European Community Directive
on the Conservation of Natural Habitats
and of Wild Fauna and Flora
(92/43/EEC)

Second Report by the United Kingdom under Article 17

on the implementation of the Directive from January 2001 to December 2006

Conservation status assessment for :

S1363: *Felis silvestris* - Wildcat

S1363 *Felis silvestris* Wildcat

Audit trail compiled and edited by JNCC and the UK Inter-Agency Mammal Working Group

This document is an audit of the data and judgements on conservation status in the UK's report on the implementation of the Habitats Directive (January 2001 to December 2006) for this species. Superscript numbers accompanying the headings below, cross-reference to headings in the corresponding Annex B reporting form. This supporting information should be read in conjunction with the UK approach for species (see 'Assessing Conservation Status: UK Approach').

1. Range Information[2.3]

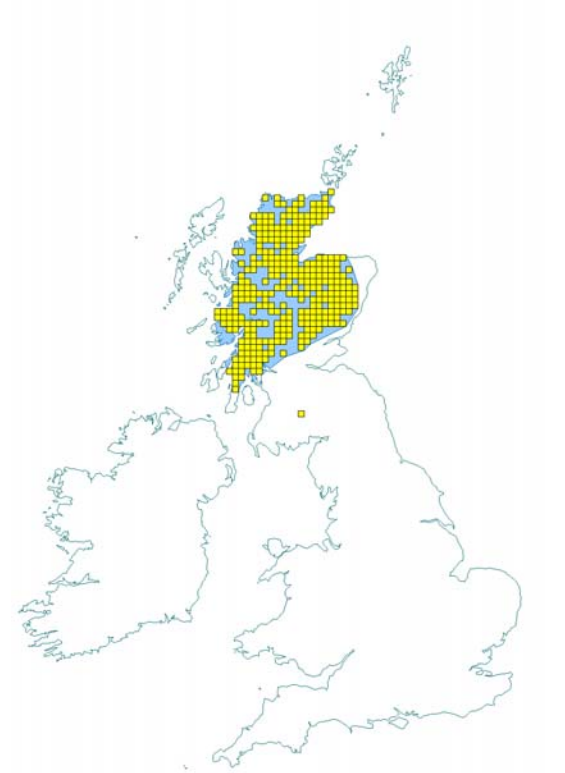
This species is found only in Scotland; it is absent from the rest of the UK.

1.1 Surface area of range[2.3.1]

43,842km^2

The above estimate was calculated within Alpha Hull software, using extent of occurrence as a proxy measure for range (as shown in Map 1.1). The value of alpha was set at 45 km to reflect the mobility of this species.

Map 1.1 current extent of occurrence and occupied 10-km squares (1980-2003)



Data sources provided in Section 6

1.2 Date of range determination[2.3.2]

1980 – 2003

Records from this time period provide the best representation of current range as it is understood by specialist knowledge. A distribution map based on a questionnaire survey carried out in the 1980s (1983-1987) was produced by Easterbee *et al*. (1991). Then, in the 1990s (1992-1994) Balharry and Daniels (1998) carried out a further survey. There are a few additional ad hoc records for the species up to 2003.

1.3 Quality of range data[2.3.3]

Moderate

This species has been the subject of two surveys in the last 30 years (Easterbee *et al*. 1991; Balharry and Daniels 1998). The survey by Easterbee *et al*. (1991) was a questionnaire based on 499 10-km squares, and more than 400 people supplied information. Balharry and Daniels (1998) carried out their survey based on carcass location and live-trapping.

Differentiation of wildcats, domestic cats and their hybrids is problematic (Daniels *et al*. 1998), therefore, data must be interpreted with caution. Only recently has a consensus been reached on the diagnosis of wildcats on the basis of coat patterns (Kitchener *et al*. 2005).

1.4 Range trend[2.3.4] and range trend magnitude[2.3.5]

Unknown

There is no information on trends in range for this species during the selected time period 1980-2003.

1.5 Range trend period [2.3.6]

1980 – 2003

The time period selected is considered to reflect the current situation regarding range change for this species and incorporates the time period since the Habitats Directive came into force.

