GLOBAL INVASIVE SPECIES DATABASE

FULL ACCOUNT FOR: ***Myriophyllum spicatum***

Myriophyllum spicatum 简体中文 正體中文

System: Terrestrial

Kingdom	Phylum	Class	Order	Family
Plantae	Magnoliophyta	Magnoliopsida	Haloragales	Haloragaceae

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.

view this species on IUCN Red List

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.

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.
\r\nChemical: Aquatic herbicides may also be used but are rarely successful.
\r\nBiological: 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 1942Possibly introduced in the potting material for bait wormsInitial introduction may have been from an aquarium escapeTransport 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

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ALIEN RANGE

[4] CANADA
[47] UNITED STATES
[1] SWAZILAND

BIBLIOGRAPHY
13 references found for **Myriophyllum spicatum**

Managment information
Champion, P.D.; Clayton, J.S. 2000. Border control for potential aquatic weeds. Stage 1. Weed risk model. Science for Conservation 141. .
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.
Available from: http://www.doc.govt.nz/upload/documents/science-and-technical/sfc141.pdf [Accessed 13 June 2007]
Champion, P.D.; Clayton, J.S. 2001. Border control for potential aquatic weeds. Stage 2. Weed risk assessment. Science for Conservation 185. 30 p.
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.
Available from: http://www.doc.govt.nz/upload/documents/science-and-technical/SFC185.pdf [Accessed 13 June 2007]

Collins, J.N, May M, Grosso C. 2003. Eurasian watermilfoil *Myriophyllum spicatum*. Practical Guidebook to the Control of Invasive Aquatic and Wetland Plants of the San Francisco Bay - Delta Region.
Summary: Information on description, economic importance, distribution, habitat, history, growth, and impacts and management of species.
Available from: http://legacy.sfei.org/nis/milfoil.html [Accessed 22 May 2010].
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
National Pest Plant Accord, 2001. Biosecurity New Zealand.
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.
Available from: http://www.biosecurity.govt.nz/pests-diseases/plants/accord.htm [Accessed 11 August 2005]
New Zealand Plant Conservation Network, 2005. Unwanted Organisms. Factsheet *Myriophyllum spicatum*
Royal New Zealand Institute of Horticulture (RNZIH), 2005. Eurasian watermilfoil *Myriophyllum spicatum*
Summary: Available from: http://www.rnzih.org.nz/pages/nppa_037.pdf [Accessed 1 October 2005]
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.
CONABIO. 2008. Sistema de informaci&#65533;n sobre especies invasoras en M&#65533;xico. Especies invasoras - Plantas. Comisi&#65533;n Nacional para el Conocimiento y Uso de la Biodiversidad. Fecha de acceso.
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.
Invasive species - Plants is available from: http://www.conabio.gob.mx/invasoras/index.php/Especies_invasoras_-_Plantas [Accessed 30 July 2008]
Spanish:
La lista de especies del Sistema de informaci&#65533;n sobre especies invasoras de m&#65533;xico cuenta actualmente con informaci&#65533;n aceca de nombre cient&#65533;fico, familia, grupo y nombre com&#65533;n, as&#65533; como h&#65533;bitat, estado de la invasi&#65533;n en M&#65533;xico, rutas de introducci&#65533;n y ligas a otros sitios especializados. Algunas de las especies de mayor riesgo ya tienen una liga directa a la p&#65533;gina de alertas. Es importante resaltar que estas listas se encuentran en constante proceso de actualizaci&#65533;n, por favor consulte la portada (http://www.conabio.gob.mx/invasoras/index.php/Portada), en la secci&#65533;n novedades, para conocer los cambios.
Especies invasoras - Plantas is available from: http://www.conabio.gob.mx/invasoras/index.php/Especies_invasoras_-_Plantas [Accessed 30 July 2008]
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:
http://www.cbif.gc.ca/pls/itisca/taxastep?king=every&p_action=containing&taxa=Myriophyllum+spicatum&p_format=&p_ifx=plglt&p_lang= [Accessed March 2005]
Vermont Department of Environmental Conservation
Summary: Information on look-alike species.