







KAWARTHA LAKE STEWARDS ASSOCIATION

AQUATIC PLANTS GUIDE

SECOND EDITION

A guide to identify and appreciate water plants that are commonly found in the Kawartha Lakes

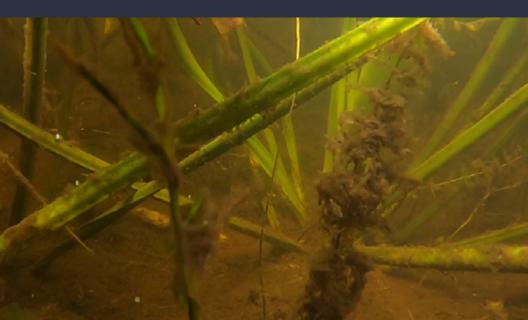


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KLSA acknowledges that the Kawartha Lakes is situated on the traditional territory of the Mississauga and Anishinabewaki peoples and that this land is covered by the Williams treaty. Prior to the first European contact the traditional peoples have acted as stewards over this land and have worked to preserve its natural heritage. The Indigenous Peoples of the Kawarthas have always had an important connection with water, and aquatic plants. It is our obligation to ensure that the rights of all indigenous peoples are honoured and respected.

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CONTENTS

	INTRODUCTION REPORTING AND TRACKING RESOURCES PLANT ID KEY	6 12 14 16
EMERGENT PLANTS	Arrowhead Bulrush Cattail Common Reed Pickerelweed Water Soldier Wild Rice (Manoomin)	18 20 22 24 26 28 30
FLOATING PLANTS	Green Algae and Bluegreen Algae Duckweed and Watermeal European Frog-bit Fragrant Water-lily Watershield Yellow Pond-lily	32 34 36 38 40 42
SUBMERSED PLANTS	Bladderwort Canadian Waterweed Coontail Curly-leaved Pondweed Fern Pondweed Flat-stemmed Pondweed Large-leaved Pondweed Muskgrass and Stonewort Richardson's Pondweed Slender Pondweed Starry Stonewort Tape-grass Water Buttercup (Crowfoot) Water Marigold Water Nymph Water Star-grass Watermilfoil	44 46 50 52 54 56 60 62 64 68 70 72 74 76



INTRODUCTION

A quatic plants are important features of our lakes and are vital for creating the lake life that so many enjoy.

The purpose of the Aquatic Plants Guide is to encourage a greater awareness and appreciation of aquatic plants that are found in the Kawartha Lakes region.

This publication is an update to the 2009 KLSA Aquatic Plants Guide. Major changes include more emphasis on photographs to recognize plants and less information on how to manage these plants.

For the average person, aquatic plants can be difficult to identify, especially down to the species level. To help simplify identification, this Guide features 30 aquatic plants that can be identified with relative ease using the representative photographs and accompanying text. Common names and genus names (in italics) are provided for each plant.

If you find a plant and still can't identify it with the help of this Guide, please take good photos and email them and try the iNaturalist tool, or share photos with other plant enthusiasts listed in the Additional Resources section.



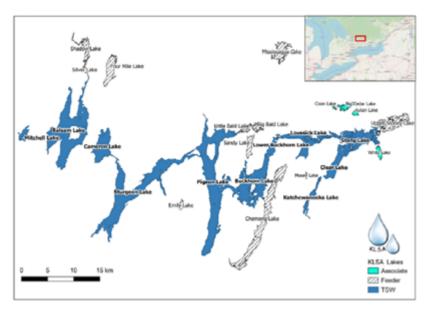
Living in the Kawarthas

The Kawartha Lakes is a broad necklace of sparkling lakes carved out by glaciers and their meltwaters as they retreated from the mid-continent around 12,000 years ago. For generations, Indigenous communities lived among these lakes and their many wetlands, using the area's vast resources of fish, game and an abundance of plant food such as wild rice (Manoomin) to sustain their culture. The lakes are still a precious resource to us, and they are in need of our stewardship, for human impacts over the past two centuries have been changing, and in some ways threatening, the health of the Kawartha Lakes.

