

Northern Ireland Species Action Plan
River Water Crowfoot
Ranunculus fluitans
March 2005

1 Current Status

- 1.1** River water crowfoot *Ranunculus fluitans* Lam. is a subaquatic perennial herb of rivers and streams. *R. fluitans* is a member of the buttercup family with long flowing leafy stems of up to 6m and exhibits white flowers (2-3cm across) from May to August. *R. fluitans* is often confused with the similar but very common stream water crowfoot *R. penicillatus*. The leaves of *R. fluitans* are submerged, more narrow and streamlined than those of other water crowfoots affording lower resistance to fast flowing water. *R. fluitans* provides a valuable habitat for freshwater invertebrates such as shrimps, snails, insect larvae and nymphs.
- 1.2** In Great Britain, *R. fluitans* is most commonly found in faster lowland streams and wide but not too spatey, rivers in the upland fringes (Rodwell *et. al.*, 1995). It can be found in shallow to rather deep streams and mesotrophic to eutrophic waters. *R. fluitans* is primarily an aquatic plant however it can be found in an annual terrestrial form, with much condensed shoots growing on moist ground (Cook, 1966). Cook (1966) noted that stretches of water with a rocky or gravelly bottom are characterised by *R. penicillatus* as it produces roots throughout the year and can remain attached to an unstable rocky substrate, however *R. fluitans* only produces roots over winter and is found to replace *R. penicillatus* when the substrate is more silty.
- 1.3** *R. fluitans* is found in west and central Europe, in Scandinavia, Poland and Romania. In Britain it is a common plant of swift-flowing water concentrated in northern and central England, with more local sites in the south or England, Wales and the Scottish border. Its distribution in Ireland is restricted to one stretch of water in Co. Antrim, the Six Mile Water, between Templepatrick and Antrim, where it co-exists with *R. penicillatus* with which it hybridises.
- 1.4** The species was first recorded at Templepatrick in 1868 but had disappeared from here by 1883. The Centre for Environmental Data and Recording (CEDaR) holds twelve records for the species, all for the Six Mile Water. Recent (1987-2000) records for *R. fluitans* show the species in two 10x10 km squares, approximately a 12 km stretch of the river.
- 1.5** The most recent River Water Quality Survey for Northern Ireland was carried out by Environment and Heritage Service (EHS) in 2002. Results published in this report indicate that the water quality for the Six Mile Water ranges from very good at its source to fair at the lower reaches, particularly down stream of the Ballygomartin confluence, near Templepatrick, where there has been a loss of the species since 1982. In 1995, the same survey was carried out and it appeared that the Ballygomartin River has been affected by toxic discharges from the Mallusk area, which have in turn affected the receiving Six Mile Water. Also agricultural runoff and intermittent industrial pollution may also have contributed to the loss.

- 1.6** *R. fluitans* is protected in Northern Ireland under Schedule 8 of the *Wildlife (Northern Ireland) Order 1985*, which makes it an offence to pick, uproot, or destroy this plant. It is also listed in the Irish Red Data Book for vascular plants (Curtis & McGough, 1998).

2 Current Factors Causing Loss or Decline

- 2.1** Water pollution – Cook (1966) reported that *R. fluitans* is a species fairly tolerant of pollution as long as the water remains clear. If the water body is affected by high loads of suspended solids the plant soon dies. Eutrophication of rivers by draining in of enriched ground waters or effluents is unfavorable to the survival of *R. fluitans* (Rodwell *et al.*, 1995).
- 2.2** Grazing – in stream grazing by cattle can rapidly destroy the plant.
- 2.3** Human disturbance – physical damage may also be caused to the plants through recreational activities on rivers where *R. fluitans* is present.

3 Current Action

- 3.1** Under the *Nature Conservation and Amenity Lands (Northern Ireland) Order 1985*, Areas of Special Scientific Interest (ASSIs) are identified and declared by the Department of the Environment (DOE) through the Environment and Heritage Service (EHS). *The Environment (Northern Ireland) Order 2002*, strengthened the protection of ASSIs, recognising the importance of working in partnership with owners and occupiers and facilitating the positive management of these sites. There are currently no ASSIs declared for their *R. fluitans* interest.
- 3.2** In 2000, the Northern Ireland Biodiversity Group (NIBG) produced its recommendations to Government (NIBG, 2000). These were largely accepted by the Northern Ireland Executive in 2002, with the publication of the *Northern Ireland Biodiversity Strategy* (DOE, 2002). As part of this process, a revised list of Northern Ireland priority species was published in March 2004. This list includes *R. fluitans*.
- 3.3** Regional Planning and Transportation Division within DRD is responsible for co-ordinating the implementation of the *Regional Development Strategy (RDS) for Northern Ireland 2025* (DRD, 2001). The RDS contains a Spatial Development Strategy and related Strategic Planning Guidelines (SPGs). The emphasis in the SPGs is on competitiveness, sustainable development and tackling social exclusion and division. Operational policies to give effect to the SPGs are contained in Planning Policy Statements (PPSs). Some of these policies have a direct or indirect bearing on the prevention of adverse impacts on priority habitats and species.
- 3.4** *PPS2 Planning and Nature Conservation* (DOE, 1997) (under review) contains planning policy for the hierarchy of sites of nature conservation importance. It also addresses trees and woodlands, protection of species and peatlands.

