

Environment & Heritage Service

NORTHERN IRELAND SPECIES ACTION PLAN

– Irish damselfly *Coenagrion lunulatum*

March 2007

Northern Ireland Species Action Plan
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1. Current Status

- 1.1** The Irish damselfly *Coenagrion lunulatum* Charpentier is classified within the Coenagrionidae, a diverse group of small, brightly coloured species that are generally referred to as narrow-winged damselflies.
- 1.2** It is one of the 'blue' damselflies, of which there are eleven similar species in Britain (in four genera: *Coenagrion*, *Enallagma*, *Ischnura* and *Erythromma*). The species exhibits sexual dimorphism, males having a predominantly blue abdomen on the upperside with a significant proportion of black on abdominal segments 3 to 7 and bright green colouration on the underside of the thorax (Brooks, 2002). The female is bright green on all surfaces of the thorax and abdomen with similar proportions of black colouration on the abdomen's upperside except for the apex that retains a blue tinge. In general appearance, the Irish damselfly may be confused with the azure damselfly *C. puella* (Linnaeus, 1758) and the variable damselfly *C. pulchellum* (Vander Linden, 1823; Brooks, 2002). In mainland Europe, it is often associated with the northern damselfly *C. hastulatum* (Charpentier, 1825; Askew, 1988). However, the Irish damselfly is generally shorter and darker but identification should be confirmed by hand examination (Brooks, 2002).
- 1.3** The Irish damselfly is principally a northern European species, ranging through eastern Europe, Siberia (including north of the Arctic Circle) and Mongolia to Japan. The species is considered to be rare or severely threatened throughout its range and occurs in scattered populations in northern and eastern Europe. There are two extant disjunct populations; one in the eastern Alps (France) and the other in the northern half of Ireland (Askew, 1988). The Swiss population is now considered extinct (Askew, 1988) and is not listed on the current Swiss Red List (Duelli, 1994). In mainland Europe, it inhabits mesotrophic ponds, fens and marshes, generally acidic in nature and usually within peatland. Submergent vegetation is generally present with pondweeds *Potamogeton* spp. of significance for oviposition (Brooks, 2002). Marginal vegetation is generally sparse and dominated by sedges *Carex* spp. and horsetails *Equisetum* spp. (Askew, 1988).
- 1.4** The species has never been recorded from Great Britain, despite suitable habitat existing in north Wales, northwest England and southwest Scotland. The Irish damselfly is currently restricted to Ireland. The conservation of the species in the UK is therefore dependant on the maintenance of the colonies in Ireland. Ireland is considered to have one of the largest populations of Irish damselfly in western Europe and is therefore of international importance (Nelson, 1996; Nelson & Thompson, 2004).
- 1.5** In Ireland, the species can be found in the north and west of the country. The majority of sites are concentrated in the five adjoining counties of Leitrim, Fermanagh, Tyrone, Armagh and Monaghan (Nelson & Thompson, 2004). The species has been lost from sites in both southern Ireland and Northern Ireland but these losses have been outweighed by the discovery of new colonies. The reason for the extinction of the species at

individual sites is not known, but it is thought that eutrophication, habitat change and lowering of lake levels are the most likely causes of decline (Brooks, 1997; Nelson & Thompson, 2004).

- 1.6 In Northern Ireland, there are approximately 35 known colonies of the Irish damselfly. These colonies occur on small mesotrophic lakes with beds of floating aquatic vegetation and sparse fringing beds of emergent plants. A few colonies can be found on cutover bog where they breed in shallow pools created by peat extraction (Brooks, 1997; Nelson, 1999; Nelson & Thompson, 2004).
- 1.7 The Irish damselfly has an annual life cycle. In Northern Ireland, the flight period of the species extends from May until August. Females lay their eggs into the submerged stems of aquatic plants. The eggs hatch into larvae, which grow through a series of moults until they are fully grown. The larvae then climb out of the water by crawling up the stems of emergent plants. Adults emerge directly from the larval skin and disperse away from the water to feed and mature, before returning to the water's edge to breed. Males perch on the floating leaves of aquatic plants or on emergent stems looking for females.
- 1.8 There have been no detailed studies of the species in Ireland. The life history and ecological requirements of the Irish damselfly is still poorly known (Brooks, 1997 & 2002). Data is lacking with regards to its dispersal ability, plant species associations (for oviposition), larval habitat requirements and marginal habitat (for adult emergence and foraging). Observations that have been made suggest that females require pondweed in which they lay their eggs and that adults require emergent vegetation to be at least 0.5m above water upon which to emerge (Brooks, 2002).
- 1.9 In Northern Ireland, small lakes are an important resource for the Irish damselfly but many have never been surveyed for the presence of this species and so the potential remains for more new colonies to be discovered. The conservation of the Irish damselfly is best tackled through policies and action taken to protect and manage habitats (Nelson & Thompson, 2004).
- 1.10 The Irish damselfly is not protected under Northern Ireland legislation.