Living Lakes

In contrast to many northern lakes of the Canadian Shield, such as the Muskokas, the shallower Kawartha Lakes are naturally more productive ecosystems. That is, they are full of life, and can support a greater number of organisms. Many native species of aquatic plants, and some non-natives, form miniforests underwater where fish find shade, protection, food, and places to lay eggs or build nests. Aquatic plants provide "services" for human beings too. They help clarify lake water and slow the action of waves that erode shorelines. Healthy aquatic plants also make it less likely that algae will take over a lake, which can result in smelly surface scum that can even be toxic.

The Kawarthas receive ample nutrients for plant growth from the local soils derived from beds of limestone that form their southern shores and lake bottoms. Prior to the creation of the Trent-Severn Waterway, many of these fairly shallow lakes abounded with very diverse wetland and aquatic plant communities. Many of the wild rice (Manoomin) stands that have recently reappeared are in locations where we believe they



A map of Kawartha Lake Stewards Association lakes. Lake Scugog, south of Sturgeon Lake, not shown.

historically existed, perhaps aided by increases in water clarity as a result of the filtering activity of zebra mussels. But when levels of nutrients like phosphorus and nitrogen increase to higher-than-natural levels in the water, they become a strong fertilizer for excessive plant growth, especially for the large clouds of cotton-candy-like algae that have become a common sight in many of our Kawartha Lakes.

We all need to be responsible stewards of the Kawartha Lakes, from town dwellers to cottagers and year-round lakeshore residents and businesses. Climate change, already detected to be underway in the Kawarthas, is expected to warm up the water, and perhaps will contribute to further alterations in our lakes. Thus, the sooner we all get into the habits of good shoreline practices and urban storm and wastewater treatment – all actions that we can control – the better it will be for the lakes.

What have plants done for me recently?

In addition to providing habitat for fish, native species of aquatic plants help to protect your shoreline from erosion by slowing wind and wave currents. They provide calm areas for sediments to settle to the lake bottom and thus increase water clarity, and their presence helps resist invasion from non-native plant species.

Plant Growth

Plants are producers. They grow by creating their own food, through the process of photosynthesis, which utilizes a source of nutrients, water and sunlight.

A plant's ability to obtain sunlight depends on:

- Water depth shallow water allows more light to reach the bottom
- Water clarity clear water allows light to penetrate deeper
- Plant growth form plants at or near the water surface capture more sunlight than those growing on the lake bottom

Plants are fragile. Their stems, leaves and flowers can be broken or flattened by wind and wave currents. Submersed plants are quite flexible and can bend and move with the water. Floating leaf and emergent plants are more delicate and favour sheltered bays.

If your shoreline has...

- A gradual slope from shallow to deep water,
- A lake bottom that is mud, silt, sand, or a combination of these,
- Protection from wind and waves, such as a sheltering point or an enclosed bay,
- A nearby marsh or swamp,

... Expect high plant growth!

HOW TO REPORT AND TRACK PLANTS

iNaturalist

www.inaturalist.org

iNaturalist is used to find information or report observations of any plants and animals across the globe. It is a free community science tool for your computer, tablet, or smartphone. Users can submit data online through a standard web browser (computer) or through the 'app' (tablet or smartphone) which is available for free in the App Store and Google Play Store for both Apple and Android smart phones. Observation can be made with lots of information or with little, it all depends on the skill and experience of the observer. When an observation is posted, it is made public to other users, who can then confirm the stated species, dispute the stated species, or provide more information regarding the species. Once an observation has a two third majority in favour of what was observed it is given a "Research Grade" rating. iNaturalist can also use a built in Artificial Intelligence software to analyze the posted photos and give a suggested match. The collected data is used by scientists, researchers, conservationists, and governmental entities worldwide.

EDD MapS

www.eddmaps.org

Early Detection and Distribution Mapping System (EDD MapS) is an invasive species tracking tool. It is a free community science tool for your computer, tablet, or smartphone. EDD MapS allows users to submit data online using a standardized form, that includes information including species observed, the intensity of the invasion, photos can also be added to all submissions. Submissions can be made online through a standard web browser (computer) or though the 'app' (tablet or smartphone), which is available in the <u>App Store</u> and <u>Google Play Store</u> for both Apple and Android smartphones. All submissions are reviewed by qualified staff prior to being published for public use by researchers, scientists, farmers, foresters, landowners, land managers, educators, conservationists, government personal, and the public.



