

Species Profile

UK Biodiversity Status:

Mammal Society, Game Conservancy Trust.

UK Lead Partners:

Scottish Executive, RSPB

UK Champion:

Shanks

Relevant Habitat Action Plans:

Farmland, Grassland.

Statutory Protection:

Offered limited protection under the Game Acts in that hares may not be sold between 1 March and 31 July



Brown Hare (*Lepus europaeus*)

Current Status

Brown hares are not native to Britain but are thought to have been introduced by the Romans. They are widely distributed across lowland Britain, being replaced in the uplands by the related mountain hare (*Lepus timidus*). This pattern is seen in Ayrshire although brown hares do penetrate into the margins of the uplands in the east of the county.

Brown hares are a fairly common sight in Ayrshire although often only a few are seen at a time. This makes it difficult to estimate the abundance of the species and since no previous work has looked at hares in the area, it is not possible to say whether or not their numbers have changed significantly. Anecdotal evidence suggests a decline and this is the case in Britain as a whole. The 1980s and 1990s have seen a downturn in both their distribution and their numbers with 70% of counties recording decreases.

Ecology and Management

Hares are typically farmland animals although they can on occasions be found in woodland where they may rest during the day. Previous studies suggest a preference for arable fields but they are more abundant where more mixed farming is practised. In summer, grass fields provide the best feeding when cereals have grown too high to be grazed as high livestock densities can deter hares.

Breeding may occur throughout the year but there is a peak of display behaviour in the spring when 'mad' March hares are most obvious and this is followed by the largest litter sizes. Between one and four young are born at a time but three is the most common number.

Species Action Plan Objectives

Main Objective

Maintain and enhance the population and distribution of the brown hare in Ayrshire.

Work Objectives

Objective 1

Establish the distribution and population of the species.

Targets

Develop a methodology for monitoring the distribution of hares in Ayrshire by 2002;

Complete monitoring and develop an index of relative abundance by 2005.

Objective 2

Raise awareness of the benefits of mixed farming and 'hare-friendly' mowing amongst the farming community

Target

Publicise the habitat needs of hares in farming newsletters and at meetings.

With a life expectancy of little over a year there is a rapid turnover in the population and in areas where hare shooting is heavy in late winter, the spring population can be reduced by up to 50%. The oldest recorded wild hare was 12.5 years old but few normally live beyond 3 or 4 years.

Although generally thought of rather solitary animals they can aggregate into groups and at times several may be seen in one field. Numbers are never very high and, in general, hares cause little agricultural damage although young trees may be 'barked' in hard winters. Hare shooting is therefore generally for sport rather than for pest control.

Biodiversity Context

The UK Action Plan for the brown hare has the following objective:

- Maintain and expand existing populations, doubling spring numbers in Britain by 2010.

Current Factors Causing Loss or Decline

Two national hare surveys have been carried out at the beginning and end of the 1990s and these clearly indicated a continuing decline. This is generally blamed on changes in agricultural practice although the actual factors are more difficult to determine. A simplification of farmland habitats, the increased use of agri-chemicals, an increase in silage cutting and greater mechanisation have all been identified as potential causes but they are difficult to quantify individually. Hares are also frequently killed on the road but this is unlikely to be significant. It seems likely that a combination of anthropogenic factors have contributed to the decline but natural causes such as fox predation may also have played a part.

The national SAP for the brown hare highlights the importance of encouraging mixed farming as a significant element in conserving the species. Although this was mentioned particularly in relation to increasingly intensive

arable farming in some parts of the country it also has some application to dairy farming where the arable element is declining.

Opportunities and Current Action

Hares are regarded as a flagship species for farmland since they are fairly easily seen and are popular animals. More importantly however, they can be looked on as an indicator of the overall environmental quality of farmland and any significant decline in distribution or numbers suggests that remedial action may be necessary. Hares are currently widely distributed in Ayrshire with recent records from virtually every area and although there is insufficient evidence to estimate numbers or densities there are suggestions that there are fewer than there were.

In Ayrshire the two most important elements in maintaining hare numbers would appear to be the continuation of some arable farming, particularly with spring-sown crops (which would also greatly benefit other farmland species), and the adoption of 'hare-friendly' cutting techniques for silage or hay. The first of these provides the diversity of farmland habitats which hares prefer and the second would help to reduce mortality to both adults and young by allowing them to get out of the field more easily.

References

- Corbet, G.B. and Harris, S. (eds.) (1991), *The Handbook of British Mammals*. Blackwell, Oxford.
- Harris, S., Morris, P., Wray, S. and Yalden, D. (1995), *A Review of British Mammals*. JNCC, Peterborough.
- Morris, P. (1993), *A Red Data Book for British Mammals*. The Mammal Society, London.
- UK Biodiversity Steering Group, (1995), *Brown Hare in Biodiversity: The UK Steering Group Report, Volume 2: Action Plans*. HMSO, London.

ACTIONS Brown Hare	POTENTIAL DELIVERERS		YEAR (TO BE COMPLETED OR IN PLACE BY)					
	lead	partners	2001	2002	2003	2004	2005	2010
Policy and Legislation								
Review uptake of relevant agri-environment options.	SAC	SERAD FWAG	•	•	•	•	•	•
Advisory								
Promote farming practices that benefit hares.	SAC	SERAD FWAG	•	•	•	•	•	•
Research and Monitoring								
Prepare a methodology for monitoring hare numbers.	SAC			•				
Monitor hare numbers.	SAC	FWAG SNH NFU		•	•	•	•	•
Monitor the delivery of the plan yearly and in detail every 5 years, starting in 2002.	ABG			•	•	•	•	•
Communications and Publicity								
Provide an annual update on hare populations for farmers.	SAC			•	•	•	•	•

Species Profile

UK Biodiversity Status:
Priority Species.

UK Lead Partners:
Scottish Executive, RSPB

UK Champion:
Shanks

Relevant Habitat Action Plans:
Farmland.

Statutory Protection:
Protected under Appendix II of Bern Convention, Annex I of EC Birds Directive and the Wildlife & Countryside Act 1981.



Corncrake (Crex crex)

Current Status

Corncrakes are both secretive and skulking in their habits and migrate from SE Africa to breed in Britain during the summer. They are a small bird, slightly smaller than a moorhen, and in the same family which also includes coots and rails.

Over the past 100 years, the corncrake has shown a sustained decline in numbers in the UK and a contraction in range.

By 1940 corncrakes were only found in large numbers in the Hebrides and Northern Isles of Scotland; other parts of mainland Scotland and northern England held small populations. In the early 1970s there were only 3,250 calling males, falling to 478 by 1993. The current estimated number of singing males is 620 (1999). Over 90% of calling males are located in the Hebrides with the remainder mainly in Orkney. There are very few in England and Wales, and in recent years, few calling males in Northern Ireland.

