

## PALE MOONWORT

*Botrychium pallidum* W.H. Wagner

ADDER'S-TONGUE FAMILY (OPHIOGLOSSACEAE)

**Plants:** Tiny, fleshy, perennial herbs with dense clusters of tiny round bodies (gemmae) at the root bases.

**Leaves:** Of 2 types, a single short-stalked, sterile blade below a single fertile blade (see spore clusters); **sterile blades** thick, fleshy, pale green with a bluishwhite cast, narrowly oblong in outline, up to 4 cm long and 1 cm wide, somewhat folded lengthwise and trough-like when alive, **once-divided** into as many as 5, closely spaced pairs of segments (pinnae); segments broad-based, fan-shaped with veins arranged like ribs in a fan, often overlapping, deeply concave and upcurved, asymmetrical, smooth edged to irregularly round-roothed or lobed at the tip; midribs absent.

**Spore Clusters:** Small, spherical, yellow, stalkless spore sacs (sporangia) borne on specialized, fertile leaf blades; fertile blades **single**, 1.5-4 times as long as the sterile blade, **1-2 times divided**, tapered to fleshy stalk.

**Habitat:** Fields and other open sites kept open by regular disturbance by fire, livestock grazing, etc.; occasionally in more shaded places; 0-2600 m a.s.l.

**Status:** S1; G3

**Notes:** Pale moonwort has a broad but disjunct range, with very local, very small populations. The tiny, inconspicuous plants are easily overlooked, so it could be more common than present records indicate.

- Current status is Global G3; United States N3 (Colorado S2, Maine S1, Michigan S3, Minnesota S1, Montana S1, South Dakota SNR, Wyoming S1) and Canada N1 (Alberta S1, Manitoba S1, Ontario S1, Quebec S1, Saskatchewan S1).
- These plants are vulnerable to successional overgrowth of their habitat.
- Plants reproduce both sexually and vegetatively via minute gemmae that are clustered densely at the root bases. Consequently, genetic variability within the species is even lower than that of many other species.
- Plants resemble a very pale, dwarf form of *B. minganense*, but are distinguished by their peculiar, often folded pinnae and pale green to whitish color.
- Often found growing with other *Botrychium* species. It is one of 4 species that commonly produce dense clusters of tiny, round vegetative reproductive structures (gemmae) at the root bases.

