
SPECIES ACTION PLANS

FLOATING WATER PLANTAIN (*Luronium natans*)

DESCRIPTION

General Ecology

Floating water plantain is a rare aquatic perennial plant that is endemic to Europe. The species usually occurs as an inconspicuous, submerged plant with rosettes of grass-like leaves, often surviving in deep water. It can also be found as a floating-leaved plant with distinctive oval leaves and white flowers. It can occur with great local abundance because it reproduces vegetatively to form dense colonies. The species appears to have poor competitive ability and in more eutrophic waters it seems to require disturbance to prevent succession and enable it to survive. In the more open structured vegetation of nutrient poor waters, it is more able to survive within a limited and species-poor community of plants.

The submerged form tends to be found at a depth of between 0.5m and 4m in nutrient-poor lakes and pools, or in shallower water where there is a degree of disturbance. The floating leaved flowering form acts more like a ruderal colonist and has a tendency to be associated with shallower waters characterised by high light levels and open conditions associated with changing environmental conditions. However, little is known of its life cycle and research continues to improve knowledge on its habitat requirements and management

Key Habitats

Throughout the country, floating water plantain is found in deep lakes, ditches, rivers and canals, with a distinct preference for nutrient poor sites such as acidic and oligotrophic lakes.

Management Requirements

Floating water plantain requires very specific management of its habitat in order to survive in canals.

Too little disturbance to the waterway and the habitat becomes dominated by highly competitive species, such as reed sweetgrass, which suppress its growth. Too much disturbance, particularly from propeller driven recreational boat traffic and the plant cannot survive. It therefore requires careful management that creates disturbance but not in excess.

CURRENT STATUS

International

Floating water plantain is listed on Annexes II & IV of the EC Habitat Directive and Appendix I of the Bern Convention.

National

It is on the Priority List of globally threatened/declining species in the UK Biodiversity Steering Group Report.

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Greater Manchester Resource and Distribution

In Greater Manchester floating water plantain largely occurs in canals including the Ashton Canal SBI, the Rochdale Canal SSSI and cSAC and the Peak Forest Canal SBI. It also occurs in the Huddersfield Narrow Canal SSSI/SBI, but it is not as prolific as it once was, although there is evidence that it is recurring since the restoration of the canal. It was formally recorded in the Hollinwood Branch Canal SSSI/SBI. It also occasionally occurs in upland lakes/pools.

Legal

Floating water plantain is listed on Annexes II & IV of the EC Habitat Directive and Appendix I of the Bern Convention.

In Britain floating water plantain is protected under Schedule 4 of the Conservation (Natural Habitats, etc.) Regulations 1994 and Schedule 8 of the Wildlife and Countryside Act.

The following sites receive a degree of protection as SSSIs:

Hollinwood Branch Canal SSSI
Huddersfield Narrow Canal SSSI.
Rochdale Canal SSSI/cSAC

CURRENT FACTORS AFFECTING THE SPECIES

International

There is a commitment by EU countries to conserve the species. This is presently undertaken through the legal mechanism of the Habitats and Species Directive.

National

From the national SAP:

- The main threat to canal populations is from the re-opening of waterways, with subsequent high levels of motorised recreational boat traffic. This can directly suppress growth of the plant through increased turbidity of the water.
- Water acidification.

Physical habitat destruction, often of a temporary nature, can reduce the potential for colonisation. Dewatering of canals and river engineering threaten some surviving populations.

In addition, there are a number of factors affecting canals and other water bodies that are relevant:

| Positive factors | Negative factors |
|---|---|
| Development of conservation guidelines by British Waterways and the Environment Agency. | Large scale developments such as marinas. |

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| Positive factors | Negative factors |
|---|--|
| Commitments made by bodies such as British Waterways and the Environment Agency with regard to conservation of the species. | Development of plant succession where lack of disturbance is a factor; this has led to the loss of open water and associated species in some localities. |
| | Eutrophication of water resulting from human use of waterways. |
| | Growth and management of invasive alien species such as <i>Crassula helmsii</i> . |
| | Growth and management of native species such as <i>Typha latifolia</i> , <i>Glyceria maxima</i> . |
| | Fluctuation of water levels from maintenance activities and poor use/misuse of locks. |
| | Pollution from adjacent agricultural and industrial sources. |

Greater Manchester

Most of the factors in the National list above are relevant for Greater Manchester, in particular:

- The reopening of the Rochdale Canal and the Huddersfield Narrow Canal for navigation are likely to have some impact on the species; the extent of this is not yet clear. However, the Appropriate Assessment of the Rochdale Canal found that there would no impact on the integrity of the site. It is likely that an increase in boat traffic on the canals could affect the floating water plantain populations and careful conservation measures will need to be taken.
- Natural vegetation succession can result in a loss of plant populations.
- Canal dredging creates problems such as loss of aquatic vegetation. However, mitigation and avoidance measures can be incorporated into working practices.
- Invasion by non-native species such as *Crassula helmsii*, Japanese Knotweed and Himalayan Balsam can swamp aquatic plants or result in the decrease of diversity of marginal vegetation.
- There is potential for colonies of floating water plantain, such as that at Wilderness Quarry in Rochdale, to come under threat from development.