1.6 Reasons for reported trend in range[2.3.7]

Not applicable

1.7 Favourable reference range[2.7.1]

43,842km^2 (Equal to current)

The favourable reference range value has been derived using 1994 as the baseline and making a judgement on whether the range in 1994 was sufficient to allow the long-term survival of the species, using the decision tree in Note 1 (see 'Assessing Conservation Status: UK Approach') as a guide. Historic and current information on range size and trends have been used to assess this and, if the 1994 level was not sufficient, then consideration has been given to what would constitute a large enough range.

The current range is considered sufficient to support viable populations in the long term and has been set as the favourable reference value. A favourable reference range is considered to be equal to current because range is not considered to be the major factor affecting the likelihood of long-term survival.

1.8 Range conclusion[2.8]

Favourable

This current trend in range for *F. silvestris* is not known, but the favourable reference range is set at equal to current range and the assessment is, therefore, Favourable.

2. Population of the Species[2.4]

2.1 Population estimate[2.4.1]

Unknown

Estimating population size for this species is very difficult. The most recent UK estimate stands at 4,200 individuals (Macdonald *et al.* 2004). However, only a proportion of individuals would be classified as *F. silvestris* according to classical pelage criteria. Hybridization with feral cats may mean there are as few as 400 with classical wildcat pelage and possibly no genetically pure *F. silvestris* remain (Macdonald *et al.* 2004).

2.2 Date of population estimate[2.4.2]

2004

2.3 Method of population estimate[2.4.3]

1 = based on expert opinion

The estimate was supplied by D.J. Jefferies (*Pers. comm.* cited in Harris *et al*. 1995). He used the distribution of wildcats on a 10-km square basis as shown in Easterbee *et al.* 1991). Each occupied 10-km square was allocated to one of four status categories based on the frequency of sightings (which was known for 82% of the occupied squares), and the status in particular squares was related to the known density estimates by Corbett (1979) and R. Scott (*Pers. comm.* cited in Harris *et al*. 1995). The estimate produced using this method was 3,500 wildcats. Estimating total population based on home range data in Daniels (1997) for the same distribution given by Harris *et al*. (1995) produces an estimate of 4,200 (Macdonald *et al*. 2004).

2.4 Quality of population data[2.4.4]

Poor

The above UK estimate was not supported by quantitative data it was a judgement based on field experience. The reliability rating of the above estimate was 3 (Harris *et al.* 1995), meaning that "the population estimate was based on a limited amount of data on population densities in different habitat types, or for which the population estimate was obtained by scaling abundance relative to a species for which there was a reasonable population estimate." For this reason quality of data has been assessed as poor.

2.5 Population trend[2.4.5] and population trend magnitude[2.4.6]

Decreasing

Easterbee *et al.* (1991) reported historic declines in 34% of occupied 10 x 10 km squares and increases in only 8%. Declines tended to be reported in squares where the species was known to be rare and occasional, whereas increases were more often in squares where they were classified as 'established'. The conclusion was that most populations of *F. silvestris* in Scotland were currently showing little change. However, studies that have separated true *F. silvestris* from wild living cats suggest there may be as few as 400 *F. silvestris* with classical wildcat pelage and this suggests a substantial decline on the 1995 population estimate of

3,500. It is not known how many of the estimated 3,500 individuals had classical wildcat pelage, but there is likely to have been a real decline in the *F. silvestris* population during the trend period.

2.6 Population trend period[2.4.7]

1980 – 2004

In reality, there is little information to assess the population trend. This time period has been selected because it allows consideration of the most recent survey data.

2.7 Reasons for reported trend in population[2.4.8]

3 = Direct human influence (restoration, deterioration, destruction)

4 = Indirect anthropo(zoo)genic influence

The main threat is genetic introgression through hybridisation with feral cats.

The species is still sometimes confused with feral cats by some gamekeepers, and deliberate or accidental killing may be a factor in more recent declines.

2.8 Justification of % thresholds for trends[2.4.9]

Not applicable

2.9 Main pressures[2.4.10]

164 Forestry clearance,
190 Agriculture and forestry activities not referred to above – game management,
502 Routes, autoroutes,
960 Interspecific faunal relations,
964 Genetic pollution

2.10 Threats[2.4.11]

190 Agriculture and forestry activities not referred to above – game management,
502 Routes, autoroutes,
960 Interspecific faunal relations,
964 Genetic pollution

Introgressive hybridisation is a major threat to the survival of this species. The total population size of “wild-living cats” may bear no comparison to the “wildcat” population.

2.11 Favourable reference population[2.7.2]

3,500 individuals showing characteristic wildcat pelage (equal to the 1994 estimate)

The favourable reference population value has been derived using 1994 as the baseline and making a judgement on whether the population in 1994 was viable in the long-term, using the decision tree in Note 1 (see ‘Assessing Conservation Status: UK Approach’) as a guide. Historic and current information on population size, distribution and trends have been used in order to assess viability and, if the 1994 level was not viable, then consideration has been given to what would constitute a viable population.

It is very difficult to set a favourable reference population for this species because it is very unclear how many true *F. silvestris* are in existence. Clear separation of “wild-living cats” and “wildcats” is the initial top priority. Increasing “wild-living cats” is even negative for the conservation of the Scottish wildcat. However, the population estimate in 1995 was 3,500 *F. silvestris* and this should be set as the favourable reference value, given that the favourable

reference population cannot be less than the population in 1994 when the Habitats Directive came into force.

2.12 Population conclusion[2.8]

Unfavourable – Bad

There is evidence of population declines and the current population estimate for true wildcats is less than 75% of the favourable reference population. The conclusion is, therefore, Unfavourable – Bad.

3. Habitat for the Species in the Biogeographic Region or Sea[2.5]

F. silvestris in Scotland prefer the edge of mountains and moorland with rough grazing, although forest and crops may also be important. They are normally found at low altitudes but may occur up to 600m (Easterbee *et al.* 1991). Daniels *et al.* (1998) found that wild-living cats showed significant preference for stream edge and woodland habitat types, while avoiding pasture and heather moorlands within their ranges, and Group 1 cats (i.e. those with charcteristics most different to those of domestic cats) were more likely to be found in cold areas and areas deemed to be poor for forestry - mainly in the eastern Highlands (reviewed in Macdonald *et al.* 2004). Urban infrastructure is thought to pose a physical barrier to movement of current populations into more southern regions of Scotland.

3.1 Surface area of habitat[2.5.2]

Unknown

The area of habitat being used by *F. silvestris* within each occupied 10-km square is unknown.

3.2 Date of estimation[2.5.3]

2006

3.3 Quality of data on habitat area[2.5.4]

Poor

Although *F. silvestris* habitat requirements are reasonably well documented, area of habitat is unknown.

3.4 Habitat trend[2.5.5]

Increasing

The Countryside Survey 2000 (carried out in 1998) compared extent of woodland, both coniferous and broadleaved with extent in 1990 and found that broadleaved woodland had increased by about 5% across the UK, although this increase was offset to some extent by decline in habitat quality. The increase was greater in Scotland and Northern Ireland at 9% (Haines Young *et al.* 2000). The total area of coniferous woodland was unchanged. This suggests that the preferred habitat of *F. silvestris* is slowly increasing.

3.5 Habitat trend period[2.5.6]

1990 – 1998

The time period selected reflects the results of two Countryside Surveys carried out in 1990 and 1998 (Haines-Young *et al*. 2000).

3.6 Reasons for reported trend in habitat[2.5.7]

3 = Direct human influence (restoration, deterioration, destruction)

3.7 Suitable habitat for the species (in km^2)[2.7.3]

Unknown

The species is thought to have recolonised the suitable habitat in Scotland north of the central industrial belt. Urban infrastructure is thought to pose a physical barrier to movement of current populations into more southern regions of Scotland, where there are substantial areas of suitable habitat.

3.8 Habitat conclusion[2.8]

Unknown

The area of habitat available for this species is increasing. However, there is limited information on habitat area suitable for this species and so the conclusion is Unknown at present.

4. Future Prospects[2.6]

Bad prospects

Long-term viability at risk; species likely to become extinct.

Legislation. *F. silvestris* has national and European legal protection. The species is listed on Schedules 5 & 6 of the Wildlife and Countryside Act 1981 (as amended) and the Conservation (Natural Habitats, &c.) Regulations 1994 and is listed on Annex IVa of the Habitats Directive.

Conservation action. A report has been produced assessing conservation factors and recommending an Action Plan for this species (Macdonald *et al*. 2004). *F. silvestris* is a priority species for conservation in Scotland and a five year Species Action Framework has been produced by Scottish Natural Heritage, which aims to establish, maintain and enhance where possible the range of *F. silvestris*. The aim is also to produce good data on the species' distribution and abundance, identify population strongholds, improve habitat management and reduce the threat from hybridisation. A repeat of the 1980s survey is underway to provide this information. The clarification of characteristic classical pelage features has helped in conservation management of the species (Kitchener *et al.* 2005).

Threats. The isolated Scottish population is under severe threat through hybridisation with feral cats. Furthermore, this has created identification problems and accidental killing by some gamekeepers may be an important issue. The extent of hybridisation between wildcats and feral cats also means there is opportunity for the transmission of endoparasitic and viral diseases (Macdonald *et al.* 2004).

Range shrinkage was due to direct human influence, and with that removed i.e. with legal protection in place, the species may be able to recolonise most of their former range in Scotland. However, dispersal capability is limited somewhat by urban infrastructure, development and major roads, which pose physical barriers to movement, and this has been identified as a particular problem with regard to its potential movement into southern Scotland where there are substantial areas of suitable habitat. Most of the suitable habitat in the north of Scotland has already been re-colonised, so further opportunities for expansion are probably limited (Macdonald & Tattersall, 2001).

There is the possibility of risk from poisoning with toxic chemicals and secondary poisoning from rodenticides, but the extent of this risk has not been quantified.

4.1 Future prospects conclusion[2.8]

Unfavourable – Bad and deteriorating

Future prospects for this species are uncertain in the long-term and it is difficult to see how the problem of hybridisation can be dealt with. The conclusion is, therefore, Unfavourable - Bad and deteriorating.

5. Overall Assessment[2.8]

Unfavourable – Bad and deteriorating

Range for this species is Favourable, population is Unfavourable - Bad, habitat is unknown, and future prospects are Unfavourable - Bad and deteriorating. The overall assessment is, therefore, Unfavourable - Bad and deteriorating.

Table 5.1 Summary of conclusions

Parameter	Judgement	Grounds for Judgement (in accordance with Annex C)	Reliability*
Range	Favourable	Range not smaller than the favourable reference range	3
Population	Unfavourable - Bad	Population more than 25% below favourable reference population	3
Habitat	Unknown	None or insufficient reliable information available	N/A
Future Prospects	Unfavourable – Bad and deteriorating	Severe influence of pressures and threats to the species; very bad prospects for its future, long-term viability at risk.	3
Overall Assessment	Unfavourable – Bad and deteriorating	One or more Unfavourable - Bad	3

*1=High, 2=Moderate, 3=Low

High – Expert opinion is that the concluding judgement accurately reflects the current situation based on a professional understanding of the species. For range, population, and habitat, quality of data used to establish the current estimate has been identified as “good”; data used to inform trends is comprehensive and up to date.

Moderate – A greater understanding of the feature, or the factors affecting it, is required before a confident concluding judgement can be made by experts. For range, population, and habitat, the current estimate and/or trend are based on recent, but incomplete or limited survey data; or alternately, a comprehensive, but outdated (pre-1994) review.

Low – Judgements, and comprising estimates, are based predominately on expert opinion.

N/A – Assessment conclusion is “unknown”, on the basis of insufficient reliable information.

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Map Data Sources

Biological Records Centre - Mammals & Irish Otter Databases; Highland Biological Recording Group - Mammals dataset (via NBN Gateway).