

Report under The Conservation of Habitats and
Species Regulations 2017 (as amended),
Regulation 9A

2019-2024

Conservation status assessment for the species:

S6284 - Natterjack toad

(Epidalea calamita)

England



For further information please contact:

Natural England, Foss House, Kings Pool, 1-2 Peasholme Green, York, YO1 7PX.
<https://www.gov.uk/government/organisations/natural-england>

JNCC, Quay House, 2 East Station Road, Fletton Quays, Peterborough, PE2 8YY.
<https://jncc.gov.uk>

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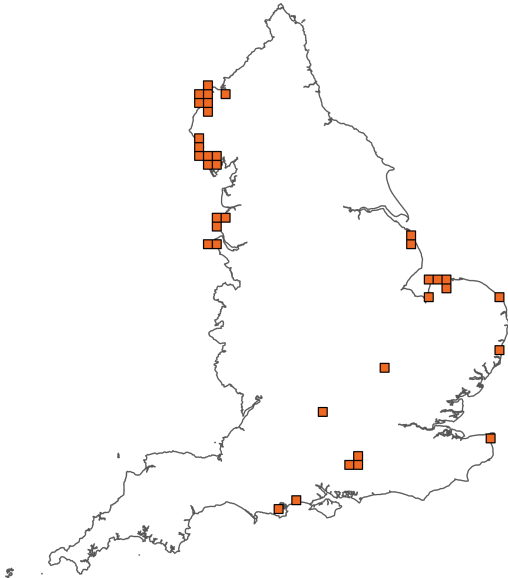
Important note - Please read

- The information in this document represents the England Report under The Conservation of Habitats and Species Regulations 2017 (as amended), Regulation 9A, for the period 2019-2024.
- It is based on supporting information provided by Natural England, which is documented separately.
- The Habitats Regulations reporting 2019-2024 Approach Document provides details on how this supporting information contributed to the UK Report and the fields that were completed for each parameter.
- Maps showing the distribution and range of the species are included.
- Explanatory notes (where provided) are included at the end. These provide additional audit trail information to that included within the assessments. Further underpinning explanatory notes are available in the related country reports.
- Some of the reporting fields have been left blank because either: (i) there was insufficient information to complete the field; (ii) completion of the field was not obligatory; and/or (iii) the field was not relevant to this species (section 12 National Site Network coverage for Annex II species).

Further details on the approach to the Habitats Regulations Reporting 2019-2024 are available on the [JNCC website](#).

Assessment Summary: Natterjack toad

Distribution Map



Range Map

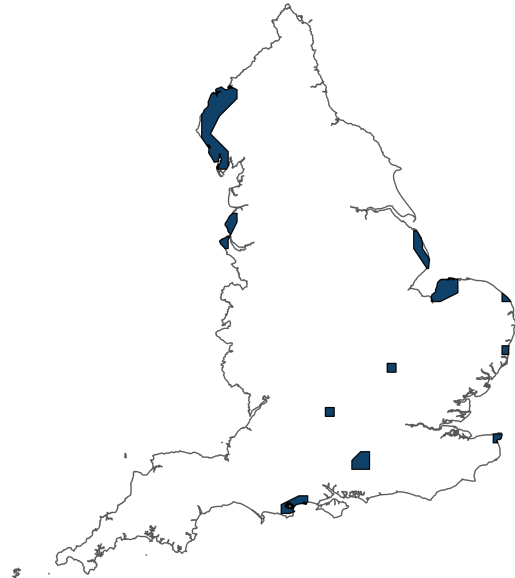


Figure 1: England distribution and range map for S6284 - Natterjack toad (*Epidalea calamita*). Coastline boundary derived from the Oil and Gas Authority's OGA and Lloyd's Register SNS Regional Geological Maps (Open Source). Open Government Licence v3 (OGL). Contains data © 2017 Oil and Gas Authority. The 10km grid square distribution map is based on available species records within the current reporting period.

