



## National Nathusius' Pipistrelle Project 2022 Trapping Survey Methods

### Aims of trapping surveys

Our aim with these surveys is to provide evidence to confirm the resident and breeding status of Nathusius' pipistrelle in Great Britain, to identify the migratory pathways of this species and to gather further information on the distribution of Nathusius' pipistrelle in Great Britain and the Channel Islands.

### Objective of trapping surveys

The objectives of the trapping surveys vary depending on the time of year:

- Pre-breeding season (April – approx. mid June): To capture female Nathusius pipistrelles and, if resources are available, track them back to their roost.
- Post-breeding season (Approx. mid July – early August): To capture post lactating females and /or recently volant juveniles which are unlikely to have migrated to the site and likely to have been born locally.
- During the migration season (August – October): To recapture migrating Nathusius pipistrelles that have been ringed outside of the British Islands. We aim to concentrate trapping effort during the migrating season at key sites to maximise coverage, as advised by the project co-ordinators.

### Site selection

- Each group should select their own sites for survey.
- To make most efficient use of resources trapping should be undertaken at sites where the presence of Nathusius' pipistrelle has previously been confirmed using acoustic surveys within the last few years. Ideally this should be represented by multiple individuals in consecutive years.
- If the site has been trapped previously and Nathusius' pipistrelles were caught it is a priority to repeat these sites to see if ringed bats are recaptured. However, after multiple years do consider whether there is more to be gained at that site in line with project aims.

Nathusius' pipistrelle is generally associated with woodland (deciduous and mixed) and waterbodies, and also wetlands such as reedbeds in some areas (this is possibly more relevant to Mediterranean areas). It forages on small Diptera, particularly midges (mainly Chironomidae) and also mosquitoes.

Modelling of UK records of Nathusius' pipistrelle has shown that the following are important factors in affecting presence of this species (Lundy et al. 2010):

- the area of the waterbody;
- the area of woodland;

- and presence of small areas of urbanization

Areas of heathland/ peat appear to be avoided. This is based mainly on records of migrating bats and peaks in occurrence appear to occur in spring and autumn.

In selecting sites for this project the following should be taken into account:

- Look for larger waterbodies such as lakes and reservoirs
- Freshwater coastal sites and large rivers on migratory paths
- Presence of woodland near waterbodies is ideal – and important for selecting trap locations
- Select waterbodies with existing records (e.g. from bat boxes, bat detector records including NBMP Nathusius' pipistrelle Survey) to maximise chances of catching this species
- Suitable access to the site for trapping is important as well as landowner permissions

How to look for sites:

- Use Google Earth and OS maps to search for large waterbodies
- Look at water company websites to find locations of lakes and reservoirs
- Look at existing Nathusius' pipistrelle records, for example on the [NBN Atlas](#).
- At sites where Nathusius' pipistrelle hasn't been confirmed within the last few years, carry out acoustic surveys in spring during April and May and/or in the Autumn (recordings need to be made and verified to confirm presence of Nathusius' pipistrelle) before trapping begins, to help ensure this invasive technique is targeted at sites where this species is known to occur.
- Check on landownership for access information, for example via the local council or land registry office, there may be small fees involved.
- Visit potential sites for a daytime recce to assess habitat and potential trapping locations (see below). Ensure daytime visits are carried out with landowner permission if it is necessary to visit areas that do not have public access.

It would be useful to have additional sites lined up as back up sites in case of any problems with the selected sites.

Note: As volunteers will be working on behalf of BCT they are included under the Employers and Public Liability sections of BCT's insurance policy. This year's certificate of insurance can be seen [here](#), along with an overview document.

### Survey timing

- Ideally each site should be surveyed twice, once in the pre-breeding period and once in the post-breeding period. However, surveying in one of those periods alone can still produce useful data.
- Please consider local factors for deciding when trapping can begin, when it should be suspended to avoid disturbing bats in the latter stages of pregnancy and birth, and when it can be resumed again following breeding (for example, spring weather/temperatures can influence the timing of pregnancy and birth).
- Stop trapping for that period if a pregnant bat of any species is caught.

### Trap site selection

For each site to be surveyed, **at least two** trap locations should be identified. It is best to do this during daylight hours prior to the first survey visit to assess optimal trap locations and complete risk assessments. The following should be considered when selecting trapping sites:

- The two sites should be ideally more than 200m apart
- Its preferable that the traps are as close to the water as possible
- Traps need to be hidden in vegetation, with ideally a tree either side of the supports
- Where there are no trees, place the trap in tall vegetation that box the trap in
- On colder nights concentrate more in woodland surrounding water bodies
- The surrounding area provides ample space for volunteers to operate with appropriate distancing for themselves and the bats.

### The surveys

At least one bat group coordinator named on the licence needs to be present for each evening survey, two if possible. Ideally 4-6 surveyors are needed for each survey visit. You can find more details on survey protocol in the Bat Surveys for Professional Ecologists: Good Practice Guidelines, downloadable here: <https://www.bats.org.uk/resources/guidance-for-professionals>.

Use the National Nathusius' Pipistrelle Project 2022 Recording Sheet to record information about the site and bats trapped.

### Equipment needed for survey

- ✓ 2x harp traps
- ✓ One acoustic lure for each harp trap
- ✓ 2x 2-way radios
- ✓ Clean holding bags
- ✓ Bat rings and circlips if ringing
- ✓ Processing kit with callipers, plastic wing ruler and scales
- ✓ PPE including additional gloves and masks
- ✓ Clipboard and recording sheets
- ✓ Camera
- ✓ Detector to check lure output
- ✓ Folding table and chairs
- ✓ Weatherproof boxes to store equipment

### Setting up the equipment

1. Find each selected trap location and put up traps. On the recording sheet note the OS grid reference of each trap location (to 1m resolution if possible-two letters and ten digits). This can be done in the field using a GPS or afterwards using the website. <http://www.gridreferencefinder.com>, which allows you to click on an aerial photo and will provide the ten figure grid reference. **Please also note the equipment used including lure and call, the predominant habitat at the trap site using the categories given on the recording sheet and a short description of the trap placement.**
2. Follow the instructions from the lure on placement on the trap. Correct placement is very important in its effectiveness. Generally keep it closer to the catch bag.
3. If suitable use the supplied WAV. File "Nathusius Advertisement call"

## The survey

1. Pick a site **away** from the traps to set up your processing station.
2. **Start surveys at sunset** by connecting speakers and switching on lures (see above).
3. Record date, site name, grid reference (general reference for waterbody), name of survey organiser and names of other surveyors on the Recording Sheet.
4. Record temperature and weather conditions at the start of the survey.
5. Cloud: Clear (0-1/3 cover), Partly cloudy (1/3-2/3 cover) or Full (2/3 to complete cover)
6. Moon phase: New, quarter, half, three quarters, full.
7. Wind: Calm, Light breeze, Blustery, Strong
8. Rain: None, light, constant drizzle.  
Note: Surveys can continue in light rain but if rain becomes heavy, or begins to wet the trap and/or pose a threat to the bats and the equipment, stop the survey. If it clears later, you may start again.
9. Check traps regularly (at least every 15 mins).
10. Surveys last at least 2 hrs, **longer if possible**. Surveys can be extended for as long as you like or as long as the lure battery will allow if you wish to stay out longer. When trapping during migration, consider where the bats will be travelling from and how long it might take them to reach your location.
11. Record temperature at the end of the survey.
12. Add any additional comments about the site or survey in the comments box on the Recording Sheet.

## Processing bats

1. For each bat caught enter the following information on the recording sheet (a-d should be ascertained in the hand):
  - a. Time caught
  - b. Species
  - c. Age: adult or juvenile
  - d. Reproductive status:
    - i. ♀ = Parous, Non parous, Lactating, Pregnant
    - ii. ♂ = Testes size (small, medium or large) and Epididymis colour (Pale, dark, patchy).

Only for target species (if unsure of species ID take measurements):

  - e. Forearm measurement
  - f. Fifth finger measurement
  - g. Weight of bat
2. Only target species (*Nathusius' pipistrelle*) should be placed in holding bags and processed as described above in points a-g. Ideally bring enough bags to use a clean bag for each bat.
3. If licensed to do so, follow ringing protocol and ring the bat.

## If you capture a female *Nathusius' pipistrelle* in the pre-breeding season

Ideally any females caught in the pre-breeding season that are in good health, of a suitable weight and not heavily