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

2019-2024

Conservation status assessment for the species:

S1341 - Common dormouse

(*Muscardinus avellanarius*)

Wales

Cyfoeth Naturiol Cymru
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JNCC

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This report was produced by JNCC in collaboration with Natural Resources Wales.

This document should be cited as:

Natural Resources Wales and JNCC. (2026). Conservation status assessment for the species: S1341 Common dormouse (*Muscardinus avellanarius*).

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: Common dormouse

Distribution Map

Range Map

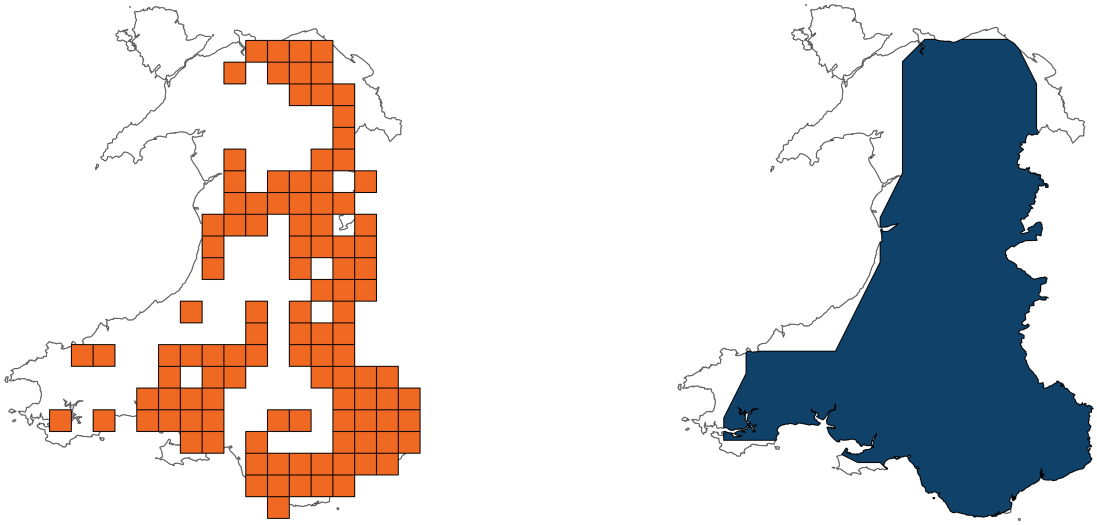

Figure 1: Wales distribution and range map for S1341 - Common dormouse (*Muscardinus avellanarius*). Coastline boundary derived from the Oil and Gas Authority's OGA and Lloyd's Register SNS Regional Geological Maps (Open Source). Open Government Licence v3 (OGL). Contains data © 2017 Oil and Gas Authority. 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 S1341 - Common dormouse (*Muscardinus avellanarius*). 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)

Unfavourable-bad (U2)

Breakdown of Overall Conservation Status

Range (see section 5)	**Favourable (FV)**
Population (see section 6)	**Unfavourable-bad (U2)**
Habitat for the species (see section 7)	**Unknown (XX)**
Future prospects (see section 10)	**Unfavourable-bad (U2)**

List of Sections

National Level

1. General information

1.1 Country	Wales
1.2 Species code	S1341
1.3 Species scientific name	*Muscardinus avellanarius*
1.4 Alternative species scientific name	
1.5 Common name	Common dormouse
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)	16,725.81
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 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	
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	moderate

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	No
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	1995-2024

6.2 Population size (in reporting unit)

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

d) Best single value	815
6.3 Type of estimate	Best estimate
6.4 Quality of extrapolation to reporting unit	moderate

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

a) Unit	number of individuals
b) Minimum	90,700
c) Maximum	529,000
d) Best single value	172,000
e) 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	2011-2020
6.8 Short-term trend; Direction	Decreasing
6.9 Short-term trend; Magnitude	
a) Estimated minimum	39
b) Estimated maximum	55
c) Pre-defined range	
d) Unknown	No
e) Type of estimate	Multi-year mean
f) Rate of decrease	Decreasing >1% (more than one percent) per year on average
6.10 Short-term trend; Method used	Complete survey or a statistically robust estimate
6.11 Long-term trend; Period	1993-2020
6.12 Long-term trend; Direction	Decreasing

6.13 Long-term trend; Magnitude	
a) Minimum	67
b) Maximum	95
c) Confidence interval	0.95
d) Rate of decrease	Decreasing >1% (more than one percent) per year on average
6.14 Long-term trend; Method used	Complete survey or a statistically robust estimate

6.15 Favourable Reference Population (FRP)

ai) Population size	
aii) Unit	
b) Pre-defined increment	Current population is between 26% and 50% smaller than the FRP
c) Unknown	No
d) Method used	Expert opinion
e) Quality of information	

6.16 Change and reason for change in population size

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

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

a) Sufficiency of area of occupied habitat; Method used	Insufficient or no data available
b) Sufficiency of quality of occupied habitat; Method used	Insufficient or no data available

7.3 Short-term trend; Period	2013-2024
7.4 Short-term trend; Direction	Unknown
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

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)
PB04: Abandonment of traditional forest management	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	Medium (M)
PE01: Roads, paths, railroads and related infrastructure	Ongoing and likely to be in the future	Medium (M)
PF01: Conversion from other land uses to built-up areas	Ongoing and likely to be in the future	Medium (M)
PI01: Invasive alien species of Union concern	Ongoing and likely to be in the future	Medium (M)
PI03: Problematic native species	Ongoing and likely to be in the future	Medium (M)
PJ01: Temperature changes and extremes due to climate change	Ongoing and likely to be in the future	High (H)
PJ03: Changes in precipitation regimes due to climate change	Ongoing and likely to be in the future	High (H)
PJ11: Desynchronisation of biological / ecological processes due to climate change	Only in 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	Increase the population size and/or improve population dynamics (related to 'Population')
9.3 Location of the measures taken	Both inside and outside National Site Network
9.4 Response to measures	Medium-term results (within the next two reporting periods, 2025–2036)

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	Medium (M)
MB02: Maintain existing traditional forest management and exploitation practices	High (H)
MB03: Reinstate forest management and exploitation practices	High (H)
ME06: Habitat restoration of areas impacted by transport	Medium (M)
MF02: Habitat restoration of areas impacted by residential, commercial, industrial and recreational infrastructure, operations and activities	Medium (M)

9.6 Additional information

No additional information

10. Future prospects

10.1a Future trends of parameters

ai) Range	Negative - decreasing <=1% (one percent or less) per year on average
bi) Population	Very Negative - decreasing >1% (more than one percent) per year on average
ci) Habitat for the species	Unknown

10.1b Future prospects of parameters

aii) Range	Poor
bii) Population	Bad
cii) Habitat for the species	Unknown

10.2 Additional information

No additional information

11. Conclusions

11.1 Range	Favourable (FV)
11.2 Population	Unfavourable-bad (U2)
11.3 Habitat for the species	Unknown (XX)
11.4 Future prospects	Unfavourable-bad (U2)
11.5 Overall assessment of Conservation Status	Unfavourable-bad (U2)
11.6 Overall trend in Conservation Status	Deteriorating

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

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SoNaRR WOODLANDS REF TO ADD

Main pressures

8.2 Sources of information

No sources of information

15. Explanatory Notes

Field label	Note
2.4: Distribution map; Method used	The map updates the recorded distribution with new data since the previous reporting round and covers the years 1995-2024. No systematic survey of dormice has been undertaken in Wales and so squares have only been removed where there is a degree of confidence that they species is no longer present.
5.11: Change and reason for change in surface area of range	Range is based on presence data collected between 1995-2024 and the reported range of 16,276 km2 is an increase compared to the range in the last reporting round of 14,700 km2. However, this change is most likely due to a different method of calculating range . In the last reporting round range was taken from Mathews et al. (2018), whereby an alpha hull value of 20km was drawn around the 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. Whilst change in range area is based on a new methodology available, there is no evidence to suggest there has been no noticeable expansion or reduction in range.
6.2: Population size	See 6.5 for narrative.

