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

Supporting documentation for the
conservation status assessment for the species:

S1355 - Otter (*Lutra lutra*)

SCOTLAND

IMPORTANT NOTE - PLEASE READ

- The information in this document is a country-level contribution to 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.
- The 2019 Article 17 UK Approach document provides details on how this supporting information was used to produce the UK Report.
- The UK Report on the conservation status of this species is provided in a separate document.
- The reporting fields and options used are aligned to those set out in the European Commission guidance.
- Explanatory notes (where provided) by the country are included at the end. These provide an audit trail of relevant supporting information.
- 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; (iii) the field was not relevant to this species (section 12 Natura 2000 coverage for Annex II species) and/or (iv) the field was only relevant at UK-level (sections 9 Future prospects and 10 Conclusions).
- For technical reasons, the country-level future trends for Range, Population and Habitat for the species are only available in a separate spreadsheet that contains all the country-level supporting information.
- The country-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 (Scotland information only)**
1.2 Species code	**1355**
1.3 Species scientific name	**Lutra lutra**
1.4 Alternative species scientific name	
1.5 Common name (in national language)	Otter

2. Maps

2.1 Sensitive species	No
2.2 Year or period	1995-2016
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

Chanin, P. 2003. Ecology of the European otter. Conserving Natura 2000 rivers ecology series No. 10. Peterborough: English Nature.
Findlay, M., Alexander, L. & Macleod, C. 2015.Site condition monitoring for otters (Lutra lutra) in 2011-12. Scottish Natural Heritage Commissioned Report No. 521.
Green, J. & Green, R. 1987. Otter Survey of Scotland 1984-1985. London: Vincent Wildlife Trust.
Harris, S. & Yalden, D. 2008. Mammals of the British Isles: handbook, Mammal Society.
Kean, E., Lyons, G. & Chadwick, E. A. 2013. Persistent organic pollutants and indicators of otter health. CHEMTrust.
Kruuk, H. 1995. Wild otters: Predation and populations. Oxford University Press, Oxford.
Jefferies, D. J., Strachan, C. & Strachan, R. 2003. Estimating numbers of the three interacting riparian mammals in Britain using survey data. In: Jefferies, D. J. (ed.) The water vole and mink survey of 1996- 1998 with a history of the long-term changes in the status of both species and their causes. Ledbury: Vincent Wildlife Trust.
Liles, G. (2003). Conserving Natura 2000 Rivers Conservation Techniques Series No. 5: Otter Breeding Sites - Conservation and Management. English Nature, Peterborough.
Mathews, F., Kubasiewicz, L.M., Gurnell, J., Harrower, C., McDonald, R.A., Shore, R.F (2018). A review of the population and conservation status of British Mammals. A report by the Mammal Society under contract to Natural England, Natural Resources Wales and Scottish Natural Heritage.

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Strachan, R. 2007 National survey of otter Lutra lutra distribution in Scotland 2003-04. Scottish Natural Heritage Commissioned Report No. 211 www.snh.gov.uk/publications-data-and-research/publications/search-the-catalogue/publication-detail/?id=837.

5. Range

5.1 Surface area (km²)		
5.2 Short-term trend Period		
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		
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) b) Operator c) Unknown d) Method	
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		

6. Population

6.1 Year or period	2016-2017	
6.2 Population size (in reporting unit)	a) Unit b) Minimum c) Maximum d) Best single value	number of map 1x1 km grid cells (grids1x1)
6.3 Type of estimate		
6.4 Additional population size (using population unit other than reporting unit)	a) Unit b) Minimum c) Maximum d) Best single value	number of individuals (i) 7100
6.5 Type of estimate	Best 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 b) Operator c) Unknown d) Method
6.16 Change and reason for change in population size	Use of different method The change is mainly due to: Use of different method
6.17 Additional information	

7. Habitat for the species

7.1 Sufficiency of area and quality of occupied habitat	a) Are area and quality of occupied habitat sufficient (to maintain the species at FCS)?	Yes
	b) Is there a sufficiently large area of occupied AND unoccupied habitat of suitable quality (to maintain the species at FCS)?	
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		
7.7 Long-term trend Direction		
7.8 Long-term trend Method used		
7.9 Additional information		

8. Main pressures and threats

8.1 Characterisation of pressures/threats

Pressure	Ranking
Roads, paths, railroads and related infrastructure (e.g. bridges, viaducts, tunnels) (E01)	H
Bycatch and incidental killing (due to fishing and hunting activities) (G12)	H

Modification of hydrological flow or physical alteration of water bodies for agriculture (excluding development and operation of dams) (A33)	M
Mixed source pollution to surface and ground waters (limnic and terrestrial) (J01)	M
Mixed source marine water pollution (marine and coastal) (J02)	M