- 3.5** *PPS14 Sustainable Development in the Countryside* is due to be published by the end of 2005.
- 3.6** Site protection policies are included in Development Plans. These include the identification of Sites of Local Nature Conservation Importance (SLNCIs). Planning Service is currently considering which SLNCIs will be formally identified in Development Plans. Where such sites are confirmed in adopted plans, specific planning policies will be applied to development proposals on those sites.
- 3.7** DARD, through its Countryside Management Branch (CMB), has developed a series of agri-environment schemes including the Environmentally Sensitive Areas (ESA) Scheme (revised in 2000) and the Countryside Management Scheme (CMS). A further revision to both the ESA and CMS has recently been approved under the current Northern Ireland Rural Development Programme (2000-2006). Their objective is to protect and enhance semi-natural habitats and species by encouraging more sensitive management practices. Both these schemes have similar management provisions, are voluntary and apply to the whole farm. These schemes provide a mechanism for delivering some of the targets listed in action plans for many species and habitats, targeting areas of as little as 0.1 ha of semi-natural habitat in order to maintain or improve their present conservation value. Around 230,000 ha of farmland is currently in agri-environment schemes in Northern Ireland, approaching a quarter of the total agricultural land in the Province.
- 3.8** The designation of ESAs commenced in 1988 and today there are five ESAs in Northern Ireland. DARD has determined a number of priority habitats which, if they occur on the farm, must be brought under agreement and managed according to relevant prescriptions determined by DARD.
- 3.9** The Habitat Improvement Scheme (HIS) aims to help farmers protect, enhance and establish habitats which are considered to have major conservation value. This is achieved by taking land out of agricultural production or by entering into a 10 year agreement which involves extensive grazing based on non-application of fertilizers and pesticides to the land. No new applications for the HIS are being accepted as the scheme closed in mid-1999. The scheme has been replaced by the Countryside Management Scheme (CMS).
- 3.10** The CMS, launched in 1999, was developed with the primary aim to maintain and enhance biodiversity and is open to all farmers and landowners outside ESAs. Where funding is limited, entry into the scheme is competitive, being based on who can offer the greatest environmental benefits.
- 3.11** The CMS has a voluntary option to protect and enhance grass margins adjoining watercourses. Grass margins are at least 2m wide and of a length which DARD will decide. The option of creating grass margins promotes the protection of sensitive habitats from pesticide drift or nutrient enrichment. No grazing, and usually no mowing, is allowed within the buffer strip and funds are available for fencing.
- 3.12** Roads Service has produced an Environmental booklet (DOE, 1998) (under review) as a guidance to road contractors to minimise the impacts of roads from the design stage

through to construction including the protection of species and habitats inside and outside designated areas.

- 3.13** Water quality is essential to the maintenance and conservation of suitable *R. fluitans* habitats. In Northern Ireland, water quality is governed by a number of regulations, including the *Pollution of Waters by Dangerous Substances Regulation, 1990*, the *Environment (Northern Ireland) Order, 2002*, the *Pollution Prevention and Control Regulations (Northern Ireland), 2003* and the *Urban Waste Water Treatment Regulations (Northern Ireland), 1995*.
- 3.14** EC Directive 2000/60/EC, *Establishing a Framework for Community Action in the Field of Water Policy* or the Water Framework Directive (WFD), was transposed into Northern Ireland law by the *Water Environment (WFD) Regulations (Northern Ireland) 2003*. The WFD sets a framework for comprehensive management of water resources in the European Community, within a common approach and with common objectives, principles and basic measures. It will be the driving force behind the setting of acceptable water quality standards on which all naturally occurring standing waters depend for the maintenance of their ecological integrity. Other EU Directives that are currently concerned with water quality will eventually be subsumed into the WFD.
- 3.15** The WFD aims to determine baseline trophic ecological states for all surface and groundwaters. The description of Ecological Status will include trophic status. Reference conditions will be agreed to define Good Ecological Status. Under the WFD, member states must ensure that all waterbodies (excluding Artificial Waterbodies, e.g. Northern Ireland canals and Heavily Modified Waterbodies e.g. some Northern Ireland reservoirs) must be at least of Good Ecological Status by 2015. Artificial and heavily modified waterbodies must attain Good Ecological Potential by this date.
- 3.16** There is a requirement under Article 6 of the WFD to create a register of all areas which have been designated as requiring special protection under specific European Community legislation for the protection of their surface water and groundwater or for the conservation of habitats and species directly depending on water. protected sites dependent on water within River Basin Management Plans (RBMP) by 2005. Northern Ireland must achieve compliance with the WFD standards and objectives relating to these protected areas by December 2015. There is an onus on the UK government under the WFD to ensure that any changes in water quantity and quality do not adversely affect sites of international importance.
- 3.17** The Rivers Agency, as the statutory Drainage and Flood protection Authority for Northern Ireland, are responsible for maintaining the effective drainage function of 6850 km of designated watercourses under the *Drainage (Northern Ireland) Order 1973*. All drainage and flood defence proposals are subject to the *Drainage (Environmental Assessment) Regulations (Northern Ireland) 1991*, as amended, which require an assessment at planning stage of the environmental impact of the proposed works. Rivers Agency also consults with EHS on their annual programme of drainage maintenance, where this may have an impact on designated sites of nature conservation importance. This includes both localised operations such as the maintenance of outfalls for field drains and more significant river maintenance work.

