Report under The Conservation of Habitats and Species Regulations 2017 (as amended), Regulation 9A

2019-2024

Conservation status assessment for the species:

S1330 - Whiskered bat

(*Myotis mystacinus*)

Wales

Cyfoeth Naturiol Cymru
Natural Resources Wales

JNCC

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Important note - Please read

- The information in this document represents the Wales Report under The Conservation of Habitats and Species Regulations 2017 (as amended), Regulation 9A, for the period 2019-2024.
- It is based on supporting information provided by Natural Resources Wales, which is documented separately.
- The Habitats Regulations reporting 2019-2024 Approach Document provides details on how this supporting information contributed to the UK Report and the fields that were completed for each parameter.
- Maps showing the distribution and range of the species are included.
- Explanatory notes (where provided) are included at the end. These provide additional audit trail information to that included within the assessments. Further underpinning explanatory notes are available in the related country 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 National Site Network coverage for Annex II species).

Further details on the approach to the Habitats Regulations Reporting 2019-2024 are available on the JNCC website.

Assessment Summary: Whiskered bat

Distribution Map

Range Map

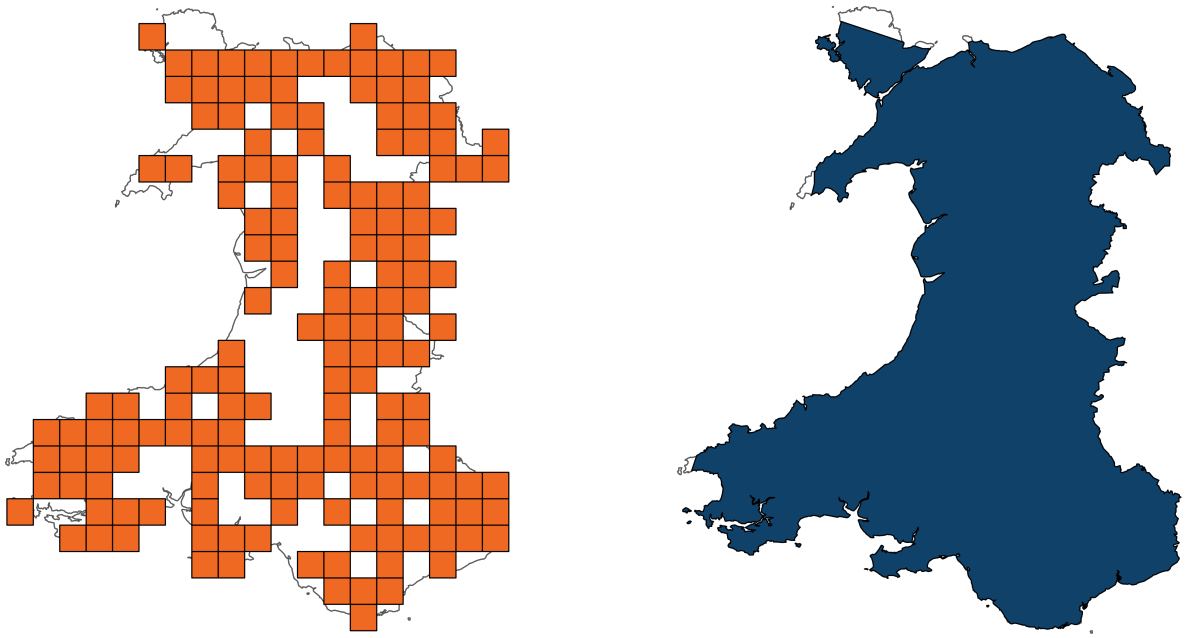

Figure 1: Wales distribution and range map for S1330 - Whiskered bat (*Myotis mystacinus*). Coastline boundary derived from the Oil and Gas Authority's OGA and Lloyd's Register SNS Regional Geological Maps (Open Source). Open Government Licence v3 (OGL). Contains data © 2017 Oil and Gas Authority. The 10km grid square distribution map is based on available species records within the current reporting period.