Table 1: Table summarising the conservation status for S6284 - Natterjack toad (*Epidalea calamita*). Overall conservation status for species is based on assessments of range, population, habitat for the species, and future prospects.

Overall Conservation Status (see section 11)

Unfavourable-inadequate (U1)

Breakdown of Overall Conservation Status

Range (see section 5)

Unfavourable-bad (U2)

Population (see section 6)

Unfavourable-bad (U2)

Habitat for the species (see section 7)

Unfavourable-inadequate (U1)

Future prospects (see section 10)

Unfavourable-inadequate (U1)

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National Level

1. General information

1.1 Country	England
1.2 Species code	S6284
1.3 Species scientific name	<i>Epidalea calamita</i>
1.4 Alternative species scientific name	
1.5 Common name	Natterjack toad
Annex(es)	IV

2. Maps

2.1 Sensitive species	Yes
2.2 Year or period	2019-2024
2.3 Distribution map	Yes
2.4 Distribution map; Method used	Complete survey or a statistically robust estimate

2.5 Additional information

No additional information

3. Information related to Annex V Species

3.1 Is the species taken in the wild / exploited?

3.2 What measures have been taken?

a) Regulations regarding access to property

b) Temporary or local prohibition on the taking of specimens in the wild and exploitation

c) Regulation of the periods and/or methods of taking specimens

d) Application of hunting and fishing rules which take account of the conservation of such populations

e) Establishment of a system of licences for taking specimens or of quotas

f) Regulation of the purchase, sale, offering for sale, keeping for sale, or transport for sale of specimens

g) Breeding in captivity of animal species as well as artificial propagation of plant species

Other measures

Other measures description

3.3: Hunting bag or quantity taken in the wild for Mammals and Acipenseridae (Fish)

a) Unit

Table 2: Quantity taken from the wild during the reporting period (see 3.3a for units). For species with defined hunting seasons, Season 1 refers to 2018/2019 (autumn 2018 to spring 2019), and Season 6 to 2023/2024. For species without hunting seasons, data are reported by calendar year: Year 1 is 2019, and Year 6 is 2024.

	Season/ year 1	Season/ year 2	Season/ year 3	Season/ year 4	Season/ year 5	Season/ year 6
b) Minimum	-	-	-	-	-	-
c) Maximum	-	-	-	-	-	-
d) Unknown	-	-	-	-	-	-

3.4: Hunting bag or quantity taken in the wild; Method used

3.5: Additional information

No additional information

Biogeographical Level

4. Biogeographical and marine regions

4.1 Biogeographical or marine region where the species occurs ATL

4.2 Sources of information

See section 14 References

5. Range

5.1 Surface area (km²) 3,981.94

5.2 Short-term trend; Period 2019-2024

5.3 Short-term trend; Direction Stable

5.4 Short-term trend;
Magnitude

a) Estimated minimum

b) Estimated maximum

c) Pre-defined range

d) Unknown

e) Type of estimate

f) Rate of decrease

5.5 Short-term trend; Method used Complete survey or a statistically robust estimate used

5.6 Long-term trend; Period

5.7 Long-term trend; Direction

5.8 Long-term trend;
Magnitude

a) Minimum

b) Maximum

c) Rate of decrease

5.9 Long-term trend; Method used

5.10 Favourable Reference Range (FRR)

a) Area (km²)

b) Pre-defined increment	Current range is between 51% and 100% smaller than the FRR
c) Unknown	No
d) Method used	Expert opinion
e) Quality of information	moderate

5.11 Change and reason for change in surface area of range

a) Change	Yes
b) Genuine change	No
c) Improved knowledge or more accurate data	Yes
d) Different method	No
e) No information	No
f) Other reason	No
g) Main reason	Improved knowledge/more accurate data

5.12 Additional information

The natterjack toad is currently present in 31 hectads. The species core range is currently restricted to the Irish sea coast, East Anglia, Lincolnshire, Dorset, Hampshire, Surrey, Oxfordshire, and Bedfordshire. The current range is thought to be stable due in part to continued intensive management, with the potential to increase in the future through successful translocations (Buckley and others 2014).

