

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)***

**England**



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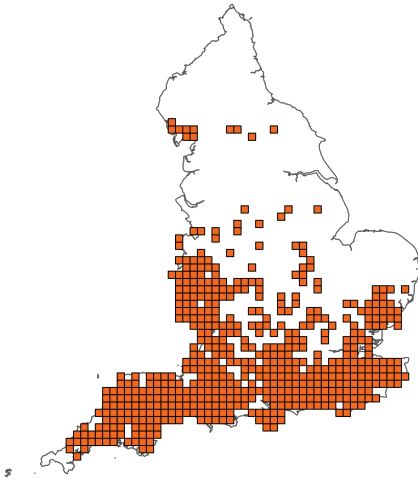
### **Important note - Please read**

- The information in this document represents the England 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 England, 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).

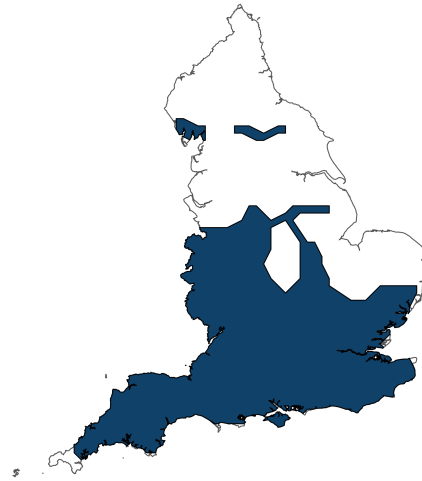
Further details on the approach to the Habitats Regulations Reporting 2019-2024 are available on the [JNCC website](#).

## Assessment Summary: Common dormouse

### Distribution Map



### Range Map



**Figure 1:** England 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

<b>Range</b> (see section 5)	<b>Unfavourable-bad (U2)</b>
<b>Population</b> (see section 6)	<b>Unfavourable-bad (U2)</b>
<b>Habitat for the species</b> (see section 7)	<b>Unknown (XX)</b>
<b>Future prospects</b> (see section 10)	<b>Unfavourable-bad (U2)</b>

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## National Level

### 1. General information

<b>1.1 Country</b>	England
<b>1.2 Species code</b>	S1341
<b>1.3 Species scientific name</b>	<i>Muscardinus avellanarius</i>
<b>1.4 Alternative species scientific name</b>	
<b>1.5 Common name</b>	Common dormouse
<b>Annex(es)</b>	IV

### 2. Maps

<b>2.1 Sensitive species</b>	No
<b>2.2 Year or period</b>	1995-2024
<b>2.3 Distribution map</b>	Yes
<b>2.4 Distribution map; Method used</b>	Complete survey or a statistically robust estimate

#### 2.5 Additional information

The range map has been produced following the same methodology that was used in 2007 and 2013 whereby a 45km alpha hull value has been used for all species with a starting range unit of individual 10km squares. In 2018 range was taken from Mathews et al, 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. That process led to the production of much finer detailed maps being produced.

For the 2026 Regulation 9A reporting round the distribution datasets reported for all features have been created using existing Natural England source data and additional datasets made available to Natural England for Regulation 9a reporting under Open Government (OGL) or Creative Commons (CC-BY) licence. The reinterpretation of

source data is a methodological change which has resulted in changes to mapped distribution and hence range for some features. In a few cases the available data is known to not reflect the full distribution of a feature. Where apparent change is an artefact of the mapping approach, rather than real change in distribution it will be highlighted, and associated changes in range explained, in the assessment text.

### 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

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b) Temporary or local prohibition on the taking of specimens in the wild and exploitation

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c) Regulation of the periods and/or methods of taking specimens

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d) Application of hunting and fishing rules which take account of the conservation of such populations

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

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

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

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Other measures

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Other measures description

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

##### a) Unit

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**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>b) Minimum</b>	-	-	-	-	-	-
<b>c) Maximum</b>	-	-	-	-	-	-
<b>d) Unknown</b>	-	-	-	-	-	-

### 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 (km<sup>2</sup>) 72,925

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>b) Estimated maximum</b>	
<b>c) Pre-defined range</b>	
<b>d) Unknown</b>	
<b>e) Type of estimate</b>	
<b>f) Rate of decrease</b>	
<b>5.5 Short-term trend; Method used</b>	Complete survey or a statistically robust estimate used
<b>5.6 Long-term trend; Period</b>	
<b>5.7 Long-term trend; Direction</b>	
<b>5.8 Long-term trend; Magnitude</b>	
<b>a) Minimum</b>	
<b>b) Maximum</b>	
<b>c) Rate of decrease</b>	
<b>5.9 Long-term trend; Method used</b>	
<b>5.10 Favourable Reference Range (FRR)</b>	
<b>a) Area (km<sup>2</sup>)</b>	121,467
<b>b) Pre-defined increment</b>	
<b>c) Unknown</b>	No
<b>d) Method used</b>	Reference-based approach
<b>e) Quality of information</b>	low
<b>5.11 Change and reason for change in surface area of range</b>	
<b>a) Change</b>	Yes
<b>b) Genuine change</b>	Yes
<b>c) Improved knowledge or more accurate data</b>	Yes
<b>d) Different method</b>	Yes

e) No information	No
f) Other reason	No
g) Main reason	Use of different method

## 5.12 Additional information

As explained in the species audit, under 5.5, the change in range is mainly due to a change in the way the maps have been generated for this reporting round compared to the previous reporting round 2013-2018.

## 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 4,124

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 298,000

c) Maximum 2,110,000

d) Best single value 757,000

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 2013-2024

<b>6.8 Short-term trend; Direction</b>	Decreasing
<b>6.9 Short-term trend; Magnitude</b>	
<b>a) Estimated minimum</b>	
<b>b) Estimated maximum</b>	
<b>c) Pre-defined range</b>	Decreasing 26 - 50%
<b>d) Unknown</b>	No
<b>e) Type of estimate</b>	Best estimate
<b>f) Rate of decrease</b>	Decreasing >1% (more than one percent) per year on average
<b>6.10 Short-term trend; Method used</b>	Complete survey or a statistically robust estimate
<b>6.11 Long-term trend; Period</b>	1994-2020
<b>6.12 Long-term trend; Direction</b>	Decreasing
<b>6.13 Long-term trend; Magnitude</b>	
<b>a) Minimum</b>	0.72
<b>b) Maximum</b>	0.84
<b>c) Confidence interval</b>	0.95
<b>d) Rate of decrease</b>	Decreasing >1% (more than one percent) per year on average
<b>6.14 Long-term trend; Method used</b>	Complete survey or a statistically robust estimate
<b>6.15 Favourable Reference Population (FRP)</b>	
<b>ai) Population size</b>	2,700,000
<b>a ii) Unit</b>	number of individuals
<b>b) Pre-defined increment</b>	
<b>c) Unknown</b>	No
<b>d) Method used</b>	Model-based approach

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<b>e) Quality of information</b>	low
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### **6.16 Change and reason for change in population size**

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

The current population estimate has extremely wide confidence limits due to data deficiencies around habitat density estimates and the population required for future maintenance of populations and diversity is uncertain. However, it is thought that favourable status should at least represent a reversal of the recent population decline. A reversal of this population decline would give a favourable reference population value of 2,700,000 individuals, based on the current population estimate. Further research needs to be undertaken in order to better understand occupancy across different habitats and the constraints on population expansion (Morris, 2021).

There has been genuine change (Goodwin et al, 2017) and change in the methodology used to calculate population size over time (Mathews et al, 2018). Comparison of population estimates between the current report and previous reporting rounds (England: 2013=37,500 individuals; 2018=757,000 individuals) 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) was calculated using a more robust method, although does still have a low reliability (see 6.5 species audit). 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 (a 78% decline (95% CI 72%-84%) between 1994-2020, with an average annual decrease of 5.7% (95% CI 4.7%-6.8%) (Scopes et al, 2023)).

**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	High (H)
PB04: Abandonment of traditional forest management	Ongoing and likely to be in the future	High (H)
PI01: Invasive alien species of Union concern	Ongoing and likely to be in the future	High (H)
PI03: Problematic native species	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	Medium (M)
PF01: Conversion from other land uses to built-up areas	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	Medium (M)
PB09: Clear-cutting, removal of all trees	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	Medium (M)
PJ11: Desynchronisation of biological / ecological processes due to climate change	Ongoing and likely to be in the future	Medium (M)
PB02: Conversion from one type of forestry land use to another	Ongoing and likely to be in the future	Medium (M)
PB05: Logging without replanting or natural regrowth	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

