**Golden Eagle**

Aquila chrysaetos

The Golden eagle is the UK’s second largest bird of prey after the White-tailed eagle. Historically they ranged over much of upland Britain and Ireland but, largely due to heavy persecution, they are now mostly restricted to the wilder parts of the Highlands and Islands of Scotland. Overall the Scottish population is stable, but many suitable territories remain unoccupied, especially in eastern and central areas where persecution remains a problem.

The Golden eagle is recognised as a Category 3 Species of European Conservation Concern, and the Birds Directive lists the Golden eagle in its Annex 1 - species within the European Union for which there should be special conservation measures. In the UK, it is listed in Schedule 1 of the Wildlife and Countryside Act 1981 and The Nature Conservation (Scotland) Act. It is also included on the Amber List of UK birds of conservation concern and is on the Scottish Biodiversity List.



Golden eagle © Darin Smith

Description

Adult Golden eagles have light golden brown colouring on their head, neck and shoulders. Their bodies are a medium brown colour with lighter mottling. The young are dark chocolate brown with very conspicuous white markings on the wings and upper parts of the tail. It may take six years for a young bird to gain full adult plumage. Golden eagles are most often seen soaring on air currents, holding their wings in a shallow 'V'.  They have a different outline to the much smaller Buzzard and unlike Buzzards are rarely heard; adults generally only call when agitated.

Distribution

Golden eagles are found throughout the uplands of Europe, Russia, north-west Africa, Asia and North America. There are estimated to be over 50,000 pairs worldwide[[1]](#footnote-1). In the UK, Golden eagles are found on large expanses of open moor and hill in the Scottish Highlands and the Hebrides, with a very small number in southern Scotland, and a few also in Cumbria[[2]](#footnote-2). The most recent national UK survey in 2003 recorded 442 pairs2. Although this represents an overall stable population size, there have been increases in the Western Isles and in parts of Caithness and Sutherland but declines in the central and eastern Highlands[[3]](#footnote-3). Golden eagles are extinct in Ireland, but a reintroduction project is currently underway in Donegal[[4]](#footnote-4).

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**Distribution of Golden eagle in the UK.** (From NBN. Accessed 28/09/13)

Ecology

Golden eagles pair for life. A huge nest, or eyrie, is built in a tree or on a cliff-ledge and will be added to each year, becoming a large, bulky structure over the years. Following mating, the female usually lays two eggs in March or April and incubates them for about six weeks. When they are hatched, the young spend 9 - 11 weeks in the nest before making their first flight. More often than not, only one chick will survive to leave the nest. It is still not fully understood whether this is because of a lack of food, or due to competition between the young birds. Young birds remain in their parents’ territory into the early winter months, begging for food for as long as the adult will continue to feed them. They then disperse over wide areas. Many will not survive their first winter and it is thought that 75% of young birds die before reaching maturity2. After four or five years, they pair and settle on a breeding territory. Once occupying a territory, Golden eagles are long-lived and can expect to live on average for about 15 years2.

Golden eagles prefer open, treeless areas. They require large home ranges in which to hunt and breed and are territorial, defending the core part of their home range where the eyrie is sited. They are opportunistic feeders taking a wide range of prey. Typical food includes hares, rabbits, Ptarmigan, grouse, deer calves, seabirds and carrion.

Threats

Golden eagles have no natural predators, but face a number of man-made threats.

* **Persecution**

Illegal killing of Golden eagles has been widespread in the past but sadly poisoning and nest robbing still occur2,[[5]](#footnote-5). In the eastern Highlands, many suitable territories remain unoccupied which is thought to be caused by persecution3. Poisoning intensity is greatest on land managed for grouse hunting where nests are also sometimes deliberately destroyed by game managers[[6]](#footnote-6).

* **Poor habitat quality**

Golden eagles require large home ranges. Loss of habitat through inappropriate upland management, for example from large or poorly located areas of forestry planting, loss of prey such as rabbits and hares and construction of wind farms can have a negative effect on these birds. Even if an adult pair can survive they often fail to breed successfully.

Management

The Golden eagle needs large territories with enough prey, and places free of human disturbance where it can build its nest. Appropriate management therefore needs to take place at a landscape scale.

* Persecution through shooting and illegal poisoning must be reduced dramatically where it's a problem. That can be achieved through public education and better law enforcement.
* Habitat management must be sensitive to the needs of Golden eagles for open areas to hunt for prey. Exclusion zones to avoid disturbance around nests should be implemented.
* Wind farms should only be built after a detailed environmental study on the effects it could have on eagles. The dispersal of juvenile Golden eagles should also be taken into account.
* Human disturbance must be reduced to a minimum, especially close to the nests, but also in important hunting areas. For this to be effective, close monitoring of eagle territories is essential.

