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

Fourth Report by the United Kingdom under Article 17

on the implementation of the Directive
from January 2013 to December 2018

Conservation status assessment for the species:

S1283 - Smooth snake (*Coronella austriaca*)

UNITED KINGDOM

IMPORTANT NOTE - PLEASE READ

- The information in this document represents the UK Report on the conservation status of this species, submitted to the European Commission as part of the 2019 UK Reporting under Article 17 of the EU Habitats Directive.
- It is based on supporting information provided by the geographically-relevant Statutory Nature Conservation Bodies, which is documented separately.
- The 2019 Article 17 UK Approach document provides details on how this supporting information contributed to the UK Report and the fields that were completed for each parameter.
- The reporting fields and options used are aligned to those set out in the European Commission guidance.
- Maps showing the distribution and range of the species are included (where available).
- Explanatory notes (where provided) are included at the end. These provide additional audit trail information to that included within the UK assessments. Further underpinning explanatory notes are available in the related country-level 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 Natura 2000 coverage for Annex II species).
- The UK-level reporting information for all habitats and species is also available in spreadsheet format.

Visit the JNCC website, https://jncc.gov.uk/article17, for further information on UK Article 17 reporting.

Report on the main results of the surveillance under Article 11 for Annex II, IV and V species (Annex B)

NATIONAL LEVEL

1. General information

1.1 Member State	**UK**
1.2 Species code	**1283**
1.3 Species scientific name	**Coronella austriaca**
1.4 Alternative species scientific name	
1.5 Common name (in national language)	Smooth snake

2. Maps

2.1 Sensitive species	No
2.2 Year or period	2013-2018
2.3 Distribution map	Yes
2.4 Distribution map Method used	Based mainly on extrapolation from a limited amount of data
2.5 Additional maps	No

3. Information related to Annex V Species (Art. 14)

3.1 Is the species taken in the wild/exploited?	No	
3.2 Which of the measures in Art. 14 have been taken?	a) regulations regarding access to property	No
	b) temporary or local prohibition of the taking of specimens in the wild and exploitation	No
	c) regulation of the periods and/or methods of taking specimens	No
	d) application of hunting and fishing rules which take account of the conservation of such populations	No
	e) establishment of a system of licences for taking specimens or of quotas	No
	f) regulation of the purchase, sale, offering for sale, keeping for sale or transport for sale of specimens	No
	g) breeding in captivity of animal species as well as artificial propagation of plant species	No
	h) other measures	No

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

a) Unit

b) Statistics/ quantity taken	Provide statistics/quantity per hunting season or per year (where season is not used) over the reporting period					
	Season/ year 1	Season/ year 2	Season/ year 3	Season/ year 4	Season/ year 5	Season/ year 6
Min. (raw, ie. not rounded)						
Max. (raw, ie. not rounded)						
Unknown	No	No	No	No	No	No

3.4. Hunting bag or quantity taken in the wild Method used

3.5. Additional information

BIOGEOGRAPHICAL LEVEL

4. Biogeographical and marine regions

4.1 Biogeographical or marine region where the species occurs

Atlantic (ATL)

4.2 Sources of information

ARNOLD, H.R. 1995. Atlas of amphibians and reptiles in Britain. ITE Research Publication No.10. HMSO, London.
BEEBEE, T.J.C. & GRIFFITHS, R.A. 2000. Amphibians and Reptiles: A Natural History of the British Herpetofauna. The New Naturalist series. HarperCollins, London.
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BRAITHWAITE, A.C., BUCKLEY, J., CORBETT, K.F., EDGAR, P.W., HASLEWOOD, E.S., HASLEWOOD, G.A.D., LANGTON, T.E.S. & WHITAKER, W.J. 1989. The distribution in England of the smooth snake (Coronella austriaca Laurenti). Herpetological Journal 1: 370-376.
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, Peterborough.
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.
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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. Joint Nature Conservation Committee, Peterborough.
LIMBURN, B. and WILKINSON, J.W., 2016. The New Forest Smooth Snake Survey (NFSSS). Amphibian & Reptile Conservation, 2016.
PERNETTA, A.P. 2009. Population ecology and conservation genetics of the smooth snake (Coronella austriaca) in a fragmented heath landscape. PhD Thesis, University of Southampton.
The Amphibian & Reptile Conservation Trust: Rare Species Database and Reptile and Amphibian Dataset (2018).
Sand Lizard and Smooth Snake Species Action Plan for United Kingdom. Amphibian & Reptile Conservation. May, 2017.
Amphibian & Reptile Conservation Trust Common Standards Monitoring MoA's, 2014-2018. For Natural England (unpublished).
Bormpoudakis, D. & J. Tzanopoulos. 2016. Lidar-derived variable accurately predict habitat of a habitat-specialist reptile. Unpublished report by the Durrell Institute of Conservation & Ecology (University of Kent), for Amphibian & Reptile Conservation, Bournemouth
Reading, C.J. & G.M. Jofre. 2015. Habitat use by smooth snakes on lowland heathland managed using 'conservation grazing'. Herpetological Journal 25: 225-231

5. Range

5.1 Surface area (km²)	4206.86	
5.2 Short-term trend Period	2013-2018	
5.3 Short-term trend Direction	Stable (0)	
5.4 Short-term trend Magnitude	a) Minimum	b) Maximum
5.5 Short-term trend Method used	Based mainly on extrapolation from a limited amount of data	
5.6 Long-term trend Period		
5.7 Long-term trend Direction		
5.8 Long-term trend Magnitude	a) Minimum	b) Maximum
5.9 Long-term trend Method used		
5.10 Favourable reference range	a) Area (km²)	5417
	b) Operator	
	c) Unknown	
	d) Method	The FRR is the same as in 2013. The value is considered to be large enough to support a viable population and no lower than the range estimate when the Habitats Directive came into force in the UK. The FRR was set as 10% above the range surface area in 2013, because the range surface area was considered to be less than required to support a viable population. For further information see the 2019 Article 17 UK Approach document.
5.11 Change and reason for change in surface area of range	Use of different method	
	The change is mainly due to:	Use of different method
5.12 Additional information	The current range surface area calculation does not represent the real range	

surface area. That is considered to be the range in 2013 - 5283.4km2. Change in availability of underpinning mapping data compared to 2013 has resulted in an apparent decrease in range area, but this is not genuine change. Expert opinion considers the trend to be stable. The current (2013) range surface area is below the FRR but not by more than 10%. Currently, there is insufficient evidence collected to detect a change in species range. Modelling of the species range combined with an effective monitoring scheme would help detect change. For further information see the 2019 Article 17 UK Approach document.

6. Population

6.1 Year or period		1989-2018
6.2 Population size (in reporting unit)	a) Unit	number of map 1x1 km grid cells (grids1x1)
	b) Minimum	
	c) Maximum	
	d) Best single value	359
6.3 Type of estimate		Best estimate
6.4 Additional population size (using population unit other than reporting unit)	a) Unit	
	b) Minimum	
	c) Maximum	
	d) Best single value	
6.5 Type of estimate		
6.6 Population size Method used		Based mainly on extrapolation from a limited amount of data
6.7 Short-term trend Period		2007-2018
6.8 Short-term trend Direction		Stable (0)
6.9 Short-term trend Magnitude	a) Minimum	
	b) Maximum	
	c) Confidence interval	
6.10 Short-term trend Method used		Based mainly on extrapolation from a limited amount of data
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	
6.14 Long-term trend Method used		
6.15 Favourable reference population (using the unit in 6.2 or 6.4)	a) Population size	395 with unit number of map 1x1 km grid cells (grids1x1)
	b) Operator	
	c) Unknown	
	d) Method	The FRP is the same as in 2013. The value is considered to be large enough to support a viable population and no less than when the Habitats Directive came into

force in the UK. For further information see the 2019 Article 17 UK Approach document and relevant country-level reporting information.

6.16 Change and reason for change in population size	No change The change is mainly due to:
6.17 Additional information	The current population is below the FRP but not by more than 25%. The conclusion for population is therefore Unfavourable- inadequate.

