

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 :
S1202: *Bufo calamita* - Natterjack toad

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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S1202 *Bufo calamita* Natterjack Toad

Audit trail compiled and edited by Joint Nature Conservation Committee, the Inter-Agency Herpetofauna Working Group and the Herpetofauna Conservation Trust

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}

The natterjack toad is currently found in sparsely scattered locations across East Anglia, Lincolnshire, Hampshire and also along the coast of Cumbria, Cheshire, and Dumfries. Reintroductions have taken place in the Midlands and Wales.

1.1 Surface area of range^{2.3.1} **3,694km²**

The above estimate was calculated within Alpha Hull software, using extent of occurrence as a proxy measure for range (see Map 1.2), at a resolution of 10km. Alpha was set at 20km to reflect not only the mobility of this species, but also the fine level at which it has been surveyed and is understood. The alpha hull (range area) was clipped to include terrestrial habitat only.

1.2 Date of range determination^{2.3.2} **1995 – 2006**

The current date-class includes all records from the Herpetofauna Conservation Trust Rare Species Database and the Reptiles and Amphibians Dataset dated 1995 onwards. Expert opinion is that this data set provides the best representation of current distribution, as it is understood today.

1.3 Quality of range data^{2.3.3} **Good**

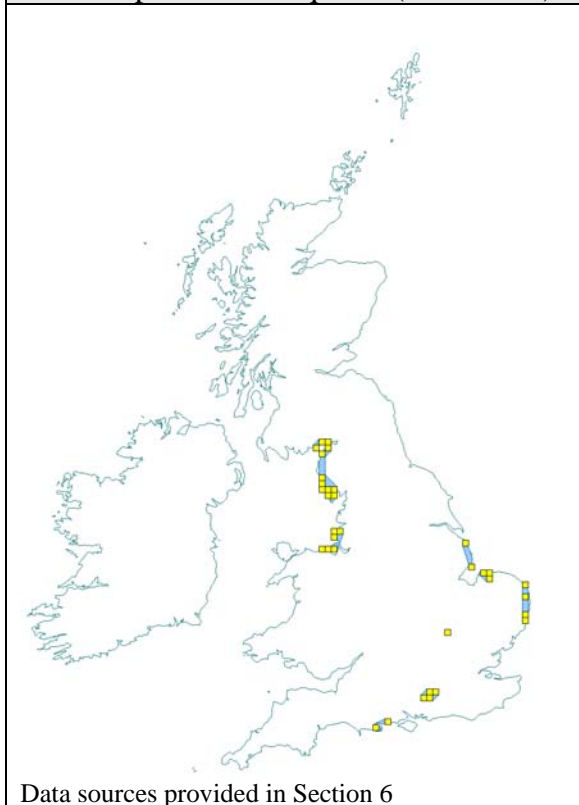
This species has been well surveyed due to its nature conservation status and restricted distribution.

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

The range of this species has probably remained stable since the Habitats Directive came into force in 1994. Further, reports by Buckley & Beebee (2004) suggest a slight increase over the last UKBAP reporting round (2001-2006).

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

Map 1.1. Current extent of occurrence
and occupied 10 km-squares (1995-2006)



1.6 Reasons for reported trend in range^{2.3.7}

Not applicable

1.7 Favourable reference range^{2.7.1}

4,100km² (Greater than current)