This Guide contains two (of several) aquatic plants on the invasive species Watch List, meaning plants that are non-native and at risk of occupying the Kawartha Lakes and spreading. If you think you have found a 'Watch List' plant please report it through EDDMaPs.

ADDITIONAL RESOURCES

Facebook Groups

Facebook, the social media platform, is a very useful tool for aquatic plant identification. There are many local and regional 'Facebook Groups' and pages on Facebook with the purpose of creating a naturalist community. These groups work to educate their members about the flora and fauna in their regions of interest, and to provide a forum for discussion regarding the natural world. Some local groups include <u>Field Naturalists of Ontario, Peterborough Field Naturalists, Peterborough County Stewardship, Kawartha Field Naturalists</u>, and <u>Kawartha Lake Stewards</u>.

Local Colleges and Universities

Faculty and students at Trent University, Fleming College, and Ontario Tech University have extensive local knowledge and expertise on aquatic plants. Try a web search to obtain faculty contact information from the Biology, Environmental Sciences, Fish and Wildlife, and Geography departments of each institution.

Field Naturalist Clubs

There are several local grassroots nature clubs that meet on a regular basis (usually monthly), schedule nature hikes, and have Facebook Groups. Some local groups include: Peterborough Field Naturalists, Kawartha Field Naturalists, and Kawartha Lake Stewards.

Google Search

A Google Search of 'how to identify aquatic plants' will produce lots of potential websites with information on aquatic plants. These include Canada and United States government departments (e.g., Natural Resources, Fish and Wildlife Services), Conservation Authorities, and non-governmental organizations. Several field identification books are available online as well, including the popular: <u>Wetland Plants of Ontario (1997, by Newmaster, Harris, and Kershaw)</u>, and <u>Through the Looking Glass: A Field Guide to</u> <u>Aquatic Plants (1997, by Borman, Korth, Temte, and Watkins)</u>.



PLANT IDENTIFICATION

Emergent plants

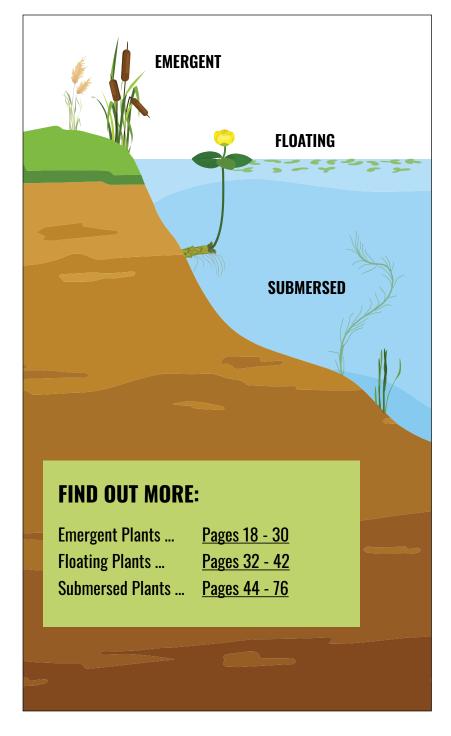
Emergent plants are found in the transition area between land and water. They are important as nesting grounds for waterfowl like ducks and geese, and as food sources for mammals such as muskrats and moose. By looking closely at emergent plants, you may be lucky enough to see a dragonfly break out of its larval case!

Floating plants

Floating leaf plants, such as the showy water lilies, are common in quiet, calm areas of lakes. By shading the water underneath them, floating leaf plants create an open underwater environment that is ideal hunting ground for fish in search of small aquatic invertebrates. Small plants that float freely on the water surface are tasty snacks for ducks as they swim around.

Submersed plants

Submersed plants create diverse and complex underwater habitats in lakes. Fish, such as bass and sunfish, make their nests in submersed plant beds, and young fish will use the plant beds to hide from larger piscivorous, or predatory, fish. Microscopic invertebrates also use plant beds as hiding spots, and the edges are often good places to watch fish hunt for food. Note that some plants can fall into more than one of the three categories, depending on their life stage. For example, Pondweeds can have floating leaves as well as submersed leaves. Young Wild Rice (Manoomin) begins submersed, turns to floating leaved, and from mid-summer on is emergent.



