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*)

ENGLAND

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 (England 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	1999-2016
2.3 Distribution map	Yes
2.4 Distribution map Method used	Complete survey or a statistically robust estimate
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

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.
Chanin, P. 2003. Ecology of the European otter. Conserving Natura 2000 rivers ecology series No. 10. Peterborough: English Nature.
Harris, S. & Yalden, D. 2008. Mammals of the British Isles: handbook, Mammal Society.
Harris, S., Morris, P., Wray, S. & Yalden, D. 1995. A review of British mammals: population estimates and conservation status of British mammals other than cetaceans, JNCC.
Crawford, A. 2010. Fifth Otter Survey of England 2009-2010. Bristol: Environment Agency.
Kean, E., Lyons, G. & Chadwick, E. A. 2013. Persistent organic pollutants and indicators of otter health. CHEMTrust.
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.

5. Range

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5.1 Surface area (km²)		
5.2 Short-term trend Period		
5.3 Short-term trend Direction	Increasing (+)	
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)	125672
	b) Operator	
	c) Unknown	
	d) Method	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
5.11 Change and reason for change in surface area of range	Genuine change Use of different method	
	The change is mainly due to:	Genuine change
5.12 Additional information		

6. Population

6.1 Year or period	1995-2016	
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	
6.3 Type of estimate		

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6.3 Type of estimate		
6.4 Additional population size (using population unit other than reporting unit)	a) Unit	number of individuals (i)
	b) Minimum	
	c) Maximum	
	d) Best single value	2900
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	2001-2010	
6.8 Short-term trend Direction	Increasing (+)	
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	Genuine change Improved knowledge/more accurate data Use of different method	
	The change is mainly due to:	Genuine change
6.17 Additional information	Estmates of population size have been taken from Mathews et al (2018). The length of riparian habitat for Scotland, England and Wales was taken from Harris et al (1995) and multiplied by the percentage of each country included in the species distribution to give the length of riparian habitat within that country. The length of suitable coastline in England was taken from Jefferies et al (2003). Population size was adjusted using the most recent occupancy values (Crawford, 2010). As no population density estimates or occupancy values were available for English or Welsh coastline, inland population values were used and this may have resulted in a conservative estimate for the number of coastal otters in these countries. However, it was thought that this was preferable to using Scottish coastal values due to the differences in coastal habitat. Population size estimates are based on a single population density estimate for riparian habitats and these estimates were applied to all riparian habitats and coastlines, meaning that variation due to habitat heterogeneity was not accounted for. It also meant that confidence limits could not be calculated. However, a comparison of figures from Harris et al (1995) and current estimates (which use the same source of	

population density) suggests an increase in population size of 49% in Britain; this increase is entirely due to an increase in the percentage of occupied areas in England and Wales (Mathews et al, 2018).

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	1995-2016	
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
Illegal shooting/killing (G10)	M
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)	H
Mixed source pollution to surface and ground waters (limnic and terrestrial) (J01)	M
Mixed source marine water pollution (marine and coastal) (J02)	M
Use of plant protection chemicals in agriculture (A21)	M

Threat	Ranking
Roads, paths, railroads and related infrastructure (e.g. bridges, viaducts, tunnels) (E01)	M
Illegal shooting/killing (G10)	M
Bycatch and incidental killing (due to fishing and hunting activities) (G12)	M

Modification of hydrological flow or physical alteration of water bodies for agriculture (excluding development and operation of dams) (A33)	H
Mixed source pollution to surface and ground waters (limnic and terrestrial) (J01)	M
Mixed source marine water pollution (marine and coastal) (J02)	H
Use of plant protection chemicals in agriculture (A21)	H

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 multi-purpose hydrological changes (CJ02)
Other measures related to agricultural practices (CA16)
Reduce impact of transport operation and infrastructure (CE01)
Manage water abstraction for public supply and for industrial and commercial use (CF11)
Management of professional/commercial fishing (including shellfish and seaweed harvesting) (CG01)
Control/eradication of illegal killing, fishing and harvesting (CG04)
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

10.1 Future prospects of parameters	a) Range b) Population c) Habitat of the species
10.2 Additional information	National surveys of otter have shown an increase in the number of occupied 10km squares across the UK, with an increase from 5.8% in 1977-79 to 58.8% in 2009-10 in England (Crawford, 2010; Mathews et al, 2018). Although there have been improvements in some aspects of water quality following the banning of organochlorine pesticides, there are still widespread issues of diffuse particulate pollution and eutrophication. Impacts of other pollutants (e.g. from road run-off)

	are unclear.There has also been some loss of connectivity through dams, weirs, land drainage, embankments, channel deepening, straightening and widening (Newson 2002). Changes in habitat quality are more likely than substantial changes in length of waterways (Mathews et al, 2018). Overall, based on the current trends and current (and potential future) pressures and threats, the future prospects for this species have been assessed as stable for habitat and continuing increases for range and population.

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	Increasing (+)
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	14 SACs wholly or partly in England (covering over 145,000 ha) contain L. lutra as one of the listed features. Due to the way in which these SAC sites are monitored, the length of river bank is unknown for most of the sites and consequently, the population of L. lutra within each site is impossible to estimate

using the methodology in Jefferies et al (2003). However, national otter surveys (Crawford, 2010) indicate that the population is continuing to rise in England and as the habitat within these SAC sites is generally in favourable condition, or is being managed to improve the condition, it is likely that the population of L. lutra within SACs is also increasing.

13. Complementary information

13.1 Justification of % thresholds for trends

13.2 Trans-boundary assessment

13.3 Other relevant Information

Distribution Map

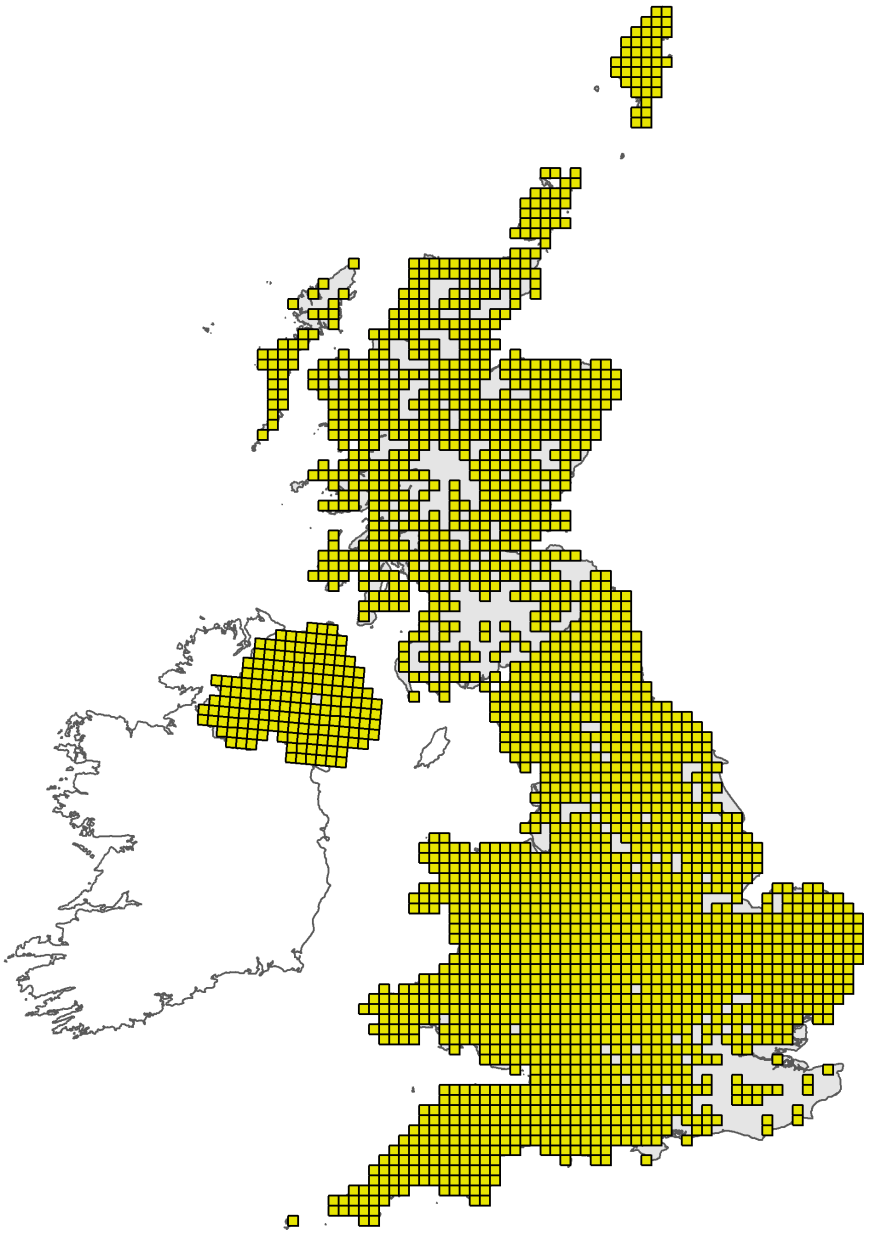

Figure 1: UK distribution map for S1355 - Otter (*Lutra lutra*). Coastline boundary derived from the Oil and Gas Authority's OGA and Lloyd's Register SNS Regional Geological Maps (Open Source). Open Government Licence v3 (OGL). Contains data © 2017 Oil and Gas Authority.

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

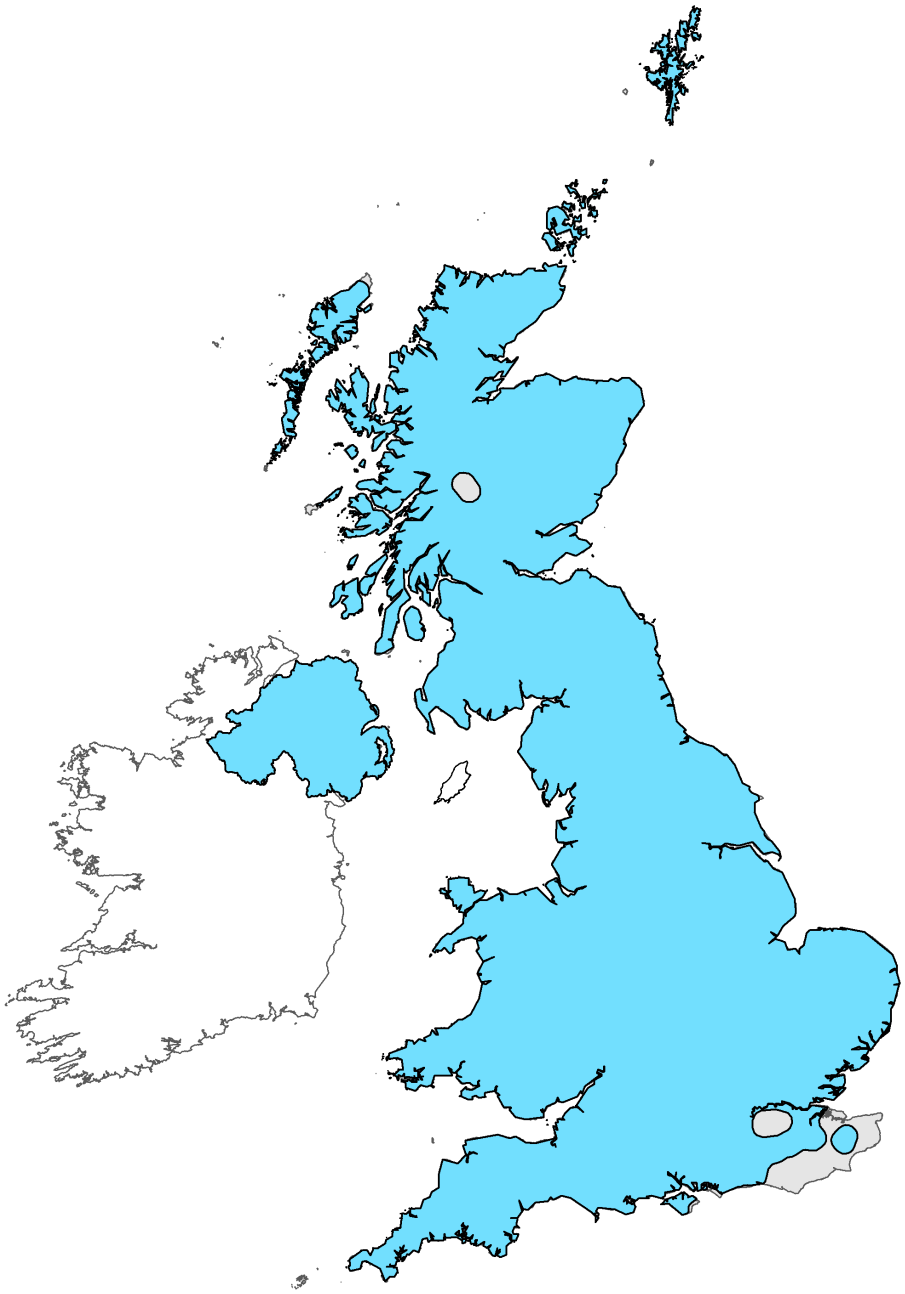

Figure 2: UK range map for S1355 - Otter (*Lutra lutra*).Coastline boundary derived from the Oil and Gas Authority's OGA and Lloyd's Register SNS Regional Geological Maps (Open Source). Open Government Licence v3 (OGL). Contains data © 2017 Oil and Gas Authority.

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)

Field label	Note
1.5 Common name	Otters are present in still and running freshater systems, from coasts to uplands, and are capable of long overland and ditch journeys between watersheds. Otters also exlpoit marine environments, particularly along rocky coastlines (Mathews et al, 2018; Chanin, 2003). Their dependence on water makes this species vulnerable to pollution and river management (Harris & Yalden, 2008). The species has suffered from severe historic declines, likely to have been caused by persistent organic pollutants, but has now recovered much of its former range (Chanin, 2003; Kean et al, 2013).

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

Field label	Note
6.1 Year or Period	Presence data was collected between 1995-2016 at 10km resolution or higher, gathered from the NBN gateway, local records centres, individual species experts, national and local monitoring schemes and iRecord for each species for the 'Review of the Population and Conservation Status of British Mammals (Mathews et al, 2018) used to determine population status for the species for this report. However, the population was determined between 2016-2017 and only data that had been verified by the source organisation was included in the distribution maps.
6.4 Additional population size	Mathews et al, (2018) gives estimates of 2,900 individuals. The length of riparian habitat for Scotland, England and Wales was taken from Harris et al (1995) and multiplied by the percentage of each country included in the species distribution to give the length of riparian habitat within that country. The length of suitable coastline in England was taken from Jefferies et al (2003). Population size was adjusted using the most recent occupancy values (Crawford, 2010). As no population density estimates or occupancy values were available for English or Welsh coastline, inland population values were used and this may have resulted in a conservative estimate for the number of coastal otters in these countries. However, it was thought that this was preferable to using Scottish coastal values due to the differences in coastal habitat. Population size estimates are based on a single population density estimate for riparian