All of these operations can have adverse effects on *R. fluitans* populations if not carefully planned and implemented.

- 3.18** There are currently a number of monitoring programmes which are aimed at conserving the wildlife and habitats of rivers within the Natura 2000 network of protected European sites. 'Life in UK Rivers', part of the EU LIFE Nature Programme, is a joint venture involving English Nature (EN), the Countryside Council for Wales (CCW), the Environment Agency (EA), the Scottish Environment Protection Agency (SEPA), Scottish Natural Heritage (SNH) and the Scotland and Northern Ireland Forum for Environmental Research (SNIFFER). They have developed a protocol for monitoring watercourses characterised by *R. fluitans* and *Callitriche-Batrachion* vegetation communities. One of the main products is a set of methods for monitoring species and habitats, which complements reports containing the best available information on their ecological requirements for achieving 'favourable conservation status'.
- 3.19** EHS has produced a *River Conservation strategy for Northern Ireland* (DOE, 2001) outlining its role and responsibility in protecting, conserving and enhancing the natural and built heritage values of rivers in Northern Ireland and facilitating their sustainable use.
- 3.20** Water quality monitoring and River Habitat Surveys are carried out in Northern Ireland by the EHS.
- 3.21** Other relevant information is gathered through specialist biological recording groups, Non-Governmental Organisations (NGOs), universities and other government bodies. Biological records are currently stored in the Museum and Galleries of Northern Ireland (MAGNI) at the Centre for Environmental Data and Recording (CEDaR). CEDaR was established in 1995 in partnership with EHS, MAGNI and the biological recording community. There are currently over 1.4 million records held by CEDaR and there are plans underway to make these records more accessible through the Internet. This will be achieved through the National Biodiversity Network, a union of organisations throughout the UK working together to create an information network of accessible biological data for biodiversity information.

4 Action Plan Targets

- 4.1** Maintain the current populations of *R. fluitans* along a 12 km of the Six Mile Water river.

5 Proposed Actions with Lead Agencies

5.1 Policy and legislation

- 5.1.1** By 2008, consider the designation of the Six Mile Water as an ASSI.
(ACTION: EHS)

5.1.2 By 2009, ensure that *R. fluitans* sites are properly recognised within River Basin Management Plans as required by the Water Framework Directive.
(ACTION: EHS)

5.1.3 By 2008, ensure that important *R. fluitans* sites are recognised and, where appropriate, site protection policies are included in statutory and non-statutory plans e.g. Development Plans and other strategic plans, including Local Biodiversity Action Plans (LBAPs).
(ACTION: Planning Service, EHS, DARD, District Councils)

5.2 Site safeguard and management

5.2.1 By 2008, secure favourable management of the riparian zone, for example, the creation of fenced buffer strips along river banks that protect river margins from the physical impacts of wading livestock (erosion, trampling and pollution), where appropriate.
(ACTION: EHS, DARD)

5.3 Species management and protection

5.3.1 By 2009, ensure that all known sites are managed in a manner that is beneficial to the conservation of *R. fluitans*.
(ACTION: EHS)

5.4 Advisory

5.4.1 By 2006, ensure that all organisations responsible in the water management of the Six-Mile Water are aware of the potential risks to *R. fluitans* that could be caused through inappropriate water management.
(ACTION: EHS, Water Service, Rivers Agency, DARD)

5.4.2 By 2006, provide advice to land owners with *R. fluitans* on their land about suitable management requirements of the species.
(ACTION: EHS, DARD)

5.4.3 By 2006, ensure that information on *R. fluitans* in Northern Ireland is available to all those who could play a role in its conservation and recovery including competent authorities and environmental consultants involved in the preparation of Environmental Impact Assessments.
(ACTION: EHS, DARD)

5.4.4 By 2007, consider the development of river corridor management skills through training.
(ACTION: DARD, Rivers Agency, EHS).