Arrowhead

Sagittaria

Description:

- Leaves are arrowheadshaped and supported by stalks
- Leaves can be floating or emergent
- Flowers occur in arrangements of three, each flower has three white petals with yellow middle



Value:

- Food for waterfowl, marsh birds, muskrats and porcupines
- Stabilizes soils on lakebed
- Reduces shoreline erosion by deflecting wave energy

Lookalikes:

• Pickerelweed (<u>see page 26</u>)









Bulrush

Scirpus

Description:

- Long round stem that is firm or spongy, and can be light-blue green
- Leaves are small and hard to see, and attach near base of plant
- Flowers (spikelets) grow from side of stem

Value:

- Food for birds and insects
- Cover and nesting habitat for birds and fishes
- Muskrats feed on the rootstocks and stems

Lookalikes:

 Cattail, Common Reed, Wild Rice [Manoomin](see pages 22, 24, 30)







Typha

Description:

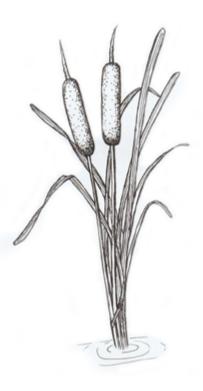
- Tall slender pointy leaves
- Stiff unbranched flower stalk topped with a long brown head that eventually turns to fluff
- Thrives in shallow water with relatively stable water levels

Value:

- Provides animal nesting areas, cover, and materials to build nests
- Preferred habitat (food and nesting) for muskrat
- Stabilizes soils along shorelines

Lookalikes:

Bulrush, Common Reed, Wild Rice [Manoomin] (<u>see</u> pages 20, 24, 30)



22 EMERGENT PLANTS







Common Reed

Phragmites

Description:

- Stems are hollow tan in colour with rough texture
- Leaves are long, smooth and flat with pointed tips
- Flower heads are dense with multiple heads that range in colour from tan to dark brown

Value:

- Common Reed is an invasive plant
- Spreads quickly and outcompetes native species (e.g., Cattail) for water and nutrients
- Usually provides poor habitat for wildlife

Lookalikes:

 Bulrush, Cattail, Wild Rice [Manoomin] (see pages 20, 22, 30)









Pickerelweed

Pontederia

Description:

- Thick single leaf, heartshaped at base and blunt-tipped
- Leaf supported by a stiff stem
- Flowers are purple-blue with 2 yellow dots on upper lip, and funnellike



Value:

- Muskrat, waterfowl, and deer eat seeds and leaves
- Stabilizes soils on lakebed
- Reduces shoreline erosion by deflecting wave energy

Lookalikes:

- Arrowhead (see page 18)
- 26 EMERGENT PLANTS









Water Soldier

Stratiotes

Description:

- Leaves bright-green with serrated (prickly) edges
- Flowers rise above water surface with three white-green petals with yellow in middle
- Similar in appearance to the top of a pineapple





Value:

- Water Soldier is an invasive plant, currently absent or rare in Kawartha Lakes but locally abundant along Trent River
- Spreads quickly and out-competes native species for water and nutrients
- Usually provides poor habitat for wildlife

Lookalikes:

• None









Wild Rice (Manoomin)

Zizania

Description:

- Leaves are typically floating on the water's surface until midsummer then become emergent
- Leaves are narrow, flat, hairless and rough textured along edges
- Annual plant that produces grain (rice) and turn brown in late summer and early fall



Value:

- Significant culturally to Indigenous communities
- Exceptional habitat and food for waterfowl
- Preferred spawning habitat for muskellunge

Lookalikes:

• Bulrush, Cattail, Common Reed (see pages 20, 22, 24)







FLOATING PLANTS

Green Algae and Bluegreen Algae

Eg. Cladophora, Mougeotia, Spirogyra, Microcystis

Description:

- Green Algae can be bright green to brown, filamentous or cloud-like and often forms large mats that either float, are underwater, or attach to rocks and other lake surfaces
- Bluegreen Algae (a bacteria not a plant) often looks like pea soup or green paint spilled on water surface, and can be harmful to humans and animals

Value:

- Green Algae provides habitat for small aquatic insects which in turn creates food source for fishes
- Green Algae provides shade, cover, and food for fishes

Lookalikes:

• Duckweed and Watermeal (see page 34)



As seen through a microscope

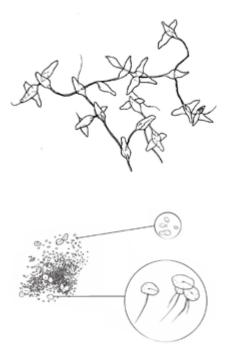


Duckweed and Watermeal

Lemna, Wolffia

Description:

- Leaves yellow or green, very small, rounded or starshaped
- Plants have small roots or no roots
- Plants clump together to form floating mat or interconnected chain



Value:

- Shade and cover for fish and invertebrates
- Exceptional food source for waterfowl and marsh birds
- Among the smallest plants in the world

Lookalikes:

• Green Algae and Bluegreen Algae (*see page 32*)



FLOATING PLANTS

European Frog-bit

Hydrocharis

Description:

- Leaves small, thick, waxy, round or heart-shaped
- Long stems dangle from undersides of each floating leaf
- Flowers are white with three petals and yellow centers

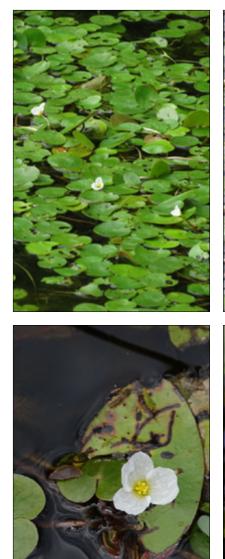
Value:

- European Frog-bit is an invasive plant, currently widespread in most Kawartha Lakes
- Competes with native plants for light and nutrients
- Habitat for invertebrates, and food for waterfowl, rodents, and insects

Lookalikes:

• Watershield (see page 40)







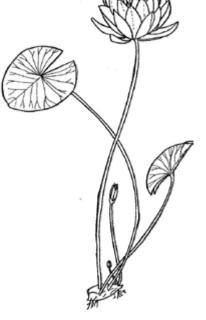
FLOATING PLANTS

Fragrant Water-lily

Nymphaea

Description:

- Leaves round, large, with a V-shaped split, and pointed at split
- Stems long, thin stems, that attach to underground roots
- Large white flower, opening from midmorning to early afternoon



Value:

- Food for muskrats, beavers, deer and porcupines
- Waterfowl eat the seeds and roots
- The shady environment created by this lily provides excellent habitat for largemouth bass

Lookalikes:

• Watershield, Yellow Pond-lily (see pages 40, 42)







FLOATING PLANTS

Watershield

Brasenia

Description:

- Leaves oval, not split, coated underneath with gelatinous film
- Stem attached to leave center, and also covered with thick gelatinous film
- Flowers are small, dull, purple-red

Value:

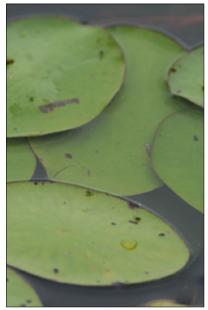
- When abundant, seeds are often eaten by waterfowl
- Moose feed on the leaves
- Shade and cover for fishes

Lookalikes:

• European Frog-bit (<u>see page 36</u>)











FLOATING PLANTS

Yellow Pond-lily

Nuphar

Description:

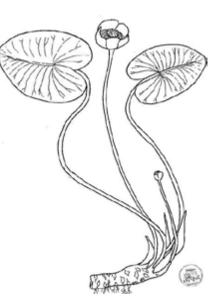
- Leaves heart shaped, and rounded at split
- Stems flat on one side and attach to large underground roots
- Showy yellow or green flower

Value:

- Food and shelter for fish and invertebrates
- A favorite food of moose, which feed on the stems
- The shady environment created by this lily provides excellent habitat for largemouth bass

Lookalikes:

• Fragrant Water-lily, Watershield (see pages 38, 40)











Bladderwort

Utricularia

Description:

- Leaves branched, finely divided about 3 to 7 times
- Flowers yellow and small
- Plants that have small sacs (bladders) used to trap tiny aquatic animals

Value:

- Eaten sparingly by moose, waterfowl and muskrats
- One of only a few carnivorous aquatic plants
- Often used as a 'lake health' indicator plant because it has low tolerance to pollution

