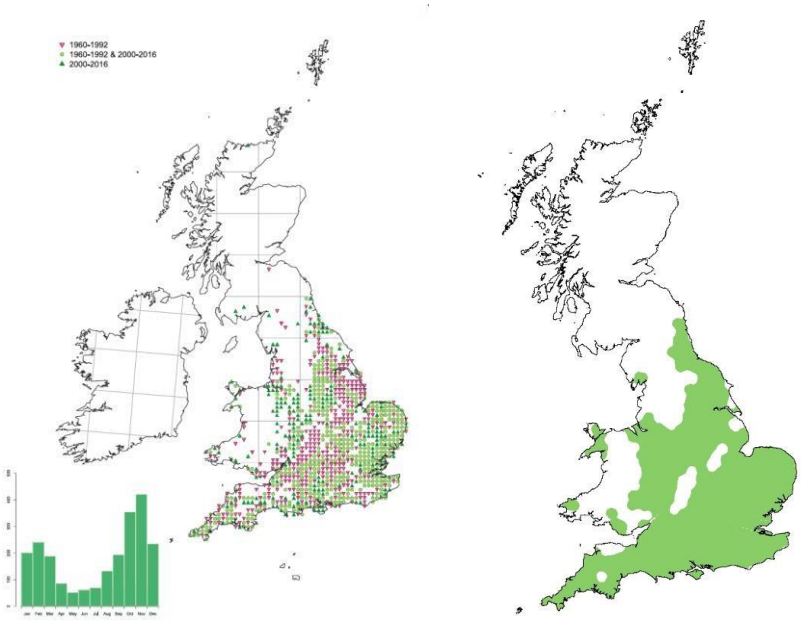
The National Harvest Mouse Survey Protocol

Version 2.2 (2022-11-24)

Survey Introduction

The harvest mouse (*Micromys minutus*) is the UK's smallest rodent and, because of habitat loss and changes in farming practice, is now thought to be in decline in Britain. It has recently been classified in Britain as "Near Threatened" on the IUCN's red list of endangered species (Red List for Britain's Mammals – The Mammal Society). However, it is difficult to quantify the population and conservation status for this species as density estimates and occupancy data for key habitats, along with temporal trends (especially population), are limited. The recent British mammal review has stated past distribution and population trends as uncertain, but the future prospects of this species as poor.

The Mammal Society has previously conducted national surveys for this species in the 1970s, 1990s and in 2013-14. Other surveys, including the Mammal Society's Water shrew survey (2004-2006) and the Winter Mammal Monitoring (2001-2004) also reported on this species and there are a number of local surveys that have been conducted or are ongoing. Given that the last national survey was in 2014 and that it is recommended to conduct surveys every seven years, its feels timely to repeat a national survey. In October 2021, the Mammal Society initiated a national survey with over 300 people being involved and collected information on 1,448 nests as part of 514 surveys and 389 presence-only records. It is planned for the survey to continue into the next survey season this year - October 2022 to March 2023.



This national survey aims to:

- Develop a monitoring strategy for harvest mice,
- Establish a national community of surveyors and coordinators,
- Promote increased recording of this species,
- Use survey data to assess the current distribution, population, and conservation status of this species,
- Promote harvest mice as an ecological/environmental indicator species.

Organisation

The national survey will be organised and supported by the Mammal Society with regional support from county coordinators (e.g. local mammal or wildlife group representatives). Local coordinators will be a point of contact for volunteer surveyors within their area directing them to suitable areas for surveys and any training events that are going on. Information on regional coordinators can be found on the project webpage (National Harvest Mouse Survey – The Mammal Society).

Survey timelines

The survey occurs each autumn and will be conducted between the beginning of October and the end of March. This is the best time to survey for harvest mice nests as the majority will be abandoned, causing as little disturbance to the population as possible. It also represents a time when the vegetation begins to die back, making finding the abandoned nests easier.

Training materials

The project webpage (National Harvest Mouse Survey – The Mammal Society) represents the first port of call for any interested volunteer surveyors as it includes a suite of training materials and information, including:

- Videos on harvest mice, how to search, how to record data and how to use the Mammal Mapper App,
- How to record Ordinance Survey Grid references or direction to location recording apps,
- Information on how to identify a harvest mouse nest,
- Nest identification Quiz,
- Useful equipment list,
- Health and safety documentation,
- Ethics statement,
- Survey letters for landowners,
- Recording template forms.

Conducting a Harvest Mouse Nest Survey

Where to Survey?

Harvest mice typically occupy a wide range of complex habitats in and around tall grasses and other vegetation, including tussocky grasslands, hedgerows, field margins, road verges, reed beds and ditches. Harvest mice nests may be found anywhere, but these habitats represent good survey locations. **Survey sites should only be conducted on public land with access and public right of way unless you have permission from the landowners**.

Rough grasslands

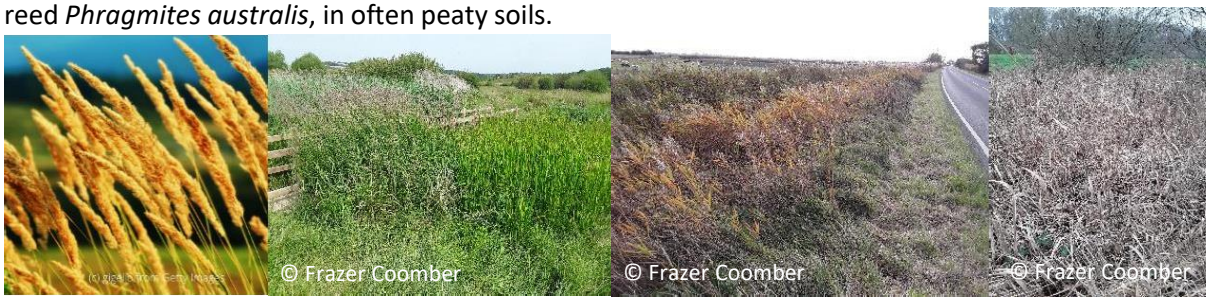
Unmanaged non-agricultural landscapes dominated by grasses and herbs; they can also stretch along linear features such as road verges.

Arable, agriculture and field margins

Agricultural landscapes are classified by the presence of fields and managed crops including improved grasslands (silage or animal grazing). This habitat also includes the linear features along their margins, such as hedgerows, ditches, and woodlands edges.

Reedbeds, Marshes, Bog and Fens

Waterlogged areas with standing water, ditches, and tall emergent vegetation, such as the common reed *Phragmites australis*, in often peaty soils.



Urban, gardens and built-up areas

Urban and built-up areas can include residential gardens, parks and recreational grounds, and sites around industrial estates. Similar to the above habitats, scrubby areas with long grasses, reeds, herbs and shrubs such as brambles are good areas to look.

Woodlands - broadleaved and coniferous

Woodlands are characterised by vegetation that is greater than 5 m in height when mature with at least a 20% coverage by area. The two woodlands are categorised by the predominant type of tree, either broadleaved or coniferous. Woodlands also include areas of scrub with lower (< 5m) vegetation heights. Young forest plantations and woodland clearings, edges and ride margins are good areas to look for harvest mice.

How to survey?

Nest searches are a widely accepted method for indicating harvest mouse presence and this survey will predominantly use this method. Surveys can be carried out with limited disturbance to harvest mice, or the habitat and no specialist equipment is required. However, a good pair of gardening gloves and a stick are useful to help separate grasses and reduce scratches when rummaging in long grass or brambly hedgerows. Also, a tape measure is needed if you are to take any nest or vegetation measurements. We also recommend suitable footwear, such as walking boots or wellies, and clothing, as well as bringing adequate drinks and food.

To conduct a survey, select a suitable site using the information above on *where to survey?*. Take note of the time and how many people are searching (this could be 1 – although **we do not recommend surveying on your own, especially near water**). You can then start looking in the vegetation for nests. Nests are relatively easy to spot but they do require you to look and search in the tussocks, long grasses, and shrubs to find them. To do this, using gloves or a stick, systematically part the grass tussocks and vegetation so that you can look deep into the vegetation.

How to identify a harvest mouse nest?

The characteristic breeding nests of harvest mice are around 10 cm in diameter and are built above ground and are supported by the surrounding vegetation. They are built from leaves that have been split lengthways (strips roughly 1-2 mm wide) and are woven together to form the framework of the nest. These leaves are still attached to the plant, supporting the nest by keeping it attached to the surrounding vegetation (see below for some examples). In autumn, most nests will be brown in colour and the entrance hole can be visible indicating that the nest is vacant**.**

If you come across a nest, which has green grass woven into it and has no visible entrance/exit hole please record it but do not touch, disturb, or remove it (including measuring nest size or height) as it could still be occupied. For further nest identification guidance see the survey webpage (https://www.mammal.org.uk/science-research/harvest-mouse-project/). If you find any green nests, please note this in the comments section.

Not all nests are harvest mice nests!