5.5 International

- 5.5.1 Further develop links with the Republic of Ireland and other European and international organisations and programmes such as the European Environment Agency and the European Centre for Nature Conservation, to promote the exchange of information and experience in research, management techniques, education and conservation strategies.
(ACTION: EHS)

5.6 Future research and monitoring

- 5.6.1 By 2005, establish the distribution, abundance and viability of the species.
(ACTION: EHS)
- 5.6.2 By 2008, research the ecology and genetics of the species to determine the origin of the species and to further understand its presence and ecological requirements in Northern Ireland.
(ACTION: EHS)
- 5.6.3 Monitor habitat condition and management to ensure that optimal site management is achieved.
(ACTION: EHS)
- 5.6.4 By 2006, set in place a reporting and monitoring structure to encourage progress towards the delivery of the targets and the completion of actions identified in this plan.
(ACTION: EHS)

5.7 Communications and publicity

- 5.7.1 Raise awareness of the species among the general public, volunteers, botanists and professional conservation workers and researchers e.g. by means of reports, publications, field meetings and presentation of research results at conferences.
(ACTION: EHS)

6 Links with other Action Plans

- 6.1 This plan should be considered in conjunction with the following UK and Northern Ireland priority habitat:
- Crowfoot Rivers

7 Costings

- 7.1 A table showing the global costs for this and other SAPs is available on the EHS/Biodiversity web page.

8 References

- Cook, C.D., 1966. A monographic study of the *Ranunculus* subgenus *Batrachium* (DC) A. Gray Mitt. Bot. Staats, Munchen 6, 47 –237
- Curtis, T.G.F. & McGough, H.N. (1988) *The Irish Red Data Book 1: Vascular Plants*. Stationery Office, Dublin.
- Department of the Environment (2002). *Northern Ireland Biodiversity Strategy*. Environment and Heritage Service, Belfast.
- Department of the Environment for Northern Ireland. (1997). *Planning Policy Statement 2: Planning and Nature Conservation*. Department of the Environment for Northern Ireland (Planning Service), Belfast.
- Department of the Environment, 1998. *Roads Service Environmental Handbook*. Roads Service, Belfast.
- Department of the Environment (2001). *River Conservation Strategy: An Environment and Heritage Service strategy to protect, conserve and enhance the natural and built heritage values of rivers in Northern Ireland and facilitate their sustainable use*. Department of the Environment Northern Ireland (DoE NI).
- Department of Regional Development (2001). *The Regional Development Strategy 2025*. DRD, Belfast.
- Northern Ireland Biodiversity Group (2000). *Biodiversity in Northern Ireland: Recommendations to Government for a Biodiversity Strategy*. HMSO, Belfast.
- Rodwell, J.S., Pigott, C.D., Ratcliffe, D.A., Malloch, A.J.C., Birks, H.J.B., Proctor, M.C.F., Shimwell, D.W., Huntley, J.P., Radford, E., Wigginton, M.J. & Wilkins, P., (1992). *British Plant Communities*, Vol. 3. *Grasslands and montane communities*. Cambridge University Press, Cambridge

List of Useful Acronyms

ASSI	Area of Special Scientific Interest
BAP	Biodiversity Action Plan
CEDaR	Centre for Environmental Data and Recording
CMD	Countryside Management Division
CMS	Countryside Management Scheme
DARD	Department of Agricultural and Rural Development
DCAL	Department of Culture, Arts and Leisure
DETI	Department of Enterprise, Trade and Industry
DOE	Department of the Environment
DRD	Department for Regional Development
EHS	Environment and Heritage Service
ESA	Environmentally Sensitive Area
ESCRs	Earth Science Conservation Review Site
HAP	Habitat Action Plan
JNCC	Joint Nature Conservation Committee
MAGNI	The National Museums and Galleries of Northern Ireland
NESA	New Environmentally Sensitive Area
NIBG	Northern Ireland Biodiversity Group
NICS	Northern Ireland Countryside Survey
NNR	National Nature Reserve
PPS	Planning Policy Statement
RA	Rivers Agency
RSPB	Royal Society for the Protection of Birds
SAC	Special Area of Conservation
SLNCI	Sites of Local Nature Conservation Importance
SoCC	Species of Conservation Concern
SPA	Special Protection Area
WFD	Water Framework Directive
WWT	Wildfowl and Wetlands Trust
UWT	Ulster Wildlife Trust