6. Population

6.1 Year or period 2019-2024

6.2 Population size (in reporting unit)

a) Unit	number of map 1x1 km grid cells
b) Minimum	
c) Maximum	
d) Best single value	129
6.3 Type of estimate	Best estimate
6.4 Quality of extrapolation to reporting unit	moderate
6.5 Additional population size (using population unit other than reporting unit)	
a) Unit	
b) Minimum	
c) Maximum	
d) Best single value	
e) Type of estimate	
6.6 Population size; Method used	Complete survey or a statistically robust estimate
6.7 Short-term trend; Period	2019-2024
6.8 Short-term trend; Direction	Stable
6.9 Short-term trend; Magnitude	
a) Estimated minimum	
b) Estimated maximum	
c) Pre-defined range	
d) Unknown	
e) Type of estimate	
f) Rate of decrease	
6.10 Short-term trend; Method used	Complete survey or a statistically robust estimate
6.11 Long-term trend; Period	

**6.12 Long-term trend;
Direction**

**6.13 Long-term trend;
Magnitude**

a) Minimum

b) Maximum

c) Confidence interval

d) Rate of decrease

**6.14 Long-term trend; Method
used**

6.15 Favourable Reference Population (FRP)

ai) Population size 275

a ii) Unit number of map 1x1 km grid cells

b) Pre-defined increment

c) Unknown No

d) Method used Expert opinion

e) Quality of information moderate

6.16 Change and reason for change in population size

a) Change Yes

b) Genuine change Yes

**c) Improved knowledge or
more accurate data** Yes

d) Different method No

e) No information No

f) Other reason No

g) Main reason Improved knowledge/more accurate data

6.17 Additional information

The values for the favourable population of the natterjack toad in England are 275 occupied 1 km squares and 45,000 breeding females. This would constitute restoration of 75% of the loss the species has experienced since the early 1900s. The Sefton coast metapopulation of this species, which represents approximately 20% of the total GB population, has shown a significant decline between 2000 and 2017 (Smith & Skelcher 2019). This is likely broadly representative of trends in other British dune populations.

6.18 Age structure, mortality and reproduction deviation No deviation from normal

7. Habitat for the species

7.1 Sufficiency of area and quality of occupied habitat (for long-term survival)

a) Is area of occupied habitat sufficient? No

b) Is quality of occupied habitat sufficient? Yes

c) If No or Unknown, is there a sufficiently large area of unoccupied habitat of suitable quality? No

7.2 Sufficiency of area and quality of occupied habitat; Method used

a) Sufficiency of area of occupied habitat; Method used Complete survey or a statistically robust estimate

b) Sufficiency of quality of occupied habitat; Method used Complete survey or a statistically robust estimate

7.3 Short-term trend; Period 2019-2024

7.4 Short-term trend; Direction Stable

7.5 Short-term trend; Method used Complete survey or a statistically robust estimate

7.6 Long-term trend; Period

7.7 Long-term trend; Direction

7.8 Long-term trend; Method used

7.9 Additional information

In England, the natterjack toad is a habitat specialist that is largely restricted to open, early successional habitats on coastal dune systems, upper salt marshes and lowland heathlands. The home range of the natterjack toad fluctuates throughout the year. During the breeding season, the toad tends to stay within a 400 – 600 m terrestrial buffer around the breeding pond (Miaud et al., 2000; Sinsch et al., 2012). Outside of the breeding period, natterjack toads have been found to travel up to 2250 m between breeding ponds in the UK and up to 4411 m in Spain (Miaud et al., 2000; Sinsch et al., 2012). It is important to consider both the terrestrial and breeding pond habitats, as both are equally important in maintaining the long-term persistence of the species in an area. Both habitat types are required to be within close proximity as natterjacks will not cross extensive areas of unsuitable terrain to move between breeding and summer/winter habitats (Beebee and Denton 1996). Individuals that inhabit sandy soils travel three times less than animals living on clay soils, likely due to the lack of appropriate burrowing substrate (Sinsch et al., 2012).

