

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

**Second Report by the United Kingdom under
Article 17
on the implementation of the Directive
from January 2001 to December 2006**

Conservation status assessment for :
S1096: *Lampetra planeri* - Brook lamprey

Please note that this is a section of the report. For the complete report visit <http://www.jncc.gov.uk/article17>

Please cite as: Joint Nature Conservation Committee. 2007. *Second Report by the UK under Article 17 on the implementation of the Habitats Directive from January 2001 to December 2006*. Peterborough: JNCC. Available from: www.jncc.gov.uk/article17

S1096 *Lampetra planeri* Brook lamprey

Audit trail compiled and edited by JNCC and Freshwater Inter-Agency Working Group

This document is an audit of the data and judgements on conservation status in the UK's report on the implementation of the Habitats Directive (January 2001 to December 2006) for this species. Superscript numbers accompanying the headings below, cross-reference to headings in the corresponding Annex B reporting form. This supporting information should be read in conjunction with the UK approach for species (see 'Assessing Conservation Status: UK Approach').

1. Range Information^{2.3}

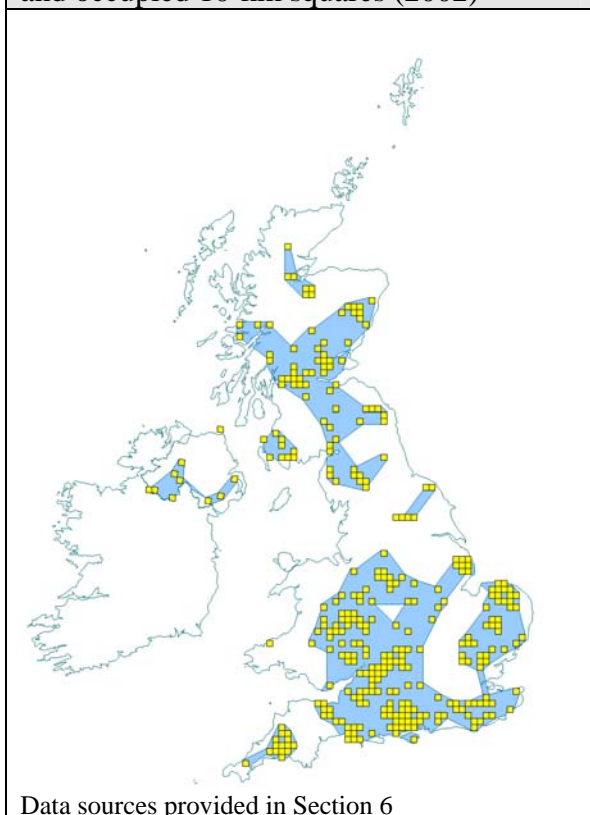
Lampetra planeri is common in many areas of the UK but is absent from parts of northern Scotland, including Orkney and Shetland and all but a few of the Hebrides.

1.1 Surface area of range^{2.3.1}

106,465 km²

The above estimate was calculated within the Alpha Hull software. Extent of occurrence was used as a proxy measure for range (see Map 1.1). The value of alpha was set at 25 km to reflect the mobility of this species. The range area was clipped to include inland areas only.

Map 1.1. Current extent of occurrence and occupied 10-km squares (2002)



1.2 Date of range determination^{2.3.2}

1990 – 2003

Records from 1990 to 2003 were used to calculate the current extent of occurrence; 2002 was the most recent available record. These provide the best representation of current range, as it is understood by species experts.

1.3 Quality of range data^{2.3.3}

Moderate

The Database for the Atlas of Freshwater Fishes (from which all GB data has been extracted), provides a relatively good data source for most fish across Britain. However, it does not represent a complete inventory. Similarly, data published in Jackson and McLeod (2000) (used for NI mapping only) were compiled from a variety of sources.

This is likely compounded by the problems in distinguishing between *L. fluviatilis* (river lamprey) and *L. planeri* during their juvenile stage (see section 2.4). To improve the quality of the range data for *L. planeri* there will need to be further surveys specifically targeted at this species, or that take account of some of their particular habitat requirements. Based on this, data quality has been reported as moderate, rather than good.

1.4 Range trend^{2.3.4} and range trend magnitude^{2.3.5}

Unknown

From recent observations there is no evidence of a decline in range since the Habitats Directive came into force. However, records from the NBN Gateway (including the Database and Atlas of Freshwater Fish) were examined over three discrete time periods: pre-1972 (1972 was the publication date of Peter Maitland's FBA key to freshwater fish which included distribution maps); 1972 to 1991; and post-1992 (when the Habitats Directive was introduced), and data were found to be insufficient for determining trends due to the relative lack of historic lamprey surveys (until recently, very few surveys were aimed at lampreys).

Trend in range can therefore only be reported as unknown at this time.

1.5 Range trend period^{2.3.6}

Not applicable

1.6 Reasons for reported trend in range^{2.3.7}

Not applicable

1.7 Favourable reference range^{2.7.1}

106,465 km² (Equal to current)

The decision tree in Note 1 has been used as a guide in determining the favourable reference range estimate (see 'Assessing Conservation Status: UK Approach').

L. planeri occurs over most of the UK, and its absence from parts of the extreme north and west of Scotland represents the natural limit of their range. There is no evidence to suggest that current range is not sufficiently large to support the species at Favourable status. Hence, the current estimate provides an adequate baseline for the favourable reference value.

1.8 Range conclusion^{2.8}

Favourable

Although trends are unknown, there has been no evidence of a decline. Therefore, since the favourable reference range is equivalent to the current estimate, range has been assessed as Favourable.

2. Population of the Species^{2.4}

2.1 Population estimate^{2.4.1}

Unknown

There are no comprehensive population size estimates available for this species at a UK level.

For Scotland, Ecological Research Associates (2005) confirmed the presence of *L. planeri* at 167 survey sites in 52 river catchments (*Lampetra* were found at many more sites, but *L. planeri* was not confirmed). Combined with existing records, this means that *L. planeri* presence has been confirmed in 76 river catchments across Scotland.

Of the 52 Scottish catchments confirmed in 2005, 33 had an average minimum density greater than the overall average density threshold of 5 fish.m⁻² recommended by Williams (2005) for Common Standards Monitoring of designated sites. Given that single pass electrofishing was used in the survey, and that the number of survey sites were very limited, the fact that 33 of the catchments achieved the density target for SACs is extremely encouraging and suggests that most of these populations are healthy (Ecological Research Associates, 2005).

Similar broadscale work has not yet been undertaken for England and Wales. However significant *L. planeri* populations have been recorded in SACs for the species (*e.g.* Harvey *et al.*, 2006a; 2006b).

2.2 Date of population estimate^{2.4.2}

Not applicable

2.3 Method of population estimate^{2.4.3}

Not applicable

2.4 Quality of population data^{2.4.4}

Poor

There are two main issues with much of the existing data for *L. planeri*. Many surveys that record *L. planeri* are surveys that are not specifically aimed at lampreys and therefore, given their specific habitat requirements, are likely to under-record the species. In addition, most surveys concentrate on the juvenile stage, when *L. planeri* cannot be distinguished *L. fluviatilis*. Therefore many records cannot be ascribed to a specific species (even when the survey is specifically aimed at *Lampetra* species), and so there will be further under-recording of *L. planeri*.

2.5 Population trend^{2.4.5} and population trend magnitude^{2.4.6}

Unknown

Although the species is relatively common in the UK (Maitland, 2004), due to a lack of historic information, it is difficult to comment on past trends. However, based on recent surveys, there is no evidence of a decline in recent years.

2.6 Population trend period^{2.4.7}

1994 - 2006

2.7 Reasons for reported trend in population^{2.4.8}

Not applicable

2.8 Justification of % thresholds for trends^{2.4.9}

Not applicable

2.9 Main pressures^{2.4.10}

221 Bait digging

300 Sand and gravel extraction

701 Water pollution

811 Management of aquatic and bank vegetation for drainage purposes

820 Removal of sediments (mud...)

830 Canalisation

850 Modification of hydrographic functioning, general

852 Modifying structures of inland water courses

853 Management of water levels

951 Drying out / accumulation of organic material

952 Eutrophication

953 Acidification

954 Invasion by a species

971 Competition

973 Introduction of disease

2.10 Threats^{2.4.11}

221 Bait digging

300 Sand and gravel extraction

701 Water pollution

811 Management of aquatic and bank vegetation for drainage purposes

820 Removal of sediments (mud...)

830 Canalisation

850 Modification of hydrographic functioning, general

852 Modifying structures of inland water courses

853 Management of water levels

951 Drying out / accumulation of organic material

952 Eutrophication

953 Acidification

954 Invasion by a species

971 Competition

973 Introduction of disease

2.11 Favourable reference population^{2.7.2}

Unknown

The decision tree in Note 1 has been used as a guide in determining the favourable reference population estimate (see 'Assessing Conservation Status: UK Approach').

Incidental records suggest that this species is relatively common in the UK. It therefore seems reasonable to conclude that the current population represents something close to the species' potential population. However, without a current population estimate, it would be meaningless to suggest a favourable reference value at this time.

2.12 Population conclusion^{2.8}

Unknown

On some SAC rivers there may be insufficient numbers (*e.g.* Teifi, Cleddau described in APEM, 2005) but in many others there are (*e.g.* Forth Fisheries Foundation, 2004 and Maitland, 2000b). There appears to be a range of age classes present in all SACs in Wales and Scotland indicating frequent recruitment.

Since recent surveys of SACs (*e.g.* Forth Fisheries Foundations, 2004; Harvey *et al*, 2006a, 2006b and a wider survey across Scotland (Ecological Research Associates, 2005) have generally found *Lampetra ammocoete* populations to be at a density higher than the Common Standards Monitoring target (Williams, 2005), it can be assumed that *L. planeri* populations in those areas are healthy. However, little information exists about the population status of *L. planeri* outside of SACs in England and Wales, other than many incidental records and conclusions that the species is relatively common in the UK. The lack of survey information about *L. planeri* over such an extensive area of the UK means that the population conclusion is 'unknown'.

3. Habitat for the Species in the Biogeographic Region or Sea^{2.5}

Understanding of *L. planeri*'s water quantity and water quality requirements is relatively poor (Maitland, 2003). However, it is generally reported as needing clean, well-oxygenated river gravels for spawning with suitable nearby hiding places, good water quality, and slower flowing nursery areas of sandy silt for juveniles.

3.1 Surface area of habitat^{2.5.2}

Unknown

The accessible wetted area for England and Wales is 117.4 km². No figures are available for Scotland or Northern Ireland. However, based on the surface area of these countries, it is likely that this figure would increase by a factor of approximately 2.5.

However, even then, not all of these wetted areas would be suitable for *L. planeri*. A true estimate of habitat surface area currently used is therefore unknown.

3.2 Date of estimation^{2.5.3}

Not applicable

3.3 Quality of data on habitat area^{2.5.4}

Poor

The estimate for accessible wetland areas calculated by CEFAS and Environment Agency (2006) is not thought to provide a suitable surrogate for habitat surface area (it only includes rivers classed as salmon rivers, and excludes Scotland and Northern Ireland). In the absence of an alternate, reliable estimate, data quality can only be classified as poor.

3.4 Habitat trend^{2.5.5}

Increasing

Historically, organic pollution and industrial pollution have degraded freshwater habitat across the UK. Impoundments have also limited the area of freshwater habitat available for *L. planeri*; weirs that can be ascended by migratory salmonids often still represent an impassable barrier to *L. planeri*.

Although pollution levels have been reduced in recent decades as a result of a decline in heavy industry and investment in the treatment of sewage effluent, actions to control sources of pollution are in their early stages. However, based on expert opinion, conditions are now considered to be improving. Therefore the trend in habitat is assessed as increasing.

3.5 Habitat trend period^{2.5.6}

2002 – 2006

Due to limited data, habitat trends are reported over the last biodiversity action reporting round, based on expert opinion. (With the information available, it is difficult to comment on post-1994 trends with any degree of confidence, hence the shorter time period has been reported).

3.6 Reasons for reported trend in habitat^{2.5.7}

3 = Direct human influence (restoration, deterioration, destruction)

Historic declines resulted from organic pollution, industrial pollution and restriction of access by weirs etc. Improvements in more recent years are attributed to active conservation management.

3.7 Suitable habitat for the species (in km²)^{2.7.3}

Unknown

3.8 Habitat conclusion^{2.8}

Unfavourable - Inadequate but improving

Historically, *L. planeri*'s freshwater habitat is thought to have declined in both area and quality, due to the construction of barriers and pollution. Although conditions are now considered to be improving, 14 of the 18 SACs designated for *L. planeri* (78%) were assessed as unfavourable during site condition assessments. One of the main reasons was inadequacy of supporting habitat (either water quality or water quantity). Although these SAC assessments are not necessarily indicative of habitat at a species specific level, the conclusions make it difficult to justify a judgment of Favourable at this time. A precautionary approach is therefore taken, and habitat is assessed as Unfavourable-Inadequate, but improving.

4. Future Prospects^{2.6}

Good prospects

Overall, "species is expected to survive and prosper".

L. planeri is listed under Annex II of the Habitats Directive. Although 78% of SACs designated for this species failed to achieve favourable condition in the Common Standards Monitoring because of water quality and/or water resource issues, there are good prospects for restoration of the species' supporting habitat in these designated areas.

Because the *L. planeri* is an entirely freshwater species it can remain in catchments, or parts of catchments, where the other anadromous species have become excluded by being unable to

ascend a physical obstacle or area of poor water quality. However impoundments can still isolate populations within certain river systems, and restoring *L. planeri* populations is hampered by a poor understanding of their water quantity and water quality requirements (Maitland, 2003).

The extent to which the species' habitat is restored outside the designated site network through the implementation of the Water Framework Directive is unclear at present. This is because the objectives are unclear if the habitat has been degraded by physical intervention (e.g. will many such waterbodies be considered to be Heavily Modified Waterbodies?) and the process for addressing diffuse pollution is in its early stages. However, it is likely that *L. planeri*'s prospects are good in the long term.

4.1 Future prospects conclusion^{2,8} Favourable

5. Overall Conclusion^{2,8}

Unfavourable – Inadequate but improving

Range and future prospects were Favourable; population was unknown; and habitat for the species was Unfavourable - Inadequate but improving. Therefore, in accordance with guidance, the overall assessment is Unfavourable - Inadequate but improving.

Table 5.1 Summary of conclusions

Parameter	Judgement	Grounds for Judgement (in accordance with Annex C)	Reliability*
Range	Favourable	Current range is not smaller than the favourable reference range Current trends are unknown, but there is no evidence to suggest a decline.	2
Population	Unknown	No or insufficient reliable information available.	N/A
Habitat	Unfavourable - Inadequate but improving	Any other combination Based on habitat assessments of SACs, particularly in England, some improvement in habitat quality is still required before it can confidently be reported that the habitat is "suitable for the long term survival of the species"	2
Future Prospects	Favourable	Main pressures and threats to the species not significant; species will remain viable on the long-term.	1
Overall Assessment	Unfavourable - Inadequate but improving	One or more Unfavourable - Inadequate but no Unfavourable – Bad.	2

*1=High, 2=Moderate, 3=Low

High – Expert opinion is that the concluding judgement accurately reflects the current situation based on a professional understanding of the species. For range, population, and habitat, quality of data used to establish the current estimate has been identified as "good"; data used to inform trends is comprehensive and up to date.

Moderate – A greater understanding of the feature, or the factors affecting it, is required before a confident concluding judgement can be made by experts. For range, population, and habitat, the current estimate and/or

trend are based on recent, but incomplete or limited survey data; or alternately, a comprehensive, but outdated (pre-1994) review.

Low – Judgements, and comprising estimates, are based predominately on expert opinion.

N/A – Assessment conclusion is “unknown”, on the basis of insufficient reliable information

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Map Data Sources

GB records:

Biological Records Centre - Database for the Atlas of Freshwater Fishes (1637-2003) (via NBN Gateway).

Northern Ireland records:

Jackson, D.L. and McLeod, C.R. (eds.). 2000. Report 312 - Handbook on the UK status of EC Habitats Directive interest features: provisional data on the UK distribution and extent of Annex I habitats and the UK distribution and population size of Annex II species. Revised 2002. Peterborough: Joint Nature Conservation Committee. Available online at: <http://www.jncc.gov.uk/page-2447>