**FULL ACCOUNT FOR: Myriophyllum spicatum**

**System:** Terrestrial

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**Common name**
Eurasian water-milfoil (English), spike water-milfoil (English)

**Synonym**
*Myriophyllum spicatum*, *L.* var. *muricatum* Maxim.

**Similar species**
*Myriophyllum sibiricum*, *Myriophyllum exalbescens*, *Ceratophyllum demersum*, *Najas flexilis*, *Utricularia vulgaris*

**Summary**
Myriophyllum spicatum is a submerged aquatic plant that can rapidly colonise a pond, lake or area of slow-moving water. It creates dense mats of vegetation that shade out other native aquatic plants, diminish habitat and food resource value for fish and birds, and decreases oxygen levels in the water when the plant decays.

**Species Description**
A perennial, dicot herb with long branching stems and feather-like whorled leaves that is submersed and rooted to the substrate. Has small reddish flowers found above the water on a spike. Stems are slender, smooth, 2-6m long, reddish-brown to whitish-pink, and branch several times near the water surface. Leaves are olive-green, < 5cm. Long, soft, deeply divided, and feather-like. Each leaf has a central axis (midrib) with 14-24 filiform segments on each side. Leaf whorls arranged along the stems in whorls of 3 to 6 (usually 4) leaves. Whorl nodes approx. < a centimetre apart. Flower spike approx. 20cm long and held above the water with reddish flowers arranged in 4-flowered whorls along spike. Four petals, approx. 3mm long, 4 sepals, and 8 stamens. Four lobed fruit that splits into 4 nutlets. Fibrous roots that can develop on fragments of plants.

**Habitat Description**
An aquatic weed found worldwide. Prefers lakes, ponds, shallow reservoirs and low energy areas of rivers and streams. Brackish water of protected tidal creeks and bays. Common in waterbodies that have experienced disturbances such as nutrient loading, intense plant management, or abundant motorboat use. Able to tolerate a wide range of water conditions, including spring water and brackish water of tidal creeks and bays with salinity of up to 10 parts per thousand. Most often found in water 0.5 to 2.5m deep, but can be found at depths up to 3m. Tolerant to a range of temperatures, able to overwinter in frozen lakes and ponds in northern states and Canada; but also able to grow in shallow, over-heated bays in Florida.

*view this species on IUCN Red List*
Reproduction

Myriophyllum spicatum can spread by sexual or vegetative reproduction with the majority of local reproduction by stolons and vegetative fragments. Average seed set of 112 seeds per stalk.

General Impacts

Myriophyllum spicatum grows into dense infestations which shades out and replaces other aquatic plants and is of less value as a food resource than the native plants it replaces. At high densities, it supports fewer aquatic insects which serve as a food resource for fish. Large predatory fish lose foraging space and are less efficient at obtaining prey. Another impact is a reduction in oxygen levels within the water due to the decay of the large mats of the plant. The dense mats impede water movement and interfere with recreational activities such as swimming, boating, fishing and water skiing.

Management Info

Physical: Mechanical choppers or harvesters can effectively remove large amounts of biomass in a short period of time, but caution should be taken because the plant pieces can spread the infestation. Harvesting must also be done up to several times per year. Roto-tilling of the plant and roots combined with underwater vacuuming has been used to control infestations. Water level manipulation using drawdowns has been effectively used to control populations in Tennessee. Bottom barriers that consist of specially made sheets of materials, such as fiberglass, polypropylene, or polyvinyl chloride (PVC), anchored to a lake bottom will prevent plant growth by blocking sunlight. Bottom barriers are most appropriate to control growth in localized areas.

Chemical: Aquatic herbicides may also be used but are rarely successful.

Biological: Natural declines at the Northern lakes have been associated with a North American weevil, Euhrychiopsis lecontie, found to cause significant damage to Eurasian water-milfoil while having little impact on native species. The weevil could potentially be a biocontrol agent.

Pathway

Believed to be intentionally introduced in Washington DC in 1942 Possibly introduced in the potting material for bait worms Initial introduction may have been from an aquarium escape Transport on boating equipment is believed to be the most common method of introduction to new areas.

Principal source:

Compiler: National Biological Information Infrastructure (NBII) & IUCN/SSC Invasive Species Specialist Group (ISSG)

Review: Dr John Clayton NIWA, National Institute of Water and Atmospheric Research, Hamilton, New Zealand

Publication date: 2006-04-11

ALIEN RANGE
GLOBAL INVASIVE SPECIES DATABASE
FULL ACCOUNT FOR: *Myriophyllum spicatum*

[4] CANADA
[47] UNITED STATES

SWAZILAND

BIBLIOGRAPHY
13 references found for *Myriophyllum spicatum*

Management information

Summary: This report is the first stage in a three-stage development of a Border Control Programme for aquatic plants that have the potential to become ecological weeds in New Zealand.


Summary: This report is the second stage in the development of a Border Control Programme for aquatic plants that have the potential to become ecological weeds in New Zealand. Importers and traders in aquatic plants were surveyed to identify the plant species known or likely to be present in New Zealand. The Aquatic Plant Weed Risk Assessment Model was used to help assess the level of risk posed by these species. The report presents evidence of the various entry pathways and considers the impact that new invasive aquatic weed species may have on vulnerable native aquatic species and communities.


Summary: Information on description, economic importance, distribution, habitat, history, growth, and impacts and management of species.
The Guidebook is available from: http://legacy.sfei.org/nis/index.html

National Park Service fact sheet.

Summary: Brief description and natural history, as well as info on management options to control the species.
Available from: http://www.nps.gov/plants/alien/fact/mysp1.htm


Summary: The National Pest Plant Accord is a cooperative agreement between regional councils and government departments with biosecurity responsibilities. Under the accord, regional councils will undertake surveillance to prevent the commercial sale and/or distribution of an agreed list of pest plants.


Swaziland s Alien Plants Database., Undated. *Myriophyllum spicatum*

Summary: A database of Swaziland s alien plant species.

Washington State Department of Ecology

Summary: General information including description, distribution, habitat, history, and reproduction. Management information about the response of the plant to different management options.

General information
CAIP (Center for Aquatic and Invasive Plants), 2001. University of Florida and Sea Grant *Myriophyllum spicatum*

Summary: Info sheet on ID of species, look-alike species, distribution, habitat, natural history, and management.


Summary: English:
The species list sheet for the Mexican information system on invasive species currently provides information related to Scientific names, family, group and common names, as well as habitat, status of invasion in Mexico, pathways of introduction and links to other specialised websites. Some of the higher risk species already have a direct link to the alert page. It is important to notice that these lists are constantly being updated, please refer to the main page (http://www.conabio.gob.mx/invasoras/index.php/Portada), under the section Novedades for information on updates.


Spanish:
La lista de especies del Sistema de información sobre especies invasoras de México cuenta actualmente con información acerca de nombre científico, familia, grupo y nombre común, así como hábitat, estado de la invasión en México, rutas de introducción y enlaces a otros sitios especializados. Algunas de las especies de mayor riesgo ya tienen una liga directa a la página de alertas. Es importante resaltar que estas listas se encuentran en constante proceso de actualización, por favor consulte la portada (http://www.conabio.gob.mx/invasoras/index.php/Portada), en la sección de novedades, para conocer los cambios.

Especies invasoras - Plantas is available from:

ITIS (Integrated Taxonomic Information System), 2005. Online Database Myriophyllum spicatum

Summary: An online database that provides taxonomic information, common names, synonyms and geographical jurisdiction of a species. In addition links are provided to retrieve biological records and collection information from the Global Biodiversity Information Facility (GBIF) Data Portal and bioscience articles from BioOne journals.

Available from:

Vermont Department of Environmental Conservation

Summary: Information on look-alike species.