

## ***Botrychium xwatertonense***

**Family:** Ophioglossaceae  
**Genus:** *Botrychium*  
**Subgenus:** *Botrychium* (syn. *Eubotrychium*)  
**Species:** *Botrychium xwatertonense* W. Wagner  
**Common Name:** Waterton Moonwort  
**Ploidy:** Tetraploid (sterile)



**Published description:** Leaf 11 (5—17) cm tall; texture herbaceous; color dull pale green (except for the mature sporangia which are dark brown); common stalk of the leaf 6 (3—9) the rachis, folded more or less upward when alive, remote, the lower ones separated by 3 times the width of the pinnae, the pinna outlines narrowly oblong to spatulate, and rounded or truncate at the apex, up to 1 cm long and 0.5 cm wide, the larger ones often once divided; venation much simplified (in comparison to equal-sized plants of *B. hesperium*) with usually only 3—9 vein branchings (vs. 10—16 in *B. hesperium*); each marginal sporangium served by one vein ending, and separated by a small sinus from adjacent sporangia; sporophore 4.8 (1—9) cm tall, the stalk 1.6 (0.5—2.3) cm long; outline mostly linear but the lower 2—4 branches somewhat exaggerated in the largest leaves, reaching one-third (rarely one-half) the length of the entire sporangium-bearing portion, branches ascending; spores abortive, varying from large and approximately spherical to small and irregularly flattened; chromosome number unknown. (Wagner, Wagner, Hauffler and Emerson 1984)

## Identification

Although sporangia occasionally occur on the margins of trophophore pinnae in all moonwort species, these are usually restricted to the basal pairs. *Botrytrychum xwatertonense* is the only species to have sporangia regularly placed around the margins of all of the trophophore pinnae. It differs from *B. paradoxum* in having leaf blade tissue in the center of all pinnae whereas *B. paradoxum* the modified 'trophophore' is equally as devoid of any blade tissue as is the sporophore.

It is not uncommon to find occasional sterile hybrids between moonwort species. Because they have no means of reproduction and persistence, such hybrids generally are not named. The spores of *B. xwatertonense* are abortive and thus it also appears to be sterile in that regard, but it is much more common in its habitat than is the case for other known hybrids, being equally as numerous as its parent species, *B. paradoxum* and *B. michiganense*. *B. xwatertonense* may be reproducing apogamously or vegetatively but this has not yet been determined.

## Distribution

*B. xwatertonense* is known from Waterton Lakes National Park in southeastern Alberta. A single possible specimen has been collected in northeastern Washington.

## Habitat

*B. xwatertonense* grows in grassy fields on south-facing slopes near stands of Lodgepole Pine (*Pinus contorta*), growing in open soil and litter between tufts of grass.

Additional photographs of *Botrychium xwatertonense*:

