

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

Supporting documentation for the  
Third Report by the United Kingdom under  
Article 17

on the implementation of the Directive  
from January 2007 to December 2012  
Conservation status assessment for

Species:

S1099 - River lamprey (*Lampetra fluviatilis*)

**IMPORTANT NOTE – PLEASE READ**

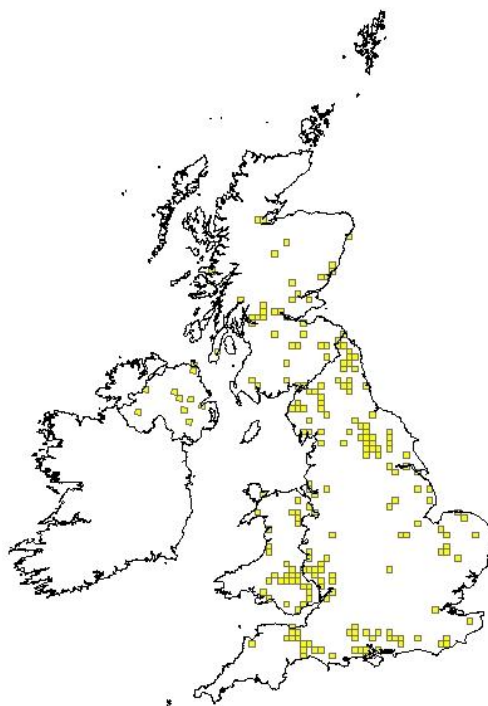
- The country-level reporting information contained in this document is a contribution to the Article 17 UK report for the habitat/species concerned.
- It has been provided by **Scottish Natural Heritage** and refers only to the state of the habitat/species in **Scotland** - it does not constitute an assessment for the whole of the UK.
- The Article 17 UK Approach document provides details on how this information has been used and, combined with information supplied by other Statutory Nature Conservation Bodies
- The format of the document is closely aligned to that set out by the European Commission for Member State reporting – as a result, some of the fields are not applicable at a country-level and have deliberately been left blank – in addition, the content of most fields is constrained by the EC reporting categories.

## Reporting format on the 'main results of the surveillance under Article 11' for Annex II, IV & V species

<i>Field name</i>	<i>Brief explanations</i>	
<b>0.2 Species</b>	<b>0.2.1 Species code</b>	<b>S1099</b>
	<b>0.2.2 Species scientific name</b>	<b><i>Lampetra fluviatilis</i></b>
	<b>0.2.3 Alternative species scientific name</b> Optional	
	<b>0.2.4 Common name</b> Optional	<b>River lamprey</b>

### 1.1 Maps

<b>1.1.1 Distribution map</b>	<b>Sensitive</b>	<b>False</b>
The distribution map of <i>L. fluviatilis</i> may have changed as a result of new information gathered during SCM surveys. The distribution of <i>L. fluviatilis</i> habitat is likely to change from year to year according to the scale of channel and so habitat changing processes.		



<b>1.1.2 Method used - map</b>	<b>Estimate based on partial data with some extrapolation and/or modelling</b>
	<p>APEM. 2004. Distribution of sea, brook and river lampreys on the River Tay. Scottish Natural Heritage Commissioned Report No. 032  <a href="http://www.snh.gov.uk/publications-data-and-research/publications/search-the-catalogue/publication-detail/?id=200">www.snh.gov.uk/publications-data-and-research/publications/search-the-catalogue/publication-detail/?id=200</a>.</p> <p>Biological Records Centre: Database and Atlas of Freshwater Fishes.</p>

	<p>(<a href="http://www.brc.ac.uk/DAFF/daff.htm">http://www.brc.ac.uk/DAFF/daff.htm</a>)</p> <p>Bull C, Watt J. 2012. Site condition monitoring of lamprey in the River Teith Special Area of Conservation 2011. Scottish Natural Heritage Commissioned Report.</p> <p>Campbell R, Corson P. 2005. The assessment of lamprey distribution and abundance in the River Tweed cSAC/SSSI. Scottish Natural Heritage Commissioned Report.</p> <p>Ecological Research Associates. 2005. A national lamprey survey of Scotland. Report for Scottish Natural Heritage, Clydebank.</p> <p>Forth Fisheries Foundation. 2004. River and brook lamprey monitoring of the Endrick Water cSAC/SSSI. Scottish Natural Heritage Commissioned Report No. 057 <a href="http://www.snh.org.uk/pdfs/publications/commissioned_reports/F03AC607.pdf">www.snh.org.uk/pdfs/publications/commissioned_reports/F03AC607.pdf</a></p> <p>Hume JB. 2011. Adult lamprey survey of the Endrick Water SSSI and SAC 2009–2010. Scottish Natural Heritage Commissioned Report No.480 <a href="http://www.snh.gov.uk/publications-data-and-research/publications/search-the-catalogue/publication-detail/?id=1848">www.snh.gov.uk/publications-data-and-research/publications/search-the-catalogue/publication-detail/?id=1848</a>.</p> <p>Loch Lomond Fishery Trust. 2005. River and brook lamprey monitoring of Endrick Water cSAC/SSSI.</p> <p>Maitland PS, Lyle AA. 2000. Distribution of lampreys in the River Teith. Scottish Natural Heritage Commissioned Report.</p> <p>North East Scotland Biological Records Centre: NE Scotland fish records 1800–2010.</p> <p>Watt J, Bull C, Ravenscroft NOM, Seed M. 2011. Lamprey Survey of the Endrick Water SSSI/SAC 2008. Scottish Natural Heritage Commissioned Report No. 320 <a href="http://www.snh.gov.uk/publications-data-and-research/publications/search-the-catalogue/publication-detail/?id=1849">www.snh.gov.uk/publications-data-and-research/publications/search-the-catalogue/publication-detail/?id=1849</a>.</p> <p>Watt J, Bull C, Ravenscroft NOM. 2012. Lamprey site condition monitoring of the River Tweed SSSI and SAC 2011. Scottish Natural Heritage Commissioned Report.</p> <p>Watt J, Ravenscroft NOM, Seed M. 2008. Site condition monitoring of lamprey in the River Tay Special Area of Conservation. Scottish Natural Heritage Commissioned Report No. 292 <a href="http://www.snh.gov.uk/publications-data-and-research/publications/search-the-catalogue/publication-detail/?id=1337">www.snh.gov.uk/publications-data-and-research/publications/search-the-catalogue/publication-detail/?id=1337</a>.</p>
<b>1.1.3 Year or period</b>	<b>1990-2012</b>
<b>1.1.4 Additional distribution map</b>	<b>False</b>
<b>1.1.5 Range map</b>	