Threat	Ranking
Roads, paths, railroads and related infrastructure (e.g. bridges, viaducts, tunnels) (E01)	H
Bycatch and incidental killing (due to fishing and hunting activities) (G12)	H
Modification of hydrological flow or physical alteration of water bodies for agriculture (excluding development and operation of dams) (A33)	M
Mixed source pollution to surface and ground waters (limnic and terrestrial) (J01)	M
Mixed source marine water pollution (marine and coastal) (J02)	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

Maintain the current range, population and/or 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

Reduce impact of transport operation and infrastructure (CE01)

Management of professional/commercial fishing (including shellfish and seaweed harvesting) (CG01)

Reduce bycatch and incidental killing of non-target species (CG05)

Reduce impact of mixed source pollution (CJ01)

Improvement of habitat of species from the directives (CS03)

9.6 Additional information

10. Future prospects

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10.1 Future prospects of parameters	a) Range b) Population c) Habitat of the species
10.2 Additional information	

11. Conclusions

11.1. Range	
11.2. Population	
11.3. Habitat for the species	
11.4. Future prospects	
11.5 Overall assessment of Conservation Status	
11.6 Overall trend in Conservation Status	
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 No change The change is mainly due to:
11.8 Additional information	

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 number of individuals (i) b) Minimum c) Maximum d) Best single value
12.2 Type of estimate	
12.3 Population size inside the network Method used	Insufficient or no data available
12.4 Short-term trend of population size within the network Direction	Uncertain (u)
12.5 Short-term trend of population size within the network Method used	Based mainly on extrapolation from a limited amount of data
12.6 Additional information	

13. Complementary information

13.1 Justification of % thresholds for trends	

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13.2 Trans-boundary assessment