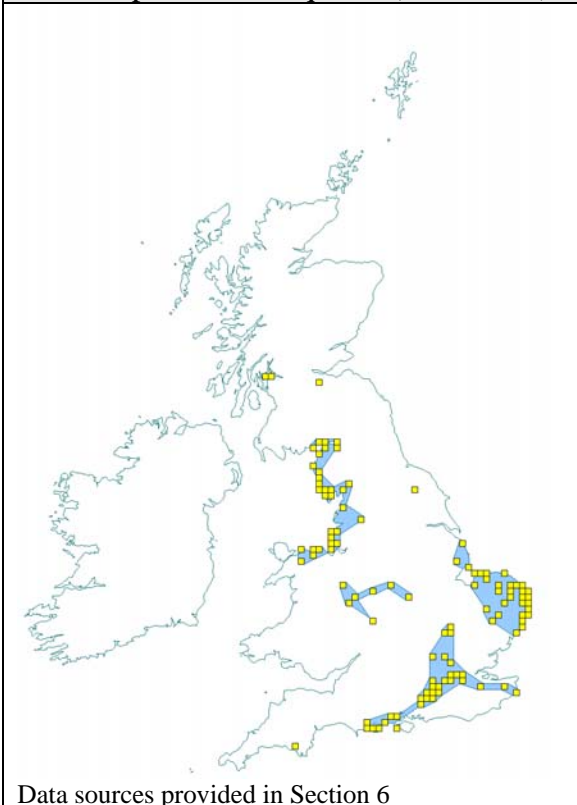
The decision tree in Note 1 has been used as a guide in determining the favourable reference range estimate (see 'Assessing Conservation Status: UK Approach').

Map 1.2 shows the historical extent of occurrence (23,242km²), calculated using records dated from 1800 to 1994. A comparison of this, and the current extent of occurrence (3,694km²), suggests an 84% decline in range since the turn of the 19th Century. Although the range has remained relatively stable since the Habitat Directive came into force in 1994, it has yet to recover from these historic declines.

If intensive conservation were to be withdrawn, species specialists are not confident that the range would be sufficiently comprehensive to support viable populations in the long-term. However any decline would be unlikely to exceed 1% per annum. (This judgement is based on knowledge of the species' ecology, its previous distribution and the potential to re-establish the species.)

For these reasons, the current (and hence 1994 range) are not considered a sufficient baseline for the favourable reference range. Rather, in accordance with the UK approach, it has been set at 10% greater than the current estimate, i.e. 4,100 km².

Map 1.2. Historic extent of occurrence and occupied 10 km-squares (1800-1994)



1.8 Range conclusion^{2.8}

Unfavourable-Inadequate but improving

The favourable reference range is more than the current estimate, but not by a factor more than 10%. The range conclusion is therefore Unfavourable – Inadequate, but improving to reflect post-2001 trends (attributed to conservation action).

2. Population of the Species^{2.4}

2.1 Population estimate^{2.4.1}

2,500 breeding females

Natterjack toads were noted as occurring at 54 sites during the 2005 biodiversity action plan reporting round, comprising 2,500 breeding females (Species Action Plan target review, Gleed-Owen et al. 2005a, b).

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

This was an approximation of the total annual spawn counts at all natterjack populations across England and Wales (Gleed-Owen et al. 2005a, b).

2.4 Quality of population data^{2.4.4}

Good

Natterjack sites are very restricted, and all have been extensively surveyed. Therefore although the population estimate is not from a complete inventory as such, it is reported here with high confidence.

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

Stable

Historically, this species has suffered massive declines in population. This is supported by the large decline in the number of occupied 10km-squares reported since the turn of the 19th century (historical area of occupancy was reported above as 115 10km-squares, current area of occupancy was 36 10km-squares, suggesting an 84% decline).

Since the Habitats Directive came into force, the population has remained relatively stable. However, an increase of 8% was reported between the number of sites in 2002 and 2005 biodiversity action reporting rounds (50 and 54, respectively).

2.6 Population trend period^{2.4.7}

1994 – 2006

2.7 Reasons for reported trend in population^{2.4.8}

Not applicable

2.8 Justification of % thresholds for trends^{2.4.9}

Not applicable

2.9 Main pressures^{2.4.10}

100 Cultivation

101 Modification of cultivation practices

141 Abandonment of pastoral systems

400 Urbanised areas, human habitation

410 Industrial or commercial areas

500 Communication networks

701 Water pollution

800 Landfill etc

853 Management of water levels

920 Drying out

965 Predation

2.10 Threats^{2.4.11}

101 Modification of cultivation practices

390 Mineral extraction activities not referred to above – specifically chalk and clay extraction

400 Urbanised areas, human habitation

410 Industrial or commercial areas

500 Communication networks

601 Golf course

608 Camping and caravans

730 Military manoeuvres

- 800 Landfill etc**
- 803 Infilling of ditches, dykes, ponds, pools, marshes**
- 810 Drainage**
- 853 Management of water levels**
- 871 Sea defence or coast protection works**
- 920 Drying out**
- 953 Acidification**
- 954 Invasion by a species**
- 965 Predation**
- 969 Other forms/mixed forms of interspecific faunal competition**

2.11 Favourable reference population^{2.7.2}

10,000 breeding females (Current is more than 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').

Recent work suggests that the UK natterjack population should comprise at least 25,000 breeding females, this figure is based on likely population numbers within potential (realistic) areas of habitat creation and restoration (Natterjack Toad SAP Steering Group). Expert opinion is that this value is more reflective of a favourable reference value than the current population estimate. Given the difficulties inherent in estimating a true value and in line with the guidance developed, a favourable reference population of at least 10,000 breeding females is given here i.e. the 1994 baseline is assumed to be considerably less than 75% of the FRP.

2.12 Population conclusion^{2.8}

Unfavourable – Bad but improving

Although natterjack populations have been relatively stable since 1994, based on the information above, the population is not yet within 25% of the favourable reference population.

In accordance with Annex C, population is therefore assessed as Unfavourable-Bad, but improving, to reflect post-2001 increases.

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

This species is associated with sandy heaths, coastal dune systems and upper salt marshes. It is highly specialised in terms of its breeding requirements, showing preference for shallow water bodies in the earliest stages of succession with low levels of plant and animal life. Natterjacks excavate their own burrows, or use existing ones, in soft substrates such as sand. For this reason, active management to maintain open landscapes in both coastal and heathland habitats is usually necessary (Gent & Gibson, 2003).

3.1 Surface area of habitat^{2.5.2}

100km²

Based on expert opinion and mapped distribution data and known habitat use, natterjack core habitat area has been estimated as 20km², with buffer habitat comprising circa 100km² (HCT in European Habitats Forum 2006).

3.2 Date of estimation^{2.5.3} **2006**

3.3 Quality of data on habitat area^{2.5.4} **Moderate**

All natterjack sites have been GIS mapped, but the polygon is probably an over-estimate of occupied area in most cases.

3.4 Habitat trend^{2.5.5} **Stable**

The two broad habitats most commonly associated with this present distribution of the species are southern lowland (sandy) heaths and coastal dunes.

About 70,000 ha of lowland heathland remain in the UK, which represents approximately 16% of its extent in the 19th century. Many heaths have been lost due to afforestation, development and agricultural practices (source: www.jncc.gov.uk/page-1432).

Dune systems are naturally dynamic structures, but their general locations have remained mostly stable over the long term.

Attempting to relate these broad habitat trends specifically to natterjack toad habitat is problematic. However, overall, expert opinion is that since 1994, habitat within the present distribution of the population has most likely remained stable.

3.5 Habitat trend period^{2.5.6} **1994 – 2006**

The reported trend reflects the period after the Habitat Directive came into force.

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

Historically, ponds and suitable terrestrial habitat have been lost through agricultural intensification, development, drainage, and sand abstraction; habitat fragmentation by agriculture and development; and successional changes on heath and dune sites.

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

Area of suitable habitat is unknown. However, the number of breeding ponds will always be a limiting factor of habitat used.

3.8 Habitat conclusion^{2.8} **Unfavourable – Inadequate**

Although recent restoration programmes have (to some extent) stemmed the historic, negative habitat trends, coastal dunes and lowland dry heaths are still under threat. For this reason, natterjack habitat has been assessed as Unfavourable, but since there is no evidence to suggest that the habitat area “is clearly not sufficiently large to ensure the long term survival of the species”, or that “habitat quality is bad, clearly not allowing long term survival of the species”, in accordance with Annex C, the judgement is Inadequate, rather than Bad.