habitats and these estimates were applied to all riparian habitats and coastlines, meaning that variation due to habitat heterogeneity was not accounted for. It also meant that confidence limits could not be calculated. However, a comparison of figures from Harris et al (1995) and current estimates (which use the same source of population density) suggests an increase in population size of 49% in Britain; this increase is entirely due to an increase in the percentage of occupied areas in England and Wales (Mathews et al, 2018).
7.4 Short term trend; Direction	L. lutra have been recorded using all types of waterways. Home range can be up to 40km along river stretches and as small as 4-5km in coastal situations. However, surveys indicate that natal dens and intensive L. lutra activity (sprainting, pathways through vegetation) are generally confined to the 4ha block (Liles, 2003). Breeding sites are generally accepted as being located within the home range. They may comprise land, or open water and land, but be large enough to provide security from disturbance ; one or more potential natal den sites; play areas for cubs; no risk of flooding and access to a good food supply. It seems that these can be located anywhere within river systems. The major habitat types associated with breeding sites are extensive reed beds; ponds and lakes; deciduous woodlands ranging in size from a 20 m wide strip to several hectares; young conifer plantations; and large areas of scrub (Liles, 2003). In England, otters are mainly confined to freshwater habitats.

8.1 Characterisation of pressures/ threats	There are several important pressures and threats to this species, including, transport infrastructure, the use of biocides (which caused the population crash in the 1960s-70s), by-catch and incidental capture, pollution to surface waters and changes in hydraulic conditions. The species has previously suffered a huge population crash due to the use of toxic pesticides and this could remain a serious threat, although more rigorous control of pesticides, including the banning of substances, is now in place. Road deaths and accidental capture (e.g. in fishing equipment) continue to cause mortality.
9.5 List of main conservation measures	Conservation measures for this species include: continued legal protection; habitat protection (SACs) and habitat improvements (through agri-environment schemes, SAC and SSSI management etc); the regulation and/or banning of pesticides and other pollutants; promotion of better consideration by Highways Agency and Local planning authorities when considering development or road proposals.