



Natural Heritage & Endangered Species Program

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Massachusetts Division of Fisheries & Wildlife

Adder's Tongue Fern *Ophioglossum pusillum* Raf.

State Status: **Threatened**

Federal Status: **None**

DESCRIPTION: Adder's Tongue Fern is a small terrestrial fern, up to 30 cm (12 in) high, consisting of a single fleshy green stalk (stipe) bearing a simple leaf and a fertile spike. The stipe arises from fleshy, cod-like rhizomes and roots. About midway up the stipe is the pale green leaf, approximately 15 cm (6 in), narrowly oval to oblong. In var. *pseudopodium* (false foot), the widespread form, the blade gradually tapers for about 1/3 to 2/3 of its length to a narrow, 1-2 cm base that continues to run down the lower stipe. There is a finely indented network of interconnecting veins. The stipe extends well beyond the leaf blade and is terminated by a short, pale green, narrow fertile spike from 1-4 cm long and up to 5 mm wide, which consists of 2 tightly packed rows of rounded sporangia (spore cases) on the margins of the spike axis. There can be a large variation in the size, shape, and position of the blade, as well as of the fertile spike; occurrences of two fronds (leaves) per rootstalk have been observed. The plant appears anytime after early June.

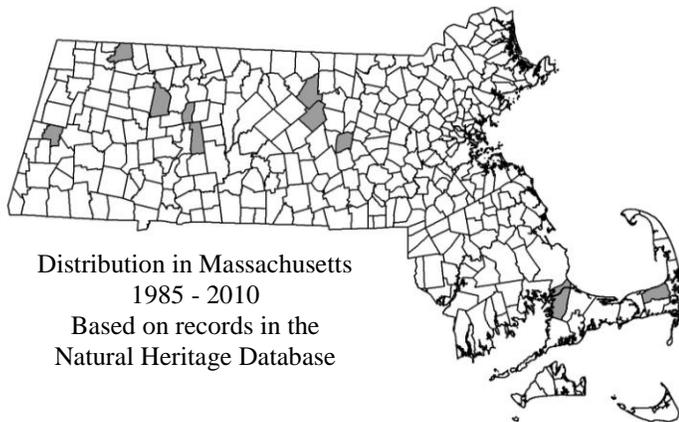
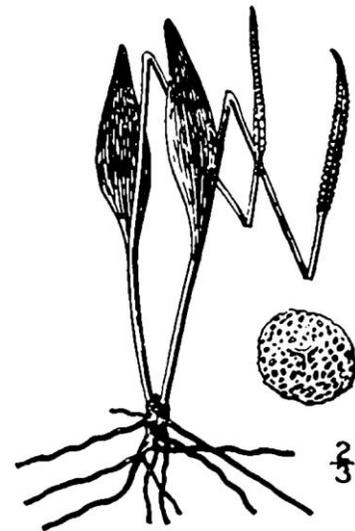


Photo: B. Legler, USDA Forest Service. Drawing: USDA-NRCS PLANTS Database / Britton, N.L., and A. Brown. 1913. An illustrated flora of the northern United States, Canada and the British Possessions. 3 vols. Charles Scribner's Sons, New York. Vol. 1: 2.

A Species of Greatest Conservation Need in the Massachusetts State Wildlife Action Plan

Massachusetts Division of Fisheries & Wildlife

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SIMILAR SPECIES: No other fern looks like the Adder's Tongue Fern. Its closest relatives, the Grape Ferns (*Botrychium*) have dissected or lobed leaves. Several orchids and lilies may have similarly shaped fleshy basal leaves, such that non-flowering or juvenile individuals may at first glance be mistaken for Adder's Tongue Fern. However, all have parallel-veined leaves.

HABITAT IN MASSACHUSETTS: Boggy meadows, acidic fens (sphagnum areas with seeping groundwater), borders of marshes, wet fields, and moist woodland clearings provide suitable open and sunny habitat for Adder's Tongue Fern. Vegetation in these habitats is varied, composed predominantly of common grasses, bulrushes (*Scirpus*), sedges (*Carex*), and broadleaved herbs including Ragged, Small Purple Fringed, and White Fringed Orchis (*Platanthera lacera*, *P. psycodes*, and *P. blephariglottis*), and Swamp Milkweed (*Asclepias incarnata*). No common associate or indicator species particularly point to the presence of Adder's Tongue Fern.

RANGE: Adder's Tongue Fern (var. *pseudopodium*) is a very widespread, primarily northern fern occurring across North America from Prince Edward Island and southern Quebec to Washington; south to Virginia and west to Indiana, Nebraska, Arizona and Mexico.

POPULATION STATUS: Adder's Tongue Fern is listed as Threatened under the Massachusetts Endangered Species Act. All listed species are protected from killing, collecting, possessing, or sale and from activities that would destroy habitat and thus directly or indirectly cause mortality or disrupt critical behaviors. It was once a widespread species in Massachusetts during the century of extensive agricultural clearing. Records prior to 1978 are from over 90 locations! At present there are only 8 known occurrences. This elusive and easily overlooked species makes it difficult to determine whether individual populations are in decline or stable. Possibly, undiscovered populations may still exist in Massachusetts, but the increasing rarity of appropriate open habitat appears to be a major factor in its decline in this state as well as most of its range. It is listed as rare in 20 states, including most of New England (except Vermont) and several provinces of Canada. NatureServe ranks it as G5-Secure globally because of the widespread distribution.

MANAGEMENT RECOMMENDATIONS: Adder's Tongue Fern appears to need the increased light from canopy opening or forest clearing. Reports from most of the current sites mention threats from succession. Invasive species are impinging on several of the populations; removal of invasive plants would leave space and less shade for the fern.

Several of the sites are mowed fields; recommendations in those cases are for single yearly mowings to take place in the spring to allow the plant to grow and produce spores. All active management of rare plant populations (including invasive species removal) is subject to review under the Massachusetts Endangered Species Act, and should be planned in close consultation with the Massachusetts Natural Heritage and Endangered Species Program.

REFERENCES:

- NatureServe. 2010. NatureServe Explorer: An online encyclopedia of life [web application]. Version 7.1. NatureServe, Arlington, Virginia. Available <http://www.natureserve.org/explorer>. (Accessed: December 13, 2010).
- USDA, NRCS. 2010. The PLANTS Database (<http://plants.usda.gov>, 13 December 2010). National Plant Data Center, Baton Rouge, LA 70874-4490 USA.

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