LONG TERM TRENDS AND POTENTIAL THREATS

Changes to drainage patterns in watershed across the country, for example through changing rainfall patterns and management of flood defences, may well affect levels of disturbance in slower flowing rivers. The impact of climate change on such environmental factors is, as yet, unclear.

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CURRENT ACTION

International

Four sites in England containing this species have been proposed as candidate SACs under the EC Habitats Directive. The Rochdale Canal is now a candidate SAC as a result of internationally significant populations of floating water plantain.

National

- A species action plan has been prepared for floating water plantain as part of the UK Biodiversity Action Plan. A steering group, made up of representatives from British Waterways, The Countryside Council for Wales, English Nature, Scottish Natural Heritage, the National Museum of Wales, the universities of Loughborough, Liverpool and Glasgow and the Environment Agency, has been established to oversee the implementation of the SAP.
- CCW carried out a survey of lakes in North Wales in 1994 which confirmed the presence of this species at a number of sites.
- Ecological surveys in 1997/8 reconfirmed the presence of floating water plantain in the Montgomery, Huddersfield Narrow and Huddersfield Broad canals.
- English Nature commissioned the University of Hertfordshire to survey Canals and Meres in the Midlands in 1999.
- CCW and EN are liaising with British Waterways to produce management guidelines for canals containing this plant.
- Recent genetic studies have indicated the importance of Welsh Lakes as source sites for this plant.
- Isozyme work has been carried out on Welsh populations to study genetic relationships and therefore translocation issues. Further studies on English populations are proposed to determine their origin.
- British Waterways has published a BAP which includes a species action plan for floating water plantain.
- British Waterways has undertaken the relocation of individual plants to refuge sites as part of the restoration of the Montgomery Canal.
- English Nature is in the process of developing detailed conservation objectives and assessment guidelines for all SSSIs. These guidelines will enable more accurate monitoring of the condition of SSSIs, including habitats such as canals.

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- A Site Management Statement has been agreed by English Nature and British Waterways for the Huddersfield Narrow Canal SSSI
- A biodiversity-style management plan is being developed for the Huddersfield Narrow Canal SSSI.
- In addition to the British Waterways' Environmental Code of Practice Appraisal process, all work affecting floating water plantain requires a DEFRA licence. British Waterways has developed standard impact avoidance measures and translocation methods and has a licence from DEFRA that ensures that floating water plantain is addressed during operational activities.

OBJECTIVES

National

Favourable Conservation Status in Canals

It is important to note that the current understanding of the requirements of Floating water plantain are being continually updated. Therefore, the attributes and targets set for maintaining the favourable conservation status of the species are likely to change as new research and information becomes available. The programme outlined is extensive and focuses on identifying key issues and removing any 'noise' from the monitoring work. Therefore, as baseline data is accumulated and interpreted it may be appropriate to reduce or stop monitoring certain attributes. This will be undertaken on an iterative basis in consultation with English Nature.

Subject to natural change, to maintain the habitat of floating water plantain in favourable condition. Favourable condition is achieved when the following criteria have been met:

- Annual mean pH 6 to 8
Annual mean total phosphorous (15) 35 ~ 50 (65) $\mu\text{g l}^{-1}$
- Water level fluctuations are minimised during April to October (inclusive)
- Water clarity is maximised (Minimise turbidity)
- Preferred sediment type and depth are maintained – within confidence limits yet to be determined.
- Current proportions of floating leaves, spatulate leaves, basal rosettes and flowers are maintained within confidence limits yet to be determined
- Existing status of floating water plantain within community is maintained, within confidence limits (yet to be determined),
- Populations of invasive species (e.g. *Glyceria maxima*, *Elodea canadensis/nuttalli*, *Crassula helmsii*) are limited to benefit species of conservation concern
- A maintenance regime is adopted that maintains and, where possible, enhances the current population of floating water plantain and its supporting community within confidence limits yet to be determined.

