

Potamogetonaceae pondweed family

Only two genera form the pondweeds, numbering about 90 species worldwide. All have perfect flowers arranged in a spike or head. Perianth is absent; flowers are four-merous. Some species exhibit heterophyllous leaves. An important character is the presence or absence of lacunae, rows of colourless cells on either side of the central axis. All perennial, they are an important food source for waterfowl. (Haynes and Hellquist, 1996, 2000)

Stipular sheaths of submersed leaves free from base of leaf blade, or adnate <math>< \frac{1}{2}</math> length of stipule; leaves both submersed and floating or all submersed, submersed blades translucent, not channelled, flattened; peduncle stiff, if long enough then projecting inflorescence above surface of water. *Potamogeton*

Stipular sheaths of submersed leaves adnate to base of leaf blade for 2/3 or more length of stipule; leaves all submersed, blades opaque, channelled, turgid; peduncle flexible, not projecting inflorescence above surface of water. *Stuckenia*

Potamogeton L. pondweeds

Herbaceous aquatic species, they are found in estuarine waters or fresh water. The leaves may be aerial, emergent, floating or wholly submerged. All are alternate along the rooting stems. The flower spikes are sheathed by stipules in bud, expanding upon a peduncle to the surface as they mature. Fruit is a drupe, soon becoming compressed.

Hybridization is common as are sterile plants. The following key is of some field value, if material is mature. Morphological characters are often not sufficient to separate some of the more difficult species and their hybrids.

Key to species

- A. Plants heterophyllous, floating and submerged. B
- B. Leaves large, submerged 4-6mm wide, >25 veins, may be plicate. *Potamogeton amplifolius*
- bb. Leaves much smaller. C
- C. Floating leaves reddish and translucent. *P. alpinus*
- cc. Floating leaves thick and opaque. D
- D. Submerged leaves bladeless. E
- E. Floating leaves >5cm long; fruits >3.5mm long. *P. natans*
- ee. Floating leaves <6cm long; fruits <3.5mm long. *P. oakesianus*
- dd. Submerged leaves with blades. F
- F. Submerged leaves with >7 veins. G
- G. Submerged leaves with wide lacunae; stipules short, deltate. *P. epihydrus*
- gg. Submerged leaves with narrow lacunae; H

stipules acuminate, if otherwise, restricted to Sable Island.		
H. Submerged leaves 1–3cm wide, veins 9–18, 8–15cm long; fruit with prominent beak.		<i>P. pulcher</i>
hh. Submerged leaves <1.5cm wide; veins 7–11; <9cm long; fruit beakless; limited to Sable Island.		<i>P. oblongus</i>
ff. Submerged leaves with <7 veins.		I
l. Submerged leaves 2–4cm long, veins <3; spikes sometimes sessile in axils.		<i>P. spirillus</i>
ii. Submerged leaves >3cm long, veins >3; spikes on long peduncles.		J
J. Submerged leaves acuminate, on long petioles.		<i>P. nodosus</i>
jj. Submerged leaves acute, on short petioles.		<i>P. gramineus</i>
aa. Plants homophyllous, submerged only.		K
K. Submerged leaves 4mm wide, cordate and clasping.		L
L. Stipules present and persistent, 2–7cm long.		M
M. Leaves crowded, 2-ranked, apices flat; stipules adnate.		<i>P. robbinsii</i>
mm. Leaves alternate or scattered; apices keeled; stipules free.		<i>P. praelongus</i>
ll. Stipules absent or soon deciduous, <2cm long.		N
N. Submerged leaves lanceolate.		<i>P. richardsonii</i>
nn. Submerged leaves ovate or globose.		<i>P. perfoliatus</i>
kk. Submerged leaves <2mm wide, not cordate nor clasping.		O
O. Leaves >3 veins.		P
P. Veins 15–35; leaves 2–5mm wide.		<i>P. zosteriformis</i>
pp. Veins 5–9; leaves <3.5mm wide.		<i>P. friesii</i>
oo. Leaves with <3 veins.		Q
Q. Blade with single midvein; stem very soft and delicate.		<i>P. confervoides</i>
qq. Blade of leaf with 3 veins.		R
R. Leaves 2–4mm wide; apex blunt.		<i>P. obtusifolius</i>
rr. Leaves mostly <2mm wide; apex acute.		S
S. Glands present at the leaf base; spike on scape, cylindrical, <5cm long.		<i>P. pusillus</i>
ss. Glands absent; spike forming a globose head on a scape, <1cm long.		<i>P. foliosus</i>