<b>a) Are measures needed?</b>	Yes
<b>b) Indicate the status of measures</b>	Measures identified and taken
<b>9.2 Main purpose of the measures taken</b>	Maintain the current range, population and/or habitat for the species
<b>9.3 Location of the measures taken</b>	Both inside and outside National Site Network
<b>9.4 Response to measures</b>	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
MA01: Prevent conversion of natural and semi-natural habitats, and habitats of species into agricultural land	High (H)
MA02: Restore small landscape features on agricultural land	High (H)
MB02: Maintain existing traditional forest management and exploitation practices	High (H)
MB04: Adapt/manage reforestation and forest regeneration	High (H)
MB15: Other measures related to forestry practices	High (H)
ME01: Reduce impact of transport operation and infrastructure	Medium (M)
MF01: Managing the impacts of converting land for construction and development of infrastructure	Medium (M)

MF02: Habitat restoration of areas impacted by residential, commercial, industrial and recreational infrastructure, operations and activities	Medium (M)
MS04: Manage native species (incl. non-Directive species)	High (H)
MS02: Reintroduce species from the directives	Medium (M)

## 9.6 Additional information

No additional information

## 10. Future prospects

### 10.1a Future trends of parameters

<b>ai) Range</b>	Overall stable
<b>bi) Population</b>	Very Negative - decreasing >1% (more than one percent) per year on average
<b>ci) Habitat for the species</b>	Negative - slight/moderate deterioration

### 10.1b Future prospects of parameters

<b>a ii) Range</b>	Poor
<b>b ii) Population</b>	Bad
<b>c ii) Habitat for the species</b>	Poor

## 10.2 Additional information

Declines in *M. avellanarius* appear to be ongoing and there was a decline of 78% (95% CL 72%-84%) between 1994 and 2020, which is equivalent to an average annual decrease of 5.7% (95% CI 4.7%-6.8%) during that time (Scopes et al, 2022). The dormouse population appears to have been in decline since the inception of the National Dormouse Monitoring Programme (Goodwin et al, 2017). Given that conservation measures have already been in place during this time, and there has been a continued decline, the future prospects are thought to be negative.

Although a remnant population in Northumberland appears to have been lost since 2010, the future prospects for range are thought to be stable.

Future prospects for habitat are thought to be negative. The rate of woodland planting has declined in the past 20 years and although there has been increased interest in

afforestation, this is not likely to balance the loss of woodland to other land uses (Forestry Commission, 2017; Forestry Commission, 2016). Some of the key threats to semi-natural woodland are overgrazing, habitat fragmentation and isolation, invasion by non-native species, unsympathetic forestry practices, lack of appropriate management, air pollution and new pests and diseases. A reduction in traditional coppice management has resulted in increased shadiness, reduction in understorey, and open space, and increase in deadwood (Kirby et al, 1998). Roadside planting has increased available habitat in some areas, as well as promoting connectivity. Climate change is also likely to have an effect on the species, with the potential for both positive and negative effects (Mathews et al, 2018).

The Favourable Conservation Status definition (Morris, 2021) for this species states that in order to achieve FCS, metapopulations should be established in the 49 counties where it was previously found, the population should be at least 2,700,000 (reversing the decline demonstrated by the NDMP), and the species should be assessed as Least Concern under regional IUCN Red List Criteria (it is currently Vulnerable). Available habitat for this species could be achieved through increasing lowland mixed deciduous woodland (as set out in Natural England, 2023), as long as these new woodlands are well-connected, have a suitable structural and vegetative composition, and are of an appropriate size.

## 11. Conclusions

<b>11.1 Range</b>	Unfavourable-bad (U2)
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<b>11.2 Population</b>	Unfavourable-bad (U2)
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<b>11.3 Habitat for the species</b>	Unknown (XX)
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<b>11.4 Future prospects</b>	Unfavourable-bad (U2)
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<b>11.5 Overall assessment of Conservation Status</b>	Unfavourable-bad (U2)
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<b>11.6 Overall trend in Conservation Status</b>	Unknown
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### 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

Conclusion on Range reached because: (i) the short-term trend direction in Range surface area is stable, but (ii) the current Range surface area is more than 10% below the Favourable Reference Range.

Conclusion on Population reached because: (i) the short-term trend direction in Population size is decreasing by more than 1% per year.