13.3 Other relevant Information

Distribution Map

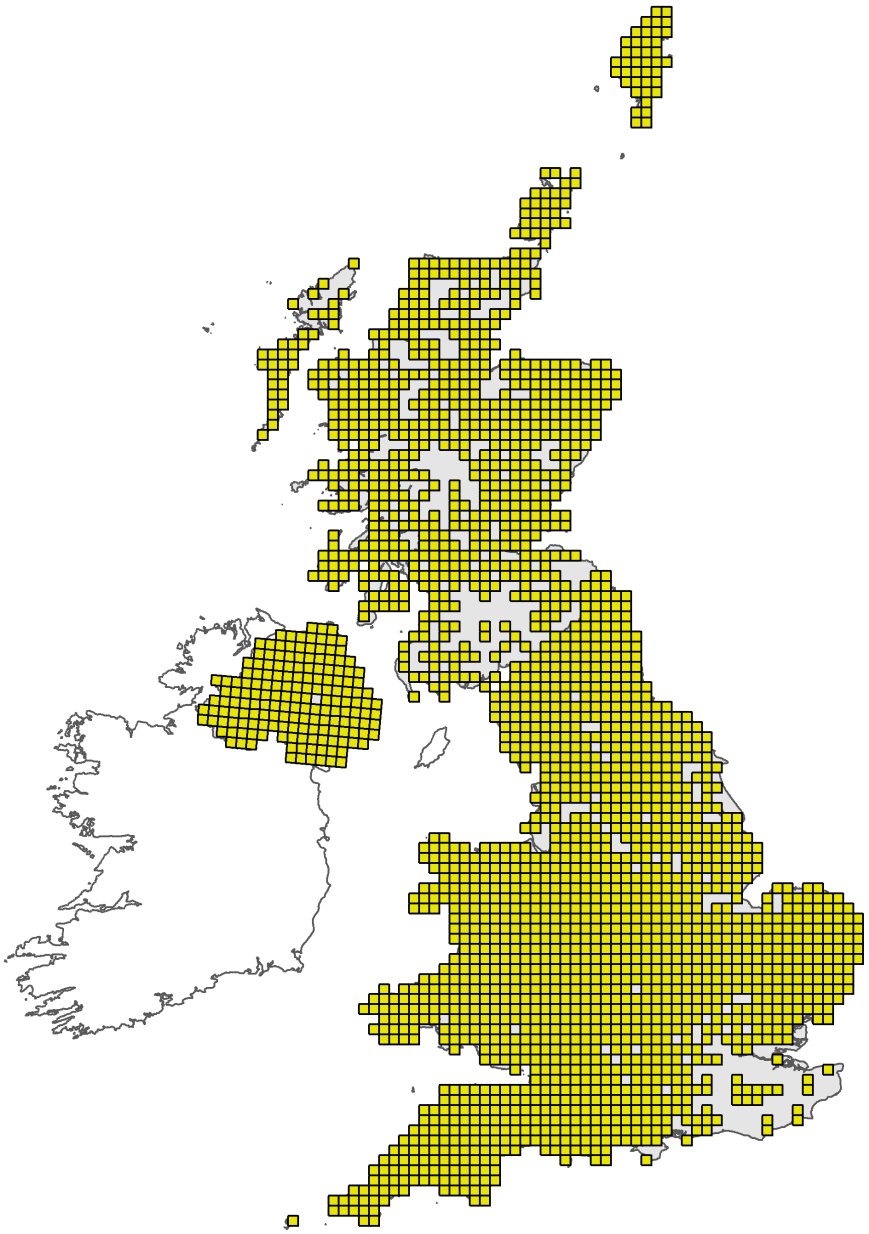

Figure 1: UK distribution map for S1355 - Otter (*Lutra lutra*). Coastline boundary derived from the Oil and Gas Authority's OGA and Lloyd's Register SNS Regional Geological Maps (Open Source). Open Government Licence v3 (OGL). Contains data © 2017 Oil and Gas Authority.

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

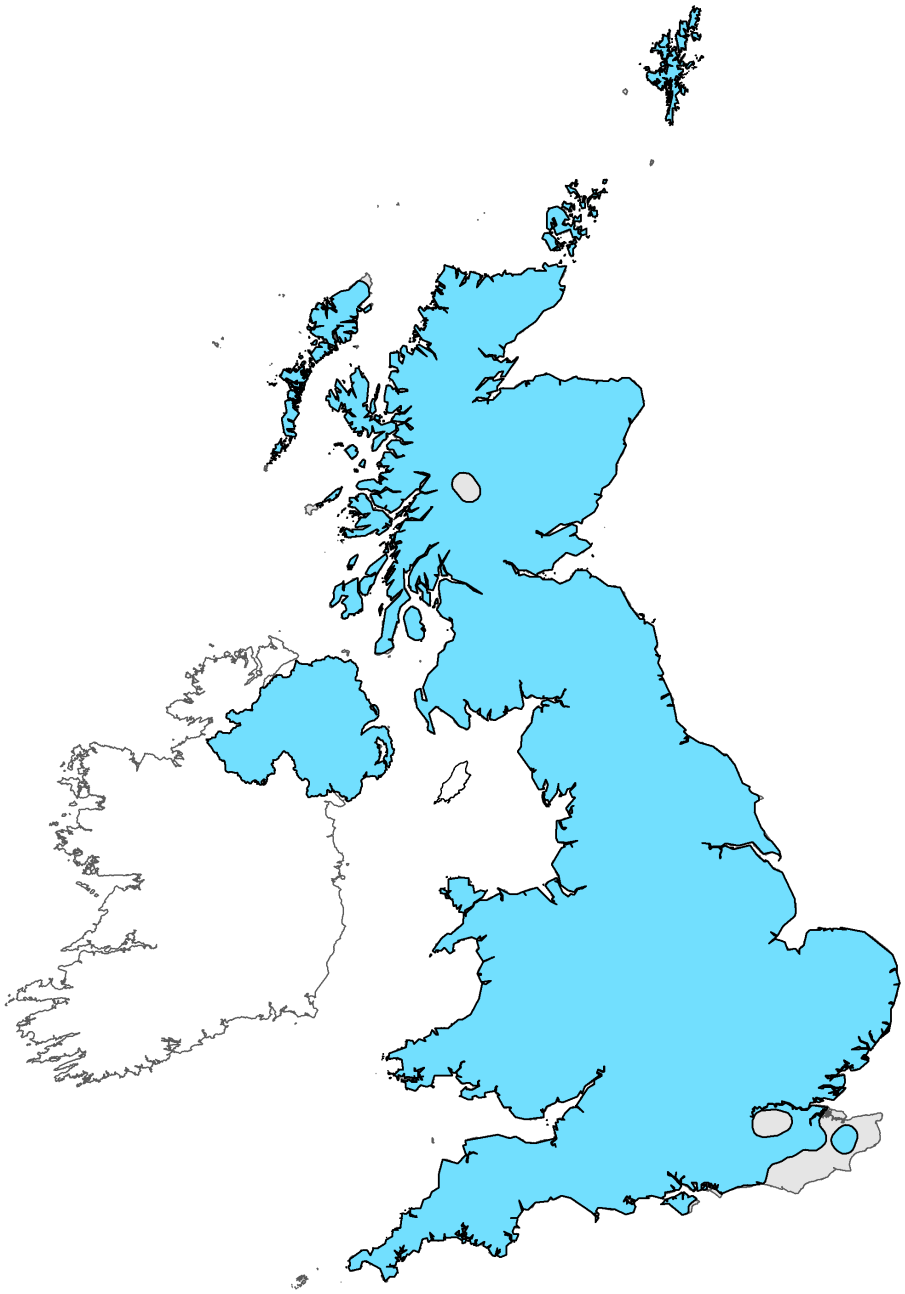

Figure 2: UK range map for S1355 - Otter (*Lutra lutra*).Coastline boundary derived from the Oil and Gas Authority's OGA and Lloyd's Register SNS Regional Geological Maps (Open Source). Open Government Licence v3 (OGL). Contains data © 2017 Oil and Gas Authority.