***Potamogeton alpinus* Balbis**
potamot alpin



Photo by Roger Lloyd

Entire plant has a reddish colour. Floating leaves are sometimes absent, but if they are present, they are opposite, tapering to a short petiole scarcely differentiated from the blade. The submerged leaves are long and lanceolate or narrow and oblong, to 1cm wide. Veins range from 5–9 in number. Spikes are densely flowered. Achenes are pitted at maturity.

Found in ponds and streams.

Collected from Kings and Lunenburg counties to Cape Breton in more alkaline waters.

Ranges across Canada, south to northern NJ, NM and CA; Greenland.

***Potamogeton amplifolius* Tuckerm.**
potamot à grandes feuilles



Photos by David Mazerolle

A large pondweed, it has lots of large luxuriant leaves. The submerged leaves are elliptic and often plicate, reaching 6cm across. Lower leaves tend to be narrower. Floating leaves are 5–10cm long, borne on long petioles and rounded at the base.

Flowers from July to September.

Frequents ponds and rivers, never in brown-water lakes. (humic).



Photo by Roger Lloyd

Found throughout but less common in the acidic waters of southwestern counties.

Ranges from NF to BC, south to GA and CA. Absent from AB and the arid southwest.

Forms hybrids with *P. gramineus*, *P. alpinus* and *P. pulcher*.

***Potamogeton confervoides* Reichenb.**
potamot confervoïde



Photo by David Mazerolle

This species is the smallest and most delicate of our pondweeds. There are no floating leaves; the submersed ones are barely 5mm wide, with a single vein and a filiform apex. Freely branched, the filiform clusters may be distant from each other. The inflorescence is short, and has few flowers tightly clustered in contrast with the long zigzagging spike of *Stuckenia pectinatus*.

Flowers and fruit from June to August.



Photo by Roger Lloyd

Characteristic of brown water, as in bog pools, acidic lakes and sluggish streams feeding them.

Uncommon in north-central counties. Frequent in Yarmouth Co., becoming less frequent along the Atlantic to Cape Breton.

NL to ON, south to WI and NJ; NC and SC.

***Potamogeton epihydrus* Raf.**
potamot émergé



Photo by Sean Blaney

Heterophyllous, this species is one of our more common pondweeds. Floating leaves are narrowly obovate, tapering at the base to a short petiole. The submersed leaves are ribbonlike, 2–10mm wide and marked by at least seven veins. Lacunae are present on either side of the midvein. Spike is short but densely flowered. Achenes are marked by three keels on dorsal surface.

Found in shallows of ponds, pools and streams.



Photo by Roger Lloyd

Common throughout except in brackish water.

Ranges from NF to AK, and south to CA and FL. Absent from alkaline regions of the prairies and plains.

***Potamogeton foliosus* Raf.**
Leafy Pondweed; potamot feuillé



Photo by Roger Lloyd

This pondweed bears only submersed leaves. Only 2mm wide, they are marked by three veins, the midvein most prominent. There are rarely basal glands present, but 1–3 rows of lacunae at the base are common. The small spike is carried on a short peduncle. Achenes often have a narrow sharp wavy keel.

Usually in ponds and pools, less frequent in flowing water.

Ranges from Digby to Cumberland Co. and east to central Cape Breton.

Ranges from NL to AK, south to Mexico; absent only from Labrador and NU.

***Potamogeton friesii* Rupr.**
potamot de Fries



Photo by Roger Lloyd

This northern species has submersed leaves only, 1–3mm wide and faintly marked with five veins. They are ribbonlike with short acute apices. There are 4–5 rows of lacunae on either side of the midvein, extending about two-thirds of the leaf length. The flower spikes are slender, comprising several whorls. The achenes are rounded on the back with three obscure keels.

