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:

S1034 - Medicinal leech (*Hirudo medicinalis*)

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	**1034**
1.3 Species scientific name	**Hirudo medicinalis**
1.4 Alternative species scientific name	
1.5 Common name (in national language)	Medicinal leech

2. Maps

2.1 Sensitive species	No
2.2 Year or period	2012-2017
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

Kirkland, P. 2017. European medicinal leech (Hirudo medicinalis) surveillance in Scotland. Scottish Natural Heritage Report.
Kirkland, P. 2013. European medicinal leech Hirudo medicinalis L. in Scotland: Surveillance 2012. Scottish Natural Heritage Report.
Littlewood, N.A. & Stockan, J.A. 2012. Surveillance of priority terrestrial invertebrates in Scotland. SNH report.
MIDAS - Management Information on Designated Areas in Scotland (SNH)
Utevsky, S., Zagmajster, M. & Trontelj, P. 2014. Hirudo medicinalis. The IUCN Red List of Threatened Species 2014: e.T10190A21415816.
Elliott, J.M. & Kutschera, U. 2011. Medicinal leeches: historical use, ecology, genetics and conservation. Freshwater Reviews 4: 21-41.
Davies, R.W. & McLoughlin, N.J. 1996. The effects of feeding regime on the growth and reproduction of the medicinal leech Hirudo medicinalis. Freshwater Biology 36: 563-568.
Kutschera, U. & Elliott, J.M. 2014. The European medicinal leech Hirudo medicinalis L.: Morphology and occurrence of an endangered species. Zoosyst. Evol. 91: 271-280.

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

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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	No change The change is mainly due to:	
5.12 Additional information		

6. Population

6.1 Year or period	2012	
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) 4
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	2007-2017	
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		

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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	No change The change is mainly due to:
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)?	Unknown
	b) Is there a sufficiently large area of occupied AND unoccupied habitat of suitable quality (to maintain the species at FCS)?	Unknown
7.2 Sufficiency of area and quality of occupied habitat Method used	Based mainly on expert opinion with very limited data	
7.3 Short-term trend Period	2012-2017	
7.4 Short-term trend Direction	Stable (0)	
7.5 Short-term trend Method used	Based mainly on expert opinion with very limited 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
Agricultural activities generating diffuse pollution to surface or ground waters (A26)	M
Management of fishing stocks and game (G08)	M
Problematic native species (I04)	M

Threat	Ranking
Agricultural activities generating diffuse pollution to surface or ground waters (A26)	M
Management of fishing stocks and game (G08)	M
Problematic native species (I04)	M

8.2 Sources of information	
8.3 Additional information	

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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		Only outside Natura 2000
9.4 Response to the measures		Short-term results (within the current reporting period, 2013-2018)

9.5 List of main conservation measures

Maintain existing extensive agricultural practices and agricultural landscape features (CA03)

Reducing the impact of (re-) stocking for fishing and hunting, of artificial feeding and predator control (CG03)

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	

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

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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