The corncrake is globally threatened and listed on Appendix II of the Bern Convention and Annex I of the EC Birds Directive. It is fully protected under Schedule I of the Wildlife & Countryside Act (1981). It is also included as a red list species within birds of high conservation concern which is based on declines in the last 25 years, historical decline and identification as a species of global conservation concern.

Each year, a number of these migratory birds are reported as they pass through S W Scotland. In Ayrshire they were once widespread and generally common in all agricultural areas with hay meadows, and the last large population on the mainland was probably in the Stinchar Valley area in the mid 1970s. The 1978/79 survey of corncrake identified a

Species Action Plan Objectives

Main Objective

Increase availability of habitat suitable for corncrake re-establishment throughout Ayrshire.

Work Objectives

Objective 1

Confirm current status of corncrakes in Ayrshire.

Target

Undertake annual census.

Objective 2

Raise awareness of the corncrake and its management requirements.

Targets

Produce and distribute advice leaflets for farmers by 2002;

Secure positive management within at least one potential/actual location by 2002.

maximum of 11 calling birds in mainland Ayrshire, and 3 birds on Arran; by the 1988 survey only 1 calling bird was recorded on the mainland whilst Arran seemed to continue to hold 3 in the Shiskine valley area. The more recent 1998 survey did not record any birds.

The New Atlas of Breeding Birds 1988-1991 shows confirmed breeding during this period in South Ayrshire in two 10km squares only, and one 10km square showing presence of a bird/s. The previous atlas (1968-72) shows possible, probable or confirmed breeding throughout Ayrshire (including Arran), but no records within these 10km squares in the 1988-91 survey. This initial atlas already identified severe declines in the species.

However, more casual records have identified birds calling throughout areas in Ayrshire, and each year confirmed singing is heard in areas on mainland Ayrshire and Arran.

Ecology and Management

The corncrake is a species principally associated with traditional hay meadows, such as found on the Hebridean machair, but live on farmed grassland where mowing or grazing provide the right kind of vegetation.

The most important habitat requirement is early cover to give corncrake 20cm high vegetation in which to skulk. Arriving back in April, there is often little of this available to them because of grazing and winter weather; the small patches of nettle, yellow flag iris and umbellifer species offer vital refuge. Once the hay or silage has grown, corncrake move into these fields, often to have a second brood of young. Later on, when the hay or silage is cut, corncrake again rely on small areas of ungrazed or unmown vegetation.

Corncrakes feed on a wide range of small animals including earthworms, beetles, slugs and snails during the breeding season. As a territorial bird, the loud rasping call the male makes is to attract any passing female birds. Once he has attracted a female, while mating takes place the male sings less frequently. Once the eggs are laid (from 8 to 12) the male starts to sing for a new female; most females lay two clutches in a small saucer sized nest on the ground in dense vegetation.

As a short-lived bird (usually only 12-18 months) it is important that large numbers of young are produced each year. Estimates show that females must rear 5 chicks each year to keep the population stable. Most of the young return to the area they were hatched, but it is unlikely that males heard singing the following year are the same bird returning.

Biodiversity Context

The UK Action Plan for corncrake has the following objectives:

- Halt the decline in UK corncrake population and range;
- Maintain numbers of corncrake in the UK at or above the 1993 level (478 singing males);
- Maintain the range of corncrake in the UK at or above the 1993 level (82 occupied 10km squares);
- By 1998 increase the range of corncrake in Britain to at least the same number of 10km squares occupied in 1988 (90 squares);
- In the longer-term, re-establish corncrake in parts of its former range in the UK.

Current Factors Causing Loss or Decline

The main factors known to have contributed to the decline of corncrake include:

- Loss of traditional grassland habitat mosaics, especially suitable tall vegetation throughout the breeding season;
- Changes in grass management and cutting techniques (earlier cutting);
- Predation and disturbance may contribute to the decline in some areas.

Opportunities and Current Action

- Approximately 10% of the British corncrake population is protected on RSPB reserves;
- Agri-environment schemes can offer habitat improvements and creation as part of a wide environmental plan;
- Where an agri-environment scheme is not possible, a grant scheme funded by RSPB, SNH and Scottish Crofters Union can provide incentives for corncrake-friendly grass cutting and management;
- The future Rural Stewardship Scheme is hoped to contain specific corncrake habitat management prescriptions.

ACTIONS Corncrake	POTENTIAL DELIVERERS		YEAR (TO BE COMPLETED OR IN PLACE BY)					
	lead	partners	2001	2002	2003	2004	2005	2010
Policy and Legislation								
Support and promote the uptake of corncrake grant schemes where birds are confirmed to exist.	SERAD	RSPB FWAG SAC	.	.	.	.	.	.
Support and promote the uptake of agri-environment agreements and review the effectiveness of existing and new schemes for this species. Seek to improve where necessary.	SERAD SNH	RSPB FWAG SAC	.	.	.	.	.	.
Site and Species Safeguard and Management								
Seek to secure favourable management on all suitable land where corncrake have been recorded in past 30 years.	SERAD SNH	FWAG SAC SWT	.	.	.	.	.	.
Seek to reduce damage to nests and mortality of adults and young from mowing operations by promoting corncrake-friendly techniques.	SNH SERAD	FWAG SAC RSPB	.	.	.	.	.	.
Ensure farmers are advised of risks to species from predation by domestic cats, and support local mink and ferret control, preventing their spread to new areas.	SNH SERAD	FWAG SAC RSPB	.	.	.	.	.	.
Advisory								
Provide advice to agricultural advisors and all those managing corncrake areas on corncrake-friendly cutting methods and other beneficial management practices.	RSPB SNH	SERAD FWAG SAC SWT	.	.	.	.	.	.
Provide advice on corncrake-friendly management techniques to agricultural colleges to aid their inclusion in land management courses.	RSPB SNH	SAC	.	.	.	.	.	.
Research and Monitoring								
Confirm and record all corncrake reports in Ayrshire and Arran.	RSPB SOC	FWAG SAC SNH SERAD SWT	.	.	.	.	.	.
Build database of key areas with ideal habitat linked to agri-environment schemes.	RSPB	SERAD FWAG SAC	.	.	.	.	.	.
Annually monitor key sites, including habitat surveys.		All	.	.	.	.	.	.
Pass information gathered during survey to be incorporated into national database and linked to national surveys.	SNH	All	.	.	.	.	.	.
Monitor the delivery of the plan yearly and in detail every 5 years, starting in 2002.	ABG		.	.	.	.	.	.
Communications and Publicity								
Publicly promote the corncrake as a species in need of conservation assistance using press releases, articles, newsletters, talks etc.		RSPB FWAG SNH SAC SWT	.	.	.	.	.	.
Encourage the public to listen for and report corncrake during the main season.	RSPB	all	.	.	.	.	.	.
Consider carefully controlled green tourism opportunities based on this species.	SNH Tourist Board	

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Species Profile

UK Biodiversity Status:

Conservation Concern.

Ayrshire Status:

More breeding hen harrier here than in any other LBAP area in the UK. Ayrshire is internationally important for the conservation of this species.

