Dormice and their Habitat Needs

Manhood Wildlife & Heritage Group

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HERITAGE FUND

Ecology of the Hazel (Common) dormouse, *Muscardinus avellanarius*

- Only native dormouse.
- Weighs 15 - 20g, with a body length of 7cm plus a 7cm long tail.
- Nocturnal and arboreal. Rarely seen in the day and prefers to not be on the ground.
- Golden colour.
- Large ears and eyes.
- Long whiskers.

Adaptations to Arboreal life

- Sticky pads on prehensile (able to grip) feet.
- Bushy tails for balance (not prehensile).
- Able to jump across gaps up to 22cms wide.
- Will freeze if scared, for up to 40 minutes.
- Only rodent with double jointed ankles. Can swivel feet around and hand from their hind feet.

Hibernation

Dormice spend up to 7 months of the year asleep. Their body weight is doubled before hibernation and brown (insulating) fat is gained in the Autumn.

In October

- Hibernation is triggered by day length and frosty air temperatures.
- Nests are made just below ground level, made of shredded bark, leaves or moss.
- A humid microclimate is needed as no water is drunk during hibernation.
- Nests must be out of the wind, in a damp place such as a log pile, base of a tree or hedge.
- The nest is tightly woven and closed (sealed off) when a dormouse is inside.
- If a nest has an open hole, the nest has probably been abandoned.

Winter hibernation

- Dormice need to be 12 to 15g in weight from October.
- Their body temperature will drop to the ambient one.
- Ideal ambient temperature is a few degrees above freeing.
- Heart and breathing rates are reduced and slow to a few per minute.
- Periodic arousal from sleep occurs around every 10 days, possibly to get toxins flushed from the body and maintain kidney functionality.
- If the ambient temperature goes up to between 5 to 37 degrees Celsius, the hibernation state is disrupted and fat reserves are used rapidly.
- Dormice do not leave nests unless disturbed by other animals, people or flooding.
- Most commonly hibernate alone.
- Two hibernating together form a 'study'.

Summer torpor (Spring and Autumn too)

Body temperature and metabolic rate are reduced during torpor (temporary hibernation) to conserve energy. This lasts less than 24 hours.

It takes over 10 minutes for a dormouse to wake up from a torpor state and so they are vulnerable to predators, such as female weasels that can get into nest boxes, during this period. If disturbed, the dormouse is completely woken from the torpor state. Repeat disturbances causes body fat to be used up.

What triggers torpor?

- **Adverse weather:** if their very fine fur gets wet and water-logged, they lose heat quickly as they have a high surface area to volume ratio.
- **Food shortages:** if dormice leave hibernation too early when there is no food, they go back to a torpor state to wait for environmental conditions to improve.

Distribution

- Currently mostly found in the south of the UK
- Dormice have been lost from half their range in the UK, over the last century.
- Live where there is ancient woodland and so are affected by woodland habitat loss.
- Dormice are very weather dependent and need warm summers and constant temperatures in winter. On the continent, the summers are longer and drier, whereas here in the UK the summers are wet with wider changes in temperatures.

Habitat

- Ancient, semi-natural woodland with a good diversity of tree and shrub species.
- Good tree and hedgerow links which allow them to move up and down and side to side, without going on the ground.
- A good understorey (vegetation beneath a tree canopy) supports this travel, as do clematis and honeysuckle plants.

Coppiced woodland

- Good for wildlife and dormice as it creates a thick layer of vegetation, with lots of ground cover.
- Encourages more flowers, fruits and insects, which dormice eat.
- Contains aerial connections.

Hedgerows

- Good travel 'corridors'
- Can support spreading populations
- Species diversity is important and must have lots of species and not be over managed.
- Older hedgerows preferred.

Activity

- Nocturnal and arboreal
- Need complex pathways, over 80m long, in the tree canopy to move through their range.
- Appear reluctant to come to the ground.
- Usually only move short distances from daytime nests.
- Males will travel further afield to find a mate.
- Home range is relatively small (typically 3000m²).
- Optimal habitat density is only 6-8 individuals per hectare, therefore a large area for dormice is needed.
- A successful population needs at least 20 hectares to maintain food sources.
- Males get territorial during breeding seasons, but females do not. Males may cover a couple of females in their territory.

What do Dormice eat?

Dormice have a primitive digestion system, not like other herbivores, as they have no caecum (part of the intestines which digest cellulose from grass or bark).

They Only eat flowers, fruits, seeds, insects and pollen.

Spring food sources

(mainly May - when it has been warm enough to wake up):

- Hawthorn – they eat the petals, stamens, pollen and nectar
- Oak flowers – provide lots of pollen and insects
- Honeysuckle - long flowering season (June - August)
- 4 key sources are honeysuckle, bramble, hazel and oak.
- Also, Guelder Rose, Elderflower, Wayfaring trees (Liburnam Lantana), Willow flowers, Sycamore flowers, Rowan flowers and berries.

Summer

Food sources switch to insects as flowers become less abundant, including:

- Moth caterpillars, aphids, gall.
- Late summer fruits
- Rowan berries, sorbus, yew, elderberries, spindle, hawthorn (a bit bitter and dry)
- Sycamore seeds, ash seeds (discard the wing part), maple seeds.
- Rosehips.
- Hazel nuts (high in fat, but a very short window for this as dormice do not have very strong teeth and therefore can only eat them when they are fresh and green, not harder and brown)
- Sweet chestnuts
- Not acorns as they cannot digest the tannins.
- Seeds of plums and damsons

Summer nests

- A double layered structure
- Both males and females use them.
- Breeding nests are thicker and well made.
- Tightly woven with a soft shredded bark or grass centre (double layer).
- Honeysuckle or old man's bear clematis bark is used.
- The outer layer of leaves are looser.
- Leaves picked fresh and dragged into the nest, which go a grey green over time but shows they were green when picked.
- Chestnut coppice (tends to be brown leaves) used.
- Grapefruit sized nest.
- Dormice will take over a bird's nest for their own use and even eat eggs.
- Green leaves in a nest indicate a dormouse or a yellow necked mouse
- Brown leaves indicate a wood mouse nest.

Breeding

- Starts about June. Dormice must feed up after loss of body weight during winter hibernation.
- Late breeding can occur in September and October.
- Gestation period is 22-24 days, depending on the amount of torpor required for the mother.
- 1g in weight when born and completely reliant on their mother.

  Also, hairless, blind and deaf.

- Grey fur comes in at 7g of weight.
- Eyes open at 18 days.
- Independent at 40 days but stay with mother for another 6-8 weeks (compared to harvest mice who are weaned at 14 days).
- Males help keep the young warm, show them where to feed and stay with juveniles when females are in another nest either resting or starting another litter.
- If a mother becomes too cold, she might go into hibernation and leave the babies to die.
- Babies must put weight on quickly before it becomes too cold. A second litter is a race against time before winter, so one litter is more common.

October to May

Dormice will hibernate when food resources are low.

June to September

- Dormice forage for food in the tree canopy and rest in trees during the day, in holes, old squirrel dreys and old bird nests.
- Litters are not born until June
- In bad weather breeding is postponed and litters will be born in August or even later in September or October.

Predators - none can rely on dormice as a food source as there are not enough of them

- Fox
- Tawny owls
- Grey squirrels
- Weasels – females are small enough to get into nests
- Wood mice and yellow necked mice have been known to eat the brains of dormice in torpor.
- Cats will take youngsters.

Life strategy

- Long lived - 7 years in the wild and 9 in captivity
- Low reproductive output - only a few young in a lifetime, usually 4 litters
- Comparisons: vole females are consistently pregnant, while bats have 1 or twins a year
- Hibernates for much of the year

Conservation

- Not sufficient as dormice are rarely seen and so little known about them.
- 1st extensive research done in the 1980's by Elaine and H.G. Hurnell, who did a nationwide study.
- Associated with hazel and bramble.
- Thought to be extinct in 7 counties that used to be part of their range.

Survey methods – (not carried out on the Manhood Peninsula so far)

- **Nut searches** - experts look for neat holes in nuts and can distinguish between species which have eaten them.
- **Nest searches** - used prior to developments. Difficult to undertake, can be used to confirm presence but not absence of dormice. Six people can take an hour to find a nest.
- **Trapping** - use of Longworth traps in the branches in the tops of trees. These traps are difficult to check, and dormice do not like them. Cage traps also difficult for the same reasons.
- **Owl pellet analysis** - not very effective as dormice make up a small percentage of their prey
- **Hair tubes** - lots of other species will get their hair caught in the tubes, including wood mice, so it is difficult to tell if samples are from dormice or not.

Other survey methods

Nest boxes - technique pioneered by Doug Woods of Cheddar. Dormice like these and return year on year. Males and females both use them equally. Females may not always be monogamous and may mate with multiple males.

Radio tracking - pioneered by Paul Bright (1980s). Found out that dormice will stay in the tops of trees all night.

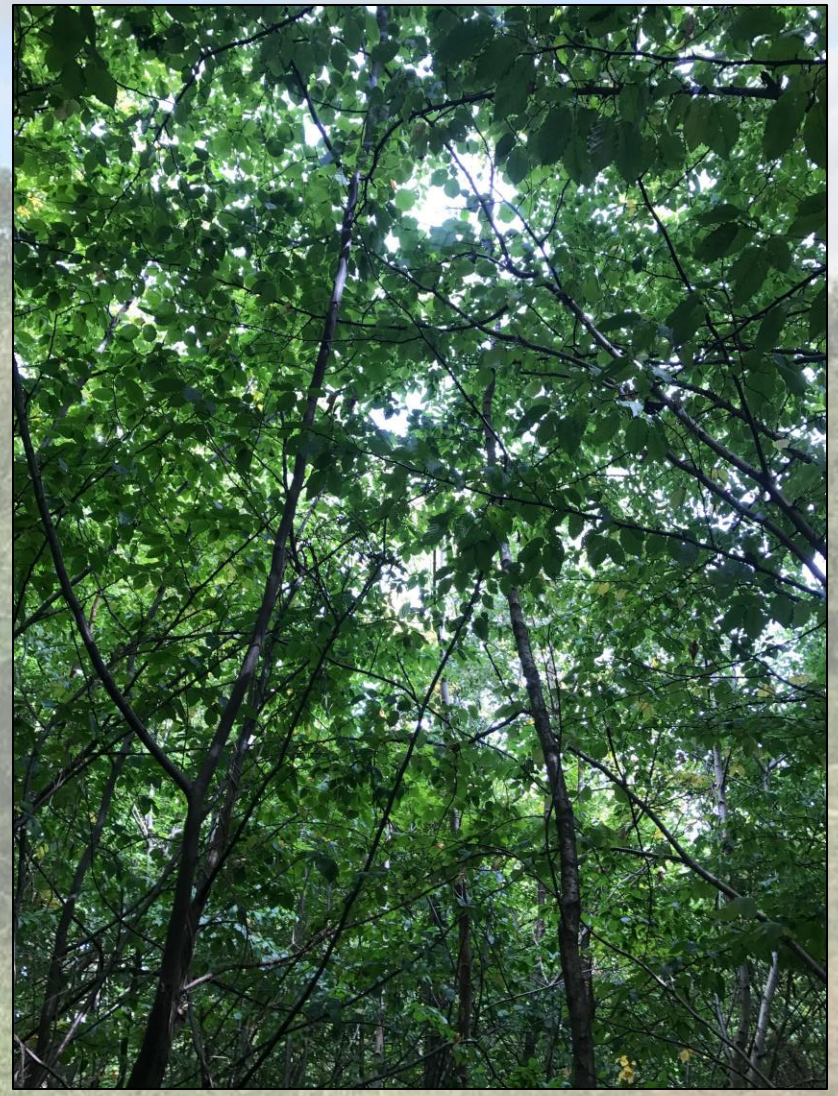
Nest tubes - mimic a hole in a tree. Good for short term survey work but tend to fall apart as made of plastic or thin plywood. Can show presence and absence. Are cheap, easy to carry and don't need a big tree to hang them on. Might not be big enough for breeding as a nest will not fit**.**

