

Ophioglossaceae

adder's-tongue family

These soft fleshy ferns arise from a short rhizome. Leaves show branching venation, entire, or variously pinnate. Sporangia are relatively large, numerous and thick walled, stalked or embedded in the axis. A single sporophore per leaf. Sixty species are distributed worldwide in three genera; only two genera found in NS.

Key to genera

- | | |
|------------------------------------------------------------------------------------|---------------------|
| A. Blades lobed or compound, with freely forking veins; sporangia on short stalks. | <i>Botrychium</i> |
| aa. Blades simple, veins converging; sporangia sessile. | <i>Ophioglossum</i> |

Botrychium

Grape Ferns

This is a worldwide genus of 30 species. Blades may be smooth or pubescent, feathery or pinnately compound. Veins are divergent, but do not reach the blade margins. Sporophore is at least pinnately divided often up to three times. Sporangia stalked. Mature plants are needed to confirm species.

Key to species

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|-------------------------------------------------------------------------------------------------------------------|-----------------------------|
| A. Blades narrow, < 7 cm wide, lobes fewer distally, smooth. | B |
| B. Pinnae fan-shaped or obovate, entire or lobed distally; blade and sporophore erect in bud. | C |
| C. Lowest pair of pinnae the largest; blade shorter than the base of the sporophore. | <i>Botrychium simplex</i> |
| cc. Lowest pinnae pair equal in size to others; blade length equal to or longer than the stalk of the sporophore. | <i>B. lunaria</i> |
| bb. Pinnae lobed or pinnate; blunt or pointed; blade or its tip reflexed in bud. | D |
| D. Blade oblong and stalked. | <i>B. matricariaefolium</i> |
| dd. Blade triangular, usually sessile. | <i>B. lanceolatum</i> |
| aa. Blade usually wider than 7cm, slightly pubescent, at least in bud. | E |
| E. Blade sessile, attached midway on the stem; deciduous. | <i>B. virginianum</i> |
| ee. Blade on long stipe, nearly basal; evergreen. | F |
| F. Blade many times divided; terminal segments with 1–2 veinlets. | <i>B. dissectum</i> |
| ff. Blade less divided; terminal segments with > 2 veinlets. | <i>B. multifidum</i> |

***Botrychium dissectum* Spreng.**
(includes var. *obliquum*)

Grape Fern; botryche découpé



Photo by Sean Blaney

Blade arises from a long stipe near the base, deltate in outline. Pinnae are freely-branched, with the pinnules serrulate. Stipe of fertile frond is up to 30cm tall. Clusters of sporangia resembling grapes, line the branches. After sporulating the plant turns brownish purple.

Spores from September to November.

Generally in sandy, gravelly, grassy or open soils. Frequent in the southwestern counties, scattered eastward to Cape Breton. Not abundant but often seen.



Photo by Roger Lloyd

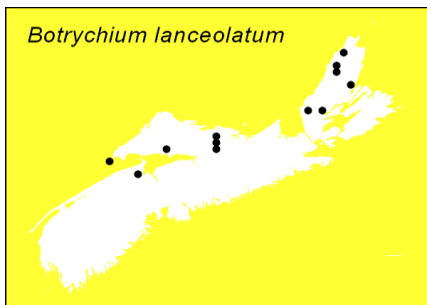
NS to ON, south to TX and FL.

***Botrychium lanceolatum* (Gmel.) Angstr.**

Lance-leaved Grape Fern; botryche lancéolé



Photo by Sean Blaney



A lax species, it has a single stipe, bearing a single sessile sterile frond, divided into lanceolate pinnules. The sporophore branches at an acute angle, covered with clusters of sporangia.

Our ferns belong to var. *angustisegmentum* Pease and Moore, darker green in colour and with narrower frond segments than the typical variety, which is also more northern.

Fertile soils on wooded hillsides.

Kentville Ravine (Kings County); Colchester, Cumberland and a few sites in western Cape Breton. Rare where found and of limited distribution in the northern counties.

In the east found from NF to ON, south to TN and NC; Greenland; western population from AK to CA and NM.

***Botrychium lunaria* (L.) Sw.**
Moonwort; botryche lunaire



Photo by Rick Ballard

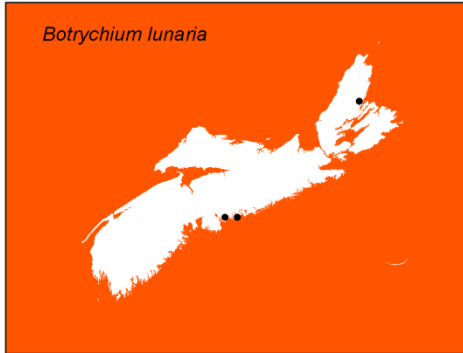
Very small and fleshy ferns with the sterile blade arising from the top of the plant. Pinnae are fan-shaped, arranged in sessile pairs (four or more), notched distally.

Spores are produced throughout the summer.

Open slopes. Sand or gravel; shores and meadows. Basic soils.

Known from Conrad's Beach, Halifax County and from New Campbellton and Indian Brook in northern Cape Breton.

NF to AK, south to CA, NM and PA; Greenland.

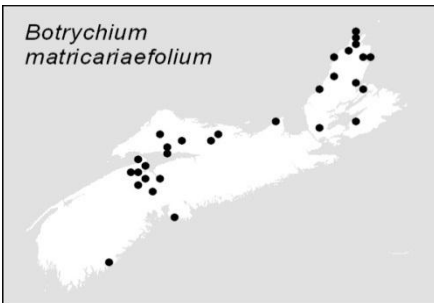


***Botrychium matricariaefolium* A. Br.**

Daisy-leaved Grape Fern; botryche à feuille de matricaire



Photo by Sean Blaney



A larger species, it is even fleshier than *B. lunaria*. Stipe is longer than the sterile blade. Pinnae sharply divided, with irregular margins. Fertile blade also branched. Spores measure 25–35 μ . It is the most noticeable of the grape ferns.

Exposed headlands and worn out fields; in alluvial soil and on fertile soil high in leaf mould, as found in deciduous forests.

Northern, from Annapolis County eastward. A single Queens County location, near Port Mouton.

NF to MB, south to TN and NC; northern Eurasia.

***Botrychium minganense* Vict.** was included by Clausen in the Monograph of the Ophioglossaceae as present in NS. The report is based on a specimen held at the US National Museum, Smithsonian Institute, collected by D. White and C. Schuchert VII from New Campbellton, Cape Breton Island. It is to be expected here as it ranges from NF to AK, south to CA, AZ and NY. It is now considered to be Extirpated.

***Botrychium multifidum* (Gmel.) Rupr.**
Grape Fern; botryche à feuille couchée



Photo by Marian Munro

Stipe of the sterile frond arises from near the base and exceeds the blade in length. The pinnules are evergreen and obovate with wavy margins. Both fronds are finely divided. Sporangia are arranged in loose clusters. There is considerable variation in size and small sterile plants are often seen in summer.

Spores produced in late summer.

Found in grassy pastures, field, exposed hillsides and forests.

Uncommon in the southwest, scattered from Digby to northern Cape Breton.

NF to AK, south to CA, AZ and NC; Eurasia.

***Botrychium simplex* E. Hitchc.**
Least Grape Fern; botryche simple



Photo by Marian Munro

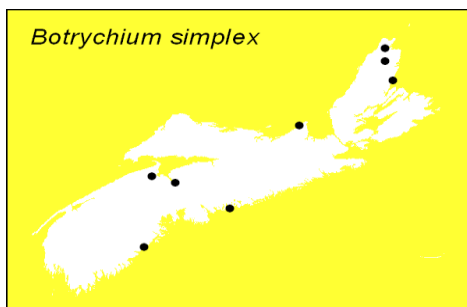
Being very small in stature means this species is easily overlooked. Pinnae are once-divided. Pinnules are lanceolate or obovate. Fertile frond has sharply angled branches covered in small tightly clusters of sporangia. Spores range in size from 35–50 μ , overlapping those of *B. matricariaefolium*.

Spores produced in late May and June.

Reported from various habitats, usually involving damp or mossy streambanks or lakeshores.

Scattered locations from Yarmouth County to Cape Breton: Cedar Lake (Digby–Yarmouth border), West Berlin (Queens Co.), Petpeswick and in Antigonish, Victoria and Inverness counties.

NF to AK, variously south. Absent from SK and YT; Eurasia.



STATUS: YELLOW-listed.

***Botrychium virginanum* (L.) Sw.**
Rattlesnake Fern; botryche de Virginie



Photo by Beth Cameron

A tall and robust species, it reaches 70cm in height. Blades are large and sessile, several times pinnate. They arise midway up the stipe. Fertile frond is terminal, with compact rows of sporangia.

Spores in spring and early summer.

A beautiful lacy fern, it is highly visible beneath the mature deciduous forests it favours. Not colonial and may be expected in calcareous regions.

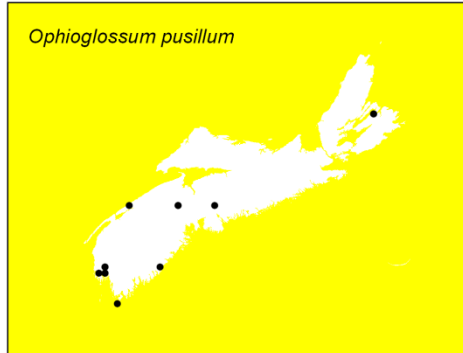
Scattered from Annapolis and Cumberland counties to northern Cape Breton.

Absent only from NU, it is found throughout the continent; Eurasia.

Ophioglossum L.
adder's-tongue

This fern has simple undivided blades, both sterile and fertile. Sporangia are carried in two rows, terminal on the stipe and embedded in it. There are 30 wide-ranging species.

***Ophioglossum pusillum* Raf.**
adder's-tongue; ophioglosse nain



The oval sterile blade is sessile, clasping the stipe. A second smaller blade may be present. Blades resemble the leaves of several companion species, but for the terminal sporangia. Often overlooked and difficult to find.

Spores produced May to August.

Sterile soils, swamps and sandy or cobbly lakeshores.

Known from Yarmouth and Digby Counties; scattered east to Halifax and Amherst; a single Cape Breton record from George River.

Elsewhere from NS to MB, south to NB and NC; westward.

STATUS: YELLOW-listed.