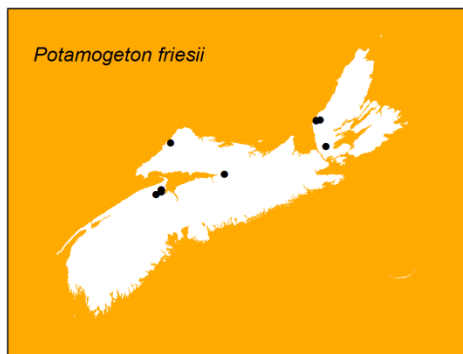
Flowers and fruit from July to September.

Found in quiet waters of ponds and streams.

An uncommon species, found in the Habitant and Canard rivers of Kings Co.; Salmon River, Colchester Co. and at West Mabou Harbour, Inverness Co.

Ranges from NF to AK, south to UT, IL and PA; Eurasia.

ORANGE-listed for Nova Scotia.



***Potamogeton gramineus* L.**
potamot à feuilles de graminée



Highly variable, this species can be difficult to identify. If floating leaves are present, they are 3cm long and elliptic. The submersed leaves are narrow, ranging from 6–15mm wide.

Flowers and fruit from July through September.

Photo by David Mazerolle



Photo by Roger Lloyd

Found in lakes, rivers and ponds, especially where water flow is fast and substrate is shingly.

Common in less acidic regions particularly in coastal areas of northern counties.

Ranges from NL to AK, south to CA, NM and KY; Greenland.

Forms hybrids with *P. alpinus* (*P. x nericus*), *P. amplifolius* and *P. perfoliatus*. (*P. x nitens*).

***Potamogeton natans* L.**
potamot flottant



Photo by Sean Blaney

A leafy species, the floating ones are elliptic, 5–10cm long and 4cm wide. The long linear submersed leaves are only 1–2mm wide and are bladeless. Spikes are dense and relatively long. Achenes are large to 5mm long and without a keel.

Flowers and fruits from July to September.

Found in lakes, ponds and streams.

Common throughout.

Ranges from NF to AK, south to NJ, OK and CA; Greenland; Eurasia.

***Potamogeton nodosus* Poir.**
Longleaf Pondweed; potamot nouveau



Photo by Sean Blaney

Although this species resembles *P. gramineus*, it may be separated on the presence of long acuminate stipules.

Flowers and fruits later than other species, in August and September.

Freshwaters of ponds and streams.

Recently discovered here and known from the East River St. Mary's, Antigonish Co.

Ranges from NS to BC, south to CA and FL. Absent from MB.

ORANGE-listed for NS.



Photo by Roger Lloyd

***Potamogeton oakesianus* JW Robbins**
Whitestem Pondweed; potamot d'Oakes



Photo by David Mazerolle



Photo by Roger Lloyd

This species resembles *P. natans* in having both floating and submersed leaves. However this plant is generally smaller. Floating leaves measure 4 cm long and 2cm wide. The very fragile submersed leaves are only about 1mm wide. The inflorescence is a densely packed spike, producing achenes less than 3.5mm long.

Flowers and fruit from July to September.

Bog pools and slow-moving headwater stream, lakes.

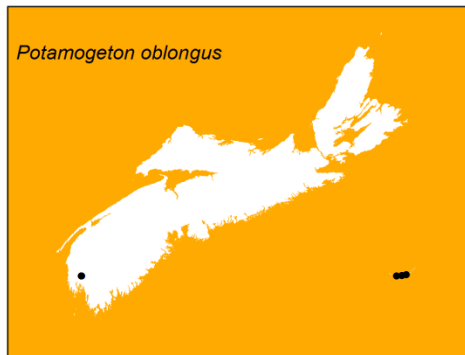
Frequent to scattered throughout.

Ranges from NF to ON, variously south to TN; BC; MT.

***Potamogeton oblongus* Viviana**
potamot oblong



Photo by Roger Lloyd



Potamogeton oblongus

The ovate floating leaves are 3–8cm long. Submersed leaves may be absent, but if present they are lanceolate and only to 1.5mm wide. There are 2–4 rows of lacunae on either side of the midrib as well as 7–11 veins. The spikes may be 8cm long, producing prominently beaked achenes.

Flowers and fruit in August and September.

Ponds and ephemeral pools.

Known from Sable Island where it is abundant; southwestern collection.

NF, St. Pierre et Miquelon; Sable Island; NJ.

Listed as an ORANGE species for Nova Scotia

***Potamogeton obtusifolius* Mert. & Koch**
potamot à feuilles obtuses



Photo by Sean Blaney

Similar to *P. foliosus* and may form hybrids with that species and *P. pusillus*. Its submersed leaves are translucent with a noticeable gland at the base on either side. They are also blunt-tipped and only to 4mm wide. There are three veins. Floating leaves are absent. The achene is keeled, its ridge low and sharp.

Flowers and fruit July to September.

Ponds, pools, lakes and sluggish streams often over deep mucky substrate.

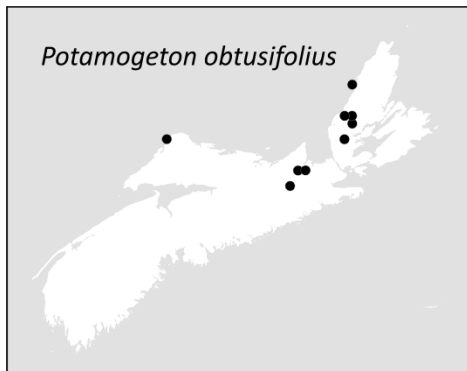


Photo by Roger Lloyd

Northern from Cumberland Co., to northern Cape Breton.

Ranges from NS to AK south to NJ, KS and WA; Eurasia.

May form hybrids with *P. pusillus* (*P. x saxonicus*)



***Potamogeton perfoliatus* L.**
potamot perfolié



Photo by Sean Blaney

Another species with only submersed leaves, this species has distinctively round or elliptic sessile leaves, clasping the stems. The stipules are soon deciduous.

Flowers and fruits from July to October.

Found in brackish waters, even alkaline. Frequently seen at the mouths of rivers.



Photo by Roger Lloyd

Throughout.

Ranges from NF to ON, south to OH and NC; Gulf States; AK to BC.

***Potamogeton praelongus* Wulfen**
potamot à longs pédoncules



Photo by Roger Lloyd

Floating leaves are absent, its submersed leaves are 1–3cm wide and slightly rounded or clasping at the base. Stramineous stipules are free from the leaves, 1–3cm long and persistent. The stem is long and often angled in a zigzag pattern. Resembles *P. robbinsii* but for the free stipules.

Flowers in June and July, but rarely found in fruit.

Usually in deep water.

Collected from Kings Co. to Cape Breton.

Ranges across the continent and south to CA and MD; Eurasia.

May form a hybrid with *P. perfoliatus* (*P. x cognatus*).

YELLOW-listed.

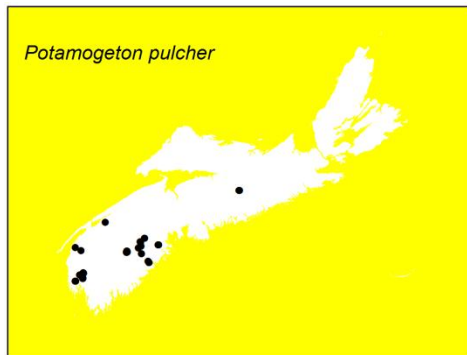
***Potamogeton pulcher* Tuckerm.**
potamot gracieux



Photo by Sean Blaney



Photo by David Mazerolle



Potamogeton pulcher

This large-leaved species has both floating and submerged leaves. The underwater ones range from 10–30mm wide and have crisped margins and 9–15 veins. Floating leaves may reach 6cm in length, round or cordate at the base. The stem is covered by sticky black glands, an easy character to separate this species from other similar ones.

Flower and fruits from July to September.

Found on muddy margins of ponds and lakes, streams.

Collected from Yarmouth, Queens and Halifax counties. Also reported from Digby Co.

Ranges from NS; ON; ME to MN, south to FL and TX.

STATUS: YELLOW-listed in NS.

***Potamogeton pusillus* L.**
potamot nain



Photo by Roger Lloyd

Another plant with only submerged leaves. Leaves are only to 2mm wide, with three veins; only the midvein is conspicuous. There are also three rows of lacunae on either side of it, running for most of its length. Most leaves bear a pair of glands at their bases and the apices are acute. There is a low rounded keel on the back of the achenes.

Two subspecies are listed as present in Nova Scotia. Our material should be examined for clarity. *Ssp. pusillus* and *ssp. tenuissimus* (Mert & Koch) Haynes and CB Hellquist. Both are continental in scope.

Flowers and fruits from July to September.

Limited to alkaline waters.

Scattered throughout mainland Nova Scotia and more frequent and abundant in Cape Breton.

Throughout the continent.

***Potamogeton richardsonii* (Benn) Rydb.**
Redhead Pondweed; potamot de Richardson



Photo by Roger Lloyd

Floating leaves are absent in this species and the submerged leaves are lanceolate to ovate, 5–30mm wide, 10cm long. They are coarsely veined, cordate and clasping at the base. Stipules soon disintegrate into strong white fibres.

Flowers and fruits from July to September.

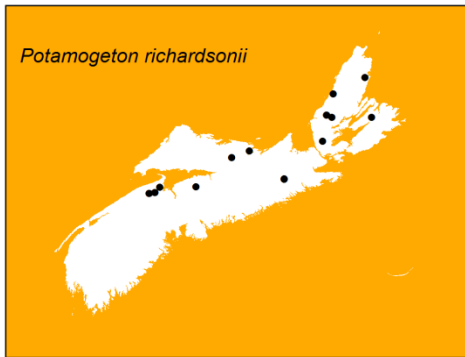
Frequents lakes and streams in brackish or alkaline water.

Scattered from Kings and Cumberland Cos. to eastern Cape Breton.

Ranges from NF to AK, south to CA, NM and MD.



Photo by Roger Lloyd



***Potamogeton robbinsii* Oakes**



Photo by Sean Blaney

This pondweed is distinctive and easy to recognize. Floating leaves are absent. The submerged leaves are arranged in two ranks, perpendicular to each other. They are 2–5mm wide and up to 10cm long. The tips are pointed and the bases have rounded auricles. They crowd the stem, sometimes only 1cm apart. Each is marked by a midvein. Fruiting plants have not been preserved in our material.

Flowers during July and August.



Photo by Roger Lloyd

Prefers slow-flowing water of streams and lakes.

Collected from Digby to northern Cape Breton, and most common north-centrally.

Found across Canada, NF to NU; AK, variously south to CA, CO, VA and AL.

***Potamogeton spirillus* Tuckerm.**
potamot spirillé



Photo by Sean Blaney

A freely branching plant, it has heterophyllous leaves. The submerged ones are linear, 2–4cm long. The floating leaves if present, are ovate, acute at both ends. The stipules are united to the leaves about half their length, with only the tips free. Leaves may be single veined, with a few faint lateral ones. There are numerous spikes, the lower ones sessile in the leaf axils. Flowers number 1–6 becoming larger towards the apex and on longer peduncles. The coiled seedling is clearly marked on the lower surface of the achene.



Photo by Roger Lloyd

Flowers and fruits from July to November.

Common in quiet waters of shallows.

Common throughout but for northern Cape Breton.

Ranges from NF to MB, south to VA and NB.

***Potamogeton zosteriiformis* Fern.**
Flat-stem Pondweed; potamot zostériforme



Photo by Sean Blaney

Floating leaves are absent; submerged leaves are long flexuous and ribbonlike. Unlike *P. robbinsii*, those of this plant are not in two ranks. There are also numerous veins on this plant, another key character. The inflorescence is short and the achenes have a narrow dorsal keel.

Flowers and fruit July until September.

Grows in less acidic conditions and deep water.

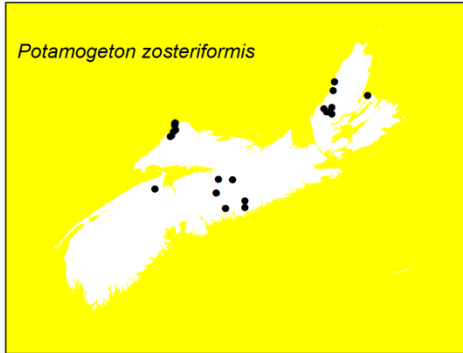
Rare in Kings Co. to central Cape Breton.