Current work

* **Scottish Natural Heritage, Forestry Commission and the Royal Society for the Protection of Birds**

These organisations are actively involved in protection of Golden eagles across Scotland. At present, full national surveys are undertaken every 10 years. In Scotland, there are a total of 14 Special Protection Areas (SPAs) for Golden eagle, estimated to include the territories of about 80 breeding pairs[[7]](#footnote-7).

* **The Scottish Raptor Study Group[[8]](#footnote-8)**

Founded in 1980, SRSG is a network of around 300 raptor experts who monitor and record raptors across Scotland. They check raptor territories for occupancy each year, and record the status, distribution and breeding success of each species. This has led to long-term datasets of raptor records, essential for understanding changes in population trends. Results are published annually as part of the Scottish Raptor Monitoring Scheme (SRMS). Many conservation organisations are part of the group. Work is undertaken by volunteers.

* **Highland Foundation for Wildlife[[9]](#footnote-9)**

A Scottish-based charity, involved with projects on Ospreys, Golden eagles, White-tailed eagles, Honey buzzards, Peregrines, Marsh harriers and many others. For example, the breeding behaviour of Golden eagles was studied through a satellite tagging project run by the Highland Foundation for Wildlife, Scottish Natural Heritage (SNH), Natural Research and the RSPB.

* **RaptorTrack[[10]](#footnote-10)**

This is a joint working project with the Cairngorms National Park Authority, Highland Foundation for Wildlife, Partnership for Action Against Wildlife Crime in Scotland, Natural Research, SNH, RSPB and various land managers throughout the Cairngorms National Park. It has three main aims:

* + Raise awareness of raptor species within the Cairngorms National Park.
  + Gain information on raptor movements and their behaviour in the Park.
  + Raise awareness and act as a deterrent to wildlife crime.

Wider Context

The Golden eagle is an iconic Scottish bird and one of the country’s top predators. It was nominated as one of SNH’s Scotland’s ‘Big Five’ species, championed as part of the Year of Natural Scotland in 2013, and was voted in first place[[11]](#footnote-11).

Although the UK population of Golden eagle is only around 5% of the total European population, Scotland has one of the largest populations in the world per land mass. It also holds about a quarter of the population in the mountainous, Atlantic-influenced North West of Europe, contributing significantly to the maintenance of the Golden eagles’ range. Although conservation organisations across Scotland are working to safeguard Golden eagles, of the 440 estimated totals of Golden Eagle territories in Scotland, just 32% of these are currently protected by the recent Golden Eagle SPA classification.

Quick facts

* **The collective noun for eagles is a** Convocation.
* In Celtic mythology, the eagle is traditionally seen as one of the oldest of all creatures, surpassed only by the Salmon in wisdom and age.
* Golden eagles have legs feathered all the way to the toes.
* Males weigh-in at about 3.5kg but females are heavier at about 5kg.
* The Golden Eagle is the most common official national animal in the world—it's the national emblem of Albania, Germany, Austria, Mexico and Kazakhstan.
* While Golden eagles usually fly at average speeds of 28–32 mph, they can glide quickly at up to 81 mph and can reach 150 mph when diving after prey.
* When hunting birds, Golden eagles may engage in an agile tail-chase and can occasionally snatch birds in mid-flight.
* Certain other animals – birds and mammals too small to be of interest to the huge Golden eagle – often use the nest as shelter.
* The oldest recorded birds are 38 years in the wild and 57 years in captivity.6
* Golden eagles in the Western Isles are slightly different genetically to those on the mainland, being less diverse. It seems likely that the Minch is an obstacle to mixing of populations, and the current Western Isles population probably largely originated from a small number of pairs that survived in deer forests of Lewis and Harris during the late 19th and early 20th centuries.
* Incubation starts with the first egg, and the chicks hatch a few days apart. The first chick to hatch is dominant over the younger one, which has only a 20% chance of surviving the crucial first weeks.

Selected references

**www.scottishraptorstudygroup.org/goldeneagle.html**

**www.snh.org.uk/pdfs/strategy/geconsult/8-keyfactsleaflet-b464148.pdf**

**www.forestry.gov.uk/forestry/Goldeneagle**

**Hardey, J., Crick, H.Q.P., Wernham, C.V., Riley, H.T., Etheridge, B. and Thompson, D.B.A. (2009). Raptors: A Field Guide to Survey and Monitoring (second edition). Scottish Natural Heritage, Inverness.**

**Haworth, P.F., Fielding , A.H., Whitfield , D.P. and Reid , R. (2009). *Diet and breeding success in golden eagles: implications for land management.* Contract no. 23748.SNH, Battleby**

**Whitfield, D.P., Fielding , A.H., Gregory , M.J.P., Gordon , A.G., McLeod , D.R.A. and Haworth , P.F. (2007). Complex effects of habitat loss on golden eagles. *Ibis* 149, 26–36.**

**Whitfield, D.P., Fielding, A.H., McLeod, D.R.A. and Haworth, P.F. (2004). The effects of persecution on age of breeding and territory occupation in golden eagles in Scotland. *Biological Conservation* 118: 249-259.**

**McMillan, R.L. (2011). Raptor persecution on a large Perthshire estate: a historical study. *Scottish Birds* 31: 195-205.**

This paper confirmed victims of poison abuse in Scotland from 1989-2011 is 932. The figure includes 75 red kites, 29 golden eagles and 364 buzzards. The number of confirmed victims of shooting, trapping or nest destruction in Scotland from 1989-2011 is 334. This includes 7 red kites, 17 golden eagles, 145 buzzards, 63 peregrines, 51 hen harriers, 13 goshawks, 16 sparrowhawks and 28 kestrels. It's a widely held view that these confirmed incidents represent just the tip of a large iceberg; a view supported by the findings of a recent study that compared unpublished 'vermin' destruction records from one estate in Perthshire with known persecution incidents throughout Scotland as recorded by the authorities. The results showed that over a period of years, the number of raptors illegally killed on just one estate far exceeded the number of 'official' incidents recorded across the whole of Scotland.

**Whitfield, D. P., Fielding, A. H., McLeod, D. R. A. and Haworth, P. F. (2008). A conservation framework for golden eagles: implications for their conservation and management in Scotland. Scottish Natural Heritage Commissioned Report No.193 (ROAME No. F05AC306).**

A conservation Framework for the Golden eagle in Scotland set targets for favourable conservation status and identified the constraints acting on populations. It advised that:

* Nationally, at least 500 golden eagle territories should be occupied by pairs;
* Regionally, at least 66% of known (Highlands and Islands) or potential (south of the Highlands) territories should be occupied by pairs; and
* Demographic parameter values (i.e. production of young, pre-breeding survival and adult survival) should allow the maintenance of a stable or expanding population.
* Surveys were undertaken in 1982, 1992 and 2003 the results of which showed these targets were not met. Current evidence indicates that illegal persecution and low food availability in parts of western Scotland are the two main constraints on the Scottish golden eagle population.
* The highest national priority for the conservation and management of golden eagles in Scotland is to tackle persecution in those areas where it still persists. A secondary national priority for restorative management is to promote greater availability of live prey in parts of the western Highlands, potentially through changes in the management of deer and sheep.

**Evans, R.J., O'Toole, L. and Whitfield, D.P. (2012). The history of eagles in Britain and Ireland: an ecological review of placename and documentary evidence from the last 1500 years*. Bird Study* 59(3): 335-349.**

Human persecution and habitat destruction have had a considerable impact on eagles over the last 1500 years. The study concludes that both white-tailed eagles and golden eagles were once found across large tracts of lowland and upland Britain and Ireland, but populations plummeted as a result of human activity.

**Haworth, P and Fielding, A. (2013). Expanding woodlands in Special Protection Areas for golden eagle. Forestry Commission Practice note.**

This Practice Note reviews the evidence for how golden eagles may be affected by woodland expansion in their breeding territories, and gives interim guidance on how to plan for woodland planting proposals within the special protected areas to make them compatible with their golden eagle conservation objectives.

1. <http://www.snh.org.uk/pdfs/strategy/geconsult/8-keyfactsleaflet-b464148.pdf> accessed 29/08/13 [↑](#footnote-ref-1)
2. [RSPB 2008] RSPB bird guide account: Golden Eagle. Downloaded from http://www.rspb.org.uk/wildlife/birdguide/name/g/goldeneagle/index.asp on 29/08/13 [↑](#footnote-ref-2)
3. [SRSG 2008] The Golden Eagle. Downloaded from http://www.scottishraptorgroups.org/raptors/golden\_eagle.php on 28/08/2013 [↑](#footnote-ref-3)
4. http://www.goldeneagle.ie/ accessed 29/08/13 [↑](#footnote-ref-4)
5. Whitfield, D. P., Fielding, A. H., McLeod, D. R. A. and Haworth, P. F. (2008). A conservation framework for golden eagles: implications for their conservation and management in Scotland. Scottish Natural Heritage Commissioned Report No.193 (ROAME No. F05AC306). [↑](#footnote-ref-5)
6. Watson, Jeff (1997). The Golden Eagle. Poyser, London [↑](#footnote-ref-6)
7. www.scotland.gov.uk/News/Releases/2010/10/28100843 accessed 23/09/13 [↑](#footnote-ref-7)
8. www.scottishraptorstudygroup.org/goldeneagle.html [↑](#footnote-ref-8)
9. www.roydennis.org/animals/raptors/golden-eagle/ [↑](#footnote-ref-9)
10. www.raptortrack.org/ [↑](#footnote-ref-10)
11. <http://www.snh.gov.uk/enjoying-the-outdoors/year-of-natural-scotland-2013/scotlands-big-5-celebrations/welcome-big-five/> accessed 10/12/13 [↑](#footnote-ref-11)