6.3: Type of estimate	Time period in 6.1 reflects range of records used for 1km square count. More than half of records (58%) are from 2010 or later.
6.5: Additional population size	Wales: 172,000 individuals (95% CIs 90,700-529,000) Population estimate is from Mathews et al. (2018) and this has not been updated since the last reporting round. Method utilised to estimate population size was to multiply habitat-specific density estimates by the extent of these habitats within the geographical range. Where multiple estimates were available, the median value was used to produce the 'best' estimate, and 95% confidence intervals were created. Where possible, population sizes were adjusted to account for the percentage of occupied habitat within the species' range. Occupancy data were only included where studies used standardised surveys and reported both presence and absence. In the absence of data on percentage occupancy, 100% was assumed. For dormouse, percentage occupancy in broadleaved woodland (accounting for >75% of the population estimate) was based on percentage of woodlands that contained signs of dormice (gnawed nuts). Survey sites were stratified by age, area and isolation and were selected at random, but survey areas within these woodlands were only surveyed where hazel scrub was heavily fruiting to maximise the probability of detecting dormice and reduce the risk of false negatives (Bright et al. 1994). The possibility of dormice living in a wider range of habitats was not considered. As more recent research suggests that the species are less specialised than previously thought (Juskaitis & Büchner, 2013), percentage occupancy used in this estimate may not be representative of all habitats within the species' range. Reliability scores for the habitat density estimates were assigned to give an indication of the reliability of the data underpinning the population estimate. The habitat density estimates and occupancy data used for the dormouse

	population estimate were given a reliability score of 2 from a maximum of 5.
6.6: Population size; Method used	The 1km square population estimate covers the years 1995-2024. No systematic survey of dormice has been undertaken in Wales and so it is not known whether dormice continue to be present in all squares reported.
6.7: Short-term trend; Period	(England and Wales)
6.9: Short-term trend; Magnitude	Trend magnitude: Analysis of data for England and Wales from the National Dormouse Monitoring Programme showed a decline of 47% (95% CIs: 38%-59%) in the 10 year period 2011-2020 (Scopes et al. 2023). This rate of decline is similar to that previously reported of 47% (95% CLs: 55, 39%) in the 10-year period 2005 to 2014 (Goodwin et al. 2017). Rate of decrease: No data is available for Wales for the short-term trend time period. However, Scopes et al. 2023 found that the decline in Wales between 1994 and 2020 was greater than that in England, albeit with overlapping confidence intervals (see Long-term Trend below). The available England and Wales information is therefore used for Wales trend. In England and Wales annual mean rate of decline is not available for 2013-2024, but Scopes et al. (2023) state that the England and Wales decline between 1994-2020 of 78% (95% confidence limits: 72-84% decline) is equivalent to annual mean rate of decline of 5.7% (95% confidence limits: 4.7-6.8% decline). This is similar to the annual mean rate of decline of 5.8% (95% confidence limits: 4.5-7.1% decline) for 1993-2014 calculated by Goodwin et al. (2017).
6.10: Short-term trend; Method used	Population trend from the National Dormouse Monitoring Programme (NDMP). The NDMP was established in 1991

	with the aim of monitoring changes in dormouse populations using data from dormouse nest box schemes established throughout England and Wales. Nest boxes at monitoring sites are checked at least twice each year between May and October. Data collected include number of dormice in each box, body weight, sex and breeding condition. Goodwin et al. (2017) identified population trends from the analysis of data from 400 sites in England and Wales, and Scopes et al. (2023) provides an updated analysis of monitoring results between 1994 and 2020. Inferences about decline in the population are made on the assumption that fewer dormice using nest boxes equates to fewer dormice in the population, but it is possible that dormice may use boxes less frequently if the habitat has improved at that site and more natural nesting sites are available (Mathews et al. 2018). However, there is evidence that the dormice found in trapping studies are also found in nest boxes if studies are carried out over several years, which supports the use of nest box monitoring to indicate population size for long-term studies of the species (Goodwin et al. 2017).
6.13: Long-term trend; Magnitude	Trend magnitude: England and Wales 78% decline (Scopes et al. 2023): a) Min = -72% b) Max = -84% c) Confidence interval = -72% to -84% (95% CI) Rate of decrease: Scopes et al. (2023) state that the England and Wales decline between 1994-2020 of 78% (95% confidence limits: 72-84% decline) is equivalent to annual mean rate of decline of 5.7% (95% confidence limits: 4.5-6.8% decline). This is similar to the previously reported decline in England