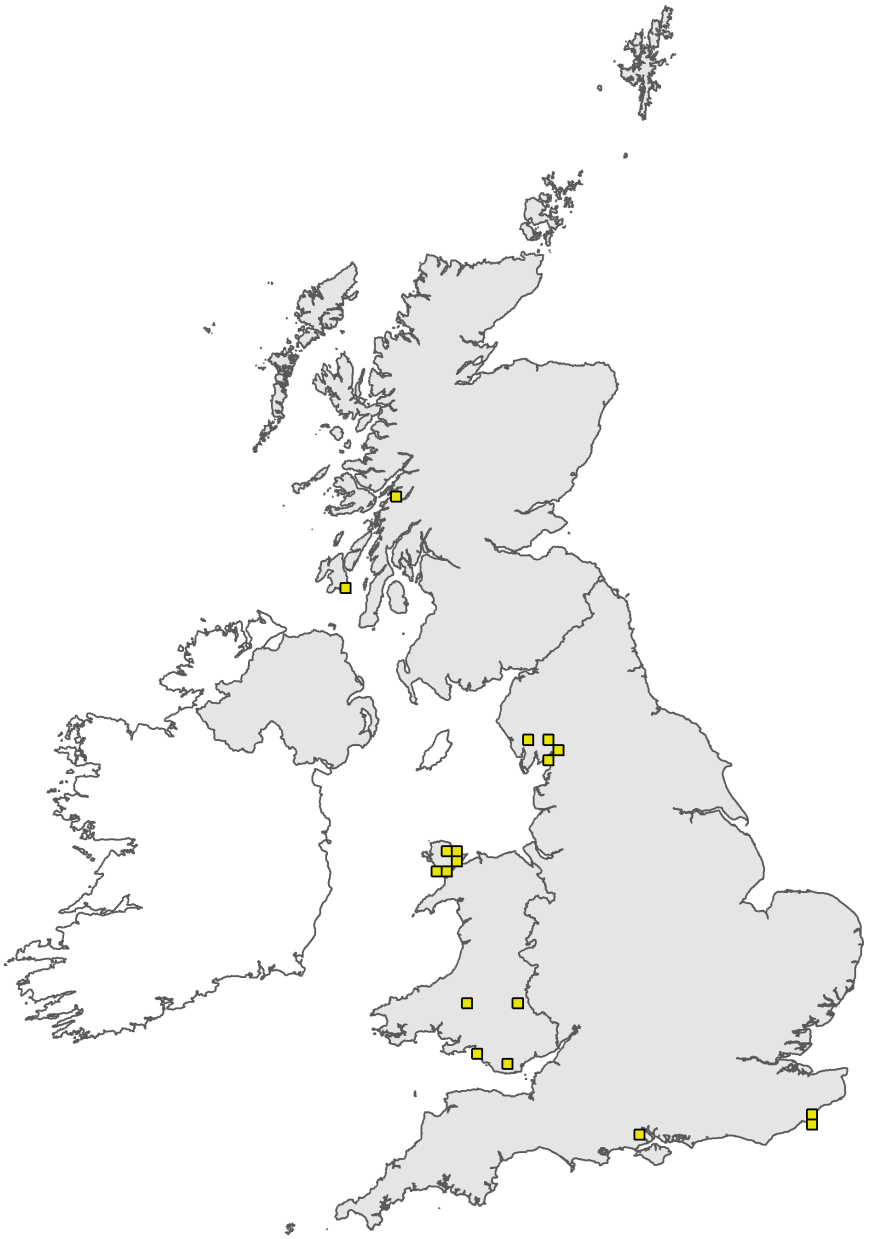

Figure 1: UK distribution map for S1034 - Medicinal leech (*Hirudo medicinalis*). Coastline boundary derived from the Oil and Gas Authority's OGA and Lloyd's Register SNS Regional Geological Maps (Open Source). Open Government Licence v3 (OGL). Contains data © 2017 Oil and Gas Authority.

