

Botrychium gallicomontanum

Family:	Ophioglossaceae
Genus:	<i>Botrychium</i>
Subgenus:	<i>Botrychium</i> (syn. <i>EuBotrychium</i>)
Species:	<i>Botrychium gallicomontanum</i> Farrar & Johnson-Groh
Common Name:	Frenchman's Bluff Moonwort
Ploidy:	Tetraploid



Published description: Underground stems erect, fleshy, 1-3 cm tall, bearing 3-8 fleshy roots and numerous (6-66, avg. 22) spherical gemmae 0.5-1.0 mm in diameter attached directly to the stem; above ground leaf herbaceous, yellow-green, 7.2 (5-12) cm tall, undivided petiole 4.6 (3-7) cm tall; trophophore (blade-bearing portion) stalk 3.7 (1-8) mm long, trophophore blade ovate to linear, 2.2 (1.4-3.5) cm long, 1.0 (0.6-1.5) cm wide; pinnae pairs 4.5 (3-6), strongly ascending, the basal pair commonly separated from the remainder by a space conspicuously greater than that separating the remaining pairs; pinnae flabellate to narrowly spatulate, often asymmetrical with the upper (anterior) portion exaggerated and arching over the basal portion, entire or irregularly cleft (usually in basal pinnae only), with entire or crenulate margins; largest pinnae 4 (2-7) mm long and 4 (4-8) mm wide, with 4 (3-6) major veins terminating at the outer margin in 13 (6-20) veinlets; sporophore (sporangium-bearing portion) 4.1 (1.8-7.5) cm long with a short stalk 1.4 (0.5-2.8) cm long; sporangia numerous and crowded; spores large, 39 (34-36) μm in longest diameter. Co-exists with *B. campestre* and *B. simplex* between which it is more or less intermediate. (Farrar and Johnson-Groh 1991)

Identification

Botrychium gallicomontanum can be differentiated from *B. campestre* by its distinctly stalked trophophore (sessile in *B. campestre*) and a relatively long-stalked sporophore that is $\frac{1}{2}$ the length of the trophophore (the stalk is less than $\frac{1}{4}$ the length of the trophophore in *B. campestre*). In its asymmetrically divided pinnae, *B. gallicomontanum* resembles *B. pallidum*, but can be distinguished from that species by the absence of recurved upper side margins of the pinnae that give a mushroom shape to the pinnae of *B. pallidum*.

B. gallicomontanum differs from *B. minganense* in having asymmetrically incised pinnae with the upper segment broader and longer than the lower segment and by a conspicuously greater space between the two basal pairs of pinnae than between the remaining pairs. *B. minganense* also has a longer sporophore stalk, commonly exceeding the length of the trophophore.

Distribution

B. gallicomontanum is currently known from only five populations. Two of these are on Frenchman's Bluff in Norman Co., Minnesota, consisting of over 500 plants. A second Minnesota site is in Lake Bronson State Park in Kittson Co., Minnesota about 100 miles north of Frenchman's Bluff. The population there consists of less than 100 plants. Extensive search in similar habitats throughout western Minnesota, while documenting numerous sites for *B. campestre* and *B. simplex*, has failed to detect additional populations of *B. gallicomontanum*. Two other sites for *B. gallicomontanum* are in Big Meadow and Round Prairie, native prairie sites, in the western part of Glacier National Park. In 2005 a fifth site was discovered in a high elevation meadow in the southern Black Hills.

Habitat

In its Minnesota sites, *B. gallicomontanum* occurs in native vegetation characteristic of mid to tall grass prairies of the upper Midwest and lacking in cover by trees or tall shrubs. The substrate in Minnesota is gravelly to sandy glacial till, moderately to well drained. The habitats in Montana and South Dakota are in high diversity natural prairie areas.

Additional photographs of *Botrychium gallicomotatum*:

