

# Isoëtaceae

## quillwort family

### *Isoëtes* L.

These aquatic or amphibious plants are cosmopolitan, numbering about 150 species. Leaves are linear, pointed and straight or recurved, arising from a corm-like rhizome. Sporangia are produced in the hollow bases of the leaves, with outer leaves bearing megaspores and inner leaves bearing microspores. It is difficult to separate the species. A microscope is required to measure the spores and determine the adornments. Habitat and velum structure will aid in the determination.

#### Key to species

- |   |                        |
|---|------------------------|
| A. Megaspores with spines.  | <i>Isoëtes tenella</i> |
| aa. Megaspores without spines, but ridged.  | B                      |
| B. Megaspores with rounded ridges and a smooth band around the distal side of the equatorial ridge.     | <i>I. acadensis</i>    |
| bb. Megaspores with branching ridges, rough or pointed crests, equatorial zone with various adornments. | C                      |
| C. Velum covering the entire sporangium.  | <i>I. prototypus</i>   |
| cc. Velum covering < half the sporangium.   | D                      |
| D. Megaspores usually averaging > 600µ; leaves dark green, stiff.                                       | <i>I. lacustris</i>    |
| dd. Megaspores usually <600µ; leaves various.   | <i>I. tuckermanii</i>  |

### *Isoëtes acadensis* Kott (= *I. hieroglyphica* AA Eaton, in part)

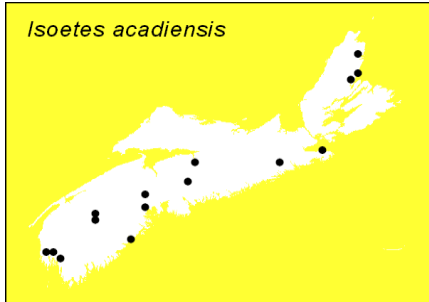


Photo by Roger Lloyd

A dark green species, it soon fades to yellow-green at the base, possibly reddish. It is stiff in appearance with finer leaves than *I. echinospora*. Megaspores average 519µ and the spiny microspores are 25–30µ long.

In water up to depth of 1m, bordering lakes, ponds or along rivers.

Scattered from Yarmouth County to northern Cape Breton. Very common in Lake Kejimikujik, near exit of Grafton Brook.



Most frequent in NS, but ranging south to NJ.

### ***Isoetes lacustris* L.**

Our largest species of quillwort, with upwards of 70 straight leaves abruptly tapering to sharp points. Megaspores large, averaging 700  $\mu$  in diameter with the ridges forming a honeycomb pattern. Microspores are kidney-shaped, averaging 42  $\mu$ , with evenly spaced papillae on their surfaces.

Frequents stony lake bottoms, often in deep water of oligotrophic lakes in the Precambrian Shield.

Scattered probably throughout. Collections from east branch of the Tusket River and the Clyde River in southwestern NS. Abundant in Ethel Lake, on Saint Paul Island and on the northern side of the province.

NF to NT, variously south to TN.

### ***Isoetes prototypus* DM Britton**



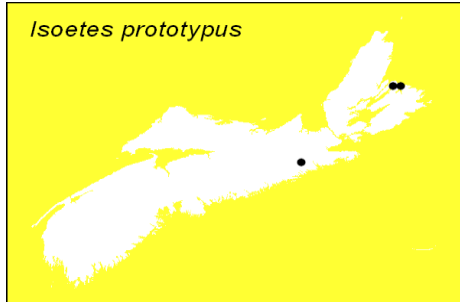
Photo by Roger Lloyd

An evergreen species, it has dark green stiff leaves arising from a round rootstock. Sporangium is covered by a velum, containing white megaspores measuring 425–575 $\mu$  in diameter. Spores are produced in summer.

This is another deep-water species found in nutrient-poor waters.

Only a few localities known in NS: Sutherland's Lake, Cumberland Co.; Economy Lake, Colchester Co.; Pottle Lake, North Sydney and Sandy Lake, Annapolis County.

Limited in range, from NS to NH.



***Isoetes tenella* Léman  
(*Isoetes echinospora* Dur.)**



*Photo by Roger Lloyd*

The most abundant species in NS and in the rest of Canada. Megaspores are armed with spinules, 420–580 $\mu$  in diameter. The corm is bilobed.

Lakes and ponds, with good circulation and gravelly or muddy ponds.

Throughout the province.

NS to AK, south to CA and NJ; variously in middle America.

***Isoetes tuckermanii* A. Br.**



*Photo by Roger Lloyd*

Leaves are yellow-green and soft. Megaspores 460–650 $\mu$  in diameter; while the microspores average 27 $\mu$  in length.

Frequenting shallow quiet water and their sandy, peaty or muddy margins.

Scattered throughout on both Atlantic and Fundy coasts.

NF to ON, south to MD.

A large tufted hybrid has been named, *I. x harveyi*, thought to result from a cross between this and *I. lacustris*. It is common from Guysborough County and Cape Breton. Its spores are highly variable. Leaves are striking in appearance, succulent and long twisting.