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

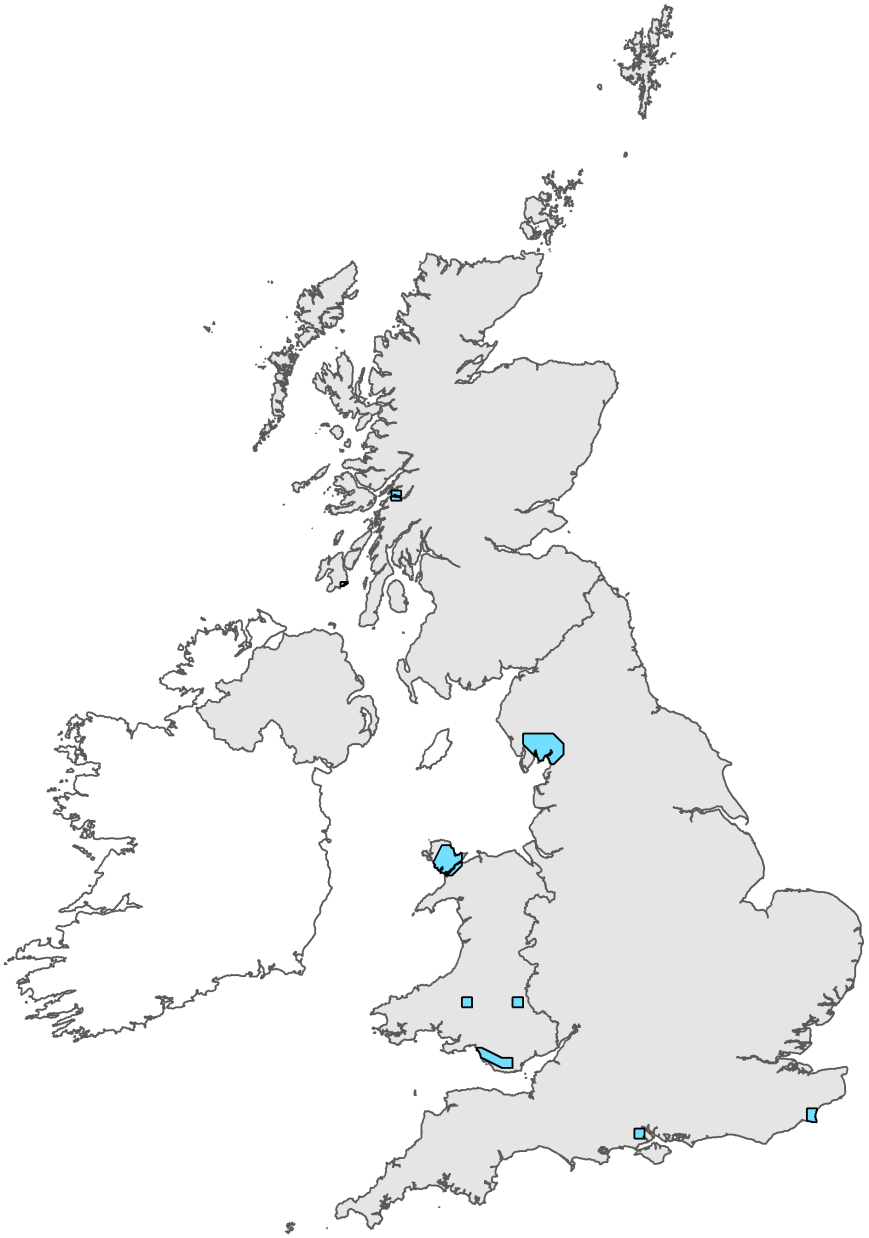

Figure 2: UK range map for S1034 - Medicinal leech (*Hirudo medicinalis*). Coastline boundary derived from the Oil and Gas Authority's OGA and Lloyd's Register SNS Regional Geological Maps (Open Source). Open Government Licence v3 (OGL). Contains data © 2017 Oil and Gas Authority.

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 20km. For further details see the 2019 Article 17 UK Approach document.

Explanatory Notes

Species name: Hirudo medicinalis (1034)

Field label	Note
1.5 Common name	Hirudo medicinalis is still frequently confused with H. verbana and other leech species (Kutschera & Elliott 2014).

Species name: Hirudo medicinalis (1034) Region code: ATL

Field label	Note
5.12 Additional information	There is limited information on the ecology of medicinal leech, but it can persist with a low minimum viable population size (Elliott & Kutschera 2011). Neither a reduction in population sizes nor a decline in the geographical ranges have been detected throughout its world distribution. The declining of field populations of the European medicinal leech could be the result of lower available energy for growth, as leeches now feed predominantly on amphibian blood of lower energetic value than mammalian blood (Davies & McLoughlin 1996). On the other hand, loss of wetland habitats, the global decline of amphibians, abandonment of traditional grazing practices and the scarcity of mammalian blood in leech diet are likely to affect populations and geographical ranges. It seems very likely that such losses have already happened, but have remained unnoticed because of the lack of field research and/or taxonomic expertise (Utevsky et al. 2014).
13.3 Other relevant information	There are 23 sites with historical evidence of medicinal leech presence. In some sites, predation by fish is the most likely cause of losses. It is possible many of these sites resulted from released specimens (Kirkland 2013, 2017). Amphibian populations are declining in many parts of the UK. Research is needed to assess the importance of amphibians to H. medicinalis, and the potential impact of any decline in the amphibian populations that may occur (Kirkland 2013, 2017).