	and Wales between 1993-2014 of 72% (95% confidence limits: 62-79% decline) which was equivalent to annual mean rate of decline of 5.8% (95% confidence limits: 4.5-7.1% decline) (Goodwin et. al 2017). Annual mean rate of decline is not available for Wales, but the 89% decline (95% confidence limits: 67-95%) over 27 years between 1994 and 2020 (Scopes et al. 2023) will be greater than 1% annual decline.
6.16: Change and reason for change in population size	Population unit is occupied 1km squares. However, as for range there has been no systematic survey for dormice in Wales and so this value cannot be relied on as an accurate measure of population size. The alternative population unit of individuals has not been updated since the previous reporting round. Comparison of that estimate with the 2013 reporting round (Wales: 2013=7,500 individuals; 2018=172,000 individuals; UK: 2013=45,000 individuals; 2018=2,640,000) suggests a significant increase in population size. However, the 2013 estimate originates from a pers com in Battersby 2005. The 2018 estimate (Mathews et al 2018) has been calculated using more robust methods, although does still have a low reliability estimate (see 6.5). These population size estimates cannot therefore be relied upon to determine trend in population size. However, the National Dormouse Monitoring Programme provides a statistically robust estimate of population trends and shows a significant population decline as reported in 6.9 and 6.13 (Goodwin et al. 2017; Scopes et al. 2023).
6.18: Age structure, mortality and reproduction	Analysis of population trends in the NDMP is based on abundance of adult dormice. No information is available regarding age structure, mortality and reproduction.
7.1: Sufficiency of area and quality of occupied habitat	Dormice utilise a range of early to mid-successional wooded habitats including hazel coppice, PAWS, hedgerows, scrub and some conifer woodlands (Juskaitis & Büchner, 2013). The quality, structure and connectivity of

woodland habitats are a significant predictor of dormouse abundance. Goodwin et al. (2018) found that abundance of hazel dormouse populations was higher at sites with active woodland management, with greater landscape connectivity and with higher woodland species composition.

These habitat types are present throughout the species' range but the sufficiency of the area and quality is unknown. The area of woodland cover in the UK has doubled since 1945, but much of this a result coniferous afforestation (Quine et al 2011) which will be of low suitability for dormice. More recently new planting has increased the availability of native broadleaves, but rates of new planting over the last 25 years in Wales have been low. According to the National Forest Index (NFI), between 2019 and 2024, there was 2,820 ha of new woodland creation in Wales (Forest Research, 2024). Of this, 1,770 ha was broadleaf and 1,050 ha was conifer.

Analysis of satellite imagery by the Environment and Rural Affairs Monitoring and Modelling Programme (ERAMMP) estimated woodland covered in Wales as 358,400 ha, or 16.9% of Wales (Emmett et al. 2025). This represented a 7% increase since 2010 with a new planting rate of 2,200 ha per year. The inconsistency between this and the NFI data is thought to be related to the ERAMMP recording 'woody presence' whereas NFI records woodland areas >0.5 ha (INSERT REF TO SONARR WOODLAND ASSESSMENT).

The ERAMMP same analysis also found a 4% increase in new and restored hedgerows and a 9% increase in width and height. 50% of hedgerows are now considered to be in favourable condition although it is not clear how this relates to their ability to support dormice.