2. Current Factors Causing Loss or Decline

- 2.1 Eutrophication is a major threat to the water quality of freshwater habitats in Northern Ireland. Agriculture is regarded as the major source of nutrients causing eutrophication. Nutrient enrichment stimulates excessive plant growth and reduces dissolved oxygen in the water; flora and fauna species can then no longer survive, food webs are altered and diversity is reduced. The Irish damselfly requires wetland habitat with good water quality for growth and development making it an important bio-indicator of water quality.
- 2.2 Hydrology is of prime importance for wetland habitats. If these habitats are to retain characteristic features and species the hydrology must remain intact. Drainage can cause wetland habitats to dry out and become unsuitable for the Irish damselfly.

- 2.3** Forestry can have a significant effect on biodiversity by disrupting hydrology and leading to the drying out of wetland habitats and the lowering of the water table. In addition to the direct hydrological impact, colonisation of trees can lower water levels; this gradual process of encroachment can lead to loss of Irish damselfly habitat. Spray drift from the aerial application of fertilizers can also cause contamination of water resources.
- 2.4** Vegetation encroachment can occur as a process of natural succession around the margins of lakes. This reduces the amount of open water and suitable habitat for the aquatic plants required by the Irish damselfly. This loss of open water can result in a serious reduction of Irish damselfly populations.
- 2.5** The spread of alien freshwater species including fish, plants and invertebrates is of growing concern in Ireland. The potential effects of such species include competition for resources and food, direct predation and a reduction in habitat quality (Nelson & Thompson, 2004).
- 2.6** Irish damselfly larvae are vulnerable to predation by fish. Lakes with unnaturally large populations of fish contain few odonates because the fish eat the larvae. It is therefore important that fishing lakes with artificial feeding and high stocking rates are not developed on lakes with populations of Irish damselflies.
- 2.7** There is the potential that species acclimatised to the northern European climate could be affected by global warming. A change in climate could result in a shift in the distribution of many species, potentially including the Irish damselfly (Nelson *et al.*, 2000).

3. Current Action

- 3.1** The Environment and Heritage Service (EHS) commissioned a survey of the Irish damselfly in 1996 (Nelson, 1999). The aim of this survey was to visit all suitable Irish damselfly sites and assess the status of the species at each site. The information was then used to provide recommendations on designation, monitoring, management and ecological studies. The results of this survey identified two key sites of importance for Irish damselfly. These sites included Lough Alaban, which is considered to support the largest colony of Irish damselfly in Northern Ireland and Cullentra Lough.
- 3.2** The Dragonfly Ireland project (www.habitas.org.uk/dragonflyireland), launched in May 2000, was a four year project undertaken to document the status and distribution of dragonflies and damselflies throughout Ireland. The project aimed to map the distribution of Irish species, highlight key sites, habitats and species and provide a baseline for future recording at a local and all-Ireland level.
- 3.3** Water quality is essential to the maintenance and conservation of suitable Irish damselfly habitat. 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.

- 3.4** The *Nitrates Action Programme Regulations (Northern Ireland) 2006* (NAP Regulations) and the *Phosphorous (Use in Agriculture) Regulations (Northern Ireland) 2006* (Phosphorous Regulations) have been introduced to improve the use of nutrients on farms and as a result improve water quality in Northern Ireland. The NAP Regulations apply to all farm land and restrict the storage and spreading of organic manures and chemical fertilisers close to wetland habitats e.g. lakes and waterways.
- 3.5** 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.
- 3.6** Under Article 28 of the *Environment (Northern Ireland) Order 2002*, Areas of Special Scientific Interest (ASSIs) are currently identified and declared by the Department of the Environment (DOE) through the Environment and Heritage Service (EHS). The *Environment (Northern Ireland) Order 2002* strengthened existing protection of ASSIs by introducing a mechanism for the positive management of these sites. The Management of Sensitive Sites Scheme (MOSS) is a voluntary scheme run by EHS and is designed to ensure the positive management of ASSIs, recognising the importance of working in partnership with owners and occupiers. There are currently no ASSIs designated specifically for the Irish damselfly. There are however a number of ASSIs and NRs that support populations of the Irish damselfly. These include Cullentra Lough ASSI, Lackan Bog ASSI, Drumcarn ASSI, Selshion ASSI, Black Lough (Co. Tyrone) ASSI, Black Lough (Co. Down) ASSI and Brackagh Bog Nature Reserve.
- 3.7** In 2000, the Northern Ireland Biodiversity Group (NIBG) produced its recommendations to Government (NIBG, 2000). These were accepted by the Northern Ireland Executive in 2002, with the publication of the *Northern Ireland Biodiversity Strategy* (DOE, 2002). The Irish damselfly is included on the initial list of Northern Ireland priority species considered to require Species Action Plans (SAPs).
- 3.8** Regional Planning and Transportation division within DRD is responsible for the implementation of the *Regional Development Strategy* (RDS) for Northern Ireland 2025, which provides an overarching framework for competitive and sustainable development in Northern Ireland (DRD 2001). Operational policies to give effect to the Strategic Planning Guidelines of the RDS are contained in Planning Policy Statements (PPSs).
- 3.9** Planning Service assesses the impact of development proposals on wildlife using policies in *Planning and Policy Statement 2 – Planning and Nature Conservation* (currently under review). EHS is a statutory consultee to Planning Service and provides advice on site

