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

Isoëtes acadiensis Kott
(= I. hieroglyphica AA Eaton, in part)

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 Kejimkujik, near exit of Grafton Brook.

Photo by Roger Lloyd

1-6 Isoëtaceae
Most frequent in NS, but ranging south to NJ.

*Isoëtes lacustris* L.

Our largest species of quillwort, with upwards of 70 straight leaves abruptly tapering to sharp points. Megaspores large, averaging 700 μ in diameter with the ridges forming a honeycomb pattern. Microspores are kidney-shaped, averaging 42 μ, 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.

*Isoëtes prototypus* DM Britton

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 μ 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.
Isoëtes tenella Léman  
(Isoëtes echinospora Dur.)

The most abundant species in NS and in the rest of Canada. Megaspores are armed with spinules, 420–580μ 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.

Photo by Roger Lloyd
*Isoëtes tuckermanii* A. Br.

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

*Photo by Roger Lloyd*