<b>2.1 Biogeographical region &amp; marine regions</b>	ATL
<b>2.2 Published sources</b>	<p><b>"APEM. 2004. Distribution of sea, brook and river lampreys on the River Tay. Scottish Natural Heritage Commissioned Report No. 032 <a href="http://www.snh.gov.uk/publications-data-and-research/publications/search-the-catalogue/publication-detail/?id=200">www.snh.gov.uk/publications-data-and-research/publications/search-the-catalogue/publication-detail/?id=200</a>.</b></p> <p><b>Biological Records Centre: Database and Atlas of Freshwater Fishes. (<a href="http://www.brc.ac.uk/DAFF/daff.htm">http://www.brc.ac.uk/DAFF/daff.htm</a>)</b></p> <p><b>Bull C, Watt J. 2012. Site condition monitoring of lamprey in the River Teith Special Area of Conservation 2011. Scottish Natural Heritage Commissioned Report.</b></p> <p><b>Campbell R, Corson P. 2005. The assessment of lamprey distribution and abundance in the River Tweed cSAC/SSSI. Scottish Natural Heritage Commissioned Report.</b></p> <p><b>Ecological Research Associates. 2005. A national lamprey survey of Scotland. Report for Scottish Natural Heritage, Clydebank.</b></p> <p><b>Forth Fisheries Foundation. 2004. River and brook lamprey monitoring of the Endrick Water cSAC/SSSI. Scottish Natural Heritage Commissioned Report No. 057 <a href="http://www.snh.org.uk/pdfs/publications/commissioned_reports/F03AC607.pdf">www.snh.org.uk/pdfs/publications/commissioned_reports/F03AC607.pdf</a></b></p> <p><b>Harvey JP &amp; Cowx IG. (2003). Monitoring the River, Brook and Sea Lamprey, <i>Lampetra fluviatilis</i>, <i>L. planeri</i> and <i>Petromyzon marinus</i>. Conserving Natura 2000 Rivers Monitoring Series No. 5, English Nature, Peterborough <a href="http://publications.naturalengland.org.uk/file/118009">http://publications.naturalengland.org.uk/file/118009</a></b></p> <p><b>Hume JB. 2011. Adult lamprey survey of the Endrick Water SSSI and SAC 2009–2010. Scottish Natural Heritage Commissioned Report No.480 <a href="http://www.snh.gov.uk/publications-data-and-research/publications/search-the-catalogue/publication-detail/?id=1848">www.snh.gov.uk/publications-data-and-research/publications/search-the-catalogue/publication-detail/?id=1848</a>.</b></p> <p><b>Loch Lomond Fishery Trust. 2005. River and brook lamprey monitoring of Endrick Water cSAC/SSSI.</b></p> <p><b>Maitland PS, Lyle AA. 2000. Distribution of lampreys in the River Teith. Scottish Natural Heritage Commissioned Report.</b></p> <p><b>North East Scotland Biological Records Centre: NE Scotland fish records 1800–2010.</b></p> <p><b>Watt J, Bull C, Ravenscroft NOM, Seed M. 2011. Lamprey Survey of the Endrick Water SSSI/SAC 2008. Scottish Natural Heritage Commissioned Report No. 320 <a href="http://www.snh.gov.uk/publications-data-and-research/publications/search-the-catalogue/publication-">www.snh.gov.uk/publications-data-and-research/publications/search-the-catalogue/publication-</a></b></p>

	<p><b>detail/?id=1849.</b></p> <p><b>Watt J, Bull C, Ravenscroft NOM. 2012. Lamprey site condition monitoring of the River Tweed SSSI and SAC 2011. Scottish Natural Heritage Commissioned Report.</b></p> <p><b>Watt J, Ravenscroft NOM, Seed M. 2008. Site condition monitoring of lamprey in the River Tay Special Area of Conservation. Scottish Natural Heritage Commissioned Report No. 292 <a href="http://www.snh.gov.uk/publications-data-and-research/publications/search-the-catalogue/publication-detail/?id=1337">www.snh.gov.uk/publications-data-and-research/publications/search-the-catalogue/publication-detail/?id=1337</a>."</b></p> <p>APEM. 2004. Distribution of sea, brook and river lampreys on the River Tay. Scottish Natural Heritage Commissioned Report No. 032 <a href="http://www.snh.gov.uk/publications-data-and-research/publications/search-the-catalogue/publication-detail/?id=200">www.snh.gov.uk/publications-data-and-research/publications/search-the-catalogue/publication-detail/?id=200</a>.</p> <p>Biological Records Centre: Database and Atlas of Freshwater Fishes. (<a href="http://www.brc.ac.uk/DAFF/daff.htm">http://www.brc.ac.uk/DAFF/daff.htm</a>)</p> <p>Bull C, Watt J. 2012. Site condition monitoring of lamprey in the River Teith Special Area of Conservation 2011. Scottish Natural Heritage Commissioned Report.</p> <p>Campbell R, Corson P. 2005. The assessment of lamprey distribution and abundance in the River Tweed cSAC/SSSI. Scottish Natural Heritage Commissioned Report.</p> <p>Ecological Research Associates. 2005. A national lamprey survey of Scotland. Report for Scottish Natural Heritage, Clydebank.</p> <p>Forth Fisheries Foundation. 2004. River and brook lamprey monitoring of the Endrick Water cSAC/SSSI. Scottish Natural Heritage Commissioned Report No. 057 <a href="http://www.snh.org.uk/pdfs/publications/commissioned_reports/F03AC607.pdf">www.snh.org.uk/pdfs/publications/commissioned_reports/F03AC607.pdf</a></p> <p>Harvey JP &amp; Cowx IG. (2003). Monitoring the River, Brook and Sea Lamprey, <i>Lampetra fluviatilis</i>, <i>L. planeri</i> and <i>Petromyzon marinus</i>. Conserving Natura 2000 Rivers Monitoring Series No. 5, English Nature, Peterborough <a href="http://publications.naturalengland.org.uk/file/118009">http://publications.naturalengland.org.uk/file/118009</a></p> <p>Hume JB. 2011. Adult lamprey survey of the Endrick Water SSSI and SAC 2009–2010. Scottish Natural Heritage Commissioned Report No.480 <a href="http://www.snh.gov.uk/publications-data-and-research/publications/search-the-catalogue/publication-detail/?id=1848">www.snh.gov.uk/publications-data-and-research/publications/search-the-catalogue/publication-detail/?id=1848</a>.</p> <p>Loch Lomond Fishery Trust. 2005. River and brook lamprey monitoring of Endrick Water cSAC/SSSI.</p> <p>Maitland PS, Lyle AA. 2000. Distribution of lampreys in the River Teith. Scottish Natural Heritage Commissioned Report.</p> <p>North East Scotland Biological Records Centre: NE Scotland fish records 1800–2010.</p>
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	<p>Watt J, Bull C, Ravenscroft NOM, Seed M. 2011. Lamprey Survey of the Endrick Water SSSI/SAC 2008. Scottish Natural Heritage Commissioned Report No. 320 <a href="http://www.snh.gov.uk/publications-data-and-research/publications/search-the-catalogue/publication-detail/?id=1849">www.snh.gov.uk/publications-data-and-research/publications/search-the-catalogue/publication-detail/?id=1849</a>.</p> <p>Watt J, Bull C, Ravenscroft NOM. 2012. Lamprey site condition monitoring of the River Tweed SSSI and SAC 2011. Scottish Natural Heritage Commissioned Report.</p> <p>Watt J, Ravenscroft NOM, Seed M. 2008. Site condition monitoring of lamprey in the River Tay Special Area of Conservation. Scottish Natural Heritage Commissioned Report No. 292 <a href="http://www.snh.gov.uk/publications-data-and-research/publications/search-the-catalogue/publication-detail/?id=1337">www.snh.gov.uk/publications-data-and-research/publications/search-the-catalogue/publication-detail/?id=1337</a>.</p>
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2.3 Range	
2.3.1 Surface area Range	
2.3.2 Method used Surface area of Range	<p><b>Estimate based on partial data with some extrapolation and/or modelling</b></p> <p>APEM. 2004. Distribution of sea, brook and river lampreys on the River Tay. Scottish Natural Heritage Commissioned Report No. 032 <a href="http://www.snh.gov.uk/publications-data-and-research/publications/search-the-catalogue/publication-detail/?id=200">www.snh.gov.uk/publications-data-and-research/publications/search-the-catalogue/publication-detail/?id=200</a>.</p> <p>Biological Records Centre: Database and Atlas of Freshwater Fishes. (<a href="http://www.brc.ac.uk/DAFF/daff.htm">http://www.brc.ac.uk/DAFF/daff.htm</a>)</p> <p>Bull C, Watt J. 2012. Site condition monitoring of lamprey in the River Teith Special Area of Conservation 2011. Scottish Natural Heritage Commissioned Report.</p> <p>Campbell R, Corson P. 2005. The assessment of lamprey distribution and abundance in the River Tweed cSAC/SSSI. Scottish Natural Heritage Commissioned Report.</p> <p>Ecological Research Associates. 2005. A national lamprey survey of Scotland. Report for Scottish Natural Heritage, Clydebank.</p> <p>Forth Fisheries Foundation. 2004. River and brook lamprey monitoring of the Endrick Water cSAC/SSSI. Scottish Natural Heritage Commissioned Report No. 057 <a href="http://www.snh.org.uk/pdfs/publications/commissioned_reports/F03AC607.pdf">www.snh.org.uk/pdfs/publications/commissioned_reports/F03AC607.pdf</a></p> <p>Harvey JP &amp; Cowx IG. (2003). Monitoring the River, Brook and Sea Lamprey, <i>Lampetra fluviatilis</i>, <i>L. planeri</i> and <i>Petromyzon marinus</i>. Conserving Natura 2000 Rivers Monitoring Series No. 5, English Nature, Peterborough <a href="http://publications.naturalengland.org.uk/file/118009">http://publications.naturalengland.org.uk/file/118009</a></p> <p>Hume JB. 2011. Adult lamprey survey of the Endrick Water SSSI and SAC 2009–2010. Scottish Natural Heritage Commissioned Report No.480 <a href="http://www.snh.gov.uk/publications-data-and-research/publications/search-the-catalogue/publication-detail/?id=1848">www.snh.gov.uk/publications-data-and-research/publications/search-the-catalogue/publication-detail/?id=1848</a>.</p>

	<p>Loch Lomond Fishery Trust. 2005. River and brook lamprey monitoring of Endrick Water cSAC/SSSI.</p> <p>Maitland PS, Lyle AA. 2000. Distribution of lampreys in the River Teith. Scottish Natural Heritage Commissioned Report.</p> <p>North East Scotland Biological Records Centre: NE Scotland fish records 1800–2010.</p> <p>Watt J, Bull C, Ravenscroft NOM, Seed M. 2011. Lamprey Survey of the Endrick Water SSSI/SAC 2008. Scottish Natural Heritage Commissioned Report No. 320 <a href="http://www.snh.gov.uk/publications-data-and-research/publications/search-the-catalogue/publication-detail/?id=1849">www.snh.gov.uk/publications-data-and-research/publications/search-the-catalogue/publication-detail/?id=1849</a>.</p> <p>Watt J, Bull C, Ravenscroft NOM. 2012. Lamprey site condition monitoring of the River Tweed SSSI and SAC 2011. Scottish Natural Heritage Commissioned Report.</p> <p>Watt J, Ravenscroft NOM, Seed M. 2008. Site condition monitoring of lamprey in the River Tay Special Area of Conservation. Scottish Natural Heritage Commissioned Report No. 292 <a href="http://www.snh.gov.uk/publications-data-and-research/publications/search-the-catalogue/publication-detail/?id=1337">www.snh.gov.uk/publications-data-and-research/publications/search-the-catalogue/publication-detail/?id=1337</a>.</p> <p>The quality of the data used in the calculation of the range is generally good. However, the actual range is likely to be greater than that shown as most records for <i>L. fluviatilis</i> are produced by targeted surveys undertaken in designated sites. The few other records are most likely the result of chance encounters during surveys for other species of fish.</p>		
<b>2.3.3 Short-term trend Period</b>	<p><b>2001-2012</b></p> <p>Short-term range trend information is not currently available</p>		
<b>2.3.4 Short term trend Trend direction</b>	<p><b>unknown</b></p> <p>Short-term range trend information is not currently available</p>		
<b>2.3.5 Short-term trend Magnitude</b>	<table border="1" data-bbox="609 1330 1493 1397"> <tr> <td data-bbox="609 1330 895 1397"><b>a) Minimum</b></td> <td data-bbox="895 1330 1493 1397"></td> </tr> </table> <p>APEM. 2004. Distribution of sea, brook and river lampreys on the River Tay. Scottish Natural Heritage Commissioned Report No. 032 <a href="http://www.snh.gov.uk/publications-data-and-research/publications/search-the-catalogue/publication-detail/?id=200">www.snh.gov.uk/publications-data-and-research/publications/search-the-catalogue/publication-detail/?id=200</a>.</p> <p>Biological Records Centre: Database and Atlas of Freshwater Fishes. (<a href="http://www.brc.ac.uk/DAFF/daff.htm">http://www.brc.ac.uk/DAFF/daff.htm</a>)</p> <p>Bull C, Watt J. 2012. Site condition monitoring of lamprey in the River Teith Special Area of Conservation 2011. Scottish Natural Heritage Commissioned Report.</p> <p>Campbell R, Corson P. 2005. The assessment of lamprey distribution and abundance in the River Tweed cSAC/SSSI. Scottish Natural Heritage Commissioned Report.</p> <p>Ecological Research Associates. 2005. A national lamprey survey of Scotland. Report for Scottish Natural Heritage, Clydebank.</p>	<b>a) Minimum</b>	
<b>a) Minimum</b>			



	<p>Forth Fisheries Foundation. 2004. River and brook lamprey monitoring of the Endrick Water cSAC/SSSI. Scottish Natural Heritage Commissioned Report No. 057 www.snh.org.uk/pdfs/publications/commissioned_reports/F03AC607.pdf</p> <p>Harvey JP &amp; Cowx IG. (2003). Monitoring the River, Brook and Sea Lamprey, <i>Lampetra fluviatilis</i>, <i>L. planeri</i> and <i>Petromyzon marinus</i>. Conserving Natura 2000 Rivers Monitoring Series No. 5, English Nature, Peterborough <a href="http://publications.naturalengland.org.uk/file/118009">http://publications.naturalengland.org.uk/file/118009</a></p> <p>Hume JB. 2011. Adult lamprey survey of the Endrick Water SSSI and SAC 2009–2010. Scottish Natural Heritage Commissioned Report No.480 <a href="http://www.snh.gov.uk/publications-data-and-research/publications/search-the-catalogue/publication-detail/?id=1848">www.snh.gov.uk/publications-data-and-research/publications/search-the-catalogue/publication-detail/?id=1848</a>.</p> <p>Loch Lomond Fishery Trust. 2005. River and brook lamprey monitoring of Endrick Water cSAC/SSSI.</p> <p>Maitland PS, Lyle AA. 2000. Distribution of lampreys in the River Teith. Scottish Natural Heritage Commissioned Report.</p> <p>North East Scotland Biological Records Centre: NE Scotland fish records 1800–2010.</p> <p>Watt J, Bull C, Ravenscroft NOM, Seed M. 2011. Lamprey Survey of the Endrick Water SSSI/SAC 2008. Scottish Natural Heritage Commissioned Report No. 320 <a href="http://www.snh.gov.uk/publications-data-and-research/publications/search-the-catalogue/publication-detail/?id=1849">www.snh.gov.uk/publications-data-and-research/publications/search-the-catalogue/publication-detail/?id=1849</a>.</p> <p>Watt J, Bull C, Ravenscroft NOM. 2012. Lamprey site condition monitoring of the River Tweed SSSI and SAC 2011. Scottish Natural Heritage Commissioned Report.</p> <p>Watt J, Ravenscroft NOM, Seed M. 2008. Site condition monitoring of lamprey in the River Tay Special Area of Conservation. Scottish Natural Heritage Commissioned Report No. 292 <a href="http://www.snh.gov.uk/publications-data-and-research/publications/search-the-catalogue/publication-detail/?id=1337">www.snh.gov.uk/publications-data-and-research/publications/search-the-catalogue/publication-detail/?id=1337</a>.</p> <p>When it becomes available, the range trend information may show an increase as a result of new records of <i>L. fluviatilis</i>. However, it is thought that these new records are unlikely to show an increase in the actual range of the species but rather a better understanding of its range.</p>				
<b>2.3.6 Long-term trend Period</b>	<table border="1"> <tr> <td data-bbox="609 1742 895 1680"><b>b) Maximum</b></td> <td data-bbox="895 1742 1493 1680"></td> </tr> <tr> <td colspan="2" data-bbox="609 1680 1493 1742"></td> </tr> </table>	<b>b) Maximum</b>			
<b>b) Maximum</b>					
<b>2.3.7 Long-term trend Trend direction</b>	<table border="1"> <tr> <td data-bbox="609 1861 895 1921"><b>unknown</b></td> <td data-bbox="895 1861 1493 1921"></td> </tr> <tr> <td colspan="2" data-bbox="609 1921 1493 1984">Long-term range trend information is not available</td> </tr> </table>	<b>unknown</b>		Long-term range trend information is not available	
<b>unknown</b>					
Long-term range trend information is not available					



<b>2.3.8 Long-term trend Magnitude</b>  Optional	<b>a) Minimum</b>	
	Long-term range trend information is not available	
	<b>b) Maximum</b>	
<b>2.3.9 Favourable reference range</b>	<b>a) Value in km<sup>2</sup></b>	
	Long-term range trend information is not available	
	<b>b) Operator for FRR</b>	
	<b>c) FRR is unknown (indicated by "true")</b>	<b>True</b>
	<b>d) Method used to set FRR</b>	
<b>2.3.10 Reason for change</b>  Is the difference between the reported value in 2.3.1 and the previous reporting round mainly due to...	<b>a) Genuine change?</b>	<b>False</b>
	<b>b) Improved knowledge/more accurate data?</b>	<b>True</b>
	It is thought to be unlikely that any new records will be the result of an increase in the actual range of <i>L. fluviatilis</i> but rather will illustrate an increased understanding of the extent of its range.	
	<b>c) Use of different method (e.g. "Range tool")?</b>	<b>False</b>

<b>2.4 Population</b>		
<b>2.4.1 Population size estimation</b> (using individuals or agreed exceptions where possible)	<b>a) Unit</b>	
	<b>b) Minimum</b>	
	<b>c) Maximum</b>	

<b>2.4.2 Population size estimation</b> (using population unit other than individuals) Optional ( <i>if 2.4.1 filled in</i> )	<b>a) Unit</b>	<b>number of map 1x1 km grid cells</b>
	Number of occupied 1 km grid squares. Attempting to convert the number of occupied 1 km grid squares to individuals would be likely to produce a gross misrepresentation of the actual number of individuals. See the comments made in 2.4.3.	
	<b>b) Minimum</b>	<b>61</b>
	<b>c) Maximum</b>	<b>61</b>
<b>2.4.3 Additional information on population estimates / conversion</b> Optional	<b>a) Definition of "locality"</b>	
	<b>b) Method to convert data</b>	
	<b>c) Problems encountered to provide population size estimation</b>	
	The electric fishing technique used to survey the three species of lamprey found in Scotland differs from that used to survey other species of fish. Records of all three species of lamprey in undesignated sites are generally the result of chance encounters and so little is known about the size of any populations that exist outside of the five sites designated for the species in Scotland. The extent of the lamprey habitat in a river will vary annually and according to the scale of channel changing processes. This is likely to result in significant inter-annual variation in the number of lamprey. Lamprey habitat is considered to be either 'optimal' or 'sub-optimal'. Sub-optimal habitat is ordinarily surveyed using a semi-quantitative technique to provide a minimum density number. The contribution of sub-optimal habitat to the maintenance of a river's lamprey population is likely to be considerable. However, there is currently little information about the extent of either optimal or sub-optimal habitat in Scotland's rivers.	
<b>2.4.4 Year or period</b>	<b>1990-2012</b>	
<b>2.4.5 Method used Population size</b>	<b>Estimate based on partial data with some extrapolation and/or modelling</b>	
	<p>APEM. 2004. Distribution of sea, brook and river lampreys on the River Tay. Scottish Natural Heritage Commissioned Report No. 032 <a href="http://www.snh.gov.uk/publications-data-and-research/publications/search-the-catalogue/publication-detail/?id=200">www.snh.gov.uk/publications-data-and-research/publications/search-the-catalogue/publication-detail/?id=200</a>.</p> <p>Biological Records Centre: Database and Atlas of Freshwater Fishes. (<a href="http://www.brc.ac.uk/DAFF/daff.htm">http://www.brc.ac.uk/DAFF/daff.htm</a>)</p> <p>Bull C, Watt J. 2012. Site condition monitoring of lamprey in the River Teith Special Area of Conservation 2011. Scottish Natural Heritage Commissioned Report.</p>	

	<p>Campbell R, Corson P. 2005. The assessment of lamprey distribution and abundance in the River Tweed cSAC/SSSI. Scottish Natural Heritage Commissioned Report.</p> <p>Ecological Research Associates. 2005. A national lamprey survey of Scotland. Report for Scottish Natural Heritage, Clydebank.</p> <p>Forth Fisheries Foundation. 2004. River and brook lamprey monitoring of the Endrick Water cSAC/SSSI. Scottish Natural Heritage Commissioned Report No. 057  <a href="http://www.snh.org.uk/pdfs/publications/commissioned_reports/F03AC607.pdf">www.snh.org.uk/pdfs/publications/commissioned_reports/F03AC607.pdf</a></p> <p>Harvey JP &amp; Cowx IG. (2003). Monitoring the River, Brook and Sea Lamprey, <i>Lampetra fluviatilis</i>, <i>L. planeri</i> and <i>Petromyzon marinus</i>. Conserving Natura 2000 Rivers Monitoring Series No. 5, English Nature, Peterborough <a href="http://publications.naturalengland.org.uk/file/118009">http://publications.naturalengland.org.uk/file/118009</a></p> <p>Hume JB. 2011. Adult lamprey survey of the Endrick Water SSSI and SAC 2009–2010. Scottish Natural Heritage Commissioned Report No.480 <a href="http://www.snh.gov.uk/publications-data-and-research/publications/search-the-catalogue/publication-detail/?id=1848">www.snh.gov.uk/publications-data-and-research/publications/search-the-catalogue/publication-detail/?id=1848</a>.</p> <p>Loch Lomond Fishery Trust. 2005. River and brook lamprey monitoring of Endrick Water cSAC/SSSI.</p> <p>Maitland PS, Lyle AA. 2000. Distribution of lampreys in the River Teith. Scottish Natural Heritage Commissioned Report.</p> <p>North East Scotland Biological Records Centre: NE Scotland fish records 1800–2010.</p> <p>Watt J, Bull C, Ravenscroft NOM, Seed M. 2011. Lamprey Survey of the Endrick Water SSSI/SAC 2008. Scottish Natural Heritage Commissioned Report No. 320 <a href="http://www.snh.gov.uk/publications-data-and-research/publications/search-the-catalogue/publication-detail/?id=1849">www.snh.gov.uk/publications-data-and-research/publications/search-the-catalogue/publication-detail/?id=1849</a>.</p> <p>Watt J, Bull C, Ravenscroft NOM. 2012. Lamprey site condition monitoring of the River Tweed SSSI and SAC 2011. Scottish Natural Heritage Commissioned Report.</p> <p>Watt J, Ravenscroft NOM, Seed M. 2008. Site condition monitoring of lamprey in the River Tay Special Area of Conservation. Scottish Natural Heritage Commissioned Report No. 292 <a href="http://www.snh.gov.uk/publications-data-and-research/publications/search-the-catalogue/publication-detail/?id=1337">www.snh.gov.uk/publications-data-and-research/publications/search-the-catalogue/publication-detail/?id=1337</a>.</p> <p>Owing to the difficulties associated with providing an estimate of the number of individuals, the number of 1 km grid squares in Scotland in which <i>Lampetra fluviatilis</i> has been recorded is provided as a surrogate. The calculation was based upon records of <i>L. fluviatilis ammocoetes</i> documented in the sources given above. Note that genus (<i>Lampetra</i>) level records were not included. The NGRs of <i>L. fluviatilis</i> records were plotted using a GIS and the number of 1 km grid squares in which records fell was calculated. The quality of the data used is generally good.</p>
<b>2.4.6 Short-term trend</b>	