There are many animals in the UK that build nests and there are a few that you may come across and need to differentiate. If you are uncertain take a photograph and submit along with your record! However, to help, here are some identification features of potentially similar nests:

Bird nests

There are many bird species that build nests, but they are generally open topped and not made of grass. Some birds have roofed nests but typically incorporate moss and leaves. The presence of feathers or down is a good indicator that you have found a bird's best

Field vole nests

These nests are about 10 cm in diameter, spherical and made of grass but the weave is loose, the grass is shredded but not split longitudinally (giving a delicate less structural nest), and unlike the harvest mouse nest can be found under logs or other objects, as well as deep in tussocky grasses.

Hazel dormouse nest


Hazel dormouse © Nicola Hart

These nests are spherical about 10 to 15 cm in diameter and are often found in trees (including holes), dense thorny scrub, and hedgerows. They are often made from woven bark and leaves, not grass like the harvest mice, and have a much denser build, i.e., doesn't compress when squeezed. In winter these nests may be occupied, and the species is protected by law against disturbance so if you think you have a dormouse nest record it but **leave it well alone**.

Water vole nest


Water vole © Steve Kirk

These nests are much larger, rugby ball shaped and up to 30 cm long, and can be found in, and are made of, woven reeds.

What to record?

What we need to know is where are you looking, what habitat you are looking in, how long were you looking for, how many people you were looking with, and most importantly how many harvest mouse nests were found (even if it's none!). The following is the minimum information we request:

- **Site position** – (Roughly the central position of the survey),
- **Location name** – (Secondary location information),
- **Predominant habitat** of the site,
- **Survey date** – (dd-mm-yyyy),
- **Duration** – How long, in minutes, you searched for,
- **Number of surveyors** – How many people were searching,
- **The number of nests** – Include a '0' if none were found.

However, if possible, recording the following data will help to provide more information:

- Any evidence of **site management** prior to your survey (e.g. hedge trimming, grass or reed cutting, grazing),
- Photographs of the site, recorded nests, surveyors, and habitat,
- Your name and/or affiliated group to ensure that you acknowledged,
- Comments – a free text field to provide any further information that you think may be of interest, i.e., other species found, weather, nest colour (e.g.: if there are green pieces woven in) etc.

Furthermore, providing information on the individual nests found during a survey would provide additional information that can be used to help protect and understand this species.

- Exact nest location,
- Date and time,
- Who found it,
- The nest colour (brown / green),
- The horizontal diameter of the nest,
- The height of the bottom of the nest from the ground,
- The plant species the nest is supported in,
- Accompanying photographs,
- Comments – any additional information.

What to do if you find a nest but are not doing a survey?

If you come across a nest but are not conducting a survey, we would still like to know about it. Although we can glean more information from a survey, these "Presence-only" records indicate harvest mice presences. As above for the individual nest recording the essential information to record is where was it, when was it found, and who found it. Although, the additional information (nest colour, diameter, height, and plant information) is always welcomed.

How to record and submit survey data?

The choice of recording method, including how to record position (i.e., latitude and longitude, grid reference or what3words), is up to the coordinator or surveyor. However, template recording forms are available on the survey webpage (National Harvest Mouse Survey – The Mammal Society) for:

Excel spreadsheets – Survey data

Site ID	Site name	Location, either gridref (1km max) or Latitude and longitude	Date (DD-MM-YYYY)	Number of Surveyors	Predominant habitat	Survey duration (mins)	Number of nests	Evidence of Management	Provider	Observer	Comments
Sussex_1	Tidemills	50.784619444, 0.069413889	14/11/2020	1	Field margin	25	2	None	Sussex Mammal Group	Frazer Coomber	Difficult access
Sussex_2	Seven sisters	TV519984	15/11/2020	1	Rough grass	95	0	cutting	Sussex Mammal Group	Frazer Coomber	Training site recce
Sussex_3	Seven sisters	TV520993	15/11/2020	1	Rough grass	25	1	None	Sussex Mammal Group	Frazer Coomber	
Sussex_4	Bishopstone	TQ4701	17/11/2020	2	Hedgerow	6	6	Hedge cutting	Sussex Mammal Group	Frazer Coomber	Provided access by land owner

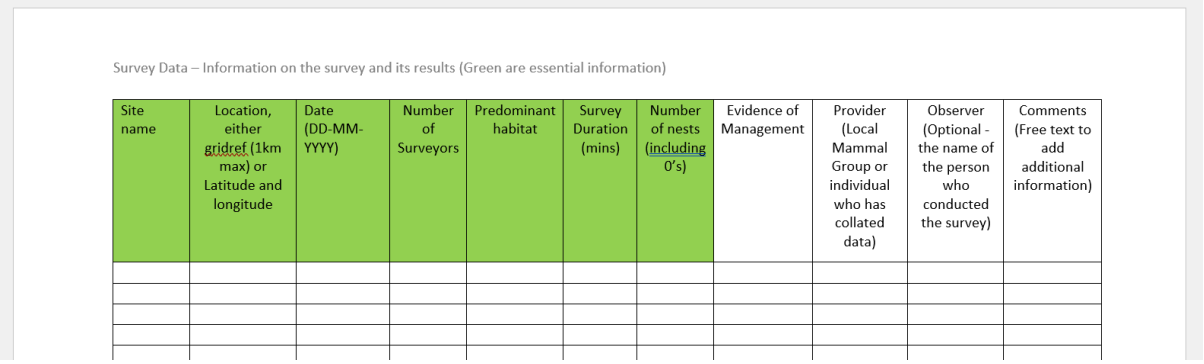
Excel spreadsheets – Survey associated nests