4. Future Prospects^{2.6}

Good prospects

This species is expected to survive and prosper.

Agri-environment schemes now better targeted and with good incentives, and should encourage habitat retention, enhancement and creation. Planning system and associated mechanisms are now increasingly likely to recognise the presence of the species and avert adverse impacts, whilst ensuring compensation where there are some impacts; most (90%) populations are now within SSSIs and so should be protected. New emphasis on habitat creation in planning could, in theory, result in major gains.

The Biodiversity Action Plan process alerts many to the requirements of the species. New legal duties (Nature Conservation (Scotland) Act 2004, NERC Act 2006) should mean that public bodies take greater account of the species. Reintroduction methods are well understood (though not always successful on heathland) and can be used to establish new populations. Many of the foregoing positive comments rely on how well the mechanisms described are implemented and, even with many of these mechanisms working, in practice it will take many years to compensate for the substantial historical population losses. In addition, major losses still occur locally through arson.

4.1 Future prospects conclusion^{2.8}

Favourable

5. Overall Conclusion^{2.8}

Unfavourable-Bad but improving

Table 5.1. Summary of conclusions

Parameter	Judgement	Grounds for Judgement (in accordance with Annex C)	Reliability*
Range	Unfavourable – Inadequate but improving	Any other combination Current range is below the favourable reference range, but stable and showing signs of recent improvement	2
Population	Unfavourable – Bad but improving	Current population is more than 25% below favourable reference population, but showing signs of recent improvement	2
Habitat	Unfavourable – Inadequate	Any other combination Although restoration programmes have stemmed historic declines, it is not yet sufficiently large or of adequate quality, to support the species at favourable status	3
Future Prospects	Favourable	Main pressures and threats to the species not significant; species will remain viable in the long-term	2
Overall Assessment	Unfavourable – Bad but improving	One or more Unfavourable – Bad Future prospects are Favourable, and range and population are showing signs of improvement	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

BEEBEE, T.J.C & GRIFFITHS, R.A. 2000. Amphibians and reptiles: A natural history of the British herpetofauna. The New Naturalist series. London: HarperCollins.

BUCKLEY, J & BEEBEE, T.J.C. 2004. Monitoring the conservation status of an endangered amphibian: the natterjack toad *Bufo calamita* in Britain. *Animal Conservation* 7: 221-228.

European Habitats Forum. 2006. *Towards European Biodiversity Monitoring. Assessment, monitoring and reporting of conservation status of European habitats and species*. Wien, Cambridge, Bruxelles.

GENT, T. & GIBSON, S. 2003. Herpetofauna Workers' Manual. Joint Nature conservation Committee

GLEED-OWEN, C.P. 2004. *Initial surveillance baseline datasets for the sand lizard *Lacerta agilis*, natterjack toad *Bufo calamita* and smooth snake *Coronella austriaca* in England*. Report for English Nature, Peterborough.

GLEED-OWEN, C, BUCKLEY, J, CONEYBEER, J, GENT, T, MCCRACKEN, M, MOULTON, N, & WRIGHT, D. 2005a. Costed plans and options for herpetofauna surveillance and monitoring. English Nature Research Reports, No. 663. English Nature, Peterborough.

GLEED-OWEN, C, BUCKLEY, J, CONEYBEER, J, GENT, T, MCCRACKEN, M, MOULTON, N, & WRIGHT, D. 2005. Costed plans and options for herpetofauna surveillance and monitoring. CCW Contract Science Report 666, Countryside Council for Wales, Bangor.

LANGTON, T.E.S, BECKETT, C.L & DUNSMORE, I. 1993. UK herpetofauna: a review of British herpetofauna populations in a wider context. Report 99F2AO69 to Joint Nature Conservation Committee. Peterborough: JNCC.

Natterjack toad SAP target review. www.ukbap-reporting.org.uk National Habitat Plan – Targets.

Map Data Sources

The Herpetofauna Conservation Trust Rare Species Database and Reptiles and Amphibians
Dataset (provided via the NBN Gateway)