<b>Period</b>	Population not previously estimated	
<b>2.4.7 Short-term trend</b>	<b>unknown</b>	
<b>Trend direction</b>	Population not previously estimated	
<b>2.4.8 Short-term trend Magnitude</b>	<b>a) Minimum</b>	
	Population not previously estimated	
	<b>b) Maximum</b>	
	<b>c) Confidence interval</b>	
<b>2.4.9 Short-term trend Method used</b>	<b>Absent data</b>	
	Population not previously estimated	
<b>2.4.10 Long-term trend – Period</b>		
	Population not previously estimated	
<b>2.4.11 Long-term trend Trend direction</b>	<b>unknown</b>	
	Population not previously estimated	
<b>2.4.12 Long-term trend Magnitude</b> Optional	<b>a) Minimum</b>	
	Population not previously estimated	
	<b>b) Maximum</b>	
	<b>c) Confidence interval</b>	
<b>2.4.13 Long term trend Method used</b>	<b>0</b>	
	Population not previously estimated	
<b>2.4.14 Favourable reference population</b>	<b>a) Number of individuals/agreed exceptions/other units</b>	
	Population not previously estimated	
	<b>b) Operator</b>	

	<b>c) FRP is unknown indicated by "true"</b>	<b>True</b>
	<b>d) Method used to set FRP</b>	
<b>2.4.15 Reason for change</b> Is the difference between the value reported at 2.4.1 or 2.4.2 and the previous reporting round mainly due to:	<b>a) Genuine change?</b>	<b>False</b>
	<b>b) Improved knowledge/more accurate data?</b>	<b>True</b>
		Population not previously estimated
	<b>c) Use of different method (e.g. "Range tool")?</b>	<b>False</b>

<b>2.5 Habitat for the species</b>	
<b>2.5.1 Area estimation</b>	L. fluviatilis occupies streams and rivers with good water quality and flow. It is anadromous and, therefore, requires migration routes that are free of artificial and natural obstacles from the sea to its spawning grounds. Adults require clean, well oxygenated gravel with some sand in which to create nests for spawning. Juvenile L. fluviatilis occupy discrete areas of silt/sand along stream and river margins.
	It is unknown whether the amount of habitat in the UK is sufficient to support a viable population of the species. Distribution surface area information not yet available. It is likely to misrepresent the true extent of the habitat available due to the fragmented distribution of lamprey habitat in most of the water bodies that support it  It is unknown whether the amount of habitat in the UK is sufficient to support a viable population of the species.
<b>2.5.2 Year or period</b>	<b>1990-2012</b>
<b>2.5.3 Method used Habitat for the species</b>	<b>Absent data</b>
<b>2.5.4 Quality of the habitat</b>	<b>a) Habitat quality</b> <b>Moderate</b>
	Due to the exacting habitat requirements of L. fluviatilis, where the species does occur the habitat is generally considered to be in good

	<p>condition. However, the likelihood that <i>L. fluviatilis</i> is prevented from using areas of suitable habitat due to, for example, barriers to migration persists.</p> <p>The availability of habitat for the species will be based upon distribution surface area information which is not yet available. However, using this information is likely to misrepresent the true extent of the habitat available due to the fragmented distribution of lamprey habitat in most of the water bodies that support it.</p>	
	<b>b) Assessment method</b>	<b>L. fluviatilis is unlikely to survive in anything other than good quality habitat</b>
	L. fluviatilis is unlikely to survive in anything other than good quality habitat.	
<b>2.5.5 Short-term trend Period</b>	Habitat area not previously estimated	
<b>2.5.6 Short-term trend Trend direction</b>	<b>unknown</b> Habitat area not previously estimated	
<b>2.5.7 Long-term trend Period</b>	Habitat area not previously estimated	
<b>2.5.8 Long-term trend Trend direction</b>	<b>unknown</b> Habitat area not previously estimated	
<b>2.5.9 Area of suitable habitat for the species</b>	<b>a) Value in km<sup>2</sup></b>	
	The area of suitable habitat is unknown. The fragmented nature of lamprey habitat means that attempts to estimate are likely to be highly inaccurate.	
	<b>b) Absence of data indicated as '0'</b>	
<b>2.5.10 Reason for change</b> Is the difference between the value reported at 2.5.1 and the previous reporting round mainly due to	<b>a) Genuine change?</b>	<b>False</b>
	<b>b) Improved knowledge/more accurate data?</b>	<b>False</b>
	Habitat area not previously estimated	
	<b>c) Use of different method (e.g. "Range tool")?</b>	<b>False</b>

<b>2.6 Main pressures</b>		
<b>a) Pressure</b>	<b>b) Ranking</b>	<b>c) Pollution qualifier</b>
	H = high importance	

	M = medium importance L = low importance	
H01: Pollution to surface waters (limnic & terrestrial, marine & brackish)	H	
I01: invasive non-native species	H	
J03: Other ecosystem modifications	H	
A07: use of biocides, hormones and chemicals	M	O
C01: Mining and quarrying	M	
A01: Cultivation	L	
A02: modification of cultivation practices	L	
A04: grazing	L	
A06: annual and perennial non-timber crops	L	
B02: Forest and Plantation management & use	L	
E01: Urbanised areas, human habitation	L	
E03: Discharges	L	
J02: human induced changes in hydraulic conditions	L	
M01: Changes in abiotic conditions	L	

Despite improvements in the regulation of the water environment since the last Article 17 reporting, significant concerns about poor water quality associated with land use practices, such as agriculture and forestry, and urbanisation remain. Sources of pollution include both point and diffuse.

Hydromorphological alterations remain the greatest cause for concern. Artificial changes to both the geomorphological and hydrological functioning of streams and rivers may lead to a decrease in habitat. Physical barriers, such as dams and weirs associated with hydro electric power developments, may hamper or prevent the migration of adult lamprey.

Invasive non-native species of plant may lead either directly or indirectly to the loss of habitat by smothering it, or leading to its erosion during the period when the plants die or are absent.

#### 2.6.1 Method used – Pressures

**mainly based on expert judgement and other data**

2 and 3

SCM reports and SEPA WFD data

2.7 Threats		
a) Threat	b) Ranking	c) Pollution qualifier
	H = high importance M = medium importance L = low importance	
E03: Discharges	H	
H01: Pollution to surface waters (limnic & terrestrial, marine &	H	



brackish)		
J02: human induced changes in hydraulic conditions	H	
J03: Other ecosystem modifications	H	
A07: use of biocides, hormones and chemicals	M	O
I01: invasive non-native species	M	
M01: Changes in abiotic conditions	M	
A01: Cultivation	L	
A02: modification of cultivation practices	L	
A04: grazing	L	
A06: annual and perennial non-timber crops	L	
B02: Forest and Plantation management & use	L	
C01: Mining and quarrying	L	
E01: Urbanised areas, human habitation	L	

The majority of the current pressures are likely to persist for the foreseeable future.

Predicted climate change induced changes to the hydrological functioning of streams and rivers are likely to result in further pressure being exerted on lamprey habitat.

**2.7.1 Method used – Threats** expert opinion

## 2.8 Complementary information

### 2.8.1 Justification of % thresholds for trends

### 2.8.2 Other relevant information

**The accuracy of the assessment is limited by the paucity of information on the distribution and abundance of *L. fluviatilis* outwith the sites designated for the species.**

The accuracy of the assessment is limited by the paucity of information on the distribution and abundance of *L. fluviatilis* outwith the sites

	designated for the species.
<b>2.8.3 Trans-boundary assessment</b>	

### 2.9 Conclusions (*assessment of conservation status at end of reporting period*)

Please refer to the United Kingdom assessment for this species.

### 3 Natura 2000 coverage & conservation measures - Annex II species (*only applies to species listed under Annex II of the Directive*)

#### 3.1 Population

<b>3.1.1 Population size</b>	<b>a) Unit</b>	<b>number of map 1x1 km grid cells</b>
Estimation of population size included in the SAC network	Any estimate of the population is likely to be a gross misrepresentation.	
	<b>b) Minimum</b>	<b>61</b>
	<b>c) Maximum</b>	<b>61</b>
<b>3.1.2 Method used</b>	<b>Estimate based on partial data with some extrapolation and/or modelling</b>	
<b>3.1.3 Trend of population size within the network</b> (short-term trend)	<b>unknown</b>	

#### 3.2 Conservation measures

Conservation measures taken (i.e. already being implemented) within the reporting period and provided information about their importance, location and evaluation.

<b>3.2.1 Measure</b>	<b>3.2.2 Type</b>	<b>3.2.3 Ranking</b>	<b>3.2.4 Location</b>	<b>3.2.5 Broad evaluation of the measure</b>
		H = high importance	where the measure is PRIMARILY applied	

	a) Legal/statutory	b) Administrative	c) Contractual	d) Recurrent	e) One-off	M = medium importance L = low importance	a) Inside	b) Outside	c) Both inside & outside	a) Maintain	b) Enhance	c) Long term	d) No effect	e) Unknown	f) Not evaluated
4.0: Other wetland-related measures	Y					M				Y	Y				
4.1: Restoring/improving water quality	Y					M				Y	Y				
4.2: Restoring/improving the hydrological regime	Y					M				Y	Y				
4.3: Managing water abstraction	Y					M				Y	Y				
8.0: Other measures	Y					M				Y	Y				

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