8. Main pressures

8.1 Characterisation of pressures

Table 3: Pressures affecting the species, including timing and importance/impact ranking. Pressures are defined as factors acting currently and/or during the reporting period (2019–2024). Rankings are: High (direct/immediate influence and/or large spatial extent) and Medium (moderate direct/immediate influence, mainly indirect and/or regional extent).

Pressure	Timing	Ranking
PK01: Mixed source pollution to surface and ground waters (limnic and terrestrial)	Ongoing	High (H)
PI04: Plant and animal diseases, pathogens and pests	Ongoing and likely to be in the future	High (H)
PM07: Natural processes without direct or indirect influence from human activities or climate change	Ongoing	High (H)
PJ14: Other climate related changes in abiotic conditions	Ongoing	Medium (M)

PL05: Modification of hydrological flow (mixed or unknown drivers)	Ongoing	High (H)
PA08: Extensive grazing or undergrazing by livestock	Ongoing	High (H)
PA04: Removal of small landscape features for agricultural land parcel consolidation (hedges, stone walls, rushes, open ditches, springs, solitary trees, etc.)	Ongoing	Medium (M)
PJ04: Sea-level rise due to climate change	Ongoing and likely to be in the future	Medium (M)
PJ01: Temperature changes and extremes due to climate change	Ongoing and likely to be in the future	Medium (M)

8.2 Sources of information

See section 14 References

8.3 Additional information

No additional information

9. Conservation measures

9.1: Status of measures

a) Are measures needed? Yes

b) Indicate the status of measures Measures identified and taken

9.2 Main purpose of the measures taken Expand the current range of the species (related to 'Range')

9.3 Location of the measures taken Both inside and outside National Site Network

9.4 Response to measures Medium-term results (within the next two reporting periods, 2025–2036)

9.5 List of main conservation measures

Table 4: Key conservation measures addressing current pressures and/or anticipated threats during the next two reporting periods (2025–2036). Measures are ranked by importance/impact: High (direct/

immediate influence and/or large spatial extent) and Medium (moderate direct/immediate influence, mainly indirect and/or regional extent).

Conservation measure	Ranking
MK01: Reduce impact of mixed source pollution	Medium (M)
MM04: Other measures related to natural processes	Medium (M)
MM01: Management of habitats (others than agriculture and forest) to slow, stop or reverse natural processes that occur without direct or indirect influence from human activities or climate change	High (H)
MA10: Reduce/eliminate point or diffuse source pollution to surface or ground waters (including marine) from agricultural activities	High (H)
MK03: Restoration of habitats impacted by multi-purpose hydrological changes	High (H)
MS01: Reinforce populations of species from the directives	Medium (M)
MA05: Adapt mowing, grazing and other equivalent agricultural activities (e.g. burning)	High (H)
MA02: Restore small landscape features on agricultural land	Medium (M)
MI05: Management of problematic native species	Medium (M)
MJ02: Implement climate change adaptation measures	Medium (M)

9.6 Additional information

The combination of climate change, coastal squeeze and habitat degradation is likely to seriously threaten the English range of natterjack toads. Anthropogenic pressures have weakened the adaptive capacity of the species leaving it in a perilous position to new pressures caused by climate change. It is likely that without action, the current coastal range of the population will contract. This is particularly problematic as much of the population (89%) is found on the coast (Martin 2022). To ensure the range and distribution are sufficient to secure thriving populations of natterjack toads, the range and distribution should reflect the historical distribution. Based on the historical value method (section 7.3 in Mousley and Van Vliet 2021), a further 105 hectads in England could support natterjack toads. Where areas of the historical distribution area no longer

suitable due to a change in habitat quality or immovable constraints, new sites should be considered through feasibility studies.