The extent of ancient and semi-natural woodland has declined and reduction in woodland management

	techniques such as coppicing has resulted in ageing of broadleaved woodlands and a subsequent loss in structural and species diversity (Quine et al. 2011). In 2021, a repeat visit to 97 woodlands that were first surveyed in the 1970s (the 'Bunce Survey') found evidence of a continued decline in woodland management with woodlands becoming more shaded (Smart et al 2024).
8.1: Characterisation of pressures	M avellanarius is a species associated with the early successional stages of woodland, though it also uses other habitats, such as hedgerows and conifer plantation (Juškaitis, 2008). High species diversity and a dense shrub layer are both considered important in maintaining this species and so loss of hedgerows/hedgerow deterioration/ agricultural intensification (PA04) and a lack of sympathetic woodland management (PB04, PB05, PB09), are considered to be an important pressure on dormouse populations (Bright et al, 2006). Goodwin et al (2018) investigated factors affecting dormouse abundance in the National Dormouse Monitoring Programme. Dormouse abundance was found to be higher on sites with good habitat connectivity, greater woodland species composition and where active management was taking place. Grazing within woodlands reduces woodland suitability and there is increasing evidence that rising deer populations (native PI04 and non-native, primarily muntjac PI01) are having a negative impact on the structure of the understorey (Newson et al, 2011). Habitat loss and fragmentation from development activities (PE01, PF01) also reduce the quality of availability habitat and licensing data shows that there are many cases of infrastructure development affecting dormice every year. There is evidence of dormice crossing open areas including roads (Chanin & Gubert 2012; Schulz et al 2012), but more information is needed on the fragmentation impacts of roads on populations. Climate is also an important predictor of dormouse abundance. Goodwin et al (2018) found that dormice were less abundant on sites with warmer more variable temperatures and Bright & Morris (1996) found reduced activity during wetter conditions (PJO1, PJO3).

	Warmer winters may cause an increased frequency of energy-demanding arousals from hibernation and, unlike some hibernators (e.g. bats), dormice do not have access to food supplies during winter. This has the potential to cause increased over-winter mortality (Scopes et al. 2024). Goodwin et al (2018) found that dormouse numbers were lower at sites with warmer and more variable winter temperatures (PJ01), and wet weather (PJ03) affects activity and food availability (Bright & Morris 1996, Juškaitis et al. 2016). Desynchronisation of flowering with emergence from hibernation also has the potential to affect survival (PJ06)(Scopes et al. 2024).
9.5: List of main conservation measures	Appropriate habitat management to maintain sufficient species and structural diversity in dormouse habitat is key to dormouse conservation (MA02, MB02, MB03), and this has been demonstrated by Goodwin et al. (2018). Advice to woodland managers on appropriate management options to favour dormice is readily available (Bullion et al. 2025) and may be supported by agri-environment schemes, but in recent years there has been an absence of grants to support woodland management in Wales. Establishment of the Sustainable Farming Scheme in Wales is likely to provide improved incentives for woodland management, particularly in smaller farm woodlands. Development activities (road schemes, housing) contribute to habitat loss and fragmentation, requiring management of mitigation habitat (ME06, MF02).
10.1: Future trends and prospects of parameters	Future prospect - Range: Whilst range is thought to have been fairly stable, the ongoing significant decline in populations has the potential to result in localised extinctions and range decline.
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 decreasing by more than 1% per year; (ii) the current Population size is more than 25% below the Favourable Reference Population 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) it is unknown whether the area of occupied habitat is sufficiently large for long-term survival (ii) it is unknown whether the quality of occupied habitat is suitable for the long-term survival of the species; and iii) it is unknown whether there is a sufficiently large area of occupied and unoccupied habitat of suitable quality for long term survival (iv) the short-term trend in area of habitat is unknown.
11.4: Future prospects	Conclusion on Future prospects reached because: (i) the Future prospects for Range are poor; (ii) the Future prospects for Population are bad; and (iii) the Future prospects for Habitat for the species are unknown.
11.5: Overall assessment of Conservation Status	Overall assessment of Conservation Status is Unfavourable-bad because two of the conclusions are Unfavourable-bad.
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. Following expert review, a Wales-level FRV was derived based on population trend and abundance data specific to Wales, rather than adopting the UK-level value. The revised FRV has been set as between 1994 and 2020 NDMP for England and Wales reported a 78% decline, or 5.7% annual decline.
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.