Relevant Habitat Action Plans:

Upland Heath, Blanket Bog, Acid Grassland, Planted Coniferous Woodland, Fen, Carr, Marsh, Swamp and Reedbed, Coastal Saltmarsh, Sand Dune.

Statutory Protection:

Special protection under Annex 1 of the EC Birds Directive, Appendix II of the Bern Convention, Schedule 1 of the Wildlife and Countryside Act 1981.



Hen Harrier (Circus cyaneus)

Current Status

The hen harrier is still struggling to recover from the major reduction in its range it suffered earlier last century and in the 1800s as a result of widespread and ruthless persecution. At one time, it became extinct as a breeding species in Ayrshire and the rest of the mainland, being largely restricted to Orkney and the Hebrides. Since 1950, as a result of land-use change and less widespread persecution, hen harriers have returned to many former haunts. Their recovery is however, far from complete. Persecution continues to restrict harrier numbers and distribution. It drastically reduces the overall breeding success of the species in the region each year.

Given that the hen harrier still has unfavourable conservation status in the UK (and also in Europe), it is afforded very high statutory protection. It is also a priority species for conservation action.

The stronghold of hen harrier populations since this recovery has been in upland areas. These hold the majority of the UK's remaining heath and grassland, the harrier's preferred breeding habitat. Ayrshire has some of the best remaining large stretches of upland moors in southern Scotland. In these areas, traditional grouse moor estates have not generally converted land to forestry and have tried to maintain grazing levels to ensure the retention of heather. The Isle of Arran has some of the best heather moorland in Scotland.

Following the 1998 UK survey of the hen harrier, their population is estimated to be in the region of 680 pairs, of which approximately 517 were in Scotland. Results, combined with more intensive data collection by local birdwatchers, has

Species Action Plan Objectives

Main Objective

Maintain and enhance the population and distribution of hen harrier in Ayrshire.

Work Objectives

Objective 1

Protect, enhance, and restore available foraging habitat.

Target

Continuous action.

Objective 2

Eliminate human persecution of hen harriers.

Target

Reduce failed breeding attempts due to human persecution to 5% by 2005;

Objective 3

Increase the availability of suitable habitat for hen harrier

Target

Seek the reinstatement of at least 200 ha of hen harrier habitat by 2010 through identifying good opportunities in Forest Design Plans and Restocking proposals.

Objective 4

Increase awareness of relevant landowner and/or tenants of hen harriers and their management requirements.

Target

Visit all landowners and tenants whose land supports hen harriers by 2002.

Objective 5

Raise community awareness of hen harriers where the species is present in significant numbers.

Target

Continue Local Conservation Education Project set up in 2000.

shown that at the same time, the number of breeding pairs of hen harrier in Ayrshire were in the region of 23 pairs. Generally, the main concentrations of breeding birds were in four areas.

The exact numbers of hen harrier wintering in Ayrshire are unknown, but regular monitoring of key roosts and foraging areas indicates that the region has populations of national importance at this time of year as well. The region therefore has a significant responsibility for this species and its conservation.

In terms of their ecology, hen harriers largely prey on birds and mammals, such as waders, red grouse, meadow pipits, rabbits and voles, all of which are taken on or very close to the ground. They are resident in the UK all year round and in the breeding season are largely restricted to heather moorland, grassy moors and young forestry in uplands. The nest is built in rank vegetation, normally heather. At other times of year, hen harriers occupy a variety of open country habitats, often dispersing from their upland breeding grounds, to winter on lower ground where prey is more abundant.

Current Factors Causing Loss or Decline

- Destruction of adults and/or nest contents. This illegal practice is widespread and prevalent in some game-shooting areas, where it is felt that hen harriers are significantly affecting these interests. Breeding territories become vacant and local extinctions may follow if repeated persecution occurs. This is because birds move into the best sites as they become vacant and new-comers are killed each time they move in;
- Shooting of adults and/or recently fledged young. Although this illegal practice is known to occur, its scale is unknown, being very difficult to detect;
- Development and land-use change have already led to major in-roads into preferred upland habitats. Most notable is afforestation but open cast coal mining, already having caused some loss of habitat, is recently threatening to remove further areas of protected breeding moorland;
- Inappropriate grazing and/or burning regimes can result in loss of quality habitat, which in turn reduces prime breeding and foraging areas for harriers and other species;
- Unintentional disturbance of nests by a variety of recreational or occupational pursuits, such as walking, photography, birdwatching, shepherding, muirburn and estate-maintenance. This can adversely affect breeding success and sometimes cause complete failure of breeding attempts;
- Wet, cold weather in April and May during the incubation and nesting periods is probably the greatest non-human threat to breeding success;

- As ground-nesting birds, hen harriers can be vulnerable to predators such as foxes, stoats and crows. It is possible that as a side-effect of the legal control of these species for farming or sporting reasons, their impact on hen harriers is also being reduced on estates and farms which do not persecute these birds. There is however, some recent evidence to the contrary.

Opportunities and Current Action

- SNH are currently consulting over the designation of three Special Protection Areas in Ayrshire, all of which aim to enhance the protection afforded to hen harriers and other upland birds;
- Members of the South Strathclyde Raptor Study Group, under license from SNH, monitor the entire known breeding population of hen harrier on an annual basis and report suspected illegal incidents to the police. Despite this, many sites still fail because of incidents of persecution;
- The RSPB and SNH monitor and comment on relevant development and other proposals with a view to minimising or eliminating adverse impacts on hen harriers;
- The revision of agricultural incentive schemes will provide enhanced options for environmentally sensitive management of uplands, allied to the biodiversity priorities. These will enhance financial incentives towards the reduction of grazing and promotion of heather habitats which support hen harriers;
- Monitoring of hen harriers outwith the breeding season at known communal roost sites is organised and carried out by members of the South Strathclyde Raptor Study Group and other interested individuals. The results are collated as part of the national hen harrier roost monitoring programme;
- Under license, the Raptor Study Group also annually monitor the success of the breeding hen harrier population, and overall results are reported back to SNH and to wider censuses as appropriate. Interested estates and other landowners are also informed of the success of individual sites. In this way the size, distribution and productivity of the breeding population is monitored and recorded;
- Where possible, dead adults and chicks are sent off for post-mortem by government agencies;
- The beauty of hen harriers, their unfavourable status and the problems they face is highlighted in various talks given by conservation staff and enthusiasts in the region.

References

- Batten, L., Bibby, C., Clement, P., Elliot, G., and Porter, R. (eds) Red data birds in Britain. T. and A. D. Poyser, London.
- Etheridge, B., Green, R. E. and Summers, R., (1997), The effects of illegal killing and destruction of nests by humans on the population dynamics of the hen harrier *Circus cyaneus* in Scotland. *Journal of Applied Ecology* 34, 1081-1105.
- Green, R. E. and Etheridge, B., Breeding success of the hen harrier *Circus cyaneus* in relation to the distribution of grouse moors and the red fox *Vulpes vulpes*. *Journal of Applied Ecology*.
- Redpath, S., and Thirgood, S., (1997) *Birds of prey and red grouse*. London, Stationery Office.
- RSPB, (1999), *Survey of hen harriers on selected Special Protection Areas and potential Special Protection Areas in Scotland*. Edinburgh.

