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 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 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.

Management Info
Preventative measures: A Risk assessment of \r\n*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).
\r\nPhysical: As plants reproduce vegetativly mechanical methods which will cut up rhizomes and stems will only increase spread.
\r\nChemical: 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.
\r\nBiological: Biological control is used effectivly 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

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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

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