Lookalikes:

 Coontail, Water Buttercup (Crowfoot), Water Marigold, Watermilfoil (*see pages 48, 68, 70, 76*)



Canadian Waterweed

Elodea

Description:

- Leaves small, in whorls of 3 all the way up the stem, become crowded towards the tip
- Flowers are hard to see, have a greenish-white colour
- Resemble artificial aquarium plants

Value:

- Habitat for fish and invertebrates
- Food for muskrats and waterfowl
- Often forms thick mats on lakebed which sometimes even fish cannot penetrate

Lookalikes:

• None





SUBMERSED PLANTS

Coontail

Ceratophyllum

Description:

- Leaves are small, whorled on the stem, with 5-12 leaves per arrangement, and rough to the touch
- Leaves separate into two thin segments at a time (never more than this)
- Plant has no roots

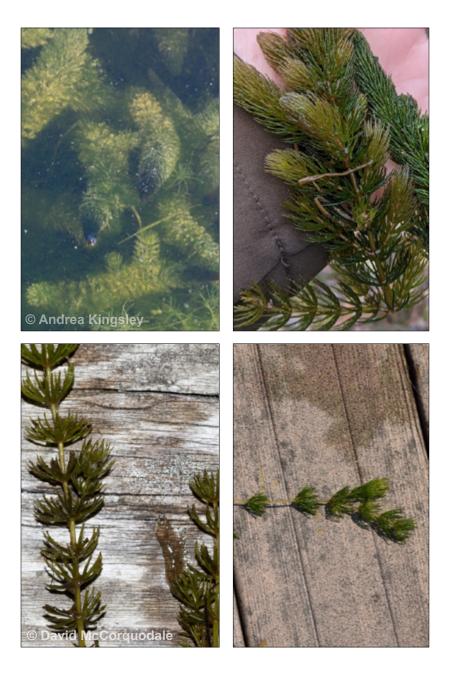


Value:

- Leaves and seeds eaten by waterfowl, fish and even muskrats throughout the year
- Provide shelter for many aquatic invertebrates
- Gathers nutrients from the surrounding water column which helps to reduce Bluegreen Algae blooms

Lookalikes:

• Muskgrass and Stonewort (*see page 58*)



Curly-leaved Pondweed

Potamogeton

Description:

- Leaves are wavy with serrated edges, often found floating across the top of the water creating a mat on the surface
- Stem is light green, flat
- Plant dies back in early-to-mid summer

Value:

- Curly-leaved Pondweed is an invasive plant currently widespread in most Kawartha Lakes
- Can provide habitat and food for aquatic species early in growing season while other plants remain dormant
- Known to release chemicals which help reduce Bluegreen Algae blooms

Lookalikes:

• None





Fern Pondweed

Potamogeton

Description:

- Leaves usually very dark green and resemble a fern
- Leaves are stiff, not serrated and come to a point at their top
- When looking from above you can only see 2 rows of leaves

Value:

- Food source for moose
- Can provide cover for aquatic invertebrates
- Muskrats and beavers eat the roots

Lookalikes:

• None





Flat-stemmed Pondweed

Potamogeton

Description:

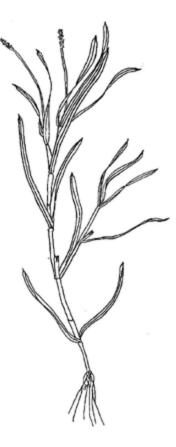
- Leaves flat and narrow, often with a tiny leaf wrapped around the base of the main leaf
- Stem flat, will not roll between two fingers
- Flowers are hard to see

Value:

- Cover for fishes including yellow perch and walleye
- Food source for fish and waterfowl
- Muskrats and beavers eat the roots

Lookalikes:

• Slender Pondweed (<u>see page 62</u>)





Large-leaved Pondweed

Potamogeton

Description:

- Leaves large, brown, wavy-edged
- Floating leaves, leathery and waxy on upper surface, are also present later in the season
- Flowers are hard to see

Value:

- Cover for fish including largemouth bass, and aquatic insects
- Food for waterfowl
- Sensitive to damage from boat motors

Lookalikes:

• Watershield (when floating leaves present), Richardson's Pondweed (*see pages 40, 60*)