ACTIONS Hen Harrier	POTENTIAL DELIVERERS		YEAR (TO BE COMPLETED OR IN PLACE BY)					
	lead	partners	2001	2002	2003	2004	2005	2010
Policy and Legislation								
Designate qualifying areas as SPAs.	SNH	SSRSG RSPB ALA		•				
Ensure statutory plans (Structure, Local and Subject Plans) give fully recognition and protection to sites designated to protect hen harrier.	ALA	SNH RSPB SWT	•	•	•	•	•	•
Advocate amendment of agri-environment payments to further reduce over-grazing of moorland.		SERAD SNH RSPB NFUS			•			
Set in place a mechanism which allows payments as part of agri-environment incentive schemes and management agreements to be contingent, where appropriate, on successful breeding of hen harriers.		SERAD SNH SAC RSPB FWAG					•	
Ensure that Procurators Fiscal and PWLOs are kept informed and advised with regard to points of law in relation to suspected crime against hen harriers.	SNH	RSPB		•	•	•	•	•
Site and Species Safeguard and Management								
Ensure that full account is taken of breeding hen harriers and the need for site protection when considering development proposals and ongoing operations.	ALA SNH land managers	RSPB SSRSG FC	•	•	•	•	•	•
Ensure that the emerging Indicative Forest Strategy for Ayrshire takes full account of protecting hen harrier habitat.	ALA SNH	RSPB SSRSG FC	•	•	•			
Ensure that all relevant Forest Design Plans are sensitive to the requirements of hen harriers.	ALA SNH	RSPB SSRSG FC	•	•	•	•	•	•
Manage upland reserves with heather moorland to the benefit of hen harriers as well as other biodiversity. Complete site management plans for all significant heather moors.	SNH	Land owners FWAG RSPB SAC				•		
Ensure that PWLOs are aware of all sites vulnerable to human interference, by making a list of relevant sites for PWLO use.	SSRSG	PWLOs		•				
Increase vigilance on hen harrier breeding moors in order to detect and deter criminals (prospective nest-destroyers, egg-collectors etc).	Estate staff RSPB SSRSG	SNH PWLOs Police	•	•	•	•	•	•
As far as possible ensure protection of hen harrier breeding sites from both deliberate and passive human disturbance.		all	•	•	•	•	•	•
Ensure photography and all other licensed activity is carried out in full consultation with SSRSG and relevant landowners. Improve liaison between licensing officers, SSRSG and landowners to facilitate this and to prevent unnecessary disturbance and/or wasting of resource and time.	SNH	SSRSG Land owners	•	•	•	•	•	•
Advisory								
Promote best practice in moorland management to owners and managers of moorland. Ensure all relevant owners and managers are visited and given advice about hen harriers.	SNH	FWAG SAC RSPB	•	•	•	•	•	•
Produce local guidelines for land-use changes in the uplands, such that impacts on hen harrier will be minimised.	SNH			•				
Advise relevant recreational groups and co-ordinators of outdoor activities of sensitive areas and periods with regard to hen harriers. Advise all known groups by 2002 and others on a reactive basis.	RSPB	FE All		•				

ACTIONS Hen Harrier	POTENTIAL DELIVERERS		YEAR (TO BE COMPLETED OR IN PLACE BY)					
	lead	partners	2001	2002	2003	2004	2005	2010
Ensure that each PWLO visits and/or observes an active hen harrier nest in the company of a licensed member of the SSRSG.	SSRSG	PWLOs		•	•	•	•	•
Research and Monitoring								
Monitor upland restoration by opencast coal operators to determine the level of use of these areas by hen harriers.	MinCo	ALA SNH RSPB	•	•	•	•	•	•
Establish occupancy and outcome of all known breeding sites in the region.	SSRSG		•	•	•	•	•	•
Monitor all known roost sites on a regular basis, supplying results to the national monitoring scheme.	SSRSG		•	•	•	•	•	•
Develop positive wardening/monitoring agreements with all relevant landowners.	SSRSG	SNH RSPB Landowners	•	•	•	•	•	•
Monitor the delivery of this plan yearly and in detail every 5 years, starting in 2002.	ABG			•	•	•	•	•
Communication and Publicity								
Use all relevant talks and written material to highlight the international importance of the region's hen harriers and the problems they face.	RSPB	SNH FWAG SOC	•	•	•	•	•	•
Support future proposals for sensitive closed circuit TV coverage of hen harrier nests.	RSPB	SNH SSRSG	•	•	•	•	•	•
Educate children about the conservation importance of hen harriers by including hen harriers in schools talks.	ALA Rangers	LCEP project	•	•	•	•	•	•
Initiate an 'adopt-a-hen harrier nest' scheme in all four main hen harrier breeding areas. Set up two schemes by 2003.	PWLOs	RSPB SSRSG Landowners Schools			•	•	•	•
Publicise the persecution of hen harriers through press releases following incidents.	RSPB	SSRG RSPB PWLOs Landowners	•	•	•	•	•	•
Investigate the feasibility of setting up two public viewing sites, one at a breeding site and one at a winter roost.	SSRSG			•	•			

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Species Profile

UK Biodiversity Status:

Contained in Long List of Globally Threatened / Declining Species.

Ayrshire Status:

Extremely rare, regular breeding localised to one core site. 3-6 territories in Ayrshire.

Relevant Habitat Action Plans:

Native Woodland (scrub section).

Statutory Protection:

Protected under the 1981 Wildlife and Countryside A



Lesser Whitethroat (*Sylvia curruca*)

Current Status

UK Status

The lesser whitethroat breeding population in the UK has been estimated at around 80,000 territories (Gibbons et al 1993). The main UK stronghold for this species is in southern England, where there is an abundance of chalk grassland scrub. CBC densities in farmland are about 1.0 pairs per km². The British Trust for Ornithology Common Bird Census results indicate clear fluctuations in numbers during the eighties and this may be due to the variations in the number of spring arrivals returning to Britain (Marchant 1990). In Scotland, there has been a well documented range expansion occurring in most regions since the mid seventies.

Local Status

In Ayrshire, the data on the distribution of lesser whitethroats is covered by the Ayrshire Breeding Bird Atlas. Regular breeding territories are located at the Heads of Ayr, Burton Farm and Bracken Bay. Most years, there are approximately 3-6 territories in Ayrshire, half of which are located at the Heads of Ayr site.

Ecology and Management

The lesser whitethroat is probably the least known of all the British *Sylvia* warblers and is certainly the most secretive. Spring arrival of the males to Ayrshire usually occurs around the third or fourth week in April.