7. Habitat for the species

7.1 Sufficiency of area and quality of occupied habitat	a) Are area and quality of occupied habitat sufficient (for long-term survival)?	No
	b) Is there a sufficiently large area of unoccupied habitat of suitable quality (for long-term survival)?	No
7.2 Sufficiency of area and quality of occupied habitat Method used	Based mainly on extrapolation from a limited amount of data	
7.3 Short-term trend Period	2007-2018	
7.4 Short-term trend Direction	Stable (0)	
7.5 Short-term trend Method used	Based mainly on extrapolation from a limited amount of data	
7.6 Long-term trend Period	1989-2018	
7.7 Long-term trend Direction	Increasing (+)	
7.8 Long-term trend Method used	Based mainly on extrapolation from a limited amount of data	
7.9 Additional information	The assessment is based on monitoring and modelling data. From 1994-2010 habitat management improved, though tackling impacts of trees and scrub. In recent years there has been an increase in heathland management activities which are less appropriate for the species e.g. increasing livestock numbers.	

8. Main pressures and threats

8.1 Characterisation of pressures/threats

Pressure	Ranking
Intensive grazing or overgrazing by livestock (A09)	H
Extensive grazing or undergrazing by livestock (A10)	H
Vandalism or arson (H04)	H
Fire (natural) (M09)	H
Natural succession resulting in species composition change (other than by direct changes of agricultural or forestry practices) (L02)	H
Conversion to forest from other land uses, or afforestation (excluding drainage) (B01)	M
Conversion to other types of forests including monocultures (B02)	M

Conversion from other land uses to housing, settlement or recreational areas (excluding drainage and modification of coastline, estuary and coastal conditions) (F01)	M
Sports, tourism and leisure activities (F07)	M
Other human intrusions and disturbance not mentioned above (H08)	M

Threat	Ranking
Intensive grazing or overgrazing by livestock (A09)	H
Extensive grazing or undergrazing by livestock (A10)	H
Vandalism or arson (H04)	H
Fire (natural) (M09)	H
Natural succession resulting in species composition change (other than by direct changes of agricultural or forestry practices) (L02)	H
Conversion to forest from other land uses, or afforestation (excluding drainage) (B01)	M
Conversion to other types of forests including monocultures (B02)	M
Conversion from other land uses to housing, settlement or recreational areas (excluding drainage and modification of coastline, estuary and coastal conditions) (F01)	M
Sports, tourism and leisure activities (F07)	M
Other human intrusions and disturbance not mentioned above (H08)	M

8.2 Sources of information

8.3 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		Restore the habitat of the species (related to 'Habitat for the species')
9.3 Location of the measures taken		Both inside and outside Natura 2000
9.4 Response to the measures		Medium-term results (within the next two reporting periods, 2019-2030)

9.5 List of main conservation measures

Adapt mowing, grazing and other equivalent agricultural activities (CA05)
Reduce impact of other specific human actions (CH03)
Minimise/prevent impacts of geological and natural catastrophes (CL02)
Management of habitats (others than agriculture and forest) to slow, stop or reverse natural processes (CL01)

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Prevent conversion of (semi-) natural habitats into forests and of (semi-)natural forests into intensive forest plantation (CB01)

Adapt/manage reforestation and forest regeneration (CB04)

Manage conversion of land for construction and development of infrastructure (CF01)

Reduce impact of outdoor sports, leisure and recreational activities (CF03)

9.6 Additional information	There is a lack of recent detailed survey information for the species. The New Forest is a core area for the species in England, and the New Forest Smooth Snake Survey Project will help address knowledge gaps for the species in this core area.

10. Future prospects

10.1 Future prospects of parameters	a) Range	Poor
	b) Population	Poor
	c) Habitat of the species	Poor
10.2 Additional information	Future trend of Range is Overall stable; Future trend of Population is Overall stable; and Future trend of Habitat for the species is Overall stable. For further information on how future trends inform the Future Prospects conclusion see the 2019 Article 17 UK Approach document.	

11. Conclusions

11.1. Range	Unfavourable - Inadequate (U1)
11.2. Population	Unfavourable - Inadequate (U1)
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 reasons for change in conservation status and conservation status trend	a) Overall assessment of conservation status No change The change is mainly due to: b) Overall trend in conservation status Genuine change The change is mainly due to: Genuine change
11.8 Additional information	Conclusion on Range reached because: (i) the short-term trend direction in Range surface area is stable; and (ii) the current Range surface area is not more than 10% below the Favourable Reference Range. Conclusion on Population reached because: (i) the short-term trend direction in Population size is stable; and (ii) the current Population size is not more than 25% below the Favourable Reference Population. Conclusion on Habitat for the species reached because: (i) the area of occupied

habitat is not sufficiently large and (ii) the habitat quality is not suitable for the long-term survival of the species; and (iii) the short-term trend in area of habitat is stable and the quality of habitat is stable.

