

## EURASIAN WATERMILFOIL



Picture 1. Eurasian watermilfoil (source: Maria José Maezo)

Plants of the same genus as Eurasian watermilfoil are distributed around the world and include 40 species. Eurasian watermilfoil (*Myriophyllum spicatum* L.) is an aquatic plant from Europe, Asia and North Africa. It was introduced in North America in the 1940s. Since, it has become one of the most widespread alien invasive plants of North America. Its presence in many provinces such as Ontario, Quebec, British Columbia and in over 45 states in the U.S. (from Greenland to Florida) shows its great adaptability and capacity to spread from one body of water to another.

## HOW TO RECOGNIZE IT?

Although Eurasian watermilfoil is very similar to native milfoil, the Northern watermilfoil (*Myriophyllum sibiricum* K.), some criteria enable us to distinguish it easily:

- Buds distinctly red at the tips of the plant
- When reaching the surface of the water the plants produce ramifications. This leads to the formation of mats of Eurasian watermilfoil at the surface of the water (picture 1)
- Feather-like leaves. In contrast the leaves of the Northern watermilfoil are shaped more like candlesticks (picture 2)
- Important concentration of plants. Eurasian watermilfoil is often present in large quantities in the areas where it is found (picture 3)



Picture 2. To the left a typical Eurasian watermilfoil leaf and to the right a Northern water milfoil leaf (source: [www.seagrant.wisc.edu](http://www.seagrant.wisc.edu))

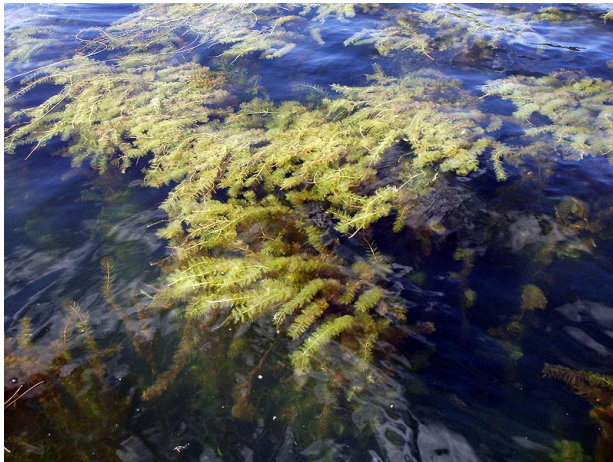
## EURASIAN WATERMILFOIL ECOLOGY

Eurasian watermilfoil is a perennial aquatic plant that lives underwater. It can grow in water depth of 0.5 to 10 meters, but most plants seem to grow rooted at depths ranging between 0.5 and 3.5 meters. Once the Eurasian watermilfoil reaches the surface of the water, it develops many stems and forms mats of up to 300 stems per square meter. The Eurasian watermilfoil is found in pools, ponds, lakes, rivers and others.

Eurasian watermilfoil adapts to all kinds of environmental conditions. It grows in still or flowing waters, clear or turbid, acidic or alkaline and it can tolerate mild salinities. Furthermore, it survives the winter. In the spring, when the water temperature reaches 15 °C, the Eurasian watermilfoil starts to grow. It can reach the water surface in just 3 weeks. This ability of fast growth gives it an advantage over other native plants, unable to find enough light for their development.

It can reproduce sexually, by producing seeds, just like trees. However, its reproduction is mainly asexual, i.e. by fragmentation of the plants stems. The stems can be cut naturally or accidentally (fishermen, boaters, etc.). These fragments are then dropped elsewhere on the bottom. Each fragment of one centimeter or more can produce another plant!

## IMPACTS



Picture 3. Mat of Eurasian watermilfoil (source: [www.sciences.uqam.ca](http://www.sciences.uqam.ca))

The Eurasian watermilfoil becomes so dense that other plant species occurring naturally in the bodies of water are eliminated. Thus, the number of native aquatic plants species decreases. This decreasing in biodiversity represents a depletion of the environment. Several wildlife species are also linked to the presence of native aquatic plants. In addition, several physical and chemical parameters can be modified by the presence of Eurasian watermilfoil. Light, water and sediments circulation, acidity, temperature, oxygen and phosphorus concentrations are parameters that can be affected by the presence of the Eurasian watermilfoil.

Eurasian watermilfoil also has several specific impacts on lake trout. It affects:

- Reproduction
- Growth of small lake trout
- Food supply and growth of adult lake trout

Thus, this plant can significantly affect lake trout fishing.

Finally, the Eurasian watermilfoil is also an obstacle to the use of aquatic environments by humans for recreational activities. The plants can damage fishing gear, boat motor or other boat equipment. It can also be very unpleasant or even dangerous to swim in a dense mat of Eurasian watermilfoil.

## CONTROL METHODS

The existing control methods can be chemical, mechanical, physical, or biological

Chemicals methods are mainly based on the use of a pesticide that makes the plant very vulnerable and which can stop the growth during a period ranging from six weeks to one year. However, this treatment has several disadvantages and its success is not guaranteed.

The mechanical and physical methods include the use of mechanical harvesters and manual harvesting. In both cases the harvesting reduces significantly the biomass of Eurasian watermilfoil. However, this doesn't prevent the rapid recovery of the plant. Moreover, there is a high risk of spread by the artificial creation of large quantities of plant fragments.

Biological methods aim to find natural enemies (insects, bacteria or fungi) of Eurasian watermilfoil to control its proliferation. Several living organisms are currently being studied, but the impact of their introduction in the environment is unknown.

## VECTORS

- Boaters (boats, rowboats, canoes, kayaks, jet skis, etc.) can easily spread this plant. Transport of a boat from a body of water to another, provides an obvious risk of contamination by Eurasian watermilfoil (picture 4)
- Seaplanes
- Anglers and hunters (boats, fishing and hunting equipment, bait buckets, etc.)
- Aquarium owners and horticulture trade (water gardens)
- Water birds like ducks



Picture 4. Mat of aquatic plants fixed to a trailer (source: [www.protectyourwaters.net](http://www.protectyourwaters.net))

## WEBSITES

For more information or to find the information above you can visit the following websites:

<http://www.especesenvahissantes.gc.ca/Francais/LinkSearch.asp?x=1&formAction=SubjectArea>

<http://www.mddep.gouv.qc.ca/biodiversite/inter.htm>

[http://www.qc.ec.gc.ca/CSL/inf/inf037\\_e.html](http://www.qc.ec.gc.ca/CSL/inf/inf037_e.html)

<http://www.invadingspecies.com/InvadersFR.cfm?A=Page&PID=12>

[http://www.protectyourwaters.net/hitchhikers/crustaceans\\_rusty\\_crayfish.php](http://www.protectyourwaters.net/hitchhikers/crustaceans_rusty_crayfish.php)

[http://www.cws-scf.ec.gc.ca/publications/inv/index\\_f.cfm](http://www.cws-scf.ec.gc.ca/publications/inv/index_f.cfm)

<http://www.anstaskforce.gov/default.php>