

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 :
S1058: *Maculinea arion* - Large blue butterfly

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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S1058 *Maculinea arion* Large blue butterfly

Audit trail compiled and edited by JNCC and the Inter-Agency 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}

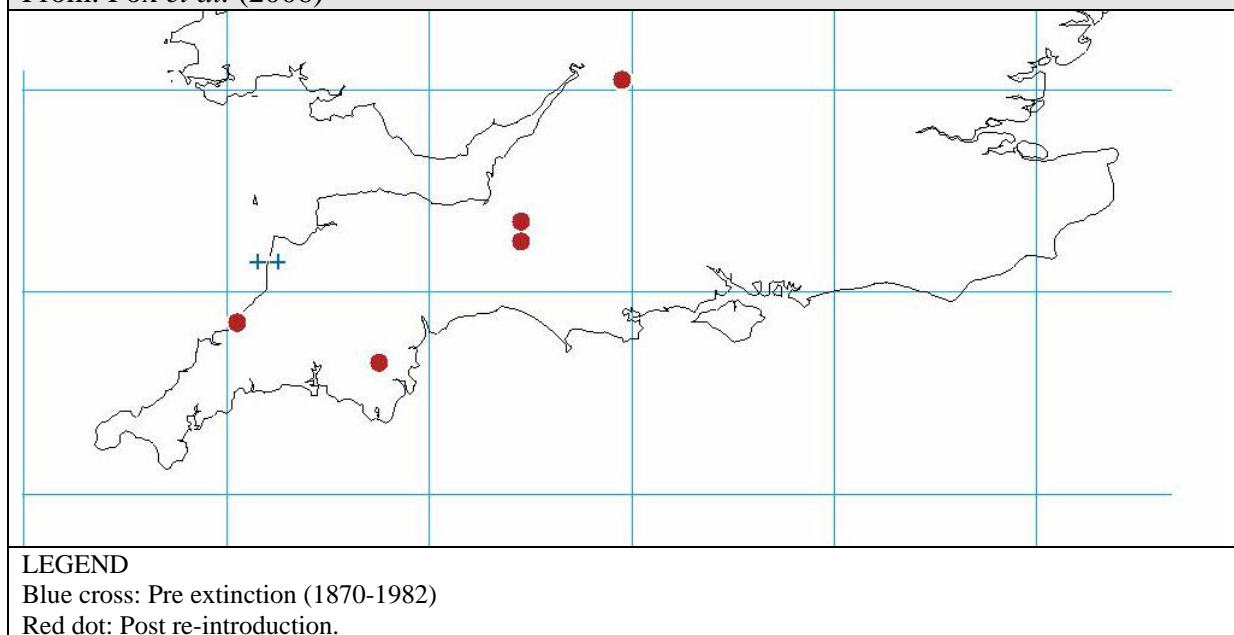
1.1 Surface area of range^{2.3.1}

500km²

The Large Blue butterfly is restricted to 5-10 km-squares (13 1km-squares) in Devon, Cornwall, Somerset and Gloucestershire. Recent sites are confidential and are therefore not mapped.

Map 1.1. Current extent of occurrence and occupied 10 km-squares (2004)

From: Fox *et al.* (2006)



1.2 Date of range determination^{2.3.2}

2004

1.3 Quality of range data^{2.3.3}

Good

Known sites are surveyed annually.

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

Increasing

There has been an active re-establishment programme for more than 20 years which has resulted in the re-establishment of the species following its extinction in 1979 and should further result in an expansion of the existing sites and a series of new colonisations and releases.

1.5 Range trend period^{2.3.6} **1994 – 2006**

1.6 Reasons for reported trend in range^{2.3.7} **3. Direct human influence (restoration, deterioration, destruction);** Active re-establishment

1.7 Favourable reference range^{2.7.1} **Unknown**

Based on the decision tree in Note 1 (see ‘Assessing Conservation Status: UK Approach’) the favourable reference range for this species has been identified as unknown.

Although the increasing trend is attributed to intensive conservation care, in the absence of the post-1994 re-establishments, it is likely that trend would have been stable (populations established prior to this time appear to have maintained themselves). However, because risk from stochastic events at that time was unknown, the conclusion reflects this.

1.8 Range conclusion^{2.8} **Unknown**

In accordance with the UK approach, the conclusion for range is unknown.

2. Population of the Species^{2.4}

2.1 Population estimate^{2.4.1} **15 sites**

This species is found in 15 small patches in 13 different 1km squares.

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, sampling**

2.4 Quality of population data^{2.4.4} **Good**

Known sites are surveyed annually, and population sizes assessed.

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

Sites have been colonised for different periods of time. There is no single period over which the populations have been assessed. Extinction occurred in 1979; the first trial release took place in 1983; and large scale release took place in 1986. The most recent data is from 2004.

The UK population is increasing as a result of introductions – there is no meaningful trend to report.

