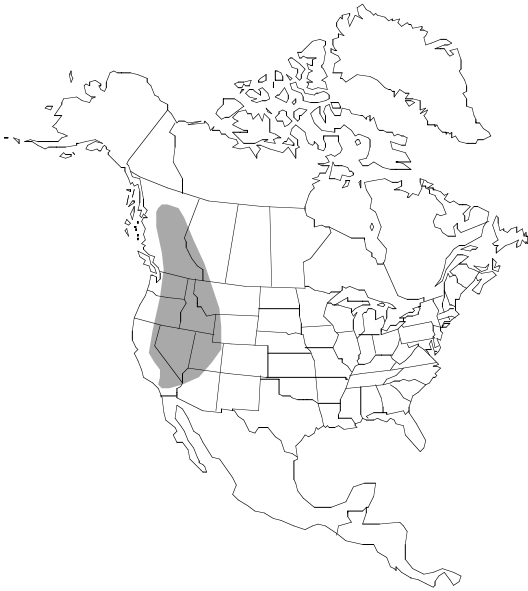


Botrychium crenulatum

| | |
|----------------------|---|
| Family: | Ophioglossaceae |
| Genus: | <i>Botrychium</i> |
| Subgenus: | <i>Botrychium</i> |
| Species: | <i>Botrychium crenulatum</i> W. H. Wagner |
| Common names: | Dainty moonwort, Crenulate moonwort |
| Ploidy: | Diploid |



Published description: Leaf 10 (6-16) cm tall, texture herbaceous, color (living and freshly pressed) yellowish green; common stalk 0.60 (0.50-0.80) of the total leaf length; sterile segment stalk 5 (1-17) mm long, the blade (pressed) ovate-oblong to linear-oblong, 2 (0.5-6.5) cm long, 1.2 (0.8-1.8) cm wide; segments 3 (2-5) pairs, wedge-shaped, the lower and upper margins of the medial pinnae an angle of 70° (20°-110°), their outer edges separated by 80 (30-120)% of the width of the pinnae, often narrowly cuneate toward the base, the largest pinnae 6 (3-12) mm wide, with 15 (10-25) veins reaching the distal margin; margins crenulate (entire to crenate or dentate), and in very large specimens sometimes with 1-5 incisions 1/5 (up to 1/2) of the pinna length; fertile segment 4.5 (2.5-9.5) cm tall, the sporangial branches confined mainly to the upper 1/2 (1/3 – 2/3), without major proximal sporangial branches; spores 45 (40-48) micrometers in diameter; chromosomes 2n = 90 (Wagner and Wagner, 1981).

Identification

Botrychium crenulatum is one of few moonworts in which the span of the basal pinnae often approaches a half circle (pinna span 90-180°). Only *B. lunaria* (120-180°) and *B. yaaxudakeit* (180-250°) regularly reach or exceed this span. *Botrychium crenulatum* can be differentiated from these species by its more delicate texture, light green color, finely crenulate outer pinna margins, fewer pinna pairs (2-5 vs 3-7), distinctly stalked trophophore, and sporophore stalk, at spore release, approximately equal to the length of the trophophore (stalks of *B. lunaria* and *B. yaaxudakeit* are longer). Plants of *B. crenulatum* with narrower pinnae (commonly the case in California plants) more closely resemble *B. minganense* and *B. ascendens*. They can be distinguished from plants of those species by their horizontal to only slightly ascending pinnae and by their pinna margins. Pinna of *B. ascendens* and *B. minganense* are distinctly ascending; pinna margins of *B. ascendens* are dentate to cleft and those of *B. minganense* are usually entire to lobed; neither have the fine crenulations nor the delicate texture of *B. crenulatum*.

Distribution

Botrychium crenulatum has been reported from most western states and provinces, ranging from Arizona, Nevada and California to British Columbia and Alberta. Throughout its range this species is less common than most moonworts. Although populations continue to be found in the western mountains, there is little evidence that its range is likely to be significantly expanded by additional search.

Habitat

Botrychium crenulatum is one of the most hydrophyllic of *Botrychiums*. It usually grows in saturated soils of seeps and along the stabilized margins of small streams, often among dense herbaceous vegetation. It also occurs occasionally in seasonally wet roadside ditches and drainageways. It is usually found in partly shaded to heavily shaded sites at mid to high elevations.

Additional photographs of *Botrychium crenulatum*

