

Myriophyllum aquaticum  [简体中文](#) [正體中文](#)

System: Terrestrial

Kingdom	Phylum	Class	Order	Family
Plantae	Magnoliophyta	Magnoliopsida	Haloragales	Haloragaceae

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 muscoides*, *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](#)

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 water 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 23C. 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.



GLOBAL INVASIVE SPECIES DATABASE

FULL ACCOUNT FOR: *Myriophyllum aquaticum*

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).

Principal source: [Technical Information About Parrotfeather \(*Myriophyllum aquaticum*\) \(Washington State's Department of Ecology, 2003\)](#).
[Myriophyllum aquaticum \(PIER, 2003\)](#).

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

Publication date: 2005-11-28

ALIEN RANGE

[1] AUSTRALIA
[1] GUERNSEY
[1] ISLE OF MAN
[6] NEW ZEALAND
[10] SOUTH AFRICA
[2] UNITED KINGDOM

[1] EUROPE
[1] INDONESIA
[1] MEDITERRANEAN AREA
[1] REUNION
[1] SOUTHERN AFRICA
[36] UNITED STATES

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: <http://www.nerc-wallingford.ac.uk/research/capm/pdf%20files/24%20Myriophyllum%20aquaticum.pdf> [Accessed 7 November 2007]

[Champion, P. Clayton, J. and Rowe, D. 2002. Alien Invaders Lake Managers Handbook. Ministry for the Environment.](#)

Summary: Available from: <http://www.mfe.govt.nz/publications/water/lm-alien-invaders-jun02.pdf> [Accessed 3 February 2005]

[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]

[European and Mediterranean Plant Protection Organization \(EPPO\), 2005. Reporting Service 2005, No. 9.](#)

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.

Available from: <http://archives.eppo.org/EPPOreporting/2005/Rse-0509.pdf> [Accessed 28 November 2005]

[Henderson, L and Cilliers, C.J. 2002. Invasive Aquatic Plants. Paarl Printers, Cape Town.](#)

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*

[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 aquaticum*](#)

[NIWA, 2003.](#)

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

Available from: <http://www.niwa.co.nz/rc/prog/aquaticplants/news/index.html> [Accessed 27 Jan, 2004]

[PIER \(Pacific Island Ecosystems at Risk\), 2003. *Myriophyllum aquaticum*](#)

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

Available from: http://www.hear.org/pier/species/myriophyllum_aquaticum.htm [Accessed October 25 2003]

[Royal New Zealand Institute of Horticulture \(RNZIH\), 2005. Parrot s feather *Myriophyllum aquaticum*](#)

Summary: Available from: http://www.rnzih.org.nz/pages/nppa_068.pdf [Accessed 1 October 2005]

[Tasman District Council \(TDC\) 2001. Tasman-Nelson Regional Pest Management Strategy](#)

[Varnham, K. 2006. Non-native species in UK Overseas Territories: a review. JNCC Report 372. Peterborough: United Kingdom.](#)

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]

[Washington State s Department of Ecology. 2003. Technical Information About Parrotfeather \(*Myriophyllum aquaticum*\). Water Quality Program: Non-Native Freshwater Plants.](#)

Summary: Information on description, economic importance, distribution, habitat, history, growth, and impacts and management of species.

Available from: <http://www.ecy.wa.gov/programs/wq/plants/weeds/aqua003.html> [Accessed October 25 2003]

General information

[Aquatic Weed Fact Sheet. NC State University.](#)

Summary: Information on parrot s feather occurrence and spread in North Carolina, USA.

Available from: <http://www.cropsci.ncsu.edu/aquaticweeds/>. [Accessed 27 Jan 2004].

[Aquatic, Wetland and Invasive Plant Information Retrieval System \(APIRS\). 2003. *Myriophyllum spicatum*: Eurasian water milfoil. University of Florida, Center for Aquatic and Invasive Plants: Aquatic, Wetland and Invasive Plant Particulars and Photographs.](#)

Summary: Information on identification and habitat description of a similar species.

Available from: <http://aquat1.ifas.ufl.edu/myrspi.html> [Accessed October 25 2003].

[Conservatoire Botanique National De Mascarin \(BOULLET V. coord.\) 2007. - *Mtriophyllum aquaticum* Index de la flore vasculaire de la R union \(Trach ophytes\) : statuts, menaces et protections. - Version 2007.1 \(mise   jour 12 juin 2007\).](#)

Summary: Base de donn es sur la flore de la R union. De nombreuses informations tr s utiles.

Available from: <http://flore.cbnm.org/index2.php?page=taxon&num=9b1fc5df81cadf52164c02bf92678f95> [Accessed 9 April 2008]

[ERDC \(Engineer Research and Development Center\). UNDATED. *Myriophyllum aquaticum* \(Vell.\) 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+B6JnVzZXJfcGxhbnRzPTk3JmNlYXNoPTk2Yj1lZWVmZDg_.0.html [Accessed October 25 2003]

[Invasive Aliens in Northern Ireland, 2005. *Myriophyllum aquaticum* Parrot s feather](#)

Summary: Available from: <http://www.habitas.org.uk/invasive/species.asp?item=14129> [Accessed 7 November 2007]



GLOBAL INVASIVE SPECIES DATABASE

FULL ACCOUNT FOR: *Myriophyllum aquaticum*

[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.cbif.gc.ca/pls/itisca/taxastep?king=every&p_action=containing&taxa=Myocastor+coypus&p_format=&p_ifx=plgt&p_lang=
[Accessed March 2005]

[Roy, B; Popay, I; Champion, P; James, T & Rahman, A., 2004. An Illustrated Guide to Common Weeds of New Zealand 2nd Edition. *Myriophyllum aquaticum* parrot s feather. New Zealand Plant Protection Society](#)

Summary: Available from: <http://www.rnzih.org.nz/pages/myriophyllumaquaticum.htm> [Accessed May 10 2005]

[USDA-GRIN \(Germplasm Resources Information Network\), 2003. *Myriophyllum aquaticum*. National Genetic Resources Program \[Online Database\] National Germplasm Resources Laboratory, Beltsville, Maryland. Available from:](#)

http://www.ars-grin.gov/cgi-bin/npgs/html/tax_search.pl?Myriophyllum+aquaticum [Accessed 25 October 2003]

Summary: Information on common names, synonyms, and the distributional range of species.

[USDA-NRCS \(Natural Resource Conservation Service\), 2002. *Myriophyllum aquaticum*. The PLANTS Database Version 3.5 \[Online Database\] National Plant Data Center, Baton Rouge, LA](#)

Summary: Available from: <http://plants.usda.gov/java/nameSearch?mode=Scientific+Name&keywordquery=Myriophyllum+aquaticum>
[Accessed 22 October 2005].