

Northern Ireland Species Action Plan
Small Cow-wheat
Melampyrum sylvaticum
March 2005

1 Current Status

- 1.1** Small cow-wheat *Melampyrum sylvaticum* L. is an annual, hemiparasitic herb obtaining some nutrition from the roots of a host plant, but it can also survive independently. *M. sylvaticum* grows to a height of up to 18 cm, has narrow leaves and produces deep brownish yellow tubular flowers from June to early August (Broome, 2003). It is similar to the more widespread common cow wheat *M. pratense* with which it is often confused, however *M. sylvaticum* has smaller flowers hence the name small cow-wheat. The flowers are pollinated by bumble bees but it self pollinates if cross pollination fails (Stewart *et al.*, 1994).
- 1.2** *M. sylvaticum* mainly inhabits light, open, broadleaved woodlands on shallow enriched acidic soils, where the humidity remains high. It also occurs on banks, stream valleys, hollows, the shores of lakes and on upland ledges in northern Britain and Ireland (Rich *et al.*, 1998).
- 1.3** This species is endemic to Europe, with strongholds in Scandinavia, the Alps and the Balkans. It is a locally occurring species in northern England, Northern Ireland and Scotland, with historic records for Wales and the Republic of Ireland. This species has declined most in the southern and lowland parts in its range especially in Northern Ireland where many losses occurred before 1930 (Preston *et al.*, 2002). The species is almost certainly under recorded and its distribution is poorly known due to confusion with *M. pratense* (Broome, 2003).
- 1.4** *M. sylvaticum* has declined rapidly in Northern Ireland and has become extinct in 70% of the former UK range. The distribution information from the Centre for Environmental Data and Recording (CEDaR) and Preston *et al.* (2002), indicate a severe decline in the species, most dramatically from the Antrim coast where it no longer occurs.
- 1.5** There are 43 records for Northern Ireland, 39 of which are historic. In Northern Ireland the species has been recorded in eighteen 10x10km squares. The current records for the species are restricted to three 10x10 km squares in Co. Londonderry where the population exists in four populations Errigal Glen, Agivey River, Carrick Rocks on the River Roe and Slaghtmanus.
- 1.6** An MSc project completed by the Royal Botanic Gardens, Edinburgh, investigated the DNA of the species at a selection of Scottish sites. The results show that there are significant genetic variation between populations. The large populations have high levels of genetic variation, whereas the smaller populations tend to have lower levels of genetic variation. Species such as *M. sylvaticum* that exist in small, fragmented isolated populations, with poor reproductive strategies are extremely susceptible to genetic drift and loss of genetic variation. Consequently they are extremely vulnerable to environmental change, as well as the influence of man, as populations do not have the genetic variation to adapt quickly to change (Sharp, 2003).

- 1.7 The species is protected in Northern Ireland under Schedule 8 of the *Wildlife (Northern Ireland) Order, 1985*, which makes it an offence to pick uproot, or to destroy this plant. *M. sylvaticum* is listed as vulnerable in the Irish Red Data Book for vascular plants (Curtis & McGough, 1988).

2 Current Factors Causing Loss or Decline

- 2.1 Agricultural improvement - the decline of *M. sylvaticum* may be partially attributed to agricultural intensification. Although the species can be found on steep ravines and gorges, which are quite inaccessible, fertiliser runoff from the intensively farmed surrounds can pose a significant threat to the species.
- 2.2 Grazing - changes in agricultural practices such as overgrazing or cessation of grazing can result in the decline of the populations.
- 2.3 Woodland management - the plant does not tolerate dense shade or changes in soils attributed to forestry (Rich *et al.*, 1998). The impact of woodland management on the species in Northern Ireland is uncertain.
- 2.4 Habitat fragmentation - leads to small isolated colonies vulnerable to extinction through chance events, natural population fluctuations and genetic decline.
- 2.5 Pollution - through acid rain, has been shown to affect other *Melampyrum* species (Rich *et al.*, 1998).
- 2.6 Over-collecting – sites in England have been identified as being under threat due to over-collecting. The level of threat in Northern Ireland is unknown.

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 historical records for Glen Burn Area of Special Scientific Interest (ASSI). One of the existing populations of *M. sylvaticum* occurs in Carrick Rocks, part of Roe Valley Country Park.
- 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 *M. sylvaticum*.

- 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** Research projects are currently being carried out by the Scottish Wildlife Trust (SWT) and University of Aberdeen into the ecology and re-introduction methods for *M. sylvaticum*.
- 3.12** Roads Service has produced an Environmental booklet (DOE, 1998) (under review) as 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** 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 population of *M. sylvaticum* at 4 sites.
- 4.2** Maintain the current range of *M. sylvaticum* at 3 10x10km squares.
- 4.3** By 2015, increase the number of *M. sylvaticum* populations to 5 sites.
- 4.4** By 2015, increase the range of *M. sylvaticum* to 4 10x10 km squares.

5 Proposed Actions with Lead Agencies

5.1 Policy and legislation

- 5.1.1** By 2007, review the coverage *M. sylvaticum* sites within cSAC, ASSI and NNR series and, if necessary, notify further sites to fill significant gaps.
(ACTION: EHS)
- 5.1.2** By 2008, ensure that important *M. sylvaticum* 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)

5.1.3 By 2007, monitor and review the effectiveness of MOSS and agri-environment schemes to ensure that *M. sylvaticum* populations are being maintained and enhanced across Northern Ireland.
(ACTION: EHS, DARD)

5.1.4 By 2007, ensure that agri-environment scheme prescriptions relevant/appropriate to *M. sylvaticum* are contributing to maintaining and enhancing the population across Northern Ireland.
(ACTION: DARD, EHS)

5.1.5 By 2008, target positive management through MOSS, agri-environment schemes, the LBAP process and grant aid for biodiversity to secure favourable management on *M. sylvaticum* sites.
(ACTION: EHS, DARD)

5.2 Site safeguard and management

5.2.1 By 2006, produce conservation objectives for all statutory sites containing *M. sylvaticum*. (ACTION: EHS)

5.2.2 By 2009, secure favourable management of selected historical sites for *M. sylvaticum* to encourage the recovery of these 'extinct' populations.
(ACTION: EHS)

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 *M. sylvaticum*.
(ACTION: EHS)

5.4 Advisory

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

5.4.2 By 2006, ensure that information on *M. sylvaticum* 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)

5.5 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 *M. sylvaticum* populations.
(ACTION: EHS)
- 5.6.2 Periodically review monitoring protocols and condition assessment methodology for statutory sites with *M. sylvaticum*.
(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 Habitat Action Plan:
- Mixed ashwoods
 - Oakwood

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

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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