2.6 Population trend period^{2.4.7}

1994 – 2004

2.7 Reasons for reported trend in population^{2.4.8}

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

Active re-establishment

2.8 Justification of % thresholds for trends^{2.4.9}

Not applicable

2.9 Main pressures^{2.4.10}

140 Grazing

141 Abandonment of pastoral systems

501 Paths, tracks, cycling tracks

622 Walking, horse riding and non-motorised vehicles

950 Biocenotic evolution (scrub development)

960 Interspecific faunal relations

2.10 Threats^{2.4.11}

140 Grazing

141 Abandonment of pastoral systems

501 Paths, tracks, cycling tracks

530 Improved access to site

622 Walking, horse riding and non-motorised vehicles

703 Soil pollution (nutrient enrichment)

950 Biocenotic evolution (scrub development)

960 Interspecific faunal relations

2.11 Favourable reference population^{2.7.2}

20 sites (Current is 25% below the favourable reference population)

The decision tree in Note 1 has been used as a guide in determining the favourable reference population estimate (see ‘Assessing Conservation Status: UK Approach’).

The increasing trend has been attributed to intensive conservation care, i.e. re-establishment. Further, although it is not presently considered to be at high risk from stochastic events, the *M. arion* population can not be regarded as having sustained itself at low abundance for at least 15 years. For this reason, the favourable reference population has been set at 25% above the current estimate (i.e. 20 sites).

2.12 Population conclusion^{2.8}

Unfavourable – Inadequate but improving

The favourable reference value is more than the current estimate, but not by a factor of more than 25%. The judgement is therefore Unfavourable – Inadequate but improving (to reflect trends).

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

Larvae require a short grassland sward with abundant flowering Thyme plants and abundant nests of the ant *Myrmica sabuleti*.

3.1 Surface area of habitat^{2.5.2}

0.3 – 0.75 km²

The butterfly typically forms discrete colonies on small patches of suitable habitat (typically 2-5 ha) from which the adults stray only rarely. However, the re-established adults clearly have some powers of dispersal and one of the newly founded colonies has spread 2-3 km, covering numerous small patches of suitable habitat (Barnett & Warren 1995). Using this figure as a basis for calculation a figure of between 0.3 and 0.75 km² is derived.

3.2 Date of estimation^{2.5.3}

2004

3.3 Quality of data on habitat area^{2.5.4}

Good

Due to its status and narrow distribution, the large blue's habitat has been well surveyed and documented.

3.4 Habitat trend^{2.5.5}

Increasing

Since the species' re-introduction in 1983 the area of habitat available to and used by *M. arion* has, of course, increased.

3.5 Habitat trend period^{2.5.6}

1983 – 2004

3.6 Reasons for reported trend in habitat^{2.5.7}

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

Active management

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

Unknown

3.8 Habitat conclusion^{2.8}

Unfavourable – Inadequate but improving

Although management has led to an increase available habitat, expert opinion is that further habitat creation is required before it can be considered substantial enough to ensure the long-term survival of the species. On this basis, it has been assessed as Unfavourable – Inadequate but improving.

4. Future Prospects^{2.6}

Good prospects

Species expected to survive and prosper.

This species is subject to a high level of legislative protection and management. It is also a priority species listed under the existing (and revised) UK Biodiversity Action Plan. Hence it would be inaccurate to report the large blue as “likely to struggle unless conditions change” (as would be suggested with a judgement of “poor”). However, due to the small population size and range, active management must be maintained for the species to continue improving. For this reason, prospects have been reported here as good, but as Unfavourable – Inadequate but improving below.

4.1 Future prospects conclusion^{2,8}

Unfavourable – Inadequate but improving

As the species cannot be reported as likely to “remain viable in the long-term” future prospects cannot yet be given as Favourable. However, improvements are foreseen.

5. Overall Conclusion^{2,8}

Unfavourable-Inadequate but improving

All categories are reported as Unfavourable – Inadequate but improving. Therefore in accordance with Annex C, the overall conclusion reflects this.

Table 5.1. Summary of conclusions

Parameter	Judgement	Grounds for Judgement (in accordance with Annex C)	Reliability*
Range	Unknown	No or insufficient reliable information available	1
Population	Unfavourable – Inadequate but improving	Any other combination Population increasing, but has not yet reached the favourable reference population from normal (if data available)	1
Habitat	Unfavourable – Inadequate but improving	Any other combination Area of habitat is not yet sufficiently large to ensure the long term survival of the species	2
Future Prospects	Unfavourable – Inadequate but improving	Main pressures and threats to the species not significant; species will remain viable on the long-term Any other combination	1
Overall Assessment	Unfavourable-Inadequate but improving	One or more Unfavourable – Inadequate but no Unfavourable – Bad	1

*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

ASHER, J., WARREN, M.S., FOX, R., HARDING, P., JEFFCOATE, G. & JEFFCOATE, S., 2001. *The Millenium Atlas of Butterflies in Britain and Ireland*. Oxford: Oxford University Press.

BARNETT, L.K. & WARREN, M.S., 1995. *Species Action Plan: Large Blue, Maculinea arion*. Wareham: Butterfly Conservation.

FOX, R., ASHER, J., BRERETON, T., ROY, R. & Warren, M. 2006. *State of Butterflies in Britain and Ireland*. Pisces Publications

Map Data Sources

Fox *et al.* (2006)