Conclusion on Habitat for the species reached because: (i) the area of occupied habitat is unknown and (ii) the habitat quality is unknown and (iii) the short-term trend in area and quality of habitat is unknown.

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 poor. Overall assessment of Conservation Status is Unfavourable Bad because two of the conclusions are Unfavourable Bad.

Overall trend in Conservation Status is based on the combination of the short-term trends for Range - stable, Population - decreasing, and Habitat for the species - unknown.

Overall assessment of Conservation Status has not changed since 2019.

## 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

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b) Minimum

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c) Maximum

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d) Best single value

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### 12.2 Type of estimate

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12.3 Population size inside the network; Method used

**12.4 Short-term trend of population size within the network; Direction**

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**12.5 Short-term trend of population size within the network; Method used**

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**12.6 Short-term trend of habitat for the species inside the pSCIs, SCIs and SACs network; Direction**

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**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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## Main pressures

### 8.2 Sources of information

No sources of information

## 15. Explanatory Notes

Field label	Note
1.5: Common name	The common or hazel dormouse ( <i>Muscardinus avellanarius</i> ) can be found primarily in broadleaved woodland and has traditionally been associated with early successional woodland, as well as coppice (Bright & Mitchell-Jones, 2006; Juskaitis & Buchner, 2013). However, more recent studies have shown that the species also occurs in other habitat types, such as scrub, coniferous plantations, and hedges (Chanin & Woods, 2003). The species is now seen to be more adaptable than once thought. Studies on this species have shown that <i>M. avellanarius</i> exploits a wide range of food sources, including high quality plant foods such as flowers, buds, seeds, and fruits, as well as invertebrates, particularly in habitats where species diversity is lower (Juskaitis & Buchner, 2013).
5.5: Short-term trend; Method used	Range is based on presence data collected between 1995-2024. Areas that contain very isolated records may not have been included in the distribution. The range map has been produced following the same methodology that was used in 2007 and 2013 whereby a 45km alpha hull value has been used for all species with a starting range unit of individual 10km squares. In 2018 range was taken from Mathews et al, 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. That process led to the production of much finer detailed maps being produced. However, this approach to mapping was not an option for this reporting round (2018-2024).

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6.5: Additional population size

Mathews et al (2018) gives estimates of 298,000 individuals (lower plausible limit) to 2,110,000 (upper plausible limit) in England, with a main estimate of 757,000. The overall estimate was based on information on percentage occupancy from Bright et al (1994) as the percentage of sites surveyed that contained signs of dormice in the form of 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. Percentage occupancy for hedgerows was taken from Bright & MacPherson (2002), where occupancy was measured from hedgerows in 50 sample sites. These population estimates were calculated based on the length and width of hedgerows and presented as hectares, but these figures were converted to the number of *M. avellanarius* per km, assuming each hedgerow had an average width of 3m. Population estimates by Mathews et al (2018) were obtained by multiplying 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. The possibility of dormice living in a wider range of habitats was not considered. As recent research suggests that the species are less specialised than previously thought (Juskaitis & Buchner, 2013), percentage occupancy used in this estimate may not be representative of all habitats within the species' range. The estimates may be an underestimate. Conversely, permanent populations are unlikely to be found in small woodlands (under 20ha) and these small woodlands make up a large proportion of

	<p>woodlands within the range. Further research on density estimates is required to improve the reliability of population size estimates for this species (Mathews et al, 2018). 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.</p>
6.8: Short-term trend; Direction	<p>The annual mean rate of decline is not available for 2013-2024, but Scopes et al (2022) state that the population trend has fallen by 78% (95% CI 72%-84%) in Britain between 1994 and 2020, which is equivalent to an average annual decrease of 5.7% (95% CI 4.7%-6.8%).</p>
6.10: Short-term trend; Method used	<p>The National Dormouse Monitoring Programme has assessed trends in relative population size through counts of nestbox occupancy in selected sites since 1993. This analysis (of English and Welsh data) has shown a steady decline in occurrence, with the decline from 1994 to 2000 estimated to be 78% (Scopes et al, 2022). The population index is a measure of the average (pre- and post-breeding) population in each year and a smoothed trendline evens out annual fluctuations to show the underlying change. 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).</p>
6.12: Long-term trend; Direction	<p>Scopes et al (2022) state that the population index trend showed a 78% decrease (95% CL 72%-84%) between 1994 and 2020, which is equivalent to an average annual decrease of 5.7% (95% CI 4.7%-6.8%) during that time. If</p>

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this annual rate of decline continues, dormouse counts would decline by more than 90% between 1994 and 2034.