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- Engineering works are carried out to restore canal, phasing works affecting floating water plantain, and its supporting community. (Opportunities for conserving populations of floating water plantain are maximised in on-line and offline refuges such as wide sections, basins, and side-arms.)
- Navigation levels which allow existing status of floating water plantain within community are maintained within confidence limits (yet to be determined),
- Boat numbers are being managed to assess the effect of boat traffic in areas of Floating water plantain and its supporting community. Boat traffic will be modified in an iterative manner if damage occurs.
- A traditional mixed, coarse fishery exists that does not compromise existing aquatic community interest

In addition, there are more general objectives from the national SAP:

- Maintain the present range.
- Where the potential exists, increase the size of individual populations.
- Restore populations to former sites.
- Extend the geographical range of the species.

Greater Manchester

The objective developed for national use is suitable for use in Greater Manchester. The Rochdale Canal will be assessed using the national objective automatically, as it is an SSSI and cSAC.

The objective may require a slight alteration for use when assessing populations in non-canal sites (e.g. oligotrophic upland reservoirs and ponds).

TARGETS

The criteria in the objective provide measurable targets. This approach follows national guidance.

PROPOSED ACTION

| Action | Lead body | Timetable for Action |
|---|-----------------------------|----------------------|
| 1. Policy | | |
| Ensure the importance of floating water plantain and its habitats are recognised and site protection policies are included in appropriate plans and strategies e.g. UDP, Community Strategies, nature conservation strategies, supplementary planning guidance. | EN/GMEU/ LA's'/BW/ EA | 2006 |
| Produce/update Supplementary Planning Guidance notes for floating water plantain | LAs/BW | Ongoing |

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| Action | Lead body | Timetable for Action |
|---|---------------------|-----------------------------|
| Ensure all planning applications are adequately assessed in relation to their impact on floating water plantain: that loss or damage is avoided and that opportunities are taken for enhancement. | LA's/WTs | Ongoing |
| Ensure that UDPs take full account of the UK Biodiversity Action Plan, A Biodiversity Audit for North West England and the Greater Manchester Biodiversity Action Plan. | LAs/EN/ GMEU | 2006 |
| 2. Site and Species Safeguard | | |
| Give full consideration to inclusion of all floating water plantain sites within the SBI or LNR series. | GMEU/EN/ LAs | 2007 |
| Ensure that all the best examples of floating water plantain sites are protected by recognised designations. | EN/GMEU/ BW | 2007 |
| Identify and secure areas for potential expansion of floating water plantain (to reduce isolation and fragmentation of sites). | All BAP Partners | 2006 |
| Contribute to the implementation of relevant species and habitat action plans associated with floating water plantain. | All BAP partners | Ongoing |
| Ensure regular review of floating water plantain habitats. | BW/GMEU | Ongoing |
| Undertake management to control undesirable species e.g. to bring species to within acceptable limits. | BW/WTs/ LAs | Ongoing |
| 3. Land management | | |
| Promote and encourage positive management where floating water plantain is known to occur with landowners, occupiers and voluntary conservation bodies through long-term conservation management plans or agreements. | All BAP Partners | Ongoing |
| Complete or update existing conservation management plans to promote long-term positive management of floating water plantain habitats with land owners/occupiers and voluntary conservation bodies. | All BAP Partners | Ongoing |
| 4. Advisory | | |
| Develop and promote training on the conservation and management of floating water plantain. Training to be targeted at those involved in canal management and other habitat supporting the species. | BW | Ongoing |
| Note: training for those involved in habitat management can be combined with training for management of this species. | | |

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| Action | Lead body | Timetable for Action |
|---|---|-----------------------------|
| Establish a small number of demonstration sites to show good practice in floating water plantain conservation and management. | BW/EN/ Identified by GM Biodiversity Project | 2008 |
| Provide advice to those involved in floating water plantain site management on appropriate management regimes for the species and its habitats. Ensure guidelines widely available and accessible to interested parties. | All BAP partners | Ongoing |
| Make information available through a range of media e.g. Internet, booklets at a number of locations. | All BAP partners | Ongoing |
| 5. Future Research and Monitoring | | |
| 1. Collate existing records and identify gaps in knowledge of floating water plantain. | Relevant GMBAP Working Group | 2004 |
| 2. If necessary undertake survey of floating water plantain using standardised and repeatable methodology. | All BAP Partners | Start 2004 |
| Establish and maintain a central register of all floating water plantain sites including details of the condition of associated habitats and potential expansion areas. Make this information available to key partners. | GMEU/ Bolton Museum | 2004 |
| Develop and refine methods for defining and assessing the condition of floating water plantain and the effectiveness of conservation management. Seek to incorporate these into site management plans. | Relevant GMBAP Working Group | 2005 |
| Contribute to increasing information on UK floating water plantain by submitting information from GM register to National Biodiversity Network web based catalogue of survey information. Such information should also be widely available locally. | Biodiversity Project Officer | When established |
| Submit details of relevant conservation achievements to the national biodiversity reporting system, BARS, to meet requested deadlines. | Biodiversity Project Officer | 2003 onwards |
| Develop and implement appropriate surveillance and monitoring programmes to assess progress towards achieving action plan targets. | Biodiversity Steering Group | 2003 |
| Produce distribution map of floating water plantain populations | GMEU/EN/ BW | 2004 |