Site_id Identical to survey)	nest position 10 grid ref, lat or long, what3words etc	time recorded (hh:mm:ss)	Photo (y/n)	nest diameter (cm)	nest height above ground (cm)	vegetation height (cm)	vegetation 1	vegetation2	recorder (optional)	Comment
Sussex_1	50.784363,0.068683	12:34:00	Y	10	55	110	blackthorn	stingy nettles	Frazer Coomber	My first nest a beautiful example
Sussex_1	TQ4593600459	14:56:00	N	5						

Excel spreadsheets – Presence-only nests

Location name	Location (gridref, lat/long, what3 words etc.	date (DD-MM-YYYY)	Photo (y/n)	Number of nests	nest diameter (cm)	nest height above ground (cm)	vegetation height (cm)	Predominant habitat	Vegetation 1	Vegetation2	Observation type	Provider	Recorder	Comment
Coombe Valley	///doll.chip.take	01/10/2022	y	2	10	25	110	Hedge	Cocksfoot	Bramble	Nest	Sussex Mammal G	Frazer Coomber	Seen oportunistically during a walk
Coombe Valley	50.865099, 0.504635	05/10/2022	n	0				Field margin			mammal spotted	Sussex Mammal G	Frazer Coomber	Animals seen during clearence work

Printable Word Documents

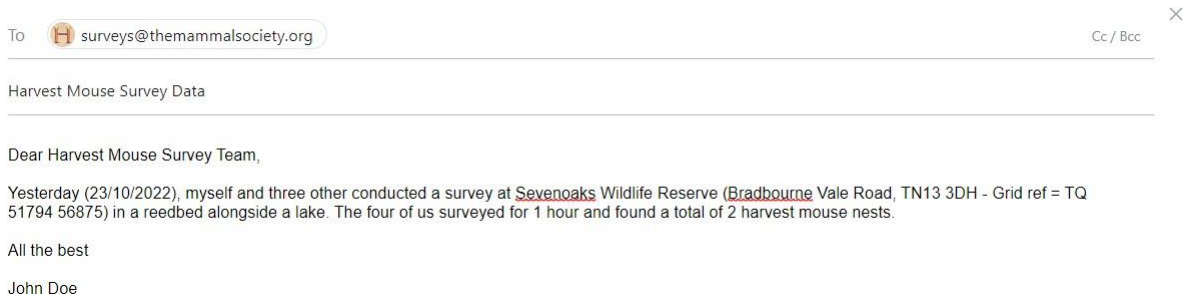


Survey Data – Information on the survey and its results (Green are essential information)

Site name	Location, either gridref (1km max) or Latitude and longitude	Date (DD-MM-YYYY)	Number of Surveyors	Predominant habitat	Survey Duration (mins)	Number of nests (including 0's)	Evidence of Management	Provider (Local Mammal Group or individual who has collated data)	Observer (Optional - the name of the person who conducted the survey)	Comments (Free text to add additional information)

All completed survey records should then be passed to the regional coordinator or directly to the Mammal Society survey team via email (surveys@themammalsociety.org).

Survey data can also be passed to the Mammal Society team directly in an email (surveys@themammalsociety.org). See below for an example email:



To surveys@themammalsociety.org Cc / Bcc

Harvest Mouse Survey Data

Dear Harvest Mouse Survey Team,

Yesterday (23/10/2022), myself and three other conducted a survey at Sevenoaks Wildlife Reserve (Bradbourne Vale Road, TN13 3DH - Grid ref = TQ 51794 56875) in a reedbed alongside a lake. The four of us surveyed for 1 hour and found a total of 2 harvest mouse nests.

All the best

John Doe

Surveys can also be recorded using the Mammal Society's Mammal Mapper App, a free-to-download mammal recording smartphone app. Recording a harvest mouse survey or a presence-only record using the app is straightforward and self-explanatory but a How To Guide is available on the survey webpage (National Harvest Mouse Survey – The Mammal Society).