

Environment & Heritage Service

# Northern Ireland Species Action Plan

## Barn Owl

*Tyto alba*

March 2006

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**1. Current status**

- 1.1** The barn owl *Tyto alba* is an instantly recognizable white owl and is characteristic of lowland mixed farmland in Britain and Ireland where it feeds on small mammals found in rough grassland along field margins, roadways, riverbanks, woodland edge and around farm buildings.
- 1.2** It is generally found on farmland below 300m where it nests inside used and disused buildings, mature hollow trees and rock crevices. In Northern Ireland its diet consists mainly of mice, shrews and young rats. Further south, in the Republic of Ireland, they also feed on the introduced bank vole, which is currently absent from Northern Ireland. Barn owls can also feed on frogs when available, along with small birds and occasionally supplement their diet in winter with large beetles.
- 1.3** Local populations can often be enhanced considerably through changes in habitat management combined with the provision of suitable nest sites. There is considerable potential to increase the barn owl population in Northern Ireland and throughout the island of Ireland by enhancing lowland farmland habitat.
- 1.4** The barn owl is one of the most widely distributed land birds in the world. In Northern Ireland it is on the northern edge of its global range. Throughout Britain and Ireland in the 19th Century it was relatively common in lowland agricultural habitats. However, since the 1930s it has been in serious decline across Britain and Ireland. The lack of any past numerical data for Ireland makes the extent of this decline difficult to determine but the barn owl population is thought to have more than halved in Northern Ireland and throughout Ireland in line with the declines in Great Britain - 69% between 1932 and 1985. There were 600 - 900 pairs in Ireland and less than 50 pairs in Northern Ireland in 1985 (from an estimate of 250 pairs in 1932) (Shawyer, 1994). The Northern Ireland population is now estimated to be between 45 - 55 pairs and remains fragile and fragmented, (Shawyer *et al.*, 1997; Shawyer, 1987; Toms *et al.*, 2000 and Shawyer, 1998). Current county by county estimates include 0 - 15 pairs in county Londonderry, 10 - 15 pairs in Down, 10 pairs in county Antrim, 10 - 15 pairs in counties Tyrone/Fermanagh, and 5 - 10 pairs in county Armagh (Gordon *et al.*, (2001)).
- 1.5** Since the 1950s it has continued to decline throughout much of its European range. The main strongholds are Spain, France, Germany, Italy and the UK. The current European population estimate is 110,000 to 220,000 with between 5 - 24% of the global population in Europe and a European breeding range of 3 million square kilometres (Burfield & van Bommel, 2004).
- 1.6** In the 50 years between 1932 and 1982 the barn owl population of the British Isles fell by 70%. However, by 1997, Project Barn Owl revealed that the population of Britain

and Ireland had stabilised at about 5,000 pairs (4000 in Great Britain and 1000 in Ireland), (Shawyer, 1994).

- 1.7 The barn owl is protected under the Schedule 1, Article 4 of the *Wildlife (Northern Ireland) Order 1985*. It is also Amber listed in Birds of Conservation Concern in the UK, Channel Islands and Isle of Man, and Red listed in Birds of Conservation Concern in Ireland. In addition, the barn owl is also listed in Table 4 in Birds of Conservation Importance (JNCC, 1996). The barn owl is included in Red Data Birds in Britain, (Batten *et al.*, 1990). It is listed as a Northern Ireland Priority Species under the Northern Ireland Biodiversity Strategy.
- 1.8 The barn owl is listed as a Species of European Conservation Concern (Category 3), having an unfavorable conservation status in Europe but not concentrated in Europe. It is listed under Appendix III of the Berne Convention, CITES Appendix 1 and European threat status D (Burfield & van Bommel, 2004).
- 1.9 *Planning Policy Statement (PPS) 2 - Planning and Nature Conservation* (Paragraph 68) refers to protection of species. This states "the presence of a species protected under the Wildlife Order is material to the consideration of a development proposal, which if carried out would be likely to result in harm to the species or its habitat and, in particular, to places used for shelter or protection." Further comments refer to conditions that may be stipulated to secure the protection of the species, and the need for developers to conform with any statutory protection measures affecting the site concerned.
- 1.10 *The Conservation (Natural Habitats, etc) Regulations (Northern Ireland) 1995* recognises that linear features (of which rough grass field margins should be considered) are essential for the migration, dispersal and genetic exchange of wild species.

## 2. Current factors affecting the population

- 2.1 Agricultural intensification - is thought to have been the major factor responsible for the decline of the barn owl. Factors have included a reduction in the area of rough grassland, a switch from hay to silage and loss of mixed farming, hedgerows and field headlands. In addition, grain would have been stored in lofts; consequently traditional farmyards may have attracted more mice & rats. Being sedentary, barn owls require suitable habitat within their home range throughout the year. However, since young birds generally disperse up to about 20 km, wider colonisation is likely to occur in time unless populations are severely fragmented. Although undoubtedly less than before, the number of suitable unused and secluded farm buildings that still exist in certain areas would suggest that if the required feeding habitat was available, barn owls would have an adequate supply of sites in which to nest and roost.
- 2.2 Biology & population size - low productivity, food availability and an already small population size are the main constraints of the barn owl population in Northern Ireland. The average life span of an adult is 5 years (Shawyer, 1994), and the populations can be subject to marked annual fluctuations related to natural causes such as incidence of winter snow cover, periods of heavy or continuous rainfall and

flooding (all of which can affect food availability). In turn, lack of available food reduces breeding productivity.

- 2.3** Loss of habitat - threats to the population in the long-term include the loss of suitable hunting and breeding habitat. These areas include, rough grassland field margins alongside rivers, woodland and around field edges. Where barn owls are dependant on linear grasslands, a breeding pair will require at least 15 km of 5 metre wide field margin along river bank, woodland edge and field edge within a 3 km radius of the nest site (Shawyer, 1994).
- 2.4** Loss of nest sites - the demolition of old farm buildings and barn conversions removes available nesting opportunities. The blocking of entrances to church towers, barns and other buildings, usually to exclude pigeons and jackdaws, can also reduce the availability of such buildings as roost and nest sites. Northern Ireland has lost many of its more mature farmland trees through Dutch Elm disease and the storms of 1987, 1991 and 2000. This has led to a reduced availability of large tree cavities and the loss of long-established nest sites.
- 2.5** Roads - barn owls are killed annually on the roads throughout Northern Ireland. Although there are no data available on the extent of this, it is thought that this represents a significant toll on the breeding population in some areas. Studies in Great Britain have shown that casualties tend to be concentrated in specific localities or "accident black spots", such as where roads cross river valleys and areas where birds cross to follow linear habitats. Road deaths may be an important factor in limiting the population and may also account for the absence of barn owls in localised areas of otherwise favorable habitat.
- 2.6** Rodenticides - the widespread use of second generation anticoagulant rodenticides is currently of concern, particularly difenacoum, bromadiolone, flocoumafen and brodifacoum. Research has shown that a significant proportion of barn owls contain measurable levels of these rodenticides in their tissues, having risen from 5% of the population in 1983-4 to 38% in 1995-6. Barn owls either die slowly, or survive and carry a residue in their bodies. Typically it takes 6-17 days for a barn owl to die after eating three mice containing Brodifacoum. Unfortunately not enough research has been carried out on the effects of a sub-lethal dose of rodenticide on wild barn owls. It is probable that such a dose could affect hunting efficiency and breeding success (Newton *et al.*, 1999).
- 2.7** Weather conditions - any long term increase in snowfall could have a big impact through increased winter mortality due to difficulties with hunting and longer periods hunting inside farm buildings where they may be susceptible to poisoning. Localised conditions, such as winter flooding, can have devastating effects. Widespread flooding of fields can result in the drowning of large communities of small mammals with severe consequences for barn owls.
- 2.8** Other hazards - farmland water troughs can provide convenient bathing sites for barn owls. However, if they fall in their soft plumage waterlogs very quickly and can lead to drowning. Birds which are killed flying into overhead wires and fence wires, represents about 5% of all mortality (Shawyer, 1998).

### **3. Current Action**

- 3.1** The Management of Sensitive Sites Scheme (MOSS), launched in 2002 by Environment and Heritage Service (EHS), is a voluntary scheme designed to ensure the positive management of ASSI features to maintain their extent and favourable condition. Under the scheme, landowners can receive payment for carrying out conservation work within the framework of a written agreement. MOSS covers issues such as dumping, grazing and control of invasive species.
- 3.2** In 2000, the Northern Ireland Biodiversity Group (NIBG) produced its recommendations to Government (NIBG, 2000). These recommendations were 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 barn owl.
- 3.3** Department of Agriculture and Rural Development (DARD), through its Countryside Management Branch (CMB), has developed a series of agri-environment schemes including the Environmentally Sensitive Area (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 are currently in agri-environment schemes in Northern Ireland, approaching a quarter of the total agricultural land in the Province. A sample of habitats is under long-term monitoring by QUB's Agri-environment Monitoring Unit (QUB, 2004b).
- 3.4** Under current management prescriptions for CMS/ESA, drainage and reseedling of all uncultivated/semi-natural ground is not permitted. Both schemes contain management prescriptions likely to be of benefit to barn owl and include: ungrazed field margins; ungrazed margins along watercourses; ungrazed margins planted with native trees; rough grass field margins; restoration of field boundaries; and woodland management. Arable options include retention of winter stubble and provision of wild bird cover, primarily for farmland seed-eating birds.
- 3.5** Under Cross Compliance farmers in receipt of Single Farm Payment are required to keep their land in Good Agricultural and Environmental Condition. This includes the maintenance of semi-natural areas through the prevention of overgrazing, undergrazing, poaching, infilling and supplementary feeding. In addition, the removal of field boundaries is not permitted except by prior written permission from DARD.
- 3.6** DARD and the Royal Society for the Protection of Birds (RSPB) jointly employ an Agri-Environment Project Officer to contribute to the effective delivery of agri-environment prescriptions for key species, including barn owl.

- 3.7** RSPB currently employs a Priority Bird Species Officer, whose main role is to contribute to the effective delivery of the conservation of priority species which includes barn owl. This is undertaken through close working with local biodiversity officers and the implementation of conservation actions, carried out at a local scale through a Local Biodiversity Action Plan (LBAP).
- 3.8** 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.
- 3.9** *PPS14 Sustainable Development in the Countryside* is due to be published by Regional Planning and Transport Division (RPTD) of the Department of Regional Development (DRD) by the end of 2006.
- 3.10** Local biodiversity officers across Northern Ireland are writing and implementing a LBAP within their council boundaries. Those areas in which the barn owl is a prominent bird may select it as a flagship species and carry out some additional awareness raising, publicity or practical conservation work for the species.
- 3.11** Artificial nest boxes have been erected by the Ulster Wildlife Trust and by the Northern Ireland Ornithologists Club.
- 3.12** The Ulster Wildlife Trust has acquired a species-rich grassland nature reserve at Slievenacloy ASSI which will be managed for the benefit of barn owls.
- 3.13** The Ulster Wildlife Trust is carrying out a survey and collating sightings to identify population ‘hot spots’, with a view to targeting farmland areas where barn owls are known to be present, to encourage individual farmers and land managers to create feeding and breeding habitats that assist with the natural expansion of the population.
- 3.14** RSPB Northern Ireland and DARD have produced advisory sheets for the barn owl.
- 3.15** 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.

**3.16** In 1992 the RSPB and the Joint Nature Conservancy Committee (JNCC) produced a National Action Plan for the Barn Owl (RSPB/JNCC (1992) with the following objectives:

- i) In the short term, to maintain the present range and numbers of Barn Owl throughout the UK, Isle of Man and Channel Isles, recognising that its distribution is limited by altitude and latitude.
- ii) In the medium term, to seek a substantial increase (by at least one half in the next 20 years) in the population of the Barn Owl (making allowance for any short-term fluctuations in population), and re-establishment of its former widespread breeding distribution (as shown in Sharrock, 1976).

