

PARROTS FEATHER (*Myriophyllum aquaticum*)

Species Identification

Aquatic perennial which grows in emergent, submerged and terrestrial forms.

Height: <2m

Stem: Brittle stems <5mm in width are green when emergent and roots/rhizomes appear a brown intertwined mass when submerged. Small brown roots are present around each of the root nodes.

Leaf: Whorls of 4-6 bright to blue-grey green feather like leaves are arranged as a whorl around the stem. Similar in appearance to native Marestalk.

Flower: Inconspicuous small (<2mm) white flowers form at the base of the leaves between May and August – often not visible.

Fruits: None known to be produced in the UK



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Ecology

Habitat Description: Populations of Parrots feather can grow in slow moving or static nutrient rich waters and it has also been observed growing in coastal brackish waters. It can be found growing in ponds, reservoirs, gravel pits, streams, canals and ditches. It can grow in terrestrial form on rubbish tips and in dried out ponds.

Reproduction & Life Cycle: Only female plants have established in the UK. It spreads efficiently by vegetative fragments which are easily broken from the brittle stem and rhizomes. Parrots feather can re-grow from small fragments of rhizomes. Rhizomes appear in spring when (water) temperatures start to increase. The majority of growth occurs in summer and plants typically die back to rhizomes overwinter.

Dispersal and Spread: Natural dispersal occurs by the transportation of plant fragments by water currents. Fragments however are often transported on the feet of wildfowl, grazing livestock and humans. Prior to legal restrictions it was commonly sold as an aerating garden pond plant. The plant is commonly discarded into natural habitats and can escape infested sites in flood water. Fragmented can spread through transfer of vegetation fragments on recreational equipment including machinery, boats and by fishermen.

Impact

Native Habitats: Parrots feather is capable of rapid growth and spread forming dense mats on the water's surface that restrict light. It can easily out-compete native flora and can shade out algae that serve as the basis of the aquatic food chain. Reductions in biodiversity can occur rapidly. Dense mats of Parrots feather can seriously change the physical and chemical characteristics of water bodies by depleting the oxygen levels and causing increases in sediment which gets trapped in densely populated areas. The high tannin content of the plant means that it is not eaten by native fish species. There is also a risk of hybridisation with native *Myriophyllum* species. This is currently not documented in the UK but has occurred in the USA.

Human Health Effects: Parrots feather is not toxic to humans

Economic and Societal Effects: Dense populations of Parrots feather can reduce the flow of water along irrigation channels, canals and flood control systems incurring large economic costs for its control and/or eradication at these sites. It can also cause loss of income from fisheries, angling clubs, recreational activities and transport. Infestations can reduce the biodiversity and recreational value of sites and dense mats of vegetation can result in water bodies becoming impassable.

Legislation

Listed under Schedule 9 of the Wildlife and Countryside Act in England and Wales (2010) as an offence to plant or otherwise cause to grow in the wild.

Management Approaches

Prevention Methods - Early detection and rapid response

1. Map the distribution of all extant populations
2. Identify areas that are 'at risk' to new invasions:
 - Within downstream flood zone/overall flood zone of invaded watercourses
 - Wetlands connected to infested sites by public access routes and boat launch sites
 - Sites adjacent to aquariums, garden centres, nurseries and ponds where plant is grown
 - All ponds, wetlands and backwaters in close proximity to infested areas and urban areas
3. Use GIS to map 'at risk' areas utilising land use spatial layers to improve predictability
4. Implement a management plan to prevent further spread of the plant including:
 - Restrict the sale of Parrots feather through retail outlets
 - Avoiding unintentional transportation by:
 - Increasing public awareness at infested sites
 - Ensuring recreational (boats, angling) equipment is drained and cleaned before leaving infested water bodies
 - Preventing livestock grazing on banks of infested water bodies
 - Managing extant stands along waterways and transport corridors to prevent dispersal
 - Monitoring 'at risk' and protected sites to enable fast eradication if invasion occurs

Eradication, Control and monitoring effects

It is difficult to achieve complete control of Parrots feather infestations. Treatment is usually a combination of more than one method and is likely to continue over a number of years before the plant is completely eradicated. Complete eradication will only be achieved if source population is treated. **Treatment in the early stages is highly recommended.**

Method	Description	Time of Year	Limitations
Mechanical Removal	Cut plant material using a mechanical cutting bucket, ensuring ALL cut material is removed from water.	March to October Repeat every 6-9 weeks	Need access for machinery. Care needs to be taken to ensure cut fragments are not left or washed downstream as this will result in rapid re-growth. All machinery needs thorough cleaning after each treatment.
Manual Removal	Pulling out stems by hand	March to October Repeated as necessary	Labour intensive. Only suitable on small patches, however can be fairly effective and can be used in conjunction with mechanical removal.
Dredging	Dredging bottom sediment	Following mechanical or manual removal of vegetation	For use in shallow areas and can alter the characteristics of the water body, however an effective method in conjunction with initial removal of plant material.
Herbicides	Glyphosate with adjuvant Topfilm for use only ON or near water.	March to October with at least 2 applications annually	Glyphosate requires a license from the Environment Agency. It eradicates non-target species including grasses. 2, 4-D amine is no longer approved for use, and must be used within 6 months or returned to suppliers for disposal. There is no longer any herbicide legally approved for use IN water. Spot treatment or weed wipe may be more acceptable. Dead plant material must still be removed and appropriately disposed of.
Biological Control	Reducing nutrient input into water body by introducing buffer strips. Booms to limit spread		This will not achieve removal alone but can be used to reduce the chances of re-infestation. The species composition of the water body is likely to change and is therefore only practical when the habitat and species present are not a conservation priority. Hanging booms placed across waterbodies may help limit the spread of the plant.

References:

- CEH** (2004) Information Sheet: *Myriophyllum aquaticum* Parrot's Feather. Available online at <http://www.capm.org.uk>; **DEFRA** (2010) Control of invasive non-native species: Parrot's Feather *Myriophyllum aquaticum*. Available at: <https://secure.fera.defra.gov.uk/>
- Moreira, I. Monteire, A. & Ferreira, T.** (1999) Biology and Control of Parrotfeather in Portugal. *Ecol. Env. & Cons.* 5 (3): 171-179;
- NNSS** (2011) GB Non-Native Organism Risk Assessment Scheme: *Myriophyllum aquaticum* - Parrot's Feather. Available at: <https://secure.fera.defra.gov.uk/nonnativespecies/>;
- NNSS** (undated) Parrot's Feather Identification Sheet. Available at: <http://secure.fera.defra.gov.uk/.../downloadDocument.cfm?id=66>