

**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:

S1331 - Leisler's bat (*Nyctalus leisleri*)

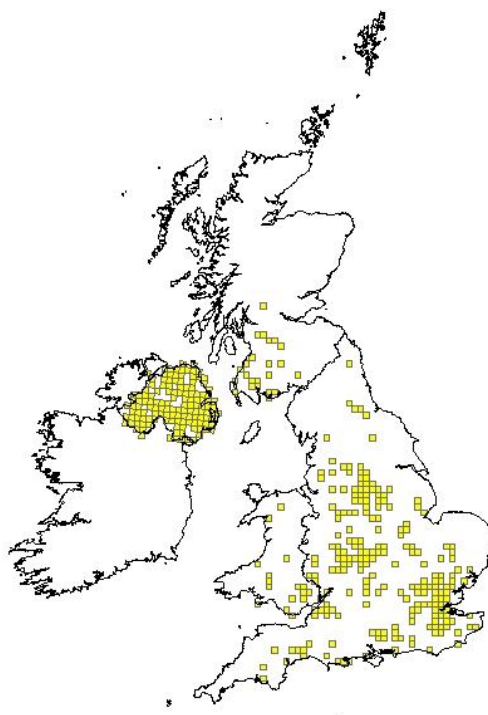
**IMPORTANT NOTE – PLEASE READ**

- 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 **Northern Ireland Environment Agency** and refers only to the state of the habitat/species in **Northern Ireland** - 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>S1331</b>
	<b>0.2.2 Species scientific name</b>	<b><i>Nyctalus leisleri</i></b>
	<b>0.2.3 Alternative species scientific name</b> Optional	
	<b>0.2.4 Common name</b> Optional	<b>Leisler's bat</b>

<b>1.1 Maps</b>		
<b>1.1.1 Distribution map</b>		<b>Sensitive</b> <b>False</b>
Combined data (2007-2012) from: Bat Conservation Ireland database maintained by Bat Conservation Ireland; Northern Ireland Bat Group database maintained by NIBG; Bat database maintained by CeDAR; National Bat Monitoring Programme maintained by Bat Conservation Trust, UK;		



<b>1.1.2 Method used - map</b>	<b>Estimate based on partial data with some extrapolation and/or modelling</b>
<b>1.1.3 Year or period</b>	<b>2007-2012</b>

<b>1.1.4 Additional distribution map</b>	<b>True</b>
	<p>Combined data (all available) from:</p> <p>Bat Conservation Ireland database maintained by Bat Conservation Ireland;</p> <p>Northern Ireland Bat Group database maintained by NIBG;</p> <p>Bat database maintained by CeDAR;</p> <p>National Bat Monitoring Programme maintained by Bat Conservation Trust, UK</p>
<b>1.1.5 Range map</b>	

<b>2.1 Biogeographical region &amp; marine regions</b>	<b>ATL</b>
<b>2.2 Published sources</b>	<p>"Allen, P., Forsyth, I., Hale, P. &amp; Rogers, S. (2000). Bats in Northern Ireland. Irish Naturalists' Journal. Special Zoological Supplement.</p> <p>Anon (2007) The National Monitoring Programme, Annual Report 2006. Bat Conservation Trust, UK.</p> <p>Anon (2009) The National Monitoring Programme, Annual Report 2008. Bat Conservation Trust, UK.</p> <p>Aughney, T., Carden, R. &amp; Roche, N. (2009) Irish Bat Monitoring and Recording Schemes: Annual Report 2008. Bat Conservation Ireland, <a href="http://www.batconservationireland.org">www.batconservationireland.org</a>.</p> <p>Aughney, T., Roche, N. and Langton, S. (2010) Irish Bat Monitoring and Recording Schemes: Annual Report 2009. Bat Conservation Ireland, <a href="http://www.batconservationireland.org">www.batconservationireland.org</a>.</p> <p>Boston, E. (2010) A size comparison of Irish Leisler's bats (<i>Nyctalus leisleri</i> Kuhl, 1818) with those in continental Europe. Irish Naturalists' Journal 31 No.1: p65.</p> <p>Buckley D.J., Puechmaille S.J, Roche N. and Teeling E.C. (2011). A critical assessment of the presence of <i>Barbastella barbastellus</i> and <i>Nyctalus noctula</i> in Ireland with a description of <i>N. leisleri</i> calls from Ireland. Hystrix Italian Journal of Mammalogy. 22: 111-127.</p> <p>Carden R, Aughney T., Kelleher C. and Roche N. (2010). BATLAS Republic of Ireland, Report for 2008-2009. Irish Bat Monitoring Schemes. Bat Conservation Ireland. Unpublished Report.</p> <p>Fairley, J. (2001). A Basket of Weasels. Published by the author.</p> <p>Harris, S., Morris, P., Wray, S. &amp; Yalden, D. 1995. A review of British mammals: population estimates and conservation status of British mammals other than cetaceans. Joint Nature. Conservation Committee, Peterborough.</p> <p>Harris S. &amp; Yalden D. (eds.) (2008). Mammals of the British Isles Handbook, 4th Edition. The Mammal Society, Southampton, England.</p> <p>Hopkirk, A. &amp; Russ. J. (2004). Pre-hibernal and hibernal</p>