#### **4. Action Plan Targets**

- 4.1** Maintain the existing population at an estimated 45-55 pairs
- 4.2** Maintain the range of the breeding barn owl at 20 10 x 10km squares.
- 4.3** By 2010 increase the Northern Ireland breeding barn owl population to 70 pairs
- 4.4** By 2015 increase the Northern Ireland breeding barn owl population size to 90 pairs.
- 4.5** By 2015 restore range to 30 10 x 10 km squares (Gibbons *et al.*, 1993).

#### **5. Proposed Action with lead agencies**

##### **5.1 Policy and legislation**

- 5.1.1 By 2006, seek to encourage positive environmental change through the reformed Common Agricultural Policy (CAP), for example, by promoting sustainable agricultural management of rough grass field margin.  
(ACTION: DARD, EHS)
- 5.1.2 By 2008, target positive management through MOSS, agri-environment schemes, the LBAP process and grant aid for biodiversity to secure favourable management on suitable barn owl sites.  
(ACTION: EHS, DARD)
- 5.1.3 By 2007, ensure that agri-environment scheme prescriptions relevant/appropriate to barn owl are contributing to maintaining and enhancing the population across Northern Ireland.  
(ACTION: DARD, EHS)
- 5.1.4 By 2006, ensure that all farmers receiving agri-environment scheme payments and LFA Compensatory Allowance Payments are complying with GFP.  
(ACTION: DARD, EHS)

- 5.1.5 Ensure implementation of Good Agriculture and Environmental Condition (GAEC), to preserve the suitability and good condition of certain sites for barn owl.  
(ACTION: DARD)
- 5.1.6 Review *Planning Policy Statement 2 (PPS2) – Planning and Nature Conservation*, to include policies relating to priority habitat and species.  
(ACTION: Planning Service, EHS)
- 5.1.7 Ensure that important barn owl habitats and their conservation management requirements are recognised and site protection policies are included in statutory and non-statutory plans e.g. Development Plans, Local Biodiversity Action Plans (LBAP's) and appropriate management strategies.  
(ACTION: Planning Service, EHS, DARD, District Councils)

## **5.2 Site Safeguard**

- 5.2.1 By 2006, produce ornithological selection criteria for ASSIs.  
(ACTION: EHS)
- 5.2.2 By 2006, produce conservation objectives for all statutory sites including cSACs, ASSIs and NNRs ensuring that where possible the objectives do not conflict with the requirements of barn owl.  
(ACTION: EHS)
- 5.2.3 By 2008, review breeding barn owl sites within SPA, ASSI and NNR series and notify other sites where appropriate.  
(ACTION: EHS)
- 5.2.4 By 2007, establish agreements with landowners, where possible for the positive management of areas important for breeding barn owl within ASSIs through the MOSS scheme.  
(ACTION: EHS)
- 5.2.5 By 2007, ensure that the CMS/ESA measures particularly relevant to barn owl are carefully targeted at key barn owl areas.  
(ACTION: DARD)
- 5.2.6 By 2007, where appropriate, enhance management of relevant Nature Reserves/National Nature Reserves for breeding barn owl.  
(ACTION: EHS, District Councils)
- 5.2.7 By 2007, consider the development of new agri-environment measures to benefit barn owl e.g. management of linear grassland habitats as a priority, if there is to be a review of agri-environment schemes under the new Rural Development Programme (2007-2013).  
(ACTION: DARD)



### **5.3 Species Management and Protection**

- 5.3.1 By 2008 initiate a programme of habitat restoration and management along river banks, field edges and woodland edges to create corridors that assist expansion of the barn owl population.  
(ACTION: EHS, DARD, Rivers Agency)
- 5.3.2 Increase the provision of nesting/roosting sites through artificial nest boxes and built-in lofts in refurbished farm buildings.  
(ACTION: EHS, DARD)
- 5.3.3 Encourage farmers to assist barn owls in winter by providing supplementary feeding in the form of dumps of grain or root crops in derelict buildings or in field corners frequented by barn owls, to attract mice.  
(ACTION: EHS, DARD)
- 5.3.4 Encourage farmers to reduce the use of 2<sup>nd</sup> generation rodenticides, used to kill rats and mice around farmyards, as these are toxic to barn owls. Where rats are not resistant, encourage farmers to use warfarin which has a lower toxicity to barn owls.  
(ACTION: DARD, EHS)
- 5.3.5 For those areas identified as road fatality hotspots, consider any changes to the road environment which may have a mitigating effect.  
(ACTION: EHS, Roads Service)

