# 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

Conservation status assessment for the species:

**S1312 - Noctule (*Nyctalus noctula*)**

UNITED KINGDOM

## IMPORTANT NOTE - PLEASE READ

- The information in this document represents 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.
- It is based on supporting information provided by the geographically-relevant Statutory Nature Conservation Bodies, which is documented separately.
- The 2019 Article 17 UK Approach document provides details on how this supporting information contributed to the UK Report and the fields that were completed for each parameter.
- The reporting fields and options used are aligned to those set out in the European Commission guidance.
- Maps showing the distribution and range of the species are included (where available).
- Explanatory notes (where provided) are included at the end. These provide additional audit trail information to that included within the UK assessments. Further underpinning explanatory notes are available in the related country-level reports.
- 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; and/or (iii) the field was not relevant to this species (section 12 Natura 2000 coverage for Annex II species).
- The UK-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** |
| 1.2 Species code | **1312** |
| 1.3 Species scientific name | **Nyctalus noctula** |
| 1.4 Alternative species scientific name | |
| 1.5 Common name (in national language) | Noctule |

## 2. Maps

| | |
|---|---|
| 2.1 Sensitive species | No |
| 2.2 Year or period | 1995-2016 |
| 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

England
Arnold, H., 1993. Atlas of Mammals in Britain.(Institute of Terrestrial Ecology Research Publication no. 6), London.
Bat Conservation Trust, 2018. The National Bat Monitoring Programme. Annual Report 2017, Bat Conservation Trust, London.
Boye, P., Dietz, M. 2005. Development of good practice guidelines for woodland management for bats. English Nature.
Dietz, C., Kiefer, A., 2016. Bats of Britain and Europe. Bloomsbury, United Kingdom.
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, Peterborough.
Joint Nature Conservation Committee. 2013. Third Report by the United Kingdom under Article 17 on the implementation of the Habitats Directive from January 2007 to December 2012.
Jones, G. (1995). Flight performance, echolocation and foraging behaviour in noctule bats Nyctalus noctula. Journal of Zoology 237(2): 303-312.
Mackie, I. J. and P. A. Racey (2007). Habitat use varies with reproductive state in noctule bats (Nyctalus noctula): Implications for conservation. Biological Conservation 140(1-2): 70-77.
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.
Mitchell-Jones, T.J. 2010. Bats in houses - the conservation challenge. Pp 365-

378 in Species Management:challenges and solutions for the 21st century.
Rodrigues, L., Bach, L., Dubourg-Savage, M.-J., Karapandza, B., Kovac, D., Kervyn, T., Dekker, J., Kepel, A., Bach, P., Collins, J., Harbusch, C., Park, K.J., Micevski, B., Minderman, J., 2014. Guidelines for consideration of bats in wind farm projects - Revision 2014
Rydell, J., Bach, L., Dubourg-Savage, M.-J., Green, M., Rodrigues, L., Hedenstrom, A., 2010. Bat mortality at wind turbines in northwestern Europe. Acta Chiropterologica 12, 261-274.
Speakman, J. 1991. The impact of predation by birds on bat populations in the British Isles. Mammal Review. 21, 123-142.
Scotland
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, Peterborough.
Joint Nature Conservation Committee. 2013. Third Report by the United Kingdom under Article 17 on the implementation of the Habitats Directive from January 2007 to December 2012.
Jones, G. (1995). Flight performance, echolocation and foraging behaviour in noctule bats Nyctalus noctula. Journal of Zoology 237(2): 303-312.
Mackie, I. J. and P. A. Racey (2007). Habitat use varies with reproductive state in noctule bats (Nyctalus noctula): Implications for conservation. Biological Conservation 140(1-2): 70-77.
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.
Newson, S.E., Evans, H.E., Gillings, S., Jarrett, D. & Wilson, M.W. 2017. A survey of high risk bat species across southern Scotland. Scottish Natural Heritage Commissioned Report No. 1008.
Rodrigues, L., Bach, L., Dubourg-Savage, M.-J., Karapandza, B., Kovac, D., Kervyn, T., Dekker, J., Kepel, A., Bach, P., Collins, J., Harbusch, C., Park, K.J., Micevski, B., Minderman, J., 2014. Guidelines for consideration of bats in wind farm projects - Revision 2014
Rydell, J., Bach, L., Dubourg-Savage, M.-J., Green, M., Rodrigues, L., Hedenstrom, A., 2010. Bat mortality at wind turbines in northwestern Europe. Acta Chiropterologica 12, 261-274.
Speakman, J. 1991. The impact of predation by birds on bat populations in the British Isles. Mammal Review. 21, 123-142.
Wales
Arnold H. 1993. Atlas of Mammals in Britain. Institute of Terrestrial Ecology Research Publication no. 6, London.
Bat Conservation Trust. 2018. The State of the UK's Bats 2017. Bat Conservation Trust, London. Available at http://www.bats.org.uk/pages/results_and_reports.html
Bat Conservation Trust. 2018a. The National Bat Monitoring Programme. Annual Report 2017. Bat Conservation Trust, London. Available at www.bats.org.uk/pages/nbmp_annual_report.html
Battersby J. (Ed.). 2005. UK Mammals: Species Status and Population Trends. JNCC/Tracking Mammals Partnership.
Boye P, Dietz M. 2005. Research Report No 661: Development of good practice guidelines for woodland management for bats. English Nature, Peterborough.
Carey PD, Wallis SM, Emmett BE, Maskell LC, Murphy J, Norton LR, Simpson IC, Smart SS. 2008. Countryside Survey: UK headline messages from 2007. Centre

for Ecology & Hydrology, Wallingford.
Dietz C, Kiefer A. 2016. Bats of Britain and Europe. Bloomsbury, United Kingdom.
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, Peterborough.
Jones G. 1995. Flight performance, echolocation and foraging behaviour in noctule bats Nyctalus noctula. Journal of Zoology, 237(2), 303-312.
Lehnert LS, Kramer-Schadt S, Schonborn S, Lindecke O, Niermann I, Voigt CC. 2014. Wind farm facilities in Germany kill noctule bats from near and far. PLoS One, 9(8), e103106.
Mathews F, Kubasiewicz LM, Gurnell J, Harrower C, McDonald RA, Shore RF. 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.
Mackie IJ. 2002. Aspects of the conservation biology of the noctule bat (Nyctalus noctula). PhD, University of Aberdeen.
Mackie IJ, Racey PA. 2007. Habitat use varies with reproductive state in noctule bats (Nyctalus noctula): Implications for conservation. Biological Conservation, 140(1-2), 70-77.
Mackie IJ, Racey PA. 2008. Noctule (Nyctalus noctula). Pp 338-342 In Harris S, Yalden DW. Mammals of the British Isles: Handbook, 4th edition. The Mammal Society, Southampton.799pp.
Mitchell-Jones TMJ, Carlin C. 2009. TIN051 Bats and onshore wind turbines Interim Guidance. 2nd edition, February 2012. http://publications.naturalengland.org.uk/file/490077
Natural Resources Wales. 2013. 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: S1312 - Noctule bat (Nyctalus noctula).
Petit E, Mayer F. 2000. A population genetic analysis of migration: the case of the noctule bat (Nyctalus noctula). Molecular Ecology, 9(6), 683-690.
Richardson P. 2000. Distribution atlas of bats in Britain and Ireland 1980-1999. Bat Conservation Trust, London
Rodrigues L, Bach L, Dubourg-Savage MJ, Karapandza D, Kovac D, Kervyn T, Dekker J, Kepel A, Bach P, Collins J, Harbusch C, Park K, Micevski B, Minderman J. 2015. Guidelines for consideration of bats in wind farm projects - Revision 2014. EUROBATS Publication Series No. 6. UNEP/EUROBATS Secretariat, Bonn, Germany, 133pp.
Rydell J, Bach L, Dubourg-Savage MJ, Green M, Rodrigues L, Hedenstrom A. 2010. Bat mortality at wind turbines in northwestern Europe. Acta Chiropterologica 12, 261-274.
Sluiter JW, van Heerdt PF. 1966. Seasonal habits of the noctule bat (Nycalus noctula). Archives Neerlandaises de Zoologic, 16, 423-439.
Speakman JR. 1991. The impact of predation by birds on bat populations in the British Isles. Mammal Review, 21, 123-142.