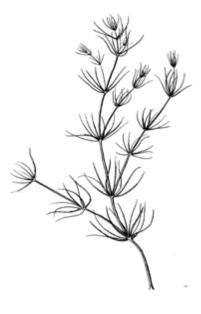


Muskgrass and Stonewort

Chara, Nitella, Nitellopsis

Description:

- These plants are actually algae that resemble plants with 'branches', and can be challenging to separately identify
- Muskgrass 'branches' are rough, cylindrically arranged, often encrusted with lime, musky smell
- Stonewort 'branches' are smooth, long and straight, attach in unequal lengths, lack musky smell

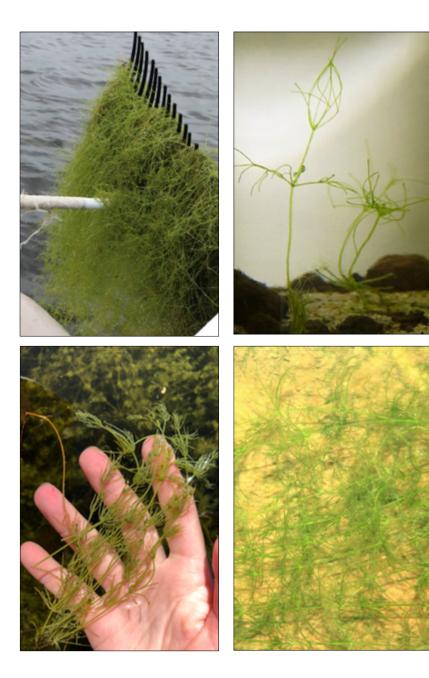


Value:

- Muskgrass and Stonewort are important wildlife food
- Tiny animals that live on these plants are also a main food for ducks

Lookalikes:

• Canadian Waterweed, Coontail (see pages 46, 48)



Richardson's Pondweed

Potamogeton

Description:

- Leaves have wavey edges, curl around main plant stem at leaf base
- Leaves have prominent veins
- Stems are rounded and thick

Value:

- Food source for waterfowl
- Habitat for insects and other invertebrates
- Cover for fishes

Lookalikes:

• Large-leaved Pondweed (see page 56)







Slender Pondweed

Potamogeton

Description:

- Leaves are extremely slender, and stalkless
- Stems are extremely slender and long
- Flowers are hard to see

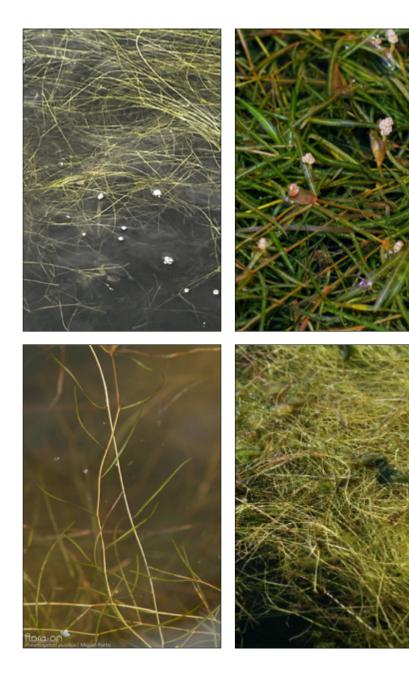
Value:

- Food for waterfowl
- Cover and food for fishes
- Can form extensive beds that provide lots of shade

Lookalikes:

• None





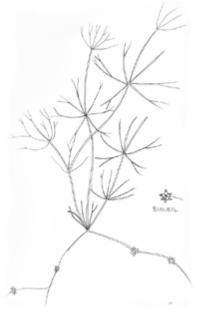
Starry Stonewort

Nitellopsis

Description:

- An invasive plant which looks very similar to native Muskgrass and Stonewort
- Smooth, long, straight branches of unequal lengths
- Most distinctive feature are white-star shapes along a clear filament which anchors the plant to the sediment
- Tiny orange/reddish spheres may also be present at the base of branches



