**Myriophyllum aquaticum**

**System:** Terrestrial

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<th>Kingdom</th>
<th>Phylum</th>
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<td>Magnoliopsida</td>
<td>Haloragales</td>
<td>Haloragaceae</td>
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</tbody>
</table>

**Common name**

parrotfeather (English), water-feather (English), waterduisendblaar (Afrikaans), thread-of-life (English), brazilian watermilfoil (English), parrot feather (English), parrot's-feather (English), parrot feather watermilfoil (English), pinheirinho-d’água (Portuguese, Brazil)

**Synonym**

*Enydria aquatica*, (Vell.)

*Myriophyllum brasiliense*, (Camb.)

*Myriophyllum proserpinacoides*, (Gillies ex Hook. & Arn.)

**Similar species**

*Cabomba caroliniana*, *Ceratophyllum demersum*, *Lagarosiphon musoides*, *Myriophyllum robustum*, *Myriophyllum spicatum*, *Lagarosiphon major*

**Summary**

*Myriophyllum aquaticum* is a bright or glaucous green perennial freshwater herb. It exhibits two different leaf forms depending on whether it is growing as a submerged plant or as an emergent. It is found in freshwater lakes, ponds, streams and canals, and appears to be adapted to high nutrient environments. *Myriophyllum aquaticum* does well in good light and a slightly alkaline environment. Almost all *Myriophyllum aquaticum* plants are female, and male plants are unknown outside of South America. Rhizomes function as a support structure for adventitious roots and provide buoyancy for emergent growth during the summer. *Myriophyllum aquaticum* has been introduced for use in indoor and outdoor aquaria. It is also a popular aquatic garden plant. It has escaped cultivation and spread via plant fragments and intentional plantings. Whilst there is some belief that *Myriophyllum aquaticum* is susceptible to herbicides, there is very little information available regarding successful management.

[view this species on IUCN Red List](http://www.iucngisd.org/gisd/species.php?sc=401)
Species Description
Washington State's Department of Ecology (2003) states that *M. aquaticum*, "Gets its name from its feather-like leaves which are arranged around the stem in whorls of four to six. *M. aquaticum* has both submersed and emergent leaves. The submersed leaves are 1.5 to 3.5 centimeters long and have 20 to 30 divisions per leaf. The emergent leaves are 2 to 5 centimetres long and have 6 to 18 divisions per leaf. The bright green emergent leaves are stiffer and a darker green than the submersed leaves. The emergent stems and leaves are the most distinctive trait of *M. aquaticum*, as they can grow up to a foot above the water surface and look almost like small fir trees."

Lifecycle Stages
*Myriophyllum aquaticum* exhibits an annual pattern of growth. *Myriophyllum aquaticum* lacks tubers, turions, and winterbuds, rhizomes serve all those functions. In the spring, shoots begin to grow rapidly from overwintering rhizomes as water temperatures increase. Rhizomes function as a support structure for adventitious roots and provide buoyancy for emergent growth during the summer. Emergent stems and leaves extend from a few inches to over one foot above the waters surface. Underwater leaves tend to senesce as the season advances. Plants usually flower in the spring but some plants may also flower in the fall. The inconspicuous flowers form where the emergent leaves attach to the stem. In fall *M. aquaticum* typically dies back to the rhizomes. *M. aquaticum* does not store phosphorus or carbon in its rhizomes and this characteristic may explain the failure of *M. aquaticum* to invade areas with severe winters."

Habitat Description
*Myriophyllum aquaticum*, "Is found in freshwater lakes, ponds, streams, and canals and appears to be adapted to high nutrient environments. It tends to colonize slowly moving or still water rather than in areas with higher flow rates. While it grows best when rooted in shallow water, it has been known to occur as a floating plant in the deep water of nutrient-enriched lakes. The emergent stems can survive on wet banks of rivers and lake shores, so it is well adapted to moderate water level fluctuations.

Reproduction
Washington State's Department of Ecology (2003) states that, "Virtually all *M. aquaticum* plants are female. Male plants are unknown outside of South America, so no seeds are produced in North American populations. Since *M. aquaticum* also lacks tubers or other specialized reproductive overwintering structures like turions, it spreads exclusively by plant fragments outside of its native range. Unlike Eurasian watermilfoil, *M. aquaticum* does not form autofragments. However, fragments can be formed mechanically and will readily root. With its tough rhizomes, *M. aquaticum* can be transported long distances on boat trailers. Rhizomes stored under moist conditions in a refrigerator survived for one year."