Territorial males tend to become visible and highly animated as they perform their penetrating song rattle from the scrub canopy. The song period can be extremely short for a warbler species with a duration of 4-14 days (Byars et al 1991). Territories are located in areas of ungrazed hawthorn/blackthorn scrub with a dense ground cover of

bramble, dogrose and gorse. The dense mosaic-like understorey is an important microhabitat for nest location. The required plant cover will only be present if the scrub canopy is open enough to allow sunlight to reach ground level (Byars et al 1991).

The nest is usually placed about a metre from the ground and is built by the male. Pair bonding is formed when the female adds to the nest structure.

Single brooded, lesser whitethroats lay 4-6 eggs and incubation lasts approximately 11 days. Both sexes feed their young on invertebrates (mostly caterpillars) gleaned from the scrub canopy (Byars 1998).

Species Action Plan Objectives

Main Objective

Maintain and enhance the current population and distribution of the lesser whitethroat in Ayrshire.

Work Objectives

Objective 1

Establish the current distribution of the lesser whitethroat in Ayrshire.

Target

Develop a methodology for their monitoring by 2002, and implement annually thereafter

Objective 2

Raise awareness of the lesser whitethroat and its management requirements.

Target

Produce and distribute advice leaflets for farmers by 2002.

Adult lesser whitethroats are quite vocal during this time and give out contact Tuc calls when approaching the fledglings. This can be a useful indicator of breeding success within a territory. The young leave the nest after 11 days but are still dependent on the adults for a further week before leaving the natal area.

Current Factors Causing Loss or Decline

UK Factors

- Common Bird Census data from the British Trust of Ornithology indicates that the lesser whitethroat population oscillates through the years. Such fluctuations may be the result of natural variation in the number of spring arrivals (Marchant 1990);
- Lesser whitethroats are summer migrants to this country. During autumn they migrate SE through the Eastern Mediterranean to winter in the Nile valley and Ethiopian highlands. Climatic conditions and habitat destruction in these African countries may influence this species' wintering population.

Ayrshire Factors

- Habitat loss through scrub clearance: Even the slightest loss of microhabitat i.e. bramble patches can result in birds leaving a site permanently;
- Grazing pressure by livestock: Scrub areas are used by farmers as livestock shelters. Such areas then become overgrazed by livestock, which effectively denude all ground cover. Nesting habitat is then ultimately lost;

- Structural changes in habitat: Scrub habitat is dynamic in that plant species composition and vegetation structure change rapidly with time. Known lesser whitethroat territories will have to be managed in order to maintain the correct plant diversity and structure for breeding birds.
- Lack of suitable habitat: Good quality scrub habitat is extremely rare in Ayrshire. Habitat could be created by replanting and restructuring new and adjacent sites. This may effectively increase the Ayrshire population.

Opportunities and Current Actions

- The small breeding population in Ayrshire has been intensively studied since 1983 and is an ongoing research project conducted by Mr Tom Byars. This information is available to all interested parties;
- Members from the Scottish Ornithologists Club and Royal Society for the Protection of Birds actively take part in various ornithological field surveys in the county. Those field workers would be a valuable resource in any future LBAP lesser whitethroat distribution survey;
- Scottish Natural Heritage has implemented habitat management plans at the Heads of Ayr site. This scheme will hopefully improve, maintain and increase habitat quality at the core site.

References

Byars, T., Curtis, D. J., McDonald, I., (1991), The breeding distribution and habitat requirements of the Lesser Whitethroat in Strathclyde. *Scottish Birds* 16:66-76.

Byars, T., Curtis, D. J., (1998), Feeding studies of the Lesser Whitethroat in Strathclyde. *Scottish Birds* 19: 223-230.

Gibbons, D.W., Reid, J.B. & Chapman, R. A., (1993), *The New Atlas of Breeding Birds in Britain and Ireland: 1988-1991*. Poyser, London.

Marchant, J. H., Hudson, R., Carter, S.P. & Whittington, P., (1990) *Population Trends in British Birds*. British Trust for Ornithology, Tring.

ACTIONS Lesser Whitethroat	POTENTIAL DELIVERERS		YEAR (TO BE COMPLETED OR IN PLACE BY)				
	lead	partners	2001	2002	2003	2004	2005
Policy and Legislation							
Ensure that lesser whitethroats are included in all management plans.	All		•	•	•	•	•
Ensure that planners are aware of lesser whitethroat locations when considering granting planning permission. Aim to promote the protection of these populations.	All		•	•	•	•	•
Site and Species Safeguard and Management							
Encourage better management and protection of lesser whitethroat habitat i.e. through promotion of agri-environment schemes.	SNH FWAG SWT SAC farmers		•	•	•	•	•
Research and Monitoring							
Review existing records of lesser whitethroats. Assess whether further lesser whitethroat surveys are required.	SOC RSPB SNH SWT			•			
Monitor the delivery of the plan yearly and in detail every 5 years, starting in 2002.	ABG			•	•	•	•

Species Profile

UK Biodiversity Status:

Priority Species.

Ayrshire Significance:

It marks the butterfly's north-western limit in Britain (and the world).

Relevant Habitat Action Plans:

Base-rich Grassland and Maritime Cliff and Heath.

Statutory Protection:

Protected under Schedule 5 of the Wildlife and Countryside Act 1981.



Northern Brown Argus (*Aricia artaxerxes*)

Current Status

The northern brown argus is a handsome, dusky brown butterfly, which flies in June and July, but is easily overlooked. The sole caterpillar foodplant is common rock-rose (*Helianthemum nummularium*), on which the eggs are laid. These eggs are very conspicuous, and their presence can be used as a method for searching and monitoring the butterfly.

The butterfly is widespread in eastern Scotland, occurring as far north as Easter Ross, right down to the Borders. However, in the west, Ayrshire marks the north-western limit of the butterfly, although rock-rose apparently occurs in parts of Argyll. The northern brown argus is also found in northern England, particularly around Morecambe Bay and in County Durham.

Many colonies have been newly-recorded in Scotland in recent years. Ayrshire in particular has been very well-recorded during the period 1995 to 1999 for the Millennium Atlas of Butterflies in Britain and Ireland.

Current Factors Causing Loss or Decline

The butterfly cannot tolerate heavy grazing, and needs a turf height of around 6 to 10 cm, preferably with patches as tall as 30 cm to provide shelter and perching sites. While most sites are on base-rich soils, rock-rose (and northern brown argus colonies) can be found on neutral and even acid soils where the soil is thin, for example on steep slopes.

Coastal colonies are likely to have been lost either due to overgrazing and agricultural improvement in the past, but as many colonies are now restricted to relatively inaccessible parts of coastal cliffs and slopes, it is possible that undergrazing could now be more of a problem.

Species Action Plan Objectives

Main Objective

Maintain and enhance the population and range of the northern brown argus in Ayrshire.

Work Objectives

Objective 1

Establish the status and distribution of colonies of northern brown argus in Ayrshire.

Targets

Survey all potential sites (those with common rock-rose but without recent records for the butterfly) by 2002;

Monitor all known colonies by 2005.