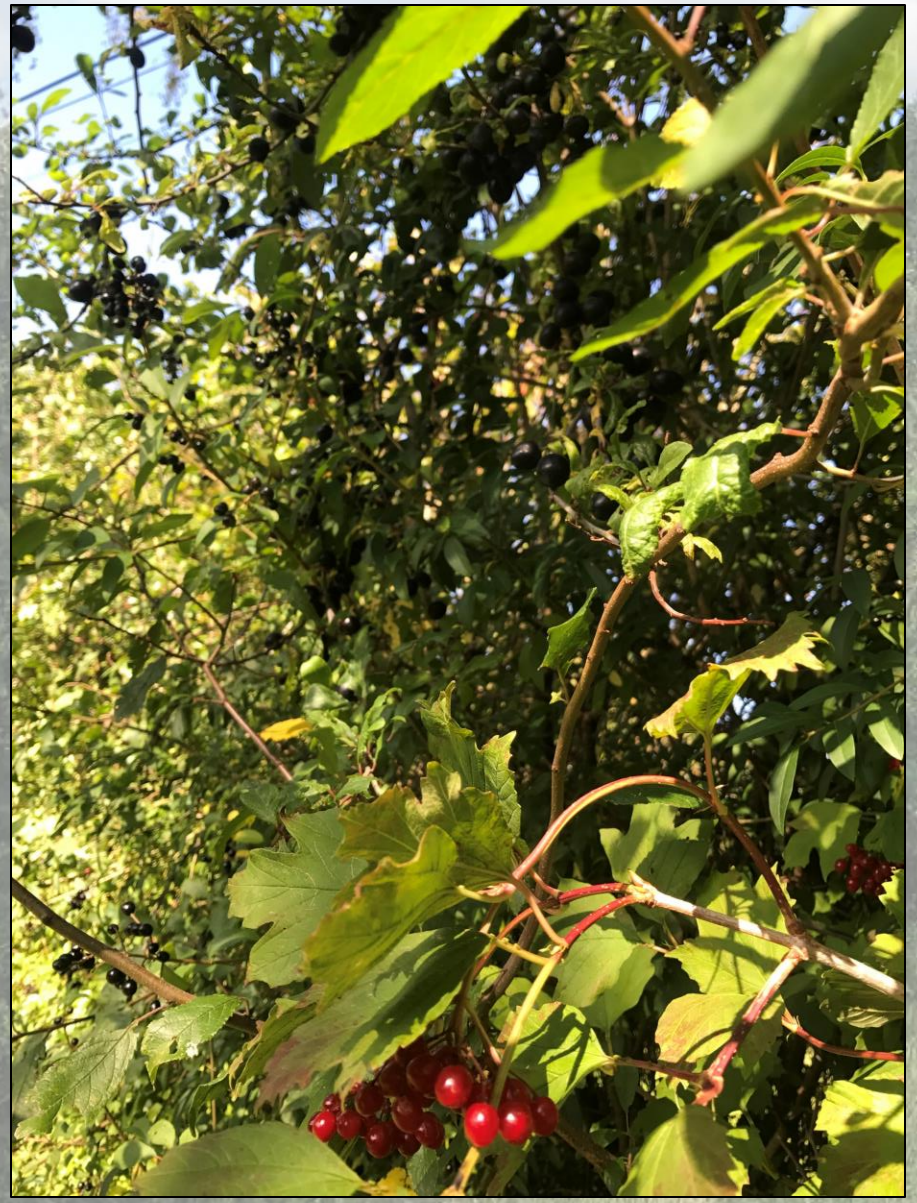
Never grab a dormouse's tail. The tail will de-glove (skin and flesh come off exposing the bone) and this then dies and drops off, leaving a short tail. This causes a loss of balance for the dormice when moving around in the tree canopy. This de-gloving response is a short-term survival gain but a long-term survival loss.

Habitat management of woods

- 15 - 20-year management cycle
- Cut trees during winter
- Cut areas beside established coppice
- Coppice a max of 0.3 hectares (1 acre) or less than 10% of total woodland area
- Leave a fringe of trees around the edge of the woodland
- Need a minimum of 20 hectares of suitable habitat for a colony
- Vegetation layering - bend brambles over, strip bark from The underside of them and bury, so that it take root as individual plants
- Protect woodland from livestock - deer can be invasive and will eat regrowth.
- Leave out coppiced material onsite in piles - creates shelter and routes for movement.

- Maintain aerial connections - tie branches together to help dormice move across.
- Pollard (cut down to a stump) individual branches.
- Maintain climbers, especially honeysuckle, clematis, to help with connections.
- Control grey squirrels which ring bark trees, eat bird eggs, eat young and torpid dormice, and compete for food.
- Keep stranded trees - leave some large trees untouched (10 - 15 per hectare). Dormice will use them to feed on insects.
- Leave some deadwood - 1 in 10 trees should be dead to encourage insects, and old woodpecker holes can be used by the dormice.





Habitat management of hedgerows

- Cut different parts of the hedgerow in alternate years - left, right, top, then leave – cutting affects fruiting and flowering.
- Cut every 2-3 years.
- Refuge areas – leave a stranded tree untouched every now and then along the hedgerow.
- Maintain or enhance connectivity.
- If a gate or gap exists, try to put in a tube overhead for dormice to run through or create an arch of vegetation.
- Link up gaps between hedgerows.

Mitigation

- Appropriate habitat management
- Linking up gaps between habitat areas so dormice can move about
- Create new habitat areas of woodland, but this takes time
- Planting using a range of species
- Put out dormouse boxes to encourage nesting sites
- Translocation of coppiced tree stools and hedgerows
- Need green bridges - they do work!

Dormice are a **flagship species**, cute and cuddly, and their protection benefits other species, wildflowers, birds, butterflies, that all need woodland.

Dormice are a **bio-Indicator** – their presence shows that an area has good .biodiversity

Dormice are **legally protected under European and UK law**. Example: people cannot check a dormice nest box without a license.

This training guide was made by the Manhood Wildlife and Heritage Group (MWHG) for their Fixing and Linking Our Wetlands (FLOW) Project.

Learn more about this project and how to protect wildlife on the Manhood Peninsula (below Chichester, in West Sussex) at:

www.mwhg.org.uk