Table 1: Table summarising the conservation status for S1330 - Whiskered bat (*Myotis mystacinus*). Overall conservation status for species is based on assessments of range, population, habitat for the species, and future prospects.

Overall Conservation Status (see section 11)

Favourable (FV)

Breakdown of Overall Conservation Status

Range (see section 5)	**Favourable (FV)**
Population (see section 6)	**Unknown (XX)**
Habitat for the species (see section 7)	**Favourable (FV)**
Future prospects (see section 10)	**Favourable (FV)**

List of Sections

National Level

1. General information

1.1 Country	Wales
1.2 Species code	S1330
1.3 Species scientific name	*Myotis mystacinus*
1.4 Alternative species scientific name	
1.5 Common name	Whiskered bat
Annex(es)	IV

2. Maps

2.1 Sensitive species	No
2.2 Year or period	1995-2024
2.3 Distribution map	Yes
2.4 Distribution map; Method used	Based mainly on extrapolation from a limited amount of data

2.5 Additional information

No additional information

3. Information related to Annex V Species

3.1 Is the species taken in the wild / exploited?

3.2 What measures have been taken?

a) Regulations regarding access to property
b) Temporary or local prohibition on the taking of specimens in the wild and exploitation
c) Regulation of the periods and/or methods of taking specimens
d) Application of hunting and fishing rules which take account of the conservation of such populations

e) Establishment of a system of licences for taking specimens or of quotas

f) Regulation of the purchase, sale, offering for sale, keeping for sale, or transport for sale of specimens

g) Breeding in captivity of animal species as well as artificial propagation of plant species

Other measures

Other measures description

3.3: Hunting bag or quantity taken in the wild for Mammals and Acipenseridae (Fish)

a) Unit

Table 2: Quantity taken from the wild during the reporting period (see 3.3a for units). For species with defined hunting seasons, Season 1 refers to 2018/2019 (autumn 2018 to spring 2019), and Season 6 to 2023/2024. For species without hunting seasons, data are reported by calendar year: Year 1 is 2019, and Year 6 is 2024.

	Season/ year 1	Season/ year 2	Season/ year 3	Season/ year 4	Season/ year 5	Season/ year 6
b) Minimum	-	-	-	-	-	-
c) Maximum	-	-	-	-	-	-
d) Unknown	-	-	-	-	-	-

3.4: Hunting bag or quantity taken in the wild; Method used

3.5: Additional information

No additional information

Biogeographical Level

4. Biogeographical and marine regions

4.1 Biogeographical or marine region where the species occurs ATL

4.2 Sources of information

See section 14 References

5. Range

5.1 Surface area (km²)	20,598.78
5.2 Short-term trend; Period	2013-2024
5.3 Short-term trend; Direction	Stable
5.4 Short-term trend; Magnitude	
a) Estimated minimum	
b) Estimated maximum	
c) Pre-defined range	
d) Unknown	
e) Type of estimate	
f) Rate of decrease	
5.5 Short-term trend; Method used	Based mainly on expert opinion with very limited data
5.6 Long-term trend; Period	
5.7 Long-term trend; Direction	
5.8 Long-term trend; Magnitude	
a) Minimum	
b) Maximum	
c) Rate of decrease	

5.9 Long-term trend; Method used	

5.10 Favourable Reference Range (FRR)

a) Area (km²)	
b) Pre-defined increment	Current range is less than 2% smaller than the FRR
c) Unknown	No
d) Method used	Reference-based approach
e) Quality of information	low

5.11 Change and reason for change in surface area of range

a) Change	Yes
b) Genuine change	No
c) Improved knowledge or more accurate data	Yes
d) Different method	Yes
e) No information	No
f) Other reason	No
g) Main reason	Use of different method

5.12 Additional information

No additional information

6. Population

6.1 Year or period	2019-2024

6.2 Population size (in reporting unit)

a) Unit	number of map 1x1 km grid cells
b) Minimum	
c) Maximum	

d) Best single value	315
6.3 Type of estimate	Best estimate
6.4 Quality of extrapolation to reporting unit	

6.5 Additional population size (using population unit other than reporting unit)

a) Unit	number of individuals
b) Minimum	
c) Maximum	
d) Best single value	8,000
e) Type of estimate	Best estimate
6.6 Population size; Method used	Based mainly on extrapolation from a limited amount of data
6.7 Short-term trend; Period	2017-2022
6.8 Short-term trend; Direction	Stable
6.9 Short-term trend; Magnitude	
a) Estimated minimum	
b) Estimated maximum	
c) Pre-defined range	
d) Unknown	
e) Type of estimate	
f) Rate of decrease	
6.10 Short-term trend; Method used	Based mainly on extrapolation from a limited amount of data
6.11 Long-term trend; Period	
6.12 Long-term trend; Direction	
6.13 Long-term trend; Magnitude	

a) Minimum	
b) Maximum	
c) Confidence interval	
d) Rate of decrease	
6.14 Long-term trend; Method used	

6.15 Favourable Reference Population (FRP)

ai) Population size	
aii) Unit	
b) Pre-defined increment	
c) Unknown	Yes
d) Method used	
e) Quality of information	

6.16 Change and reason for change in population size

a) Change	Yes
b) Genuine change	No
c) Improved knowledge or more accurate data	Yes
d) Different method	Yes
e) No information	No
f) Other reason	No
g) Main reason	Improved knowledge/more accurate data

6.17 Additional information

No additional information

6.18 Age structure, mortality and reproduction deviation	Unknown

7. Habitat for the species

7.1 Sufficiency of area and quality of occupied habitat (for long-term survival)

a) Is area of occupied habitat sufficient?	Yes
b) Is quality of occupied habitat sufficient?	Yes
c) If No or Unknown, is there a sufficiently large area of unoccupied habitat of suitable quality?	

7.2 Sufficiency of area and quality of occupied habitat; Method used

a) Sufficiency of area of occupied habitat; Method used	Based mainly on expert opinion with very limited data
b) Sufficiency of quality of occupied habitat; Method used	Based mainly on expert opinion with very limited data
7.3 Short-term trend; Period	2013-2024
7.4 Short-term trend; Direction	Stable
7.5 Short-term trend; Method used	Based mainly on expert opinion with very limited data
7.6 Long-term trend; Period	
7.7 Long-term trend; Direction	
7.8 Long-term trend; Method used	

7.9 Additional information

No additional information

8. Main pressures

8.1 Characterisation of pressures

Table 3: Pressures affecting the species, including timing and importance/impact ranking. Pressures are defined as factors acting currently and/or during the reporting period (2019–2024). Rankings are: High (direct/immediate influence and/or large spatial extent) and Medium (moderate direct/immediate influence, mainly indirect and/or regional extent).

Pressure	Timing	Ranking
PA04: Removal of small landscape features for agricultural land parcel consolidation (hedges, stone walls, rushes, open ditches, springs, solitary trees, etc.)	Ongoing and likely to be in the future	Medium (M)
PA05: Abandonment of management/use of grasslands and other agricultural and agroforestry systems (e.g. cessation of grazing, mowing or traditional farming)	Ongoing and likely to be in the future	Medium (M)
PA07: Intensive grazing or overgrazing by livestock	Ongoing and likely to be in the future	High (H)
PB05: Logging without replanting or natural regrowth	Ongoing and likely to be in the future	High (H)
PB08: Removal of old trees (excluding dead or dying trees)	Ongoing and likely to be in the future	High (H)
PB09: Clear-cutting, removal of all trees	Ongoing and likely to be in the future	High (H)
PE01: Roads, paths, railroads and related infrastructure	Ongoing and likely to be in the future	High (H)
PF01: Conversion from other land uses to built-up areas	Ongoing and likely to be in the future	High (H)
PF02: Construction or modification (e.g. of housing and settlements) in existing built-up areas	Ongoing and likely to be in the future	High (H)
PF05: Sports, tourism and leisure activities	Ongoing and likely to be in the future	High (H)

8.2 Sources of information

See section 14 References

8.3 Additional information

No 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 National Site Network
9.4 Response to measures	Long-term results (after 2036)

9.5 List of main conservation measures

Table 4: Key conservation measures addressing current pressures and/or anticipated threats during the next two reporting periods (2025–2036). Measures are ranked by importance/impact: High (direct/immediate influence and/or large spatial extent) and Medium (moderate direct/immediate influence, mainly indirect and/or regional extent).

Conservation measure	Ranking
MA02: Restore small landscape features on agricultural land	High (H)
MA03: Maintain existing extensive agricultural practices and agricultural landscape features	High (H)
MB04: Adapt/manage reforestation and forest regeneration	High (H)
MB05: Adapt/change forest management and exploitation practices	High (H)
ME01: Reduce impact of transport operation and infrastructure	High (H)
MF01: Managing the impacts of converting land for construction and development of infrastructure	High (H)
MF03: Reduce impact of outdoor sports, leisure and recreational activities (incl. restoration of habitats)	High (H)
MF10: Other measures related to residential, commercial, industrial and recreational infrastructures, operations and activities	High (H)

9.6 Additional information

No additional information

10. Future prospects

10.1a Future trends of parameters

ai) Range	Overall stable
bi) Population	Overall stable
ci) Habitat for the species	Overall stable

10.1b Future prospects of parameters

aii) Range	Good
bii) Population	Unknown
cii) Habitat for the species	Good

10.2 Additional information

No additional information

11. Conclusions

11.1 Range	Favourable (FV)
11.2 Population	Unknown (XX)
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 reason for change in conservation status

This field is not reported as the period 2019-2024 marks the first instance in which conservation status has been assessed at the national level, meaning no comparisons to previous reports can be drawn.

11.7 Change and reason for change in conservation status trend

This field is not reported as the period 2019-2024 marks the first instance in which conservation status has been assessed at the national level, meaning no comparisons to previous reports can be drawn.

11.8 Additional information

No additional information

12. UK National Site Network (pSCIs, SCIs, SACs) coverage for Annex II species

12.1 Population size inside the pSCIs, SCIs and SACs network

a) Unit
b) Minimum
c) Maximum
d) Best single value
12.2 Type of estimate
12.3 Population size inside the network; Method used
12.4 Short-term trend of population size within the network; Direction
12.5 Short-term trend of population size within the network; Method used
12.6 Short-term trend of habitat for the species inside the pSCIs, SCIs and SACs network; Direction
12.7 Short-term trend of habitat for the species inside the pSCIs, SCIs and SACs network; Method used

12.8 Additional information

No additional information

13. Complementary information

13.1 Justification of percentage thresholds for trends

No justification information

13.2 Trans-boundary assessment

No trans-boundary assessment information

13.2 Other relevant information

No other relevant information

14. References

Biogeographical and marine regions

4.2 Sources of information

Aderyn, LERC Wales' Biodiversity Information & Reporting Database. Data downloads under NRW licence 2024.

Aegerter IN. 2003. Maximising the biodiversity value of farm woodlands to the agri-environment. Final project report to DEFRA. Project code WD0129.

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Jan CM, Frith K, Glover AM, Butlin RK, Scott CD, Greenaway F, Ruedi M, Frantz AC, Dawson DA, Altringham JD. 2010. Myotis alcathoe confirmed in the UK from mitochondrial and microsatellite DNA. Acta Chiropterologica 12, 471-483.

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Jones G. 1991. Hibernal ecology of whiskered bats (Myotis mystacinus) and Brandt's bats (Myotis brandti) sharing the same roost site. Myotis, 29, 121-128.

Jones KE, Altringham JD, Deaton R. 1996. Distribution and population densities of seven species of bat in northern England Journal of Zoology, 240, 788-798

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.

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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: S1330 – Whiskered bat (Myotis mysticinus).

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Speakman JR. 1991. The impact of predation by birds on bat populations in the British Isles. Mammal Review, 21, 123-142.

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Main pressures

8.2 Sources of information

No sources of information

15. Explanatory Notes

Field label	Note
2.2: Year or Period	The time period has been selected as distribution has been calculated using data from Mathews et al. 2018, and updated with recent records from Aderyn.
2.4: Distribution map; Method used	Whiskered bats are widely distributed across Wales. Some gaps in range in Wales are likely due to a lack of records rather than true absence. Because of the high probability of misidentification, a joint species' range was derived using all available data for whiskered and Brandt's bats combined. However, it should be noted that records from both swarming sites and roosts are patchier for Brandt's than for whiskered bats. The estimated range is therefore likely to more closely represent the true range for whiskered than Brandt's bats (Mathews et al. 2018). The two species are both morphologically similar and their echolocation calls are also difficult to differentiate. Current monitoring through NBMP is undertaken by counting M. mystacinus/M brandtii in hibernation sites, but this may not give an unbiased trend estimate. Trends are not available for the two species separately. The species is often found in buildings, so its presence may be noted, however it can be difficult to observe within the roost and to confirm identification, so may be overlooked if present with other species or misidentified as one of the more commonly found species (common or soprano pipistrelle).
5.3: Short-term trend; Direction	The difficulty of separating whiskered bats from Brandt's bats in terms of physical appearance and via echolocation calls limits the availability of data. Both M. brandtii and M. mystacinus are monitored through the National Bat Monitoring Programme, however, the data is combined from the two species which limits its use. Because of this high probability of misidentification, a joint species range was derived using all available data for whiskered and

	Brandt's bats combined. However, it should be noted that records from both swarming sites and roosts are patchier for Brandt's than for whiskered bats, so the estimated range is likely to more closely represent the true range for whiskered rather than Brandt's bats. Expert opinion suggested that there is a ratio of approximately 10:1 of captures of whiskered compared with Brandt's bats at swarming sites, woodland and hedgerows (Mathews et al 2018). The precise degree of overlap of the distributions of the species is unknown but genotyping of bats captured at swarming sites across England confirms the previously reported general pattern of the ratio of Brandt's: whiskered bats increasing from West to East and from South to North in Britain (Richardson 2000). There is no evidence to suggest that this species range has declined for the specified time period.
5.11: Change and reason for change in surface area of range	In the 2019 Article 17 report, the area of land (including unsuitable habitat) contained within the range was given as 20,488 km2 (Mathews et al. 2018). Mathews et al. 2018, applied an alpha hull value of 20km presence records, which represented the best balance between the inclusion of unoccupied sites (i.e. where records are sparse but close enough for inclusion) and the exclusion of occupied areas due to gaps in the data (i.e. where records exist but are too isolated for inclusion). An additional 10km buffer was added to the final hull polygon to provide smoothing to the hull and to ensure that the hull covered the areas recorded rather than intersecting them. This differs from the approach taken in this reporting round, and also the 2013 and 2007 reports, whereby a 45km alpha hull value was used for all species with a starting range unit of individual 10km squares. To produce the range maps JNCC were provided with any additional 10km x 10km grid squares where bats roost records were located between 2018 and 2024, along with the 2019 Article 17 report data. No grid squares have been

	removed as there have not been any widespread surveys that could indicate loss of a species from any area. The resulting updated maps produced by JNCC indicate a range of 20,598 km2. The increase in range indicated is likely mainly due to a change in methodology rather than a genuine change in range. Whilst the increased use of advanced / full spectrum bat detectors is likely to have resulted in increased detector records of this species, roosts for this species undoubtedly remains significantly under-recorded due to the fact that they are not commonly encountered in houses.
6.2: Population size	Best single Value based on records of all Whiskered, Brandt's, and any records labelled as Whiskered/Brandt's due to the difficulties separating the species.
6.5: Additional population size	Unit = Individuals Best Single Value = 8000 Mathews et al. 2018 was unable to give an updated population estimate. They state 'Given the absence of data on roost density it was not possible to compute a population estimate. It is considered unlikely that most maternity roosts in Britain are known and therefore it was also not possible to make a total count. No population genetics study has been conducted, and therefore no alternative metrics of population size were available.' The estimate by Harris et al. 1995 (population estimate for Wales = 8000) was based largely on expert opinion, based on very limited information, extrapolating from known size of Pipistrellus pipistrellus colonies in relation to size of M. mystacinus colonies following the methods described by Speakman, 1991 and Harris et al, 1995. Harris et al's, 1995 reliability rating of the estimate was 5, indicating that little confidence can be placed on the estimate.

	In the absence of a more accurate updated population estimate then Harris et al.'s 1995 population estimate for Wales of 8000 adults is reported, however low confidence is held in this figure and better data are clearly needed to provide a reliable alternative population estimate.
6.6: Population size; Method used	The reported figure in 6.2 is based on occupied 1km grid squares and is therefore reliant on existing records. This species is likely to be under recorded and the issue is compounded by the lack of separation between whiskered and Brandt's bat records. The reported figure in 6.5 is based mainly on extrapolation from a limited amount of data.
6.7: Short-term trend; Period	Based on Bat Conservation Trust (2024) NBMP short-term period of 5 years.
6.8: Short-term trend; Direction	Based on hibernation data, the combined population of whiskered and Brandt's bat in Wales is considered to have been stable in the short-term (since 2017); Over the last five years (2017 - 2022) the smoothed survey index has decreased by 9.8% (95% CI -26.6% to 2.7%), however this change is not statistically significant. However, this trend should be interpreted with caution as it combines data from two species with differing ecological requirements and potentially differing conservation status. This uncertainty has been compounded by the discovery of Alcathoe bat in the UK in 2010, a third cryptic species in this species group. The distribution of Alcathoe bat in the UK is poorly known although it is thought to be localised and rare. It is likely to have occurred in the UK prior to its discovery in 2010, so it is possible that counts of whiskered/Brandt's bat made during the Hibernation Survey may also include Alcathoe bat. Further work is required to facilitate the reliable identification of these species and their differing ecological needs. Thus far, Alcathoe has not been identified in Wales, but has been close to the boarder.

6.16: Change and reason for change in population size	Changes in the reported 1km x 1km grid squares are mainly a result of improved/additional data rather than any genuine change. The reported Alternative Population estimate is 8000 individuals based on Harris et al. 1995's value as Mathews et al. 2018 was unable to update this population estimate.
7.1: Sufficiency of area and quality of occupied habitat	Occupied habitat area 20,500 km2. Habitable area as given by Mathews et al. 2018 has been used as a proxy for occupied habitat. The habitable area calculation defined all the area within the range as habitable excluding montane habitat since this is unlikely to include suitable locations for maternity roosts. Occupied habitat quality Whilst we do not have a reliable measure of the quality of the occupied habitat, the population trend is not showing a decline and the species continues to be widespread across a mosaic of habitats. It is therefore assumed that quality is sufficient to support a viable population of the species and maintain FCS. M. mystacinus requires a complex mosaic of habitats to support foraging, roosting and commuting behaviour. In England, one radiotracking study indicated a preference for farm woodlands, hedgerows and wetlands in Yorkshire (Aegerter, 2003); and a further radiotracking study in SW England indicated a preference for woodlands and semi improved and improved grassland habitats (particularly cattle-grazed pasture with hedgerows) with avoidance of urban and arable habitats (Berge, 2007). They are frequently captured in mist nets placed along linear features such as tall hedgerows, woodland edges and small waterways enclosed by trees (Mathews et al. 2018). In Ireland whiskered bats selectively favoured mixed woodland and riparian habitats both with respect to home range and foraging area selection (Buckley et al. 2013). Elsewhere in Europe, the species uses a diversity of

habitats including forests, gardens, orchards, riparian corridors and open areas, and can also forage within the crowns of trees (Dietz and Keifer 2016). Wing morphology and echolocation calls indicate that whiskered bats are adapted to forage in edge or cluttered habitats although Brandt's bats tend to have higher wing loadings than Whiskered bats (Jones 1991, Norberg and Rayner 1987), perhaps allowing Brandt's to be more manoeuvrable in more forested environments. Maximum foraging distances of females from maternity roosts have been recorded as 2.3km (Berge 2007) and 3.5km (Aegerter, 2003), but are usually much less. Maternity roosts are usually located in buildings, though they are sometimes rarely found in trees and bat boxes (Schober and Grimmberger 1989). Hibernation sites include underground tunnels, ice-houses and caves (Jones, 1991). As with other Myotis species, whiskered bats frequently visit swarming sites such as cave entrances in the autumn (Parsons et al. 2003, Glover and Altringham 2008). Although the precise function of swarming is unknown, it is likely to play a role in social communication and mating display, and is therefore important to species conservation. Therefore these sites should be considered important habitat features for the species.

In order to obtain an estimate of actual occupied habitat, it would be necessary to first identify all of the foraging and roosting habitat located within the current range boundary; determine whether or not each of these features were being used and subsequently calculate the combined area of all currently used habitats. This process would require very detailed habitat information at a fine scale across the UK. We do not currently have this level of information.

We do not at present have a reliable measure of habitat quality across the species range in Wales, however the population trend is stable, and the species is widespread, using a mosaic of habitats; it is therefore assumed that

	quality is sufficient to support a viable population of the species and maintain FCS.
7.2: Sufficiency of area and quality of occupied habitat; Methods used	There is some detailed information on the habitat requirements/limitations of this species, but the total area and overall quality of suitable habitat poorly understood as the species depends on a matrix of habitats in a landscape. To obtain a proper estimate of suitable habitat used by the species, it would be necessary to first identify all of the foraging and roosting habitat located within the current range boundary; determine whether or not each of these features were being used; and subsequently calculate the combined area of all currently used habitats. This process would require very detailed habitat information at a fine scale across the UK. We do not currently have this level of information. However the population trend is considered stable and the species is widespread, using a mosaic of habitats; it is therefore assumed on the basis of expert judgement that both the area and quality of occupied habitat is sufficient to support a viable population of the species and maintain FCS.
8.1: Characterisation of pressures	Pressures: Pressures can generally be divided into those that affect roosts and those that affect commuting and foraging (including prey availability). Pressures mostly affecting roosts: PB05 - Logging without replanting or natural regrowth, PB09 - Clear-cutting, removal of all trees, PF02 - Construction or modification (e.g. of housing and settlements) in existing built-up areas, PB08 - Removal of old trees (excluding dead or dying trees), PF05 - Sports, tourism and leisure activities: The species is vulnerable to loss of roosts through development, renovation or conversion of buildings and to disturbance at (underground) hibernation and swarming sites. In addition, changes in building practices to improve energy efficiency mean that

	new buildings may offer fewer roosting opportunities (Mitchell-Jones, 2010). Pressures mostly affecting commuting and foraging: PA07 - Intensive grazing or overgrazing by livestock, PE01 - Roads, paths railroads and related infrastructure, PF01 - Conversion from other land uses to built-up areas , PA04 - Removal of small landscape features for agricultural land parcel consolidation (hedges, stone walls, rushes, open ditches, springs, solitary trees, etc.), PA05 - Abandonment of management/use of grasslands and other agricultural and agroforestry systems (e.g. cessation of grazing, mowing or traditional farming): Whiskered bats forage over lowland farmland, woodland parkland and woodland edges. Agricultural and forestry practices that remove, modify or fragment these habitats, or affect the biomass of suitable insect prey (including changes to water quality) could negatively affect populations.
9.5: List of main conservation measures	Legal and administrative measures continue to be required to ensure that the protection provided by the legislation is effective and that protected habitats for the species are managed appropriately. ME01: Reduce impact of transport operation and infrastructure: Road design, construction and operation need to take into account the likely impact on bats, e.g. in relation to the provision of safe crossing structures and the loss of and severance of bat habitat and lighting. MB04: Adapt/manage reforestation and forest regeneration, MA03: Maintain existing extensive agricultural practices and agricultural landscape features, MF01: Managing the impacts of converting land for construction and development of infrastructure, MA02: Restore small landscape features on agricultural land, MB05: Adapt/ change forest management and exploitation practices:

	Brandt's bats hunt within woodland and field boundaries. Environmental land management schemes in the agricultural and forestry sectors are now widely used to ensure these habitats in the vicinity of roosts are well-managed and provide appropriate insect food at the correct time of year. MF10: Other measures related to residential, commercial, industrial and recreational infrastructures, operations and activities: Planning at landscape scale is required to conserve commuting routes and foraging areas. MF03: Reduce impact of outdoor sports, leisure and recreational activities (incl. restoration of habitats): Impacts of recreation (caving) on swarming and hibernation sites need to be limited. This species is offered full protection under national and European legislation. However, the lack of information on distribution, abundance and habitat requirements and the inability at present to detect population trends separately from those of M. brandtii means that it is difficult to plan conservation management actions and to know if action are having a positive impact.
10.1: Future trends and prospects of parameters	Future prospects of range The future trend in the range for this species is considered to be overall stable in Wales. Myotis mystacinus range is widespread through Wales; no specific short-term drivers for expansion or contraction have been identified and therefore there is no reason to assume that range will vary significantly within the next 12 years unless population crashes occur. Future prospects of population

	The future trend in the population of this species is considered to be overall stable in Wales. Whiskered/ Brandt's trends for Wales currently which show a stable population and no specific short-term drivers for population change have been identified. Future prospects of habitat of the species The future trend in extent and quality of habitat of the species is considered to be overall stable in Wales. We do not have a reliable measure of the quality of the occupied habitat, however Myotis mystacinus is widespread and uses a mosaic of habitats and there are no specific identified drivers of change across these habitats. There is therefore no reason to assume that the current reported trend will not continue over the next 12 years.
11.1: Range	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.
11.2: Population	Conclusion on Population reached because:(i) the short-term trend direction in Population size is stable; (ii) the Favourable Reference Population is unknown and iii) reproduction, mortality and age structure does not have data available.
11.3: Habitat for the species	Conclusion on Habitat for the species reached because: i) the area of occupied habitat is sufficiently large for the long-term survival of the species (ii) the quality of occupied habitat is suitable for the long-term survival of the species; and (iii) the short-term trend in area of habitat is stable
11.4: Future prospects	Conclusion on Future prospects reached because: (i) the Future prospects for Range are good; (ii) the Future prospects for Population are unknown; and (iii) the Future prospects for Habitat for the species are good.
11.5: Overall assessment of Conservation Status	Overall assessment of Conservation Status is Favourable because three of the conclusions are Favourable and one is Unknown.

6.15: Favourable Reference Population (FRP)	The UK-level FRV for population was developed by JNCC using an audit trail based on the year the FRV was first established and any changes made in subsequent reporting rounds. The audit may draw from any combination of the 2007, 2013, or 2019 Habitats Directive reports and reflects the full rationale used for the 2019 Article 17 reporting. This FRV was reviewed by Welsh experts and considered appropriate for use in Wales based on current population trends and abundance.
5.10: Favourable Reference Range (FRR)	The UK-level FRV for range was developed by JNCC using an audit trail based on the year the FRV was first established and any changes made in subsequent reporting rounds. The audit may draw from any combination of the 2007, 2013, or 2019 Habitats Directive reports and reflects the full rationale used for the 2019 Article 17 reporting. This FRV was reviewed by Welsh experts and considered appropriate for use in Wales based on current distribution and trends.