Objective 2

Protect key sites supporting the species in Ayrshire.

Target

Define and identify key sites following the 2002 survey, and develop a management plan by 2005.

Objective 3

Achieve beneficial management on all other sites supporting the species.

Target

Produce and distribute management guidelines for owners and advisers.

Objective 4

Raise awareness of the northern brown argus and other insects, with reference to the possible effects of climate change.

Target

Incorporate northern brown argus into relevant promotional literature and displays.

Inland sites of the northern brown argus have continued to decline in recent years, the cause usually being agricultural improvement of unimproved grasslands and over-grazing.

In addition, many colonies are small, and sites where more than 20 adults can be seen at once may be considered "large". Small, isolated colonies are at risk from local extinction with limited chances of re-colonisation.

Opportunities and Current Action

No details of any sites currently managed or monitored for the butterfly are known.

References

Asher, J., Warren, M., Fox, R., Harding, P., Jeffcoate, G. and Jeffcoate, S. (2000), The Millennium Atlas of Butterflies in Britain and Ireland. Oxford University Press, Oxford.

Kinnear, P & Kirkland, P. (1999), Draft Regional Action Plan for South West Scotland. Butterfly Conservation, Edinburgh.

Norman, P. (1999), Northern Brown Argus: Local Species Action Plan In: Dumfries & Galloway Local Biodiversity Action Plan, Ed. A. Barnes. Dumfries and Galloway Council.

Ravenscroft, N. O. M. & Warren, M. S. (1996), Species Action Plan for the Northern Brown Argus. Butterfly Conservation, Wareham, Dorset.

ACTIONS Northern Brown Argus	POTENTIAL DELIVERERS		YEAR (TO BE COMPLETED OR IN PLACE BY)					
	lead	partners	2001	2002	2003	2004	2005	2010
Policy and Legislation								
Ensure statutory plans (Structure, Local and Subject Plans) give full recognition and protection to key sites of the northern brown argus.	ALA	SNH SWT BC	•	•	•	•	•	•
Design the new agri-environment scheme so that it can be used to safeguard and enhance northern brown argus habitat.	SERAD	BC	•					
Site and Species Safeguard and Management								
Seek to protect key sites when considering development proposals and other operations.	ALA	SNH BC SWT	•	•	•	•	•	•
Ensure that the emerging Indicative Forest Strategy for Ayrshire takes full account of protecting northern brown argus habitat.	ALA	FC SNH BC	•	•				
Advisory								
Ensure owners and managers of key sites are given advice on the northern brown argus.	BC	SNH		•	•	•	•	•
Produce and disseminate habitat management guidelines for owners and advisers.	BC	FWAG SAC SWT		•				
Research and Monitoring								
Survey all sites with common rock-rose but without recent (post-1994) records of the butterfly.	BC	SWT		•				
Survey all known and potential sites.	BC	SWT					•	•
Monitor all key sites on a regular basis, supplying results to the national monitoring scheme.	BC	SWT				•	•	•
Monitor the delivery of the plan on a yearly basis and in detail every 5 years, starting in 2002.	ABG			•	•	•	•	•
Communications and Publicity								
Use relevant promotional material to highlight the importance of the region's northern brown argus.	BC		•	•	•	•	•	•

Species Profile

UK Biodiversity Status:

Not listed in the UK Biodiversity Action Plan.

Conservation Status in UK:

Lower Risk (Nationally Scarce).

Ayrshire Status:

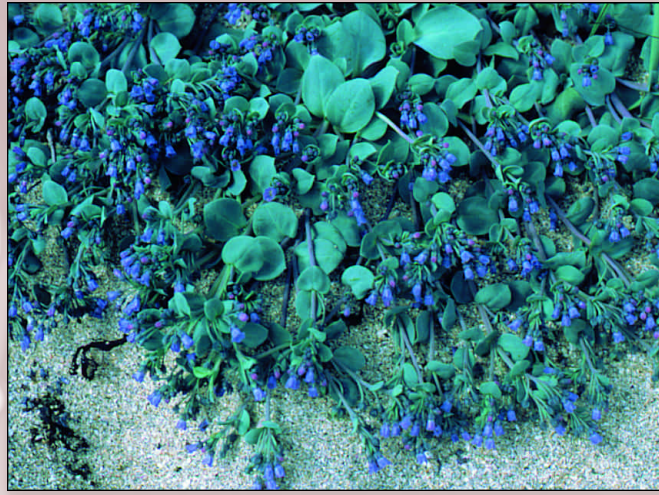
Locally rare, Local Priority Species.

Relevant Habitat Action Plans:

Coastal.

Statutory Protection:

None specifically related to this species.



Oyster Plant (*Mertensia maritima*)

Current Status

The oyster plant is a member of the Boraginaceae family. It is a native perennial found on shingle by the sea. The term shingle is applied to any sediment ranging in grain size between 2mm and 200 mm. Shingle beaches form in high-energy environments where the sea can move and pile up pebbles on the shore, above the tideline. Stable vegetated shingle is a rare habitat type in Britain. The largest site in Ayrshire is Ballantrae where the beach has been designated a Site of Special Scientific Interest (SSSI). The distribution of oyster plant here changes a great deal from year to year but at present along the shingle spit at Ballantrae the oyster plant is doing relatively well. In a survey carried out by Scottish Natural Heritage at Ballantrae SSSI in 1993, it was noted that 60 individual plants were located there.

North of Lendalfoot, at Pinbain Burn there is also a healthy colony. Between here and Ballantrae beach, there is a very small occurrence, sometimes only a single plant. The oyster plant also occurs in the south coast of Arran at Torrylinwater Foot.

Ecology and Management

The oyster plant is rather rare, found mainly on the west coast, from northern Wales northwards onto western and northern Scottish coasts. It grows to a height of 50cm and flowers June to August. Its stem and leaves are blue-grey, hairless and with uppersides dotted. The flowers of the plant are bell-shaped, pink at first, becoming pink and blue. Flowering branches are fairly short, and bear numerous long-stalked flowers. The top surface of upper leaves is covered with depressed scales.

Coastal plants such as the oyster plant often have difficulty in obtaining and retaining enough water to live. One reason is the proximity to the sea, which creates a high concentration

Species Action Plan Objectives

Main Objective

Maintain and enhance current populations of the oyster plant in Ayrshire.

Work Objectives

Objective 1

Establish current distribution of oyster plant in Ayrshire.

Target

Produce a detailed distribution map by 2002.

Objective 2

Determine optimum prescriptions for species management.

Target

Set up a programme to monitor the effects of different management regimes on the oyster plant and the habitat in which it is found by 2005.

Objective 3

Increase the range of the plant through propagation.

Target

Initiate a five-year strategy in 2002.

of salts in the soil. If the soil is saltier than the plants, the plants lose water to the soil and soon become dehydrated as a result. To counter this, coastal plants need a higher than normal salt content - hence the salty taste of the oyster plant. Coastal plants also lose water to the strong wind. To limit this water loss, the oyster plant has fleshy leaves, which present the minimum surface area to the drying winds. The horny leaf surface also cuts down water loss caused by evaporation. The oyster plant is usually found on the coastal shingle of north-west Scotland, but it seems to be decreasing in numbers in all its former habitats.