Conclusion on Future prospects reached because: (i) the Future prospects for Range are poor; (ii) the Future prospects for Population poor; and (iii) the Future prospects for Habitat for the species are poor.

Overall assessment of Conservation Status is Favourable because all of the conclusions are Unfavourable-inadequate.

Overall trend in Conservation Status is based on the combination of the short-term trends for Range – stable, Population – stable, and Habitat for the species – stable.

Overall assessment of Conservation Status has not changed since 2013.

Overall trend in Conservation Status has changed from improving to stable because trend in Range has changed from improving to stable.

12. Natura 2000 (pSCIs, SCIs and SACs) coverage for Annex II species

12.1 Population size inside the pSCIs, SCIs and SACs network (on the biogeographical/marine level including all sites where the species is present)	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 Additional information	

13. Complementary information

13.1 Justification of % thresholds for trends
13.2 Trans-boundary assessment
13.3 Other relevant Information

Distribution Map

Figure 1: UK distribution map for S1283 - Smooth snake (*Coronella austriaca*). 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. For further details see the 2019 Article 17 UK Approach document.

Range Map

Figure 2: UK range map for S1283 - Smooth snake (*Coronella austriaca*). 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 range map has been produced by applying a bespoke range mapping tool for Article 17 reporting (produced by JNCC) to the 10km grid square distribution map presented in Figure 1. The alpha value for this species was 25km. For further details see the 2019 Article 17 UK Approach document.

Explanatory Notes

Species name: Coronella austriaca (1283) Region code: ATL

Field label	Note
5.3 Short term trend; Direction	Estimated to be stable based on limited data with some modelling.
6.3 Type of estimate	Best estimate from partial survey data provided by bespoke surveys and volunteer monitoring combined with limited modelling.
7.1 Sufficiency of area and quality of occupied habitat	Occupied habitat estimated to be approximately 73km2, the quality of unoccupied habitat is thought to be be of insufficient quality based on habitat assessments and partial modelling i.e. New Forest. While the overall area of lowland heathland hasn't declined, it's suitability for smooth snakes has seen a significant deterioration in recent years due to an increase in grazing pressure. This is mostly due to increasing livestock numbers in the New Forest (which includes over half of all known and potential smooth snake habitat in England) in order to claim Basic Payment Scheme payments. Recent species distribution modelling for the smooth snake in the New Forest, based on Lidar data, indicates that only about 25% of the heathland here now retains a suitable structure for smooth snakes whereas at least 50% would be considered favourable (Bormpoudakis & Tzanopoulos 2016). The photograph below illustrates this problem. In addition, there has also been an increase in conservation grazing pressure on many other heathland sites, especially where the practice of 'mob grazing' is being used (i.e. putting out large herds of livestock to reduce sward height quickly). Recent research (Reading & Jofre 2015) has shown that smooth snakes are adversely affected, and their preferred habitat structure damaged, by the sort of stocking densities increasingly being employed for heathland management purposes. This issue applies to both occupied habitat and to those sites where smooth snakes were known to formally occur but where they are currently thought to be absent.
7.5 Short term trend; Method used	CSM habitat assessment of the SSSI series concluded a c.10% decline in quality habitat however, modelling is required for a more accurate assessment.
9.5 List of main conservation measures	Improving habitat management and maintenance to provide adequate habitat condition and structure alongside fire prevention are key conservation aims for the species.
11.4 Future prospects	Habitat quality is thought to be suitable for the long term survival of the species. Population and range are unfavourable but within 10% of what is considered the FRVs for England, so are considered unfavourable-inadequate.
11.7 Change and reasons for change in conservation status and conservation status trend	The conservation status trend has changed from 'improving' to 'stable'. This is a genuine change with range now considered stable as opposed to improving as reported in the 3rd UK Article 17 Report. No new re-introductions have taken place during this current reporting period so there has been no significant increase in range, now considered to be broadly stable (although based on limited data). Population and habitat trends remain stable with no change in trend identified.