### **5.4 Advisory**

- 5.4.1 By 2007, produce management guidelines and identify optimum habitat requirements for the barn owl.  
(ACTION: EHS)
- 5.4.2 By 2007, ensure that those responsible for implementing and supporting agri-environment schemes and MOSS agreements continue to receive effective training and up-to-date advice on appropriate land management practices which benefit breeding barn owl.  
(ACTION: EHS, DARD)
- 5.4.3 By 2007, ensure that farmers and landowners are aware of the presence of barn owl on their land and mechanisms available to instigate appropriate management.  
(ACTION: EHS, DARD)
- 5.4.4 By 2007, ensure that information on barn owl in Northern Ireland is available to all those who could play a role in their conservation and recovery.  
(ACTION: EHS, DARD)
- 5.4.5 By 2007, through LBAPs and agri-environment schemes, promote positive management on suitable sites to bring habitat into optimum condition for barn owls.  
(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 Maintain a database of barn owl sightings to determine the location of potential territories and ensure this is stored at CEDaR.  
(ACTION: EHS)
- 5.6.2 By 2008, establish a comprehensive research and monitoring programme to identify the location of roosts, nest sites and hunting territories.  
(ACTION: EHS)
- 5.6.3 By 2007, carry out a Northern Ireland survey to determine the level of available habitat and the distribution and number of birds/breeding pairs.  
(ACTION: EHS, DARD)
- 5.6.4 By 2008, research the diet of the Northern Ireland barn owl by locating roost/nest sites and collecting and analysing pellets.  
(ACTION: EHS)
- 5.6.5 By 2008, establish a monitoring programme of all known nest sites to assess the breeding success of the species.  
(ACTION: EHS)
- 5.6.6 By 2008, establish a nest box/nest site ringing scheme to determine the mortality rates of the species and to monitor dispersal and establish territory size.  
(ACTION: EHS)
- 5.6.7 By 2007, monitor and review the effectiveness of agri-environment schemes, in maintaining and enhancing barn owl habitats and populations across Northern Ireland.  
(ACTION: DARD, EHS)
- 5.6.8 By 2010, determine the degree of usage of rodenticides and consider any potential impacts on barn owls.  
(ACTION: EHS)

## **5.7 Communications and publicity**

- 5.7.1 By 2006, raise awareness of the reasons for barn owl declines throughout Northern Ireland.  
(ACTION EHS, DARD)

- 5.7.2 By 2006, ensure the provision of high quality advisory materials to landowners and seek opportunities to promote and publicise mechanisms for delivering positive management.  
(ACTION EHS, DARD)

## 5.8 Links with other action plans

- 5.8.1 It is likely that the implementation of this plan will also benefit the Northern Ireland population of the following UK and/or Northern Ireland priority species:

- Irish hare *Lepus timidus hibernicus*
- skylark *Alauda arvensis*
- corncrake *Crex crex*
- bat species
- yellowhammer *Emberiza citrinella*
- tree sparrow *Passer montanus*
- short-eared owl *Asio flammeus*

- 5.8.2 This plan should be considered in conjunction with the following UK and Northern Ireland Habitat Action Plans:

- Species-rich hedgerows
- Lowland Meadows
- Coastal and floodplain grazing marsh
- Lowland dry acid grassland
- Parkland
- Wet Woodland
- Upland Mixed Ashwoods
- Upland Oakwoods

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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
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
NIBG	Northern Ireland Biodiversity Group
NICS	Northern Ireland Countryside Survey
NNR	National Nature Reserve
PPG	Planning Policy Guideline
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	Sites 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