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| Action | Lead body | Timetable for Action |
|---|--|-----------------------------|
| Develop links with universities and encourage research on floating water plantain and associated flora and fauna | Relevant GMBAP Working Group/ Academic Institutions | 2003 onwards |
| Encourage the dissemination and use of ongoing research results, and commission further research where necessary, to improve understanding of the ecology of floating water plantain. Key research topics will include the presence and distribution of the species, vegetation responses to different management approaches and the impact of competitive species. | Relevant GMBAP Working Group | Ongoing |
| 6. Communication and Publicity | | |
| Seek opportunities to raise the profile of floating water plantain and associated habitats in the media and improve public awareness of its wildlife and conservation value. Make information available through a range of media e.g. Internet, booklets, GM BAP and at a number of locations | All BAP partners | Ongoing |
| Produce information aimed at capturing the interest and co-operation of local residents in conserving floating water plantain. | All BAP partners | Ongoing |
| Publicise existing sites demonstrating good practice in the management and conservation of floating water plantain habitats ensuring information widely available to landowners/managers. | BW/WTs | Ongoing |

Abbreviations

| | |
|------|-------------------------------------|
| BW | British Waterways |
| EN | English Nature |
| GMEU | Greater Manchester Ecology Unit |
| LAs | Local Authorities |
| LNR | Local Nature Reserves |
| SBI | Site of Biological Importance |
| SSSI | Site of Special Scientific Interest |
| WTs | Wildlife Trust |

RESOURCE IMPLICATIONS

UK BAPs

No information presently available.

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Greater Manchester

Locally British Waterways has already established an extensive monitoring program for key aquatic plants in the Rochdale and Huddersfield Narrow canals. Environmental assessments of engineering works are also providing additional data as are the development of operational management regimes.

In addition detailed water quality data is being collected in relation to the species of specific interest.

- Ongoing costs incurred through restoration (e.g. ecological works involved in the Huddersfield Narrow Canal Restoration are thought to have cost approximately £100,000)
- Costs resulting from additional ecological commitments. Eg: British Waterways allocates three weeks of bank staff time to ecological works for each canal.
- Establishment and maintenance of a central database
- Promotion of positive management
- Establishment of monitoring programme
- Publicity and awareness raising
- Staff and volunteer time.

Possible Sources of Funding

Wildlife Enhancement Scheme for SSSIs

RELATED ACTION PLANS

UK BAPs

There is presently no national Canal Habitat Action Plan, however, canals are included in the broad category of Open Standing Waters and Canals.

White clawed crayfish

British Waterways corporate BAP, "*British Waterways and Biodiversity: A framework for waterway wildlife strategies*". This includes a species action plan for floating water plantain together with plans for other varied habitats and species associated with waterway corridors, as well as British Waterways' wider estate e.g. tunnel spoil heaps, reservoirs and reservoir feeders.

Greater Manchester BAPs:

Canals, Water vole, Bats

Proposed for 2nd Tranche of GMBAP: Grasswrack pondweed

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Other BAPs:

| | |
|--|--|
| Bolton BAP: | Canals, Water Vole |
| British Waterways Local Waterway BAPs: | Huddersfield Narrow East, Rochdale Canal East, <i>Luronium natans</i> , <i>Potamogeton compressus</i> , Water voles, White clawed crayfish |
| North Merseyside BAP: | Canals |
| Oldham BAP: | Water vole |

CONFLICTS WITH OTHER ACTION PLANS

None have been identified.

CONTACTS FOR FLOATING WATER PLANTAIN BAP GROUP:

| Organisation | Contact | Tel. Number |
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| British Waterways | Jason Leach | 0161 819 5847 |
| Environment Agency | Mark Wiseman | 01925 840000 |

PROPOSED REVIEW OF THE PLAN

The Biodiversity Action Plan for Floating Water Plantain will be reviewed in 2008, and thereafter every five years.

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