Ranges from NF to AK, south to VA, KS and CA; Eurasia.

YELLOW-listed.



Photo by Roger Lloyd



***Stuckenia* Borner**

A worldwide genus of only six species, these plants were once included in *Potamogeton*. The genus was separated on stipule and leaf characteristics and also the position of the inflorescence. *Stuckenia* species do not project the spikes above the water surface. Plants are flexuous, drifting in the water column. The leaves are opaque, sessile and alternate, with stipules adnate to the leaf blades for at least two-thirds of their length. They are also channelled.

Of the six species, three are found in Nova Scotia.

Key to species

- | | |
|---|----------------------------|
| A. Leaf apex acute or mucronate; sheaths of stipules not inflated; stems freely branched; fruits beaked. | <i>Stuckenia pectinata</i> |
| aa. Leaf apex notched, obtuse, or round; sheaths often inflated; stems scarcely branched; fruits beakless. | B |
| B. Stipules with distinct ligules; top of the stipules tight to stem, especially those of the midstem, not inflated; fruit <3mm long. | <i>S. filiformis</i> |
| bb. Stipules without ligules or with minute ones; top of stipules inflated; fruit >3mm long. | <i>S. vaginata</i> |

***Stuckenia filiformis* (Pers.) Boërner**
(=*Potamogeton filiformis* Pers.)
potamot filiforme



Photo by Roger Lloyd



Photo by Roger Lloyd

Freely branching, this species grows erect from a creeping rhizome. The linear leaves on stems branching from the base. They are marked by one vein but no lacunae. Achenes are dorsally rounded.

Plants >20cm; stipules inflated proximally, *ssp.occidentalis*
deciduous; fruits absent.

Plants 10–30cm; stipules tightly clasping, persistent; *ssp. alpina*
fruits common.

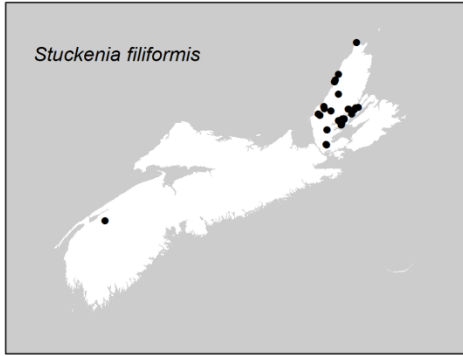
The subspecies *ssp. alpina* (Blytt) Haynes, Les & M. Kral and *ssp. occidentalis* (JW Robbins) Haynes, Les & M. Kral are both present here but herbaria should be canvassed for exact distribution of each.

Cold lacustrine waters, pools and even brackish water, over a substrate of sand or gravel.

Ranges from Annapolis Co. to western Cape Breton.

Ranges from NF to AK, south to CA, NM and NJ; Eurasia.

Its status in Nova Scotia is undetermined.



***Stuckenia pectinata* (L.) Boërner
(=*Potamogeton pectinatus* L.)
Sago Pondweed; potamot pectiné**



Photo by Ross Hall

The submersed leaves are generally less than 1.5mm wide, acute and single-veined. Plants are loosely branching, the branches clustered about 1–3cm apart. Spikes have several whorls of 3–4 flowers, which are widely spaced lending a zigzag appearance to the inflorescence.

Flowers and fruit from July through September.

Typical species in brackish waters or alkaline sinkhole pools.

Yarmouth Co. eastward to Cape Breton.

Ranges throughout North and South America. Absent from NU and Labrador.



Photo by Roger Lloyd

***Stuckenia vaginata* (Turcz.) Holub
(=*Potamogeton vaginatus* Turcz.)
Bigsheath Pondweed; potamot engainé**



Photo by Roger Lloyd

While similar to *S. pectinata*, it differs in having prominent swollen bases of the sheaths of the leaves. They are at least twice the width of the stem. Additionally the flower clusters in this species are larger, with 6–10 per whorl.

Flowers and fruits later, from August to October.

Found in deep water, brackish or fresh.

So far known only from Baddeck River, Cape Breton.

NS; QC to AK, south to OR, UT, OH and NJ.