10. Future prospects

10.1a Future trends of parameters

ai) Range	Overall stable
bi) Population	Overall stable
ci) Habitat for the species	Positive - slight/moderate improvement

10.1b Future prospects of parameters

a ii) Range	Poor
b ii) Population	Poor
c ii) Habitat for the species	Good

10.2 Additional information

The value for the extent of habitat required to support the natterjack toad in favourable conservation status in England is approximately 202,000 ha. This value encompasses the current extent of salt marsh, the favourable extent of coastal sand dune, and the favourable extent of lowland heathland derived from the heathland definition of favourable conservations status, all falling within the natural range of the natterjack toad.

11. Conclusions

11.1 Range	Unfavourable-bad (U2)
11.2 Population	Unfavourable-bad (U2)
11.3 Habitat for the species	Unfavourable-inadequate (U1)
11.4 Future prospects	Unfavourable-inadequate (U1)
11.5 Overall assessment of Conservation Status	Unfavourable-inadequate (U1)
11.6 Overall trend in Conservation Status	Stable

11.7 Change and reason for change in conservation status

This field is not reported as the period 2019-2024 marks the first instance in which conservation status has been assessed at the national level, meaning no comparisons to previous reports can be drawn.

11.7 Change and reason for change in conservation status trend

This field is not reported as the period 2019-2024 marks the first instance in which conservation status has been assessed at the national level, meaning no comparisons to previous reports can be drawn.

11.8 Additional information

Targeted habitat creation and management are the main conservation measures required for the species and include the construction of shallow pools suitable for breeding, re-profiling of ponds to reduce depth, as well as managing ponds to remove excessive aquatic vegetation and invading scrub. Terrestrial habitat management activities typically includes appropriate grazing over extensive areas to maintain a short sward is required, and to maintain bare ground and to prevent the stabilisation of sand dunes (burrowing habitat) Reintroductions have been used successfully to generate new populations and this is a continuing requirement. Pro-active disease surveillance is required to ensure rapid response to a disease outbreak, should one be identified. Response to climate change impacts, in particular loss of habitat through coastal squeeze, will be needed in the medium term. Monitoring of population status and threats is a continuing requirement.

12. UK National Site Network (pSCIs, SCIs, SACs) coverage for Annex II species

12.1 Population size inside the pSCIs, SCIs and SACs network

a) Unit

b) Minimum

c) Maximum

d) Best single value

12.2 Type of estimate

12.3 Population size inside the network; Method used

12.4 Short-term trend of population size within the network; Direction

12.5 Short-term trend of population size within the network; Method used

12.6 Short-term trend of habitat for the species inside the pSCIs, SCIs and SACs network; Direction

12.7 Short-term trend of habitat for the species inside the pSCIs, SCIs and SACs network; Method used

12.8 Additional information

No additional information

13. Complementary information

13.1 Justification of percentage thresholds for trends

No justification information

13.2 Trans-boundary assessment

No trans-boundary assessment information

13.2 Other relevant information

No other relevant information

14. References

Biogeographical and marine regions

4.2 Sources of information

Foster, J., Driver, D., Ward, R. & Wilkinson, J. (2021). IUCN Red List assessment of amphibians and reptiles at Great Britain and country scale. Report to Natural England. ARC report. ARC, Bournemouth.

Joint Nature Conservation Committee. 2019. Fourth Report by the United Kingdom under Article 17 on the implementation of the Habitats Directive from January 2013 to December 2018.

Foster, J., Driver, D., Ward, R. & Wilkinson, J. (2021). IUCN Red List assessment of amphibians and reptiles at Great Britain and country scale. Report to Natural England. ARC report. ARC, Bournemouth.

SMITH, P. H., SKELCHER, G. 2019. Effects of environmental factors and conservation measures on a sand-dune population of the natterjack toad (*Epidalea calamita*) in north-west England: A 31-year study. *Herpetological Journal*, 29, 146–154.