Nutrition
*Myriophyllum aquaticum* exists in a pH range of 6.8 to 8.0, with temperatures ranging from 16 to 23°C. It can withstand a water hardness level between 50 - 200 ppm. It does well in good light and a slightly alkaline environment (FNZAS UNDATED)
General Impacts
ERDC (UNDATED) states that, "M. aquaticum grow in sluggish waters, edges of streams, lakes, ponds, drainage and irrigation ditches, and canals, backwaters, sloughs and lagoons. Populations may be quite dense, sometimes as floating mats that have been uprooted, often choking waterways and impeding navigation." Washington State's Department of Ecology (2003) states that M. aquaticum, "has been introduced worldwide for use in indoor and outdoor aquaria. It is also a popular aquatic garden plant. However, it has escaped cultivation and spread via plant fragments and intentional plantings. While M. aquaticum may provide cover for some aquatic organisms, it can seriously change the physical and chemical characteristics of lakes and streams. Infestations can alter aquatic ecosystems by shading out the algae in the water column that serve as the basis of the aquatic food web. In addition, the plant provides choice mosquito larvae habitat. The plant can also restrict recreational opportunities in these bodies of water.

Management Info
Preventative measures: A Risk assessment of Myriophyllum aquaticum for Australia was prepared by Pacific Island Ecosystems at Risk (PIER) using the Australian risk assessment system (Pheloung, 1995). The result is a score of 20 and a recommendation of: reject the plant for import (Australia) or species likely to be a pest (Pacific).

Physical: As plants reproduce vegetatively mechanical methods which will cut up rhizomes and stems will only increase spread.

Chemical: Washington State's Department of Ecology (2003) states that, "Although M. aquaticum is considered by some to be susceptible to herbicides, it is difficult to achieve complete control. The emergent stems and leaves have a thick waxy cuticle and it requires a wetting agent to penetrate this cuticle. Often the weight of the spray will cause the emergent vegetation to collapse into the water where the herbicide is washed off before it can be translocated throughout the plant.

Biological: Biological control is used effectively in South Africa, one insect species of the genus Lysathia is being used (Mabulu, L.Y., pers. comm., 2004). Parrot feather has a high tannin content so most grazers, including grass carp, find it unpalatable (Washington State's Department of Ecology, 2003).

Pathway
Myriophyllum aquaticum is a popular aquatic garden plant. However, it has escaped cultivation and spread via plant fragments and intentional plantings (Washington State's Department of Ecology 2003).


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

Review: Linda Y. Mabulu, Weeds Research Division, Agricultural Research Council-Plant Protection Research Institute (ARC-PPRI), South Africa
ALIEN RANGE

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BIBLIOGRAPHY

25 references found for Myriophyllum aquaticum

Management Information

Centre for Ecology and Hydrology (CEH), 2004. Control of Aquatic and Riparian Plants: Information sheet: Control of Parrot’s feather Myriophyllum aquaticum

Summary: Available from:


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: The EPPO Reporting Service is a monthly information report on events of phytosanitary concern. It focuses on new geographical records, new host plants, new pests (including invasive alien plants), pests to be added to the EPPO Alert List, detection and identification methods etc. The EPPO Reporting Service is published in English and French.


Summary: A guide to the identification of the most important and potentially dangerous invasive aquatic and wetland plants in South Africa.

Lysathia. A natural enemy of PARROT’S FEATHER/WATERDUISENBLAAR (Myriophyllum aquaticum) in South Africa. Dossiers on biological control agents available to aid alien plant control.

Summary: Biocontrol of Myriophyllum aquaticum


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.


Summary: Information on the spread, impact and management of M.aquaticum in New Zealand.

GLOBAL INVASIVE SPECIES DATABASE

FULL ACCOUNT FOR: Myriophyllum aquaticum

PIER (Pacific Island Ecosystems at Risk), 2003. Myriophyllum aquaticum

Summary: Ecology, synonyms, common names, distributions (Pacific as well as global), management and impact information.

Royal New Zealand Institute of Horticulture (RNZIH), 2005. Parrot s feather Myriophyllum aquaticum


Tasman District Council (TDC) 2001. Tasman-Nelson Regional Pest Management Strategy


Summary: This database compiles information on alien species from British Overseas Territories. Available from: http://www.jncc.gov.uk/page-3660 [Accessed 10 November 2009]


General information
Aquatic Weed Fact Sheet. NC State University.


ERDC (Engineer Research and Development Center). UNDATED. Myriophyllum aquaticum (Veil.) Verdc. (Parrotfeather) U.S. Army Corps of Engineers: Noxious and Nuisance Plant Management Information System.

Summary: Information on distribution, description, growth characteristics, and problems associated with species. FNZAS (Federation of New Zealand Aquatic Societies Inc.). UNDATED. Myriophyllum aquaticum. FNZAS Plant Survey.

Summary: Information on nutrient requirements of species. Available from: http://www.fnzas.org.nz/320+B6JnVzXJcGxhnRzPtk3JmNYXNoPtk2Yj1ZWVmZDg_.0.html [Accessed October 25 2003]

Invasive Aliens in Northern Ireland, 2005. Myriophyllum aquaticum Parrot s feather


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

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.cbf.gc.ca/pls/ititsa/taxastep?king=every&p_action=containing&taxa=Myocastor+coypus&p_format=&p_lhx=plgl t&p_lang= [Accessed March 2008]