specific impacts both within designated sites and in the wider countryside, when requested to do so. Impacts of development proposals are assessed and the proposals amended or mitigated to ensure continued sustainable development in the countryside.

- 3.10** 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.
- 3.11** The development of Local Biodiversity Action Plans (LBAPs) based on District Council areas and/or discrete landscape areas, and the appointment of Local Biodiversity Officers will help to build on the SLNCI network and encourage, co-ordinate and inform local biodiversity action. In Northern Ireland there are currently six LBAPs in progress and these are due to be published in 2006. It is anticipated that where appropriate these LBAPs will include specific prescriptions relating to the Irish damselfly and its associated habitat.
- 3.12** The Department of Agriculture and Rural Development (DARD), through its Countryside Management Branch (CMB), have developed a series of agri-environment schemes. These include the Environmentally Sensitive Area Scheme (ESAS) (revised in 2003) and the Countryside Management Scheme (CMS). A further revision to both the ESAS and CMS has recently been approved under the current Northern Ireland Rural Development Programme (2000-2006). The objectives of the schemes are to protect both habitats and species by encouraging more sensitive management practices. Both schemes have similar management provisions, are voluntary and apply to the whole farm. They provide a useful mechanism for delivering the targets listed in a number of species and habitat action plans.
- 3.13** The Management of Sensitive Sites (MOSS) scheme was launched in 2002 by EHS. It is a voluntary scheme designed to ensure the positive management of site features within ASSIs. Under the scheme, landowners can receive an annual payment for carrying out conservation work within the framework of a written agreement or a discretionary payment for one-off works that will aid management of the site for wildlife. The MOSS scheme covers vegetation management, nutrient management, drainage and control of water levels and control of invasive species.
- 3.14** Forest Service managed areas and grant-aided woodland must comply with the UK Forestry Standard, the government's approach to sustainable forestry (Forestry Commission & Department of Agriculture for Northern Ireland 1998). Field practices must closely adhere to recommendations described in Forest and Water guidelines (4th edition), which is considered a pre-requisite of sustainable forestry in water catchment areas.
- 3.15** The UK Woodland Assurance Standard is a voluntary certification standard against which current standards of forest management can be measured. The Forest Service has retained certification since 2000. One requirement of the Standard is that management is sensitive

to local biodiversity interests, which may be rare or threatened species.

- 3.16** 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. There are currently 247 records of the Irish damselfly held by CEDaR, with dates ranging from 1981 to 2005.

4. Action Plan Targets

- 4.1** Maintain existing populations of Irish damselfly at 35 sites.
- 4.2** Maintain the current range of the Irish Damselfly at 22 10x10km squares
- 4.3** Expand population of Irish damselfly to 38 sites by 2015.

5. Proposed Action with Lead Agencies

5.1 Policy & Legislation

- 5.1.1** Consider the protection of the Irish damselfly under the *Wildlife (Northern Ireland) Order 1985*.
(ACTION: EHS, DOE)
- 5.1.2** By 2006, ensure that all known Irish damselfly sites are identified and highlighted to lead agencies.
(ACTION: EHS)
- 5.1.3** Ensure that important Irish damselfly 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)
- 5.1.4** Ensure enrichment of wetland habitat is tackled by policies aimed at controlling and reducing inputs of nutrients.
(ACTION: DOE, DARD)
- 5.1.5** Ensure that any future revision of agri-environment schemes and MOSS schemes includes, where appropriate, the habitat requirements of the Irish damselfly and the potential for habitat restoration.
(ACTION: DARD, EHS)

- 5.1.6 Ensure positive management of sites containing Irish damselfly through agri-environment schemes, MOSS schemes, LBAPs and grant aid for biodiversity.
(ACTION: EHS, DARD)