NA

MIAUD, C., SANUY, D., AVRILLIER, JN. 2000. Terrestrial movements of the natterjack toad *Bufo calamita* (Amphibia, Anura) in a semi-arid, agricultural landscape. *Amphibia-Reptilia*, 21, 357-369.

SINSCH, U., OROMI, N., MIAUD, C., DENTON, J., SANUY, D. 2012. Connectivity of local amphibian populations: modelling the migratory capacity of radio-tracked natterjack toads. *Animal Conservation*, 15(4).

BEEBEE, J., DENTON, J., BUCKLEY, J. 1996. Factors affecting population densities of adult natterjack toads *Bufo calamita* in Britain. *Journal of Applied Ecology*, 33, 263-268.

MARTIN, Y. 2022. Assessing the value of assisted colonisation for the natterjack toad in England. Unpublished report to Natural England. Amphibian and Reptile Conservation Trust, Bournemouth.

MOUSLEY, S. & VAN VLIET, W. 2021. Defining favourable conservation status in England: Natural England approach. Natural England Evidence Information Note EIN062. Natural England, York.

BUCKLEY, J., BEEBEE, T., SCHMIDT, B. 2014. Monitoring amphibian declines: Population trends of an endangered species over 20 years in Britain. *Animal Conservation*, 17, 27-34.

Main pressures

8.2 Sources of information

PK01: Joint Nature Conservation Committee. 2019. Fourth Report by the United Kingdom under Article 17 on the implementation of the Habitats Directive from January 2013 to December 2018.

15. Explanatory Notes

Field label	Note
2.5: Additional information	The Natterjack Toad has a restricted distribution in Britain, with the most significant populations located on the coastal dunes of Cumbria and Merseyside. Smaller populations are present in Dorset, Hampshire, Surrey, Suffolk and Norfolk on lowland heathland sites, and there are small populations on the sand dunes of Norfolk and Lincolnshire. A number of re-introductions have taken place including sites in Dorset, Surrey, Bedfordshire, Kent, north Wales and south-west Scotland.
2.4: Distribution map; Method used	Natterjack toad distribution in England is generally well understood as most sites are monitored every year (all are surveyed over any three year period), mostly by volunteers but not all data is digitised so this distribution is a minimum for the species.
12.2: Type of estimate	This is thought to be the minimum number of occupied 1km squares, with known populations monitored on a regular basis but not all data is digitised.
5.3: Short-term trend; Direction	It is thought that the range has remained stable over this reporting period.
7.1: Sufficiency of area and quality of occupied habitat	There is enough suitable habitat to maintain a viable population however, it does not meet favourable conservation status for the species. Estimate of current area of occupied habitat is not available, but there is no evidence that the four times increase in population required to meet favourable has been achieved (refer to 3rd Article 17 UK report for the natterjack toad).
7.4: Short-term trend; Direction	Agri-environment schemes targetting natterjack toads are ongoing so it is possible this habitat is stable.
10.1: Future trends and prospects of parameters	There is uncertainty around the degree or direction of change. However, many natterjack sites are subject to conservation interventions, particularly management funded by agri-environment schemes, in place now and continuing so it is thought that habitat in the longer term will at least be stable.

6.9: Short-term trend;
Magnitude

The Sefton coast metapopulation of this species, which represents approximately 20% of the total GB population, has shown a significant decline between 2000 and 2017 (Smith & Skelcher 2019). This is likely broadly representative of trends in other British dune populations.

6.5: Additional
population size

The natterjack toad population can be described in two ways: occupied 1 km squares and the minimum number of breeding females. Since around 1990, natterjack toads have been regularly monitored whereas before, some populations were only sparsely recorded, if at all (Buckley and others 2014). While the dataset used is fairly robust, the main issue with most natterjack toad sites is that they are in relatively remote and unpopulated areas, which does not allow for a completely comprehensive dataset.