Current Factors Causing Loss or Decline

Within individual colonies, numbers fluctuate as a result of erosion or accretion due to storms. The current general north western distribution of the oyster plant and consequent loss from southern sites in Britain may be related to changing climate, but the main threat to populations still within their climatic tolerance is grazing animals. Besides the loss in seed production when flowering stems are grazed, shoots bruised by trampling die back to the base. Within the UK, shingle structures have been damaged by unmanaged recreational access, coastal defences and gravel extraction. Within Ayrshire, recreational use especially by tourists and

dog walkers, is the most likely threat. Unmanaged recreational access to shingle in many areas has resulted in disturbance and compaction of the surface by vehicles and trampling of the plant. Mechanical beach cleaning operations are also distributing strandline vegetation and affecting the distribution of the oyster plant.

Opportunities and Current Action

To provide the best chance of conserving the oyster plant in Ayrshire, several relatively stable populations should be managed for this mobile plant to move between. Monitoring of grazing and trampling levels would be beneficial to stabilise or re-establish the oyster plant.

References

- INCC Report, (1994), Extracts from Coastal Vegetated Shingle Structures of Great Britain - Ballantrae.
- Lusby & Wright, (1996), *Scottish Wild Plants*, The Stationary Office.
- Rose, F., (1991), *The Wild Flower Key - British Isles - N.W Europe*. Penguin Group.
- Reader's Digest, (1981), *Field Guide to Wild Flowers of Britain*.
- Scottish Wildlife Trust, (1993), *Management Plan for Ballantrae Nature Reserve*.
- Stewart et al, (1994), *Scarce Plants in Britain*. JNCC, Peterborough.
- Stirling, A., (2000), *BSBI Recorder for Ayrshire*.

ACTIONS Oyster Plant	POTENTIAL DELIVERERS		YEAR (TO BE COMPLETED OR IN PLACE BY)					
	lead	partners	2001	2002	2003	2004	2005	2010
Policy and Legislation								
Ensure that the importance of the oyster plant is considered in any review of designations.	SWT landowners SNH	ALA	•	•	•	•	•	•
Site and Species Safeguard and Management								
Include the needs of the plant in management plans for NNRs and SSSIs where the species is known to exist.	SWT landowners SNH		•	•	•	•	•	•
Monitor public access to vulnerable sites, and take action if physical damage is found to occur.	SWT SNH		•	•	•	•	•	•
Ensure positive management of all remaining populations in Ayrshire.	SWT SNH		•	•	•	•	•	•
Manage any grazing schemes in areas associated with oyster plant.	FWAG SWT		•	•	•	•	•	•
Advisory								
Ensure landowners and managers are aware of the oyster plant.	SWT SNH		•	•	•	•	•	•
Research and Monitoring								
Investigate the historical distribution of the species to assess the suitability of locations for re-introduction.	SWT SNH	WS BSBI	•	•	•	•	•	•
Undertake survey work to determine the full distribution of the oyster plant in Ayrshire.	SWT SNH	WS BSBI		•	•	•	•	•
From the baseline surveys carried out in the previous action, establish and conduct monitoring on a five year basis.	SWT SNH			•	•	•	•	•
Collate existing knowledge on the requirements of oyster plant to determine ideal management.	SWT SNH	WS BSBI		•	•	•	•	•
Propagate and translocate plants to appropriate locations in Ayrshire if considered beneficial.	SWT BSBI WS	SNH		•	•	•	•	•
Monitor the delivery of the plan yearly and in detail every 5 years, starting in 2002.	ABG			•	•	•	•	•
Communications and Publicity								
Raise awareness of the oyster plant as a scarce species in Ayrshire through media coverage such as the SWT Newsletter and suitable on-site interpretation.	SWT ALA	SNH WS BSBI		•	•	•	•	•
Issue a press releases about survey results.	SWT			•	•	•	•	•

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Species Profile

UK Biodiversity Status:

Low Risk.

UK Lead partners:

Plantlife.

Ayrshire Status:

Unknown.

Relevant Habitat Action Plans:

Base Rich Grassland, Unimproved Neutral Grassland & Acidic Grassland.

Statutory Protection:

General protection under the Wildlife and Countryside Act 1981.



Pink Meadowcap (*Hygrocybe calyptraeformis*)

Current Status

A member of a group of fungi commonly called the waxcaps, *H. calyptraeformis* grows on unimproved semi-natural grassland on well drained soil in open conditions. It is listed as vulnerable on both the British and European provisional red data lists of fungi.

Little is known of the distribution of the species in Ayrshire, the British Mycological Society database suggesting that it is absent from this area. However this is due more to a lack of mycological recording in the county than a dearth of the fungi. Two areas in Kilmarnock have recently been identified as containing this fungus. Similarly, an area near Darvel has also been found to produce a wide range of waxcaps and, although *H. calyptraeformis* has yet to be identified at this location its absence would be unlikely. Two areas near Girvan are recognised nationally as important waxcap grasslands.

Action taken to conserve *H. calyptraeformis* will also benefit the date-coloured wax cap, *H. spadicea*, and an earth tongue, *Microglossum olivaceum*, both of which are also nationally threatened.

Ecology and Management

The pink meadowcap is an indicator species of a grassland type known as waxcap grassland. This concept cuts across the communities recognised by the National Vegetation Classification and does not match site selection criteria

Species Action Plan Objectives

Main Objective

Identify likely locations for the presence of the fungus and survey these locations annually

Work Objectives

Objective 1

Confirm current status of the pink meadowcap in Ayrshire.

Targets

Undertake annual census.

Objective 2

Raise awareness of the fungus and its management requirements.

Targets

Produce and distribute advice leaflets for land managers by 2002;

Secure positive management within at least one potential/actual location by 2002.

adopted by statutory nature conservation bodies. These grasslands and the pink meadowcap are distributed throughout North-west Europe but are becoming rare. Waxcap grasslands are characterised by being agriculturally unimproved and with high grazing levels, whether by herbivores or lawn mowers. Most importantly however, these grasslands must have no recent history of fertilisation, the better habitats are those where there have been no fertiliser

application for at least 30 years. Habitat is crucial to the survival of this fungus. It is unable to grow on land treated with fertiliser or herbicide, disturbed land, particularly that ploughed, dug or planted with trees and on land where reduced grazing has allowed tall grasses to dominate.

In areas of intensive agriculture the survival of waxcap habitat is limited, being confined to areas where agriculture has been unable to encroach. However, many urban sites such as old lawns and churchyards are proving to be habitats where the pinkmeadowcap thrives.

Current Factors Causing Loss or Decline

Agricultural intensification and urban growth are the main factors in reducing habitat for *H. calyptraeformis* as is the application of herbicides and fertilisers to grassland areas. The disturbance caused by increased recreational use of such areas also poses a potential threat to this fungus.

ACTIONS Pink Meadowcap	POTENTIAL DELIVERERS		YEAR (TO BE COMPLETED OR IN PLACE BY)					
	lead	partners	2001	2002	2003	2004	2005	2010
Site and Species Safeguard and Management								
Control scrub invasion on all extant pink meadow cap sites where it is considered to be threatening population viability.	ALA		•	•	•	•	•	•
Where possible, provide mechanisms (such as management agreements on SSSIs and relevant agri-environment schemes) to encourage grazing or continued mowing on all extant grassland sites.	SNH		•	•	•	•	•	•
Ensure land managers are made aware of the presence of the fungus and methods of management to ensure it's survival.	ALA	SNH	•	•	•	•	•	•
Advisory								
Advise landowners and land managers of the presence and importance of this species, specific management for conservation and any potentially damaging actions.	ALA	SNH SWT	•	•	•	•	•	•
Research and Monitoring								
Identify and monitor sites likely to contain the waxcap.		SWT	•	•	•	•	•	•
Annually monitor sites where the presence of the waxcap is known.	ALA	SWT	•	•	•	•	•	•
Build a database of sites where the pink meadowcap can be found locally.	ALA	SWT	•	•	•	•	•	•
Pass on information gathered during survey to be incorporated into a national database and linked to national surveys.	ALA	SNH	•	•	•	•	•	•
Monitor the delivery of the plan yearly and in detail every 5 years, starting in 2002.	ABG			•	•	•	•	•
Communication & Publicity								
Encourage the public to report waxcap sightings during the main season.	ALA		•	•	•	•	•	•

Key to partners - page 5

Species Profile

UK Biodiversity Status:

Priority Species.

Ayrshire Status:

Priority Species.

Relevant Habitat Action Plans:

Those of key importance include Native Woodland, Parkland and Policy Woods, Coniferous Woods, Farmland, and Urban. Plans in the Grassland, Upland and Wetland Sections may also be relevant. In addition, the implementation of this Action Plan may benefit Brown, Long-eared, Daubentons, Natterers, and Whiskered bats.

Statutory Protection:

As with all bats, the pipistrelle is protected nationally by the Wildlife and Countryside Act 1981 (Schedules 5 & 6) and under Schedule 2 of the Conservation (Natural Habitats, etc) Regulations 1994 (Regulation 38). It is listed on Appendix III of the Berne Convention 1979, Annex IV of the EC Habitats and Species Directive 1992, Appendix II of the Bonn Convention 1980 and is included under the Agreement on the Conservation of Bats in Europe 1991.

Current Status

The pipistrelle is the smallest European bat, it is the most abundant and widespread species found in the UK and is the species people are most likely to come in contact with in the urban landscape.

Nationally, the pipistrelle is believed to have undergone a serious decline in recent years. Evidence from the National Bat Colony Survey (Harris et al. 1995) suggests a population decline of around 70% between 1978 and 1993.

It is estimated that the UK has a current pre-breeding population of approximately two million pipistrelles. The recent split of pipistrelles into two distinct species will undoubtedly have an effect on future estimates of population trends.

Both species of pipistrelle (*P. pipistrellus* and *P. pygmaeus*) are found in Ayrshire where they are by far the most common and widespread bat. They are known to occur throughout the county although little is known about the overall population size. They are most frequently encountered during the summer months when the females occupy maternity roosts. These roosts are usually in buildings, where the bats favour confined spaces around the outside of the building such as cavity walls, under roof tiles, or behind weather boarding. More than half of all known summer roosts are in buildings



Pipistrelle Bat (*Pipistrellus pipistrellus*)

Species Action Plan Objectives

Main Objective

Maintain or enhance existing populations and ranges of pipistrelles.

Work Objectives

Objective 1

Protect, enhance, and restore available foraging habitat.

Target

Continuous action.

Objective 2

Protect, enhance and restore maternity, hibernation and roost sites.

Target

Continuous action.

Objective 3

Ensure adequate protection of linear landscape features which provide flightlines between bat roosts and feeding sites.

Target

Continuous action.

less than 30 years old. Pipistrelles forage over a wide range of habitats including rivers, ponds, hedgerows, gardens, open woodland and woodland edges. They feed on a variety of small flying insects such as midges, mosquitoes, lacewings, mayflies, and small moths. In winter pipistrelles disperse to hibernation sites which are usually in trees, old buildings or other stone structures. Ayrshire has a number of nationally important hibernation sites.

Biodiversity Context

The UK Action Plan for the pipistrelle bat (Tranche 1, Vol 2) has the following objectives:

- Maintain existing populations and ranges of pipistrelles;
- Restore populations to pre-1970 numbers.

Current Factors Causing Loss or Decline

- Destruction and disturbance of maternity roosts, often due to a misunderstanding of the legislation protecting bats. Inappropriate building works being carried out at roosts often results in the bats being excluded from the site. Maternity colonies are also particularly susceptible to toxic chemicals used in remedial timber treatment;
- Loss of suitable hibernation sites for similar reasons as those outlined above, bats are at their most vulnerable during hibernation;
- Loss of insect-rich foraging habitats and flyways due to destruction of hedgerows, grasslands, wetlands and other suitable feeding areas, often associated with the “development” of greenspaces;
- Reduction in abundance of insect prey, caused by increased use of pesticides and inappropriate management of river systems and other aquatic habitats.

Opportunities and Current Action

National

- The JNCC recently commissioned a National Bat Habitat Survey, which provided much information on habitat preference and distribution;

- The National Bat Colony Survey has monitored many pipistrelle roosts since 1978 on the basis of annual summer roost counts;
- Regular surveying and monitoring of pipistrelles is carried out as part of the National Bat Monitoring Programme run by the Bat Conservation Trust;
- The Bat Conservation Trust and SNCOs are involved in a number of schemes to raise public awareness and improve the understanding and tolerance of bats;
- SNH have developed design briefs for the conservation of pipistrelle roosts in houses;
- There is a considerable amount of research underway, involving mating strategies, field activity, and the ecology of the two pipistrelle species.

Local

- A number of sites throughout Ayrshire have been surveyed as part of the National Bat Monitoring Programme;
- All known pipistrelle colonies in Ayrshire are being recorded by Ayrshire Bat Group and SNH;
- Annual surveys of all known hibernation sites are carried out by Ayrshire Bat Group;
- SNH advise on any development or construction work which is likely to affect known bat roosts;
- Ayrshire Bat Group regularly organises public events and educational activities to raise awareness of bats.

References

Harris, S., Morris, P., Wray, S. & Yalden, D., (1995), *A Review of British mammals: population estimates and conservation status of British mammals other than cetaceans*. JNCC, Peterborough.

Hutson, T., and Pollard, E., (1999), *Bat Biodiversity Action Plans*. BCT, London.

Schober, W and Grimmer, E., (1989), *Bats of Britain and Europe*. Hamlyn, London.