activity and dispersal patterns of Leisler's bats *Nyctalus leisleri* in Northern Ireland. A report for the Environment and Heritage Service, Northern Ireland.

Hopkirk, A., Aughney T., and Roche, N. (2010). **BATLAS Northern Ireland Report for 2009. Irish Bat Monitoring Schemes. Bat Conservation Ireland. Unpublished Report.**

Lundy, M.G., Aughney, T., Montgomery, W.I., and Roche, N. (2011). **Landscape conservation for Irish bats & species specific roosting characteristics. Bat Conservation Ireland. Unpublished.**

Marnell, F., Kingston, N. & Looney, D. (2009). **Ireland Red List No. 3: Terrestrial Mammals. National Parks and Wildlife Service, Department of the Environment, Heritage and Local Government. Dublin, Ireland.**

O'Sullivan, P. (1994). **Bats in Ireland. Irish Naturalists' Journal, 24: Special Zoological Supplement.**

Richardson, P. (2000). **Distribution atlas of bats in Britain and Ireland, 1980-1999. The Bat Conservation Trust, London.**

Roche, N., Langton, S. & Aughney, T. (2009) **The Car Based Bat Monitoring Scheme for Ireland: Synthesis Report 2003-2008. Irish Wildlife Manuals, No. 39. National Parks and Wildlife Service, Department of the Environment, Heritage and Local Government, Dublin.**

Roche, N., Langton, S., Aughney, T., Russ, J.M., Marnell, F., Lynn, D. & Catto, C. (2011) **A car-based bat monitoring method reveals new information on bat populations and distributions in Ireland. Animal Conservation, 14: 642-651.**

Roche, N., Langton, S. and Aughney T. (2012) **Car-based bat monitoring in Ireland 2003-2011. Irish Wildlife Manuals, No. 60. National Parks and Wildlife Service, Department of the Arts, Heritage and the Gaeltacht, Ireland.**

Russ, J.M. & Montgomery, W.I. (2002). **Habitat association of bats in Northern Ireland: implications for conservation. Biological Conservation. 108: 49-58.**

Russ, J.M., Briffa M. & Montgomery, W.I. (2003). **Seasonal patterns in activity and habitat use by *Pipistrellus* spp. And *Nyctalus leisleri* in Northern Ireland, determined using a driving transect. Journal of Zoology. 259: 289-299.**

Russ, J. (2008) **Review of ASSI designations for bats in Northern Ireland. Northern Ireland Environment Agency, Research and Development Series 08/09.**

Shiel, C.B. & Fairley, J.S. (1998). **Activity of Leisler's bat *Nyctalus leisleri* in the field in south-east County Wexford, as revealed by a bat detector. Biology and Environment, Vol. 98B, No. 2. 105-112.**

Shiel, C.B. & Fairley, J.S. (2000). **Evening emergence of two nurse colonies of Leisler's bat *Nyctalus leisleri* (Kuhl, 1817) in Ireland. Myotis 37: 41-53.**

Shiel, C.B., Duverge, P., Smiddy, P & Fairley, J.S. (1998) **Analysis of the diet of Leisler's bat (*Nyctalus leisleri*) in Ireland with some comparative analyses from England and Germany. Journal of Zoology, 246: 417-425.**

Shiel, C.B., Shiel, R.E. & Fairley, J.S. (1999) **Seasonal changes in the foraging behaviour of Leisler's bat (*Nyctalus leisleri*) in Ireland as revealed by radio-telemetry. Journal of Zoology,**

	<b>249: 347-358."</b>

<b>2.3 Range</b>	
<b>2.3.1 Surface area Range</b>	<p><b>10700</b></p> <p>We have assumed the Favourable Reference Range is the entire land mass of Northern Ireland for three species (common pipistrelle, soprano pipistrelle and Leisler's bat) because their widespread occurrence leads us to believe there is nowhere that they are unlikely to be present, at least on occasion.</p> <p>For the three species which have relatively few known records and most restricted distributions (Natterer's, whiskered and Nathusius' pipistrelle) we have taken the Favourable Reference Range to be the estimated Core Area of habitat within Northern Ireland as derived from Maximum Entropy Modelling of bat records along with various landcover and other factors (see Lundy et al. 2011 for details).</p> <p>For the two remaining species (brown long-eared and Daubenton's) we estimate the Favourable Reference Range to be the full known distribution (10km squares) from 1989 to 2012 even though this is larger than modelled Core Areas described by Lundy et al. (2011), but does not extend across the entire land mass of Northern Ireland, since these species have more restricted habitat requirements than common pipistrelle and soprano pipistrelle, above.</p>
<b>2.3.2 Method used Surface area of Range</b>	<b>Estimate based on partial data with some extrapolation and/or modelling</b>
<b>2.3.3 Short-term trend Period</b>	<b>2001-2012</b>
<b>2.3.4 Short term trend Trend direction</b>	<b>stable</b>
<b>2.3.5 Short-term trend Magnitude</b>	<b>a) Minimum</b>
	<b>b) Maximum</b>
<b>2.3.6 Long-term trend Period</b>	<b>1989-2012</b>
<b>2.3.7 Long-term trend Trend direction</b>	<b>stable</b>
<b>2.3.8 Long-term trend</b>	<b>a) Minimum</b>

<b>Magnitude</b>	Optional	
	<b>b) Maximum</b>	
<b>2.3.9 Favourable reference range</b>	<b>a) Value in km<sup>2</sup></b>	<b>13840</b>
	It is the opinion of Bat Conservation Ireland that this bat species range is the entire surface area of Northern Ireland.	
	<b>b) Operator for FRR</b>	
	<b>c) FRR is unknown (indicated by "true")</b>	<b>False</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>False</b>
	<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>number of individuals</b>
	Since all Leisler's bat roosts are not known it is not possible to count the population based on a complete census. Therefore, the population of mature (volant) individuals has been estimated using data from the Car-based Bat Monitoring Scheme data. This population estimate is calculated based on the detection distance for echolocating Leisler's bats (60-80m) and the approximate area that is detectable. The area of Northern Ireland is divided by the approximate detectable area and multiplied by the probability of detecting a Leisler's bat along any given roadside in Northern Ireland (2007-2012) on any given	

	<p>evening, from Car-based Bat Monitoring data. The minimum end of the range (14,000) is based on the wider detection range (80m) while the maximum end (24,000) is based on the closer detection range (60m). This population estimate uses a number of assumptions which may be only approximately correct and it could be improved with more detailed information on size and shape of detectable areas, better knowledge of Leisler's bat habitat use around roadsides and other factors. However, it may be considered a starting point from which to refine future estimates. See Roche et al. (2012) for further details.</p>	
	<b>b) Minimum</b>	<b>14000</b>
	<b>c) Maximum</b>	<b>24000</b>
<p><b>2.4.2 Population size estimation</b> (using population unit other than individuals) Optional (<i>if 2.4.1 filled in</i>)</p>	<b>a) Unit</b>	
	<b>b) Minimum</b>	
	<b>c) Maximum</b>	
<p><b>2.4.3 Additional information on population estimates / conversion</b> Optional</p>	<b>a) Definition of "locality"</b>	
	<b>b) Method to convert data</b>	
	<b>c) Problems encountered to provide population size estimation</b>	<p><b>Since all Leisler's bat roosts are not known it is not possible to count the population based on a complete census. Therefore, the population of mature (volant) individuals has been estimated using data from the Car-based Bat Monitoring Scheme data. This population estimate is calculated based on the detection distance for echolocating Leisler's bats (60-80m) and the approximate area that is detectable. The area of Northern Ireland is divided by the approximate detectable area and multiplied by the probability of detecting a Leisler's bat along any given roadside in Northern Ireland (2007-2012) on any given evening, from Car-based Bat Monitoring data.</b></p> <p><b>The minimum end of the range (14,000) is based on the wider detection range (80m) while the maximum end (24,000) is based on the closer detection range (60m). This population estimate uses a number of</b></p>

		<b>assumptions which may be only approximately correct and it could be improved with more detailed information on size and shape of detectable areas, better knowledge of Leisler's bat habitat use around roadsides and other factors. However, it may be considered a starting point from which to refine future estimates. See Roche et al. (2012) for further details.</b>
<b>2.4.4 Year or period</b>	<b>2006-2012</b>	2007-2012 data used because smaller dataset available in 2006 and it is better to use the second year as the base year in a trend index. GLM model refitted so that 2007 is the baseline (100) and percentage change between 2007 and 2012 determined from this.
<b>2.4.5 Method used Population size</b>	<b>Estimate based on partial data with some extrapolation and/or modelling</b>	
<b>2.4.6 Short-term trend Period</b>	<b>2007-2012</b>	
<b>2.4.7 Short-term trend Trend direction</b>	<b>increase</b>	Lower confidence interval -3.8% for years 2007-2012, database will not allow a negative value to be entered. Short term trend for 2007-2012 available from car-based bat monitoring data, analysed using Generalised Linear Modelling and GAM smoothing. See Roche et al. (2012) for full details.
<b>2.4.8 Short-term trend Magnitude</b>	<b>a) Minimum</b>	
	<b>b) Maximum</b>	<b>12.9</b>
	<b>c) Confidence interval</b>	<b>95</b>
<b>2.4.9 Short-term trend Method used</b>		
<b>2.4.10 Long-term trend – Period</b>		
<b>2.4.11 Long-term trend Trend direction</b>		



<b>2.4.12 Long-term trend Magnitude</b> Optional	<b>a) Minimum</b>	
	<b>b) Maximum</b>	
	<b>c) Confidence interval</b>	
<b>2.4.13 Long term trend Method used</b>		
<b>2.4.14 Favourable reference population</b>	<b>a) Number of individuals/agreed exceptions/other units</b>	
	<b>b) Operator</b>	
	<b>c) FRP is unknown indicated by "true"</b>	<b>False</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>False</b>
	<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>	<b>4014</b>
	GIS shapefiles from Lundy et al (2011) provided to NIEA.  There is thought to be a sufficient amount of habitat in the UK to support a viable population of the species.
<b>2.5.2 Year or period</b>	<b>2000-2009</b>
<b>2.5.3 Method used Habitat for the species</b>	<b>Estimate based on partial data with some extrapolation and/or modelling</b>
<b>2.5.4 Quality of the habitat</b>	<b>a) Habitat quality</b> <b>Good</b>
	<b>b) Assessment method</b> <b>This is calculated from Maximum Entropy modelling of bat records 2000-2009 combined with CORINE landcover, altitude, soil pH, climate and human bias layers (see Lundy et. al 2011).</b>
<b>2.5.5 Short-term trend Period</b>	<b>2000-2009</b>
<b>2.5.6 Short-term trend Trend direction</b>	<b>unknown</b>
<b>2.5.7 Long-term trend Period</b>	
<b>2.5.8 Long-term trend Trend direction</b>	
<b>2.5.9 Area of suitable habitat for the species</b>	<b>a) Value in km<sup>2</sup></b>
	<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>
	<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	
A02.01:	M	
A07: use of biocides, hormones and chemicals	M	TX
A10.01:	M	
B02.02:	M	
B02.04:	M	
B04: use of biocides, hormones and chemicals (forestry)	M	TX
C03.03:	M	
G05: Other human intrusions and disturbances	M	
G05.06:	M	
E01.01:	L	
E06.01:	L	
E06.02:	L	
J03.02:	L	

G05 refers to pressure from deliberate exclusion from roosts (with or without licence).

**2.6.1 Method used – Pressures**

**based only on expert judgements**

<b>2.7 Threats</b>		
<b>a) Threat</b>	<b>b) Ranking</b>	<b>c) Pollution qualifier</b>
	H = high importance M = medium importance L = low importance	
C03.03:	H	
A07: use of biocides, hormones and chemicals	M	TX
A10.01:	M	
B02.02:	M	
B02.04:	M	
B04: use of biocides, hormones and chemicals (forestry)	M	TX
E01.01:	M	

G05: Other human intrusions and disturbances	M	
G05.06:	M	
E06.01:	L	
E06.02:	L	
J03.02:	L	
M02.04:	L	

G05 refers to threat of deliberate exclusion from roosts (with or without licence).

**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**

**2.8.3 Trans-boundary assessment**

## 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

**3.1.1 Population size**

Estimation of population size included in the SAC network

**a) Unit**

**b) Minimum**

	<b>c) Maximum</b>
<b>3.1.2 Method used</b>	
<b>3.1.3 Trend of population size within the network (short-term trend)</b>	

<b>3.2 Conservation measures</b>															
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> H = high importance M = medium importance L = low importance	<b>3.2.4 Location</b> where the measure is PRIMARILY applied			<b>3.2.5 Broad evaluation of the measure</b>					
	a) Legal/statutory	b) Administrative	c) Contractual	d) Recurrent	e) One-off		a) Inside	b) Outside	c) Both inside & outside	a) Maintain	b) Enhance	c) Long term	d) No effect	e) Unknown	f) Not evaluated

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