5.2 Site Safeguard & Management

- 5.2.1 Safeguard Irish damselfly sites against direct threats through planning controls and other consultation procedures.
(ACTION: Planning Service, EHS)
- 5.2.2 By 2007, consider the designation of additional ASSIs for Irish damselfly.
(ACTION: EHS)
- 5.2.3 By 2007, establish criteria for describing and assessing favourable condition of Irish damselfly habitat.
(ACTION: EHS)
- 5.2.4 By 2010, ensure that all current and historical sites with Irish damselfly colonies meet the criteria for favourable condition.
(ACTION: EHS, DRD)
- 5.2.5 By 2008, produce conservation objectives for all statutory designated SAC, ASSI and NR sites where colonies of Irish damselfly are known to be present ensuring that where possible the objectives do not conflict with the requirements of Irish Damselfly.
(ACTION: EHS)
- 5.2.6 By 2008, establish and implement management plans for all sites with current populations of Irish damselfly and encourage the sensitive management of potential sites for colonisation/re-colonisation.
(ACTION: EHS, DARD)
- 5.2.7 Encourage the sympathetic management of all occupied and nearby sites. Ensure as far as possible that all sites do not suffer from extremes of water levels, grazing pressures or sources of pollution.
(ACTION: EHS, DARD)
- 5.2.8 Encourage appropriate management of entire catchment areas in order to retain water quality.
(ACTION: EHS, DARD, District Councils)

5.3 Species Management & Protection

- 5.3.1 By 2010, ensure that all known sites are managed in a manner that is beneficial to the conservation of the Irish damselfly.
(ACTION: EHS, DARD, DRD, District Councils)

5.4 Advisory

- 5.4.1 By 2008, produce advisory leaflets highlighting the conservation issues surrounding the Irish damselfly, including optimum habitat requirements.
(ACTION: EHS)
- 5.4.2 Ensure that this information is available to all those who could play a role in its conservation and recovery.
(ACTION: EHS)
- 5.4.3 Advise conservation agencies, agri-environment scheme staff, land owners and managers on the location of occupied and other suitable sites and on management requirements for the Irish damselfly and how to incorporate this with other management priorities and interests.
(ACTION: EHS, DARD)
- 5.4.4 Ensure the conservation importance and management requirements of the Irish damselfly are incorporated into any relevant national and LBAPs.
(ACTION: EHS, District Councils)

5.5 International

- 5.5.1 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 & Monitoring

- 5.6.1 Monitor existing colonies of Irish damselfly in order to measure year on year variations in population size, to determine any change in status, to ensure that habitat is in favourable condition and to identify any further threats to the species.
(ACTION: EHS)
- 5.6.2 Collate transect data annually and calculate annual index of abundance to compare trends on individual sites.
(ACTION: EHS)
- 5.6.3 Monitor historical sites with the potential for re-colonisation to look for new populations.
(ACTION: EHS)
- 5.6.4 By 2008, identify potential for new Irish damselfly sites within 10 km of existing sites.
(ACTION: EHS)

- 5.6.5 By 2009, conduct research into the biology, ecology, genetics and population dynamics of the Irish damselfly.
(ACTION: EHS)

5.7 Communications & Publicity

- 5.7.1 Publicise this action plan to raise awareness of the Irish damselfly and the importance of its conservation management.
(ACTION: EHS, DARD, District Councils)
- 5.7.2 Promote greater awareness of the Irish damselfly amongst landowners, managers and the general public to help achieve its conservation and recovery.
(ACTION: EHS, DARD, District Councils)
- 5.7.3 Consider promoting the Irish damselfly as a high profile flagship species to promote biodiversity, to raise the profile of the dragonflies and damselflies, to encourage a wider interest in wetland conservation and to promote awareness of the importance of wetland habitats to species conservation.
(ACTION: EHS)

6 Links with Other Plans

- 6.1 It is likely that the implementation of this plan will also benefit the Northern Ireland populations of the following species:
- Otter *Lutra lutra*
 - White-clawed crayfish *Austropotamobius pallipes*
 - Marsh fritillary *Euphydryas aurinia*
- 6.2 This plan should be considered in conjunction with the following UK and Northern Ireland Habitat Action Plans:
- Mesotrophic Lakes
 - Fens
- 6.3 There may be additional links with species and habitats listed in the Northern Ireland Biodiversity Strategy.

7 Key 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
CMB	Countryside Management Branch
CMS	Countryside Management Scheme
DARD	Department of Agricultural and Rural Development
DCAL	Department of Culture, Arts and Leisure
DETI	Department of Enterprise, Trade and Investment
DENI	Department of Education for Northern Ireland
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
FCB	Fisheries Conservancy Board
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 Action Group
NICS	Northern Ireland Countryside Survey
NNR	National Nature Reserves
NT	National Trust
PPS	Planning Policy Statement
RA	Rivers Agency
RSPB	Royal Society for the Protection of Birds
SAC	Special Area of Conservation
SAP	Species Action Plan
SLNCI	Site of Local Nature Conservation Importance
SoCC	Species of Conservation Concern
SPA	Special Protection Area
UWT	Ulster Wildlife Trust
WFD	Water Framework Directive
WWT	Wildfowl and Wetlands Trust



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