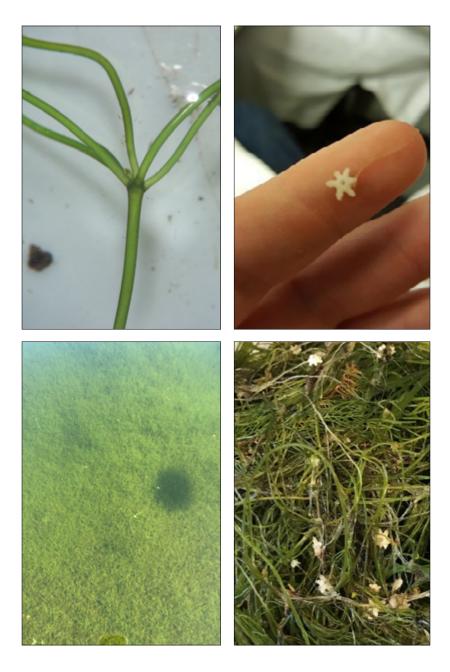


Value:

- Locally abundant in several Kawartha Lakes, and rare or absent in others
- Usually provides poor habitat for wildlife

Lookalikes:

• Muskgrass and Stonewort (see page 58)



Tape-grass

Vallisneria

Description:

- Leaves ribbon-lake, flat, originate from one point on the lake bottom
- Leaves have veins that are darker in the center of the leaf and almost translucent on the edges
- Flower stalk when present is thin, long, spiraled, reaching to water surface



Value:

- All parts of the plant are eaten by waterfowl and muskrats
- Provides shade and habitat for many aquatic species
- Important foraging habitat for marsh birds

Lookalikes:

• Wild Rice [Manoomin] during submersed or floating growth form, Water Star-grass (*see pages 30, 74*)



Water Buttercup (Crowfoot)

Ranunculus

Description:

- Leaves branch into 3 leaflets directly above the leafstalk
- Stems and leaves mostly hairless
- Flowers are small with 5 white petals and yellow in middle

Value:

- Leaves and fruit a choice food source of waterfowl
- Sometimes eaten by non-water birds such as grouse
- Important habitat for aquatic insects

Lookalikes:

• Bladderwort, Coontail, Water Marigold, Watermilfoil (*see pages 44, 48, 70, 76*)





Water Marigold

Bidens

Description:

- Leaves are stalkless, and finely branched into thread-like segments
- Stems are hairless and thicker below surface of water
- Flowerheads are goldenyellow, sunflower-like, with 6 to 10 petals

Value:

- Flowers attract insects
- Fruits are attractive to shorebirds and waterfowl
- Plant is an indicator species because it is sensitive to changes in water quality

Lookalikes:

 Bladderwort, Coontail, Water Buttercup (Crowfoot), Watermilfoil (*see pages 44, 48, 68, 76*)











Water Nymph

Najas

Description:

- Leaves slender, finely serrated at edges
- Leaves often bunched together along the slender stem, giving it a bushy appearance
- Leaves are wider at the base and tapered at the tip, and the edges are finely serrated

Value:

- Cannot tolerate water pollution, so its presence is a sign of good water quality
- Food for many types of waterfowl
- Cover and food for fishes

Lookalikes:

• Canadian Waterweed (<u>see page 46</u>)





Water Star-grass

Heteranthera

Description:

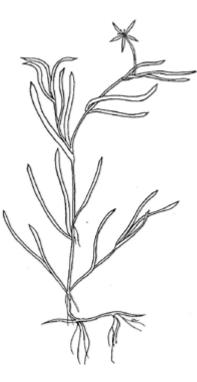
- Leaves are narrow and grass-like, lacking midvein but does have lines when held up to the light
- Stem is slightly swollen where the leaves attach
- Flowers sometimes present, yellow star-like

Value:

- Food for waterfowl
- Cover and foraging opportunities for fish
- Helps stabilizes soils on lakebeds

Lookalikes:

• Tape-grass (see page 66)





Watermilfoil

Myriophyllum

Description:

- There are several types of Watermilfoils, some are native to the Kawartha Lakes and some are not
- Leaves resemble feathers on round main stems, with each leaf having several leaflets
- Flower stems often poke out of the water

Value:

- Seeds and leaves are important food source for waterfowl and marsh birds
- Food for moose
- Excellent cover for fishes

Lookalikes:

Bladderwort, Coontail, Water Buttercup (Crowfoot), Water Marigold (*see pages 44, 48, 68, 70*)







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