The range map has been produced by The Mammal Society applying a range mapping tool as outlined in Matthews et al. (2018), to the 10km grid square distribution map presented in Figure 1. The alpha value for this species was 20km. For further details see the 2019 Article 17 UK Approach document.

Explanatory Notes

Species name: Lutra lutra (1355) Region code: ATL

Field label	Note
5.10 Favourable reference range	Range is based on presence data collected between 1995-2016. Areas that contain very isolated records may not have been included in the area of distribution. The range has been taken from Mathews et al (2018), whereby an alpha hull value of 20km was drawn around the presence records, which represented the best balance between the inclusion of unoccupied sites (i.e. where records are sparse but close enough for inclusion) and the exclusion of occupied areas due to gaps in the data (i.e. where records exist but are too isolated for inclusion). An additional 10km buffer was added to the final hull polygon to provide smoothing to the hull and to ensure that the hull covered the areas recorded rather than intersecting them. This differs from the approach taken in 2013 and 2007 whereby a 45km alpha hull value was used for all species with a starting range unit of individual 10km squares. The new method has led to much finer detail maps being produced underpinned by data gathered at a much finer resolution, leading to the production of a more accurate FRR.
5.11 Change and reason for change in surface area of range	No change is stated as there is no evidence for genuine change in the otter's range in Scotland between the reporting periods.
6.4 Additional population size	The value of 7,100 is from Mathews et al (2018) but is considered an underestimate as it uses % occupancy information based on the survey by Findlay et al (2015) which was hampered by poor weather and high flows and may therefore have underestimated occupancy in some areas.
6.8 Short term trend; Direction	Findlay et al (2015) suggest that there might have been declines in some areas based on occupancy data. But the survey was hampered by poor weather and high flows and may therefore have underestimated occupancy in some areas. In the absence of more robust data to support the suggested decline and the fact that range is unchanged, population trend is assessed as overall stable, but recognising that there may be some localised variations to this as suggested by Findlay et al.
6.17 Additional information	Estmates of population size have been taken from Mathews et al (2018). The length of riparian habitat was taken from Harris et al (1995) and multiplied by the percentage of the country included in the species distribution to give the length of riparian habitat. This was multiplied by a density estimate for Scottish rivers (Green & Green 1987). The length of potentially suitable coastline was derived from the report by Jefferies et al. (2003) (Table 10.6 for Scotland). These values excluded areas unlikely to be included within the home ranges of otters (e.g., long lengths of sheer cliffs), whereas all riparian habitat was included. Population size was adjusted using the most recent occupancy values. For Scotland, the mean population density values for coastlines in mainland Scotland, the Inner Hebrides, Shetland and Orkney were taken from Table 10.6 of Jefferies et al. (2003). Population size was adjusted using the most recent occupancy values.
7.4 Short term trend; Direction	There is no evidence of any change in the availability and quality of otter habitat in Scotland, so this is assessed as stable.
10.1 Future prospects of parameters	There is no evidence to suggest any change in the future availability and quality of otter habitat in Scotland, nor any reduction in range, so these are assessed as stable. Similarly, future prospects for population are also considered to be stable overall, despite suggested declines in some areas based on occupancy data from field signs (Finday et al, 2015) - see 6.8 above.

12.3 Population size inside the network; Method used	No recent data are available. The previous (2013) report gives an estimate of 873 otters based on the estimated length of riverbank, standing water and coastline in the 44 Scottish Special Areas of Conservation (SACs) for which the otter is a qualifying feature. As otters also occur in many of the other SACs where suitable habitat exists, the actual figure is likely to be considerably higher than this. Given that this estimate is conservative and at least 34 of 44 otter SACs were assessed as being in favourable condition in Findlay et al (2015), the current otter population supported by the SAC network is likely to be comparable with that in 2013.
12.4 Short term trend of the population size within the network; Direction	The trend is uncertain because some otter SACs assessed in Findlay et al (2015) showed a decrease in occupancy based on field signs during the survey. However, the poor weather conditions and high flows experienced during much of the survey period may have influenced detectability and it is therefore unclear whether the apparent reduction in occupancy at these sites is reflected in an actual change in the local otter population.