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7.4: Short-term trend;  
Direction

The National Dormouse Monitoring Programme has shown a continuing decline in the hazel dormouse population. One of the potential reasons for this decline is habitat loss and change, but the short-term trend for habitat is unknown as there is insufficient data. *Muscardinus avellanarius* are generally associated with early to mid-successional woodland habitats (including hazel coppice, PAWS, hedgerows, scrub, and some conifer woodlands), with structural diversity and a well-developed understory being important factors (Bright & Morris, 1990; Juskaitis & Siozinyte, 2008; Juskaitis et al, 2013; Goodwin et al, 2017). A change in the quality or availability of these habitat types would likely result in a change in the dormouse population (Bright & Morris, 1990; Berg, 1990; Sozio et al, 2016). The structure of the landscape has been shown to have an impact on the occurrence of dormice, with decreased connectivity across the landscape reducing the ability of dormice to re-colonise and making smaller fragments of woodland less viable in the long-term (Bright et al, 1994; Mortelliti et al, 2011; Mortelliti et al, 2014; Wuttke et al, 2012; Goodwin et al, 2017). The rate of woodland planting has declined in the past 20 years and although there has been increased interest in afforestation, this is not likely to balance the loss of woodland to other land uses and these new areas of woodland may be of low suitability for dormice (Forestry Commission, 2017; Forestry Commission, 2016). Some of the key threats to semi-natural woodland are overgrazing, habitat fragmentation and isolation, invasion by non-native species, unsympathetic forestry practices, lack of appropriate management, air pollution, and new pests and diseases. A reduction in traditional coppice management has resulted in increased shadiness, reductions in understorey and open space, and increases in deadwood (Kirby et al, 1998). Roadside plantings have increased available habitat in some areas, as well as promoting connectivity. Although we know there have been

	<p>changes in habitat quantity and quality, there is insufficient information to assess the current short-term trend.</p>
<p>8.1: Characterisation of pressures</p>	<p>Muscardinus avellanarius has traditionally been associated with early successional woodland, as well as coppice (Bright &amp; Mitchell-Jones, 2006; Juskaitis &amp; Buchner, 2013). However, studies have shown that the species also occurs in other habitat types, such as scrub, coniferous plantations and hedges (Chanin &amp; woods, 2003). High species diversity and a dense shrub layer are both considered important in maintaining this species and there is increasing evidence that rising deer populations are having a negative impact on the structure of the understorey (Newson et al, 2011). Similarly, a lack of woodland management, allowing woodland to progress towards a closed-canopy high forest, as well as loss of woodland cover, the removal of hedgerows, and a changing climate are considered to be important pressures on dormouse populations (Bright et al, 2006; Wembridge et al, 2017; Wembridge at al, 2024). The continued development of infrastructure is also likely to have an impact on dormice through habitat loss and fragmentation.</p>
<p>9.5: List of main conservation measures</p>	<p>Priority conservation measures include: encouraging appropriate habitat management (of woodlands and of hedgerow connectivity), including protecting, maintaining and enhancing current habitat by planting and retaining woodland edge, dense shrubbery and overgrown clearings; offering advice on management to woodland managers; promotion of better consideration by Highways Agency and local planning authorities when considering development or road proposals to ensure fragmentation of populations does not occur; carrying out reintroductions in locations where the species has been lost; encouraging the management of deer populations and managing grazing of other animals (i.e. farm stock) in woodlands; and continuing to investigate the impacts of climate change, the impacts of other species, habitat fragmentation, woodland management regimes etc.</p>

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5.10: Favourable Reference Range (FRR)	The favourable reference range is based on the area of the 49 counties where dormice were once present in England. Dormice currently occupy 32 counties, plus 6 additional counties where there have been reintroductions. This is the value set in the FCS definition for this species. Favourable range could be achieved by restoring this species to their former range (Morris, 2021).
6.18: Age structure, mortality and reproduction	There is no evidence to suggest any deviation from the normal age structure, mortality, or reproduction rates. However, no formal studies have been conducted to confirm these findings.
11.1: Range	Although range appears largely stable at present, the current range is more than 10% below the favourable reference range.

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