## 5. Range

| | | |
|---|---|---|
| 5.1 Surface area (km²) | 157491 | |
| 5.2 Short-term trend Period | 2013-2018 | |
| 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 | Based mainly on extrapolation from a limited amount of data | |
| 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) | 157491 |
| | b) Operator | |
| | c) Unknown | |
| | d) Method | The FRR has changed since 2013. The new value is considered to be large enough to support a viable population and no lower than the range estimate when the Habitats Directive came into force in the UK. For further information see the 2019 Article 17 UK Approach document. The 2013 FRR value has been revised and is equal to the current range. The current range surface area has been calculated using the method outlined in Mathews et. al., (2018) and 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 new, more robust method of calculating range has reduced estimated range size for this species since 2013. This does not represent a real reduction in range. |
| 5.11 Change and reason for change in surface area of range | Improved knowledge/more accurate data<br>Use of different method | |
| | The change is mainly due to: | Use of different method |
| 5.12 Additional information | Short term trend in range has been assessed by using the 2019 distribution data and the 2013 method for calculating range and comparing that with range surface area in 2013. For further information see the 2019 Article 17 UK Approach document and country assessments. | |

## 6. Population

| | | |
|---|---|---|
| 6.1 Year or period | 1995-2017 | |
| 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 | 7695 |
| 6.3 Type of estimate | Minimum | |
| 6.4 Additional population size (using population unit other than reporting unit) | a) Unit | number of individuals (i) |
| | b) Minimum | 20600 |
| | c) Maximum | 2176000 |
| | d) Best single value | |

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| | |
|---|---|
| 6.5 Type of estimate | 95% confidence interval |
| 6.6 Population size Method used | Based mainly on extrapolation from a limited amount of data |
| 6.7 Short-term trend Period | 2006-2018 |
| 6.8 Short-term trend Direction | Stable (0) |
| 6.9 Short-term trend Magnitude | a) Minimum<br>b) Maximum<br>c) Confidence interval |
| 6.10 Short-term trend Method used | Complete survey or a statistically robust estimate |
| 6.11 Long-term trend Period | |
| 6.12 Long-term trend Direction | |
| 6.13 Long-term trend Magnitude | a) Minimum<br>b) Maximum<br>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<br>b) Operator: Approximately equal to (≈)<br>c) Unknown<br>d) Method: The FRP has changed since 2013. An FRP operator has been used because it has not been possible to calculate the exact FRP value. The current population (individuals) is considered to be a viable population and is no less that when the Habitats Directive came into force in the UK. For further details see the 2019 Article 17 UK Approach document. The confidence limits for the population estimate are extremely wide and methodologies have changed. A best single value for the population has not been provided because of the level of uncertainty around the population estimate. Instead the lower and upper confidence intervals provide minimum and maximum limits to the estimate. |
| 6.16 Change and reason for change in population size | Improved knowledge/more accurate data<br>Use of different method<br>The change is mainly due to: Use of different method |
| 6.17 Additional information | The 1km square count has been calculated from the UK count of 1km squares where the species has been recorded. This is a minimum count because it only includes number of recorded occupied 1km squares. UK population estimates have been derived from the estimate in Mathews et. al., 2018. The new estimate, taken from Mathews et. al. (2018) is considered to be more robust than the previous estimate. The current population (in individuals) is considered to be approximately equal to the FRP and is sufficient to maintain a viable population. |

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## 7. Habitat for the species

| | | |
|---|---|---|
| 7.1 Sufficiency of area and quality of occupied habitat | a) Are area and quality of occupied habitat sufficient (for long-term survival)? | Yes |
| | b) Is there a sufficiently large area of unoccupied habitat of suitable quality (for long-term survival)? | 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 | 1999-2018 | |
| 7.4 Short-term trend Direction | Unknown (x) | |
| 7.5 Short-term trend Method used | Insufficient or no data available | |
| 7.6 Long-term trend Period | | |
| 7.7 Long-term trend Direction | | |
| 7.8 Long-term trend Method used | | |
| 7.9 Additional information | The habitable area, taken from Mathews et al. 2018, has been used as a proxy for occupied habitat. Although the current population size is not known, enough is known about where the species occurs to conclude that a self-sustaining population exists and that there is sufficient habitat available to continue to support this population. | |

## 8. Main pressures and threats

8.1 Characterisation of pressures/threats

| Pressure | Ranking |
|---|---|
| Removal of small landscape features for agricultural land parcel consolidation (hedges, stone walls, rushes, open ditches, springs, solitary trees, etc.) (A05) | M |
| Abandonment of grassland management (e.g. cessation of grazing or mowing) (A06) | M |
| Use of other pest control methods in agriculture (excluding tillage) (A23) | M |
| Conversion to other types of forests including monocultures (B02) | M |
| Removal of dead and dying trees, including debris (B07) | H |
| Removal of old trees (excluding dead or dying trees) (B08) | H |
| Clear-cutting, removal of all trees (B09) | H |
| Forest management reducing old growth forests (B15) | H |
| Wind, wave and tidal power, including infrastructure (D01) | H |
| Construction or modification (e.g. of housing and settlements) in existing urban or recreational areas (F02) | M |

| Threat | Ranking |
|---|---|
| Removal of old trees (excluding dead or dying trees) (B08) | H |
| Clear-cutting, removal of all trees (B09) | H |

| | |
|---|---|
| Forest management reducing old growth forests (B15) | H |
| Wind, wave and tidal power, including infrastructure (D01) | H |
| Construction or modification (e.g. of housing and settlements) in existing urban or recreational areas (F02) | M |
| Removal of small landscape features for agricultural land parcel consolidation (hedges, stone walls, rushes, open ditches, springs, solitary trees, etc.) (A05) | M |
| Abandonment of grassland management (e.g. cessation of grazing or mowing) (A06) | M |
| Use of other pest control methods in agriculture (excluding tillage) (A23) | M |
| Conversion to other types of forests including monocultures (B02) | M |
| Removal of dead and dying trees, including debris (B07) | 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

| |
|---|
| Restore small landscape features on agricultural land (CA02) |
| Maintain existing extensive agricultural practices and agricultural landscape features (CA03) |
| Other measures related to agricultural practices (CA16) |
| Prevent conversion of (semi-) natural habitats into forests and of (semi-)natural forests into intensive forest plantation (CB01) |
| Adapt/manage reforestation and forest regeneration (CB04) |
| Adapt/change forest management and exploitation practices (CB05) |
| Stop forest management and exploitation practices (CB06) |
| Adapt/manage renewable energy installation, facilities and operation (CC03) |
| Other measures related to residential, commercial, industrial and recreational infrastructures, operations and activities (CF12) |

9.6 Additional information

## 10. Future prospects

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| | | |
|---|---|---|
| 10.1 Future prospects of parameters | a) Range | Good |
| | b) Population | Good |
| | c) Habitat of the species | Good |
| 10.2 Additional information | Future trend in Range is Overall stable; Future trend in Population is Overall stable; and Future trend in Habitat for the species is Overall stable. For further information on how future trends inform the Future Prospects conclusion see the 2019 Article 17 UK Approach document. | |

## 11. Conclusions

| | |
|---|---|
| 11.1. Range | Favourable (FV) |
| 11.2. Population | Favourable (FV) |
| 11.3. Habitat for the species | Favourable (FV) |
| 11.4. Future prospects | Favourable (FV) |
| 11.5 Overall assessment of Conservation Status | Favourable (FV) |
| 11.6 Overall trend in Conservation Status | Stable (=) |
| 11.7 Change and reasons for change in conservation status and conservation status trend | a) Overall assessment of conservation status<br>No change<br>The change is mainly due to:<br>b) Overall trend in conservation status<br>No change<br>The change is mainly due to: |
| 11.8 Additional information | Conclusion on Range reached because: (i) the short-term trend direction in Range surface area is stable; and (ii) the current Range surface area is approximately equal to the Favourable Reference Range.<br>Conclusion on Population reached because: (i) the short-term trend direction in Population size is stable; and (ii) the current Population size is approximately equal to the Favourable Reference Population.<br>Conclusion on Habitat for the species reached because: (i) the area of [occupied habitat is sufficiently large and (ii) the habitat quality is suitable for the long-term survival of the species; and (iii) the short-term trend in area and quality of habitat is unknown.<br>Conclusion on Future prospects reached because: (i) the Future prospects for Range are good; (ii) the Future prospects for Population are good; and (iii) the Future prospects for Habitat for the species are unknown.<br>Overall assessment of Conservation Status is Favourable because all of the conclusions are Favourable.<br>Overall trend in Conservation Status is based on the combination of the short-term trends for Range - stable, Population - stable, and Habitat for the species - unknown.<br>Overall assessment of Conservation Status has not changed since 2013.<br>Overall trend in conservation status was not reported for this species in 2013. However, from the information available the overall trend would have been stable in 2013 and so there has been no change since the last reporting round. |

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## 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<br>b) Minimum<br>c) Maximum<br>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

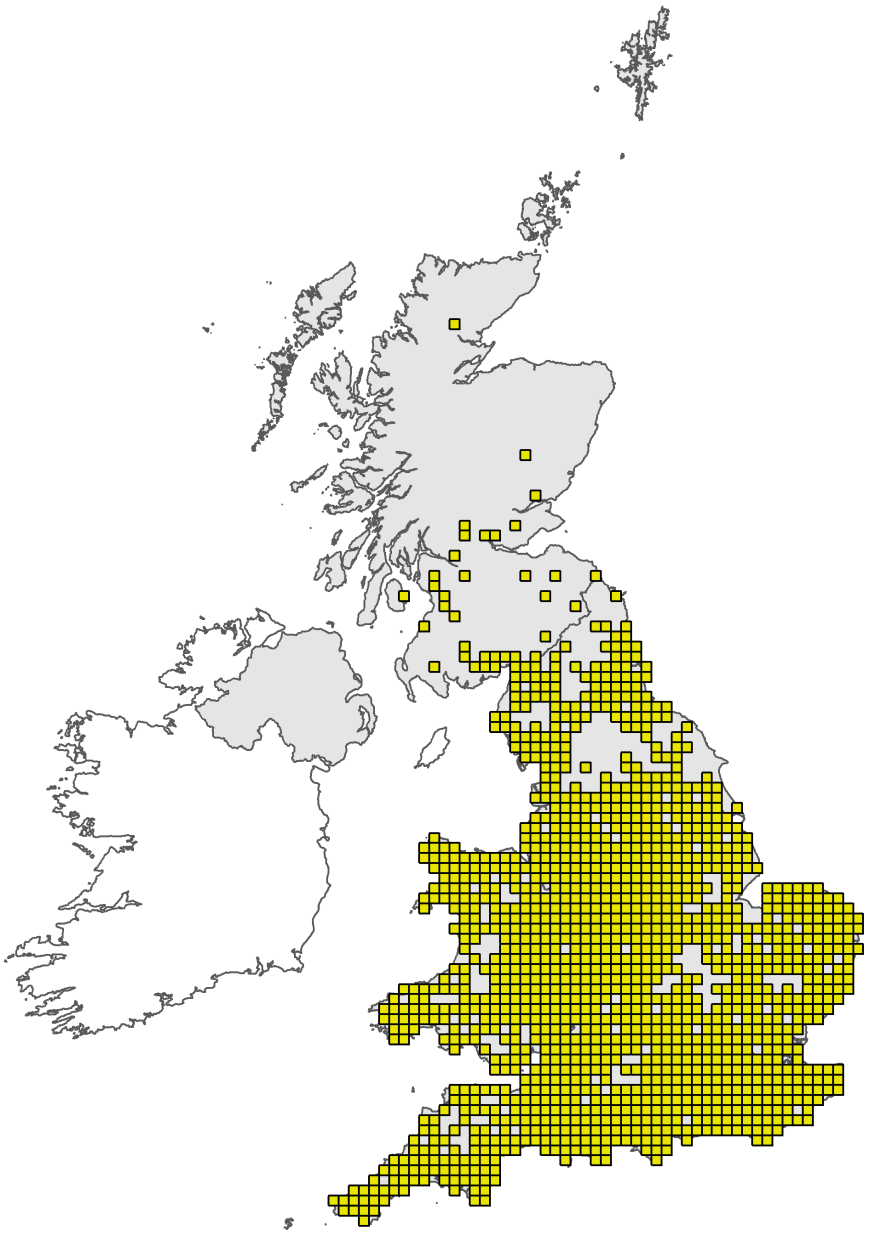

Figure 1: UK distribution map for S1312 - Noctule (*Nyctalus noctula*). Coastline boundary derived from the Oil and Gas Authority's OGA and Lloyd's Register SNS Regional Geological Maps (Open Source). Open Government Licence v3 (OGL). Contains data © 2017 Oil and Gas Authority.

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

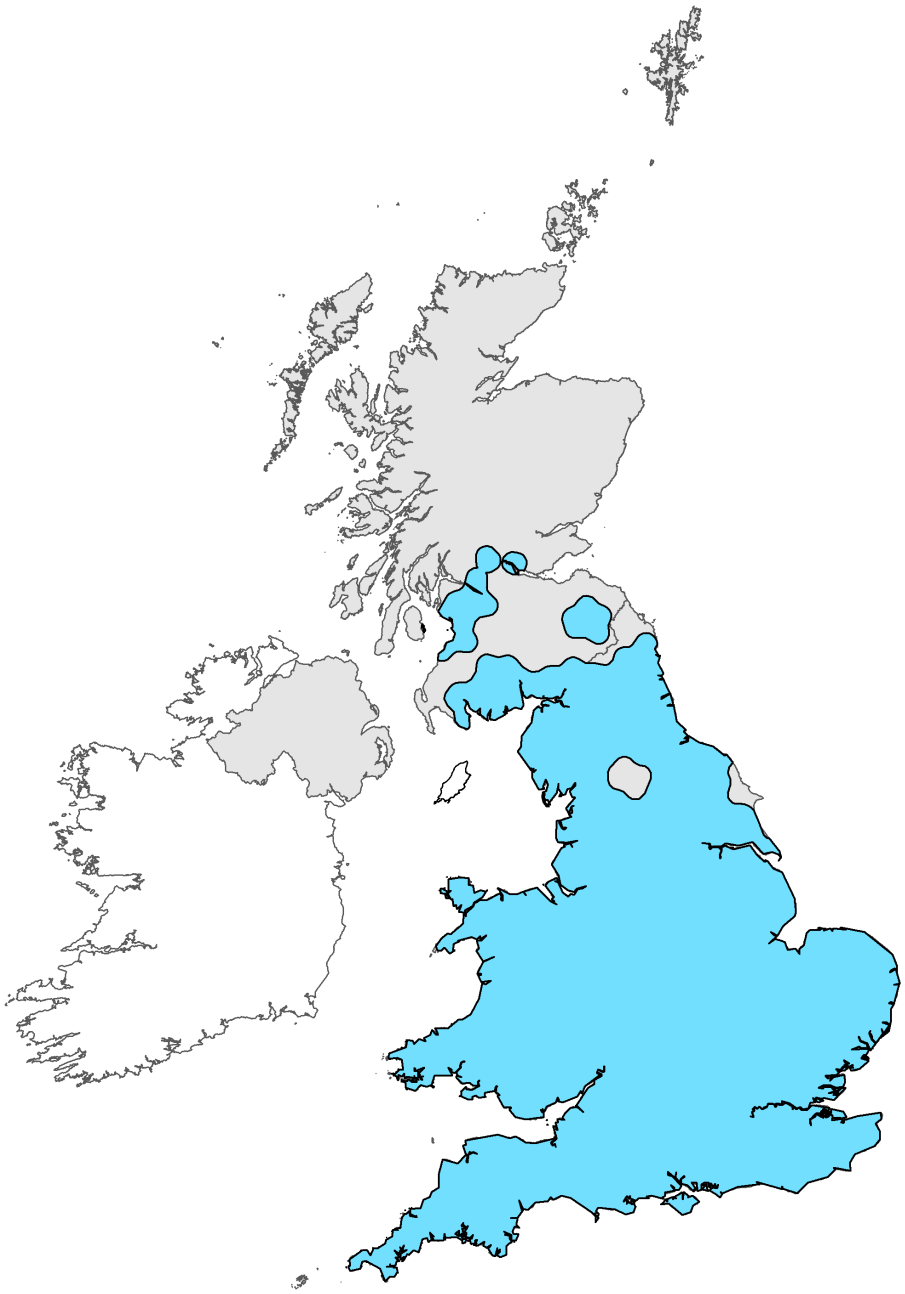

Figure 2: UK range map for S1312 - Noctule (*Nyctalus noctula*).Coastline boundary derived from the Oil and Gas Authority's OGA and Lloyd's Register SNS Regional Geological Maps (Open Source). Open Government Licence v3 (OGL). Contains data © 2017 Oil and Gas Authority.

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.