

**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 :
S1358: *Mustela putorius* - Polecat**

Please note that this is a section of the report. For the complete report visit <http://www.jncc.gov.uk/article17>

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S1358 *Mustela putorius* Polecat

Audit trail compiled and edited by JNCC and the 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}

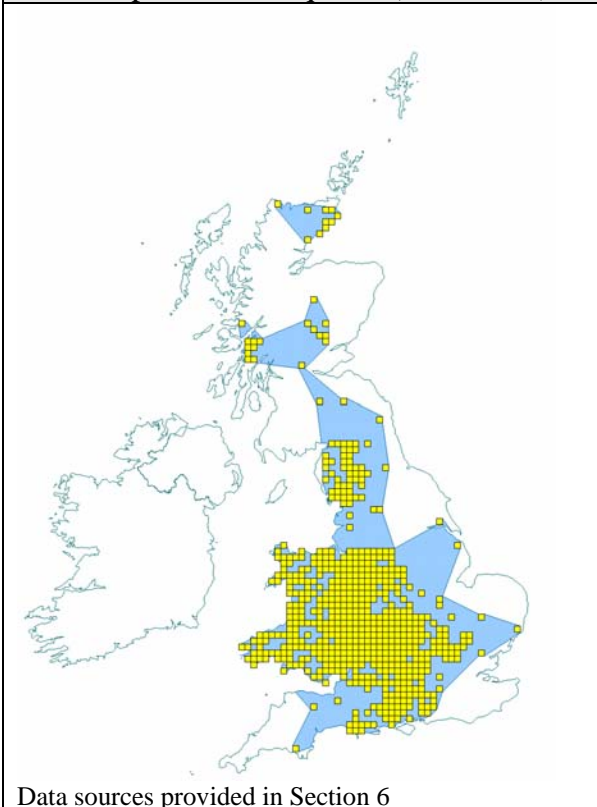
Mustela putorius is found throughout most of rural Wales and in England from Cheshire south to Avon, and east to Leicestershire and Northamptonshire. In the 1970s and 1980s there were also reintroductions into Cumbria, Argyll and on Speyside, but the status of these reintroductions is not known. The current distribution is to a certain extent confused by the presence of feral *M. putorius*-*M. furo* hybrids (Macdonald and Tattersall 2001).

1.1 Surface area of range^{2,3,1}

129,297km²

The above estimate was calculated within Alpha Hull software, using extent of occurrence as a proxy measure for range (see 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 (1990-2006)



1.2 Date of range determination^{2.3.2}

1990 – 2006

Records from this time period provide the best representation of current range as it is understood by specialist knowledge.

1.3 Quality of range data^{2.3.3}

Moderate

Trapping and road casualty surveys have been undertaken during this period providing a good set of data on which to infer range (Birks and Kitchener 1999; Birks unpublished data 2004). Many of the records in Scotland are probably *M. putorius*- *M. furo* hybrids and should be viewed with caution.

1.4 Range trend^{2.3.4} and range trend magnitude^{2.3.5}

Increasing (3 10-km squares every 7 years)

A survey was carried out in 1997 to assess distribution and abundance of the species (Birks and Kitchener 1999). In 2004, this estimate was updated by assuming that the main range had expanded eastwards at a rate of 4.3km per year, equivalent to three new 10-km squares over 7 years. For isolated populations of <20 10-km squares peripheral expansion was assumed to be 1 10-km square, and those populations comprising 20+ 10-km squares, expansion was given as 2 10-km squares. The range of *M. putorius* in 2004 was estimated to be 744 10-km squares (Birks unpublished data 2004). The current range estimate (see Map 1.1) includes records from 613 10km-squares.

An expansion of the Welsh population was recorded from 1962-1991 and between 1993 and 1997 *M. putorius* became re-established in England, particularly in the West Midlands, and there was further expansion across Wales.

In Scotland, a reintroduced population was established in the West Highlands. Further reintroductions are reported from the Highlands, but there is not yet sufficient evidence that populations have re-established themselves there (Battersby and TMP 2005).

1.5 Range trend period^{2.3.6}

1990 – 2006

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}

3. Direct human influence (restoration, deterioration, destruction);

4. Indirect anthropo(zoo)genic influence

The recent spread of *M. putorius* into England has been accelerated by the recovery of rabbit numbers and also the reduction of deliberate persecution by game keepers (Macdonald & Tattersall 2001).

1.7 Favourable reference range^{2.7.1}

129,297km² (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.

Following historic declines as a result of persecution, *M. putorius* populations are recolonising England and there is evidence of population recovery in Scotland, following reintroductions. It is difficult to assess the extent of the range in 1994, but the current range is considered sufficient to support viable populations in the long term and has been set as the favourable reference value.

1.8 Range conclusion^{2.8}

Favourable

The current range is equal to the favourable reference range, and a serious historic decline has been halted, with recent population recovery and range expansion. The conclusion is, therefore, Favourable.

2. Population of the Species^{2.4}

2.1 Population estimate^{2.4.1}

63,240 individuals

Population was estimated as 38,381 in 1997 (Birks and Kitchener 1999), and this estimate was updated in 2004 to account for range expansion (Birks unpublished data 2004).

2.2 Date of population estimate^{2.4.2}

2004

2.3 Method of population estimate^{2.4.3}

2 = extrapolation from surveys of part of the population or from sampling

In order to improve understanding of *M. putorius*' recovery in the mid-1990s, a monitoring system based upon co-ordinated live-trapping by volunteers was developed and tested. 136 1km squares were each live-trapped for seven days within the species' current range (Birks and Kitchener 1999). These data were used to derive population density estimates for the 'current core' of *M. putorius*' range (101 *M. putorius* per 10-km square) and for the 'current fringe' (69 *M. putorius* per 10km square). Results of the distribution survey were used to calculate the total population size in 1997, which was estimated to be 38,381.

In 2004, this estimate was updated by assuming that the main range had expanded eastwards at a rate of 4.3km per year, equivalent to 3 new 10-km squares over 7 years. For isolated populations of <20 10km squares peripheral expansion was assumed to be 1 10km square, and those populations comprising 20+ 10km squares, expansion was given as 2 10-km squares. The range of *M. putorius* in 2004 was therefore estimated to be 744 10km squares. It was further assumed that the 50:50 ratio of core to fringe squares found in 1997 had been maintained, giving a total population estimate of 63,240 *M. putorius* (Birks unpublished data 2004).

2.4 Quality of population data^{2.4.4}

Moderate

The population estimate was based on live trapping data, distribution survey data, and also on a high level of field experience.

2.5 Population trend^{2.4.5} and population trend magnitude^{2.4.6}

Increasing

Population estimates derived using trapping data suggest an expansion of the population since 1997 of 64.8% (difference between 1997 and 2004 population estimates: Birks and Kitchener 1999; Birks unpublished information 2004).

Current trends from the Game Conservancy Trust National Gamebag Census (NGC) show a 15% increase from 1995-2005, with larger increases in England and Scotland. However, the increases are not significant because of small sample sizes and variability in the data (Davey and Aebischer 2007). Furthermore, it is not clear how many of the animals recorded are *M. putorius* – *M. furo* hybrids.

2.6 Population trend period^{2.4.7}

1995 – 2005

Trends for this species fit several time periods, but the one used for assessment is from 1995-2005, which has been selected because it allows consideration of the most recent trend data from surveillance schemes and covers the time period when the Habitats Directive came into force.

2.7 Reasons for reported trend in population^{2.4.8}

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

Protection under wildlife legislation, such as the Wildlife and Countryside Act 1981 (as amended) and the Conservation (Natural Habitats, &c) Regulations has reduced the persecution of this species.

2.8 Justification of % thresholds for trends^{2.4.9}

Not applicable

2.9 Main pressures^{2.4.10}

243 Trapping, poisoning, poaching

110 Use of pesticides

141 Abandonment of pastoral systems

502 Routes, autoroutes

850 Modification of hydrographic functioning, general

2.10 Threats^{2.4.11}

243 trapping, poisoning, poaching

110 Use of pesticides

141 Abandonment of pastoral systems

502 Routes, autoroutes

850 Modification of hydrographic functioning, general

960 (Interspecific faunal relations)

964 (Genetic pollution)

Historical decline can be attributed to persecution and habitat loss. Predation on game birds and poultry has brought the species into conflict with gamekeepers and farmers and there may be a continued threat from trapping and poisoning.

2.11 Favourable reference population^{2.7.2}

38,381 individuals (equal to 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.

Surveys of range and population size have indicated that *M. putorius* populations have been increasing since the early 1980s and have continued to increase since 1994. It is probable that the population in 1994 was viable. The 1997 population estimate, which is the closest estimate to 1994 available has, therefore, been set as the favourable reference value for this species.

2.12 Population conclusion^{2.8}

Favourable

Available data suggest that the population is increasing and the current population estimate is above the favourable reference population. The assessment for population is, therefore, Favourable.

3. Habitat for the Species in the Biogeographic Region or Sea^{2.5}

A radio-tracking study undertaken by Birks and Kitchener (1999) found that *M. putorius*' mean home range was 213ha and 125ha for males and females, respectively. *M. putorius* are primarily nocturnal; 72.4 % of activity is undertaken in the dark. Activity during the day was typically recorded from *M. putorius* that were underground in rabbit warrens, in farm buildings, or in thick cover. The study found that woodland edges, field boundaries and farm buildings were preferred habitats; farm buildings were particularly so during winter months. A strong association was also identified between *M. putorius* and rabbit warrens.

3.1 Surface area of habitat^{2.5.2}

Unknown

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

3.2 Date of estimation^{2.5.3}

Not applicable

3.3 Quality of data on habitat area^{2.5.4}

Poor

Birks and Kitchener's (1999) review of this species comprised a detailed analysis of habitat use. The success of *M. putorius* populations in different landscapes is unknown. This makes it difficult to consider particular habitat trends.

3.4 Habitat trend^{2.5.5}

Unknown

The intensification of farming practices has limited the extent of semi-natural habitat available for this species. However, the extent to which they have adapted to alternate habitats is not known. This makes any quantification of habitat trend problematic. For this reason it has been left as unknown.

3.5 Habitat trend period^{2.5.6} 1994 – 2006

3.6 Reasons for reported trend in habitat^{2.5.7} Not applicable

3.7 Suitable habitat for the species (in km²)^{2.7.3} Unknown

3.8 Habitat conclusion^{2.8} Unknown

With no information on habitat area and limited understanding of habitat trend, the assessment for this parameter can only be Unknown.

4. Future Prospects^{2.6} Good prospects

Species expected to survive and prosper.

Factors likely to affect the species over the next 12-15 years are considered below.

Legislation. *M. putorius* has national and European legal protection. The species is listed on Schedule 6 of the Wildlife and Countryside Act 1981 (as amended) and Regulation 41 of the Conservation (Natural Habitats, &c.) Regulations 1994 and is listed on Annex V of the Habitats Directive.

Conservation action. The species has been put forward as a priority species. Since the early 20th century the intensity of game keeping has declined, and the amount of woodland has increased.

Threats. Issues that continue to affect *M. putorius* include road accidents, secondary rodenticide poisoning, and the loss of genetic integrity through hybridisation with feral domestic ferret *M. furo*. Low public awareness and ambiguous legal protection are also a concern. Although it is thought that persecution (both deliberate and non-deliberate) continues in some areas, there is no evidence that this has hindered *M. putorius*' recovery (Birks & Kitchener 1999).

4.1 Future prospects conclusion^{2.8} Favourable

Range and population for this species are both increasing and the major threats have been addressed. Overall future prospects for this species are considered Favourable.

5. Overall Assessment^{2.8} Favourable

Species can be expected to prosper without any change to existing management or policies.

Range, population and future prospects are all Favourable for this species and habitat for the species is unknown. The overall assessment is, therefore, Favourable.

Table 5.1. Summary of conclusions

Parameter	Judgement	Grounds for Judgement (in accordance with Annex C)	Reliability*
Range	Favourable	Stable (loss and expansion in balance) or increasing and not smaller than the favourable reference range	2
Population	Favourable	Population(s) not lower than favourable reference population	2
Habitat	Unknown	No or insufficient reliable information available	N/A
Future Prospects	Favourable	Main pressures and threats to the species not significant; species will remain viable on the long-term	2
Overall Assessment	Favourable	Three Favourable and Unknown	2

*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.

6. References

BATTERSBY, J. (ED.) and TRACKING MAMMALS PARTNERSHIP 2005. UK Mammals: Species Status and Population Trends. Joint Nature Conservation Committee/Tracking Mammals Partnership.

BIRKS, J.D.S. and KITCHENER, A.C. (EDS.) 1999. The Distribution and Status of the Polecat *Mustela putorius* in Britain in the 1990s. Vincent Wildlife Trust.

HARRIS, S., MORRIS, P., WRAY, S. AND YALDEN, D. 1995. A Review of British Mammals. Joint Nature Conservation Committee.

MACDONALD, D.W. AND TATTERSALL, F.T. 2001 Britain's Mammals: The Challenge for Conservation. Mammals Trust UK/WildCru.

Map Data Sources

Biological Records Centre - Mammals and Irish Otter Databases (via NBN Gateway).

Vincent Wildlife Trust polecat data (1959-2006).

BTO/JNCC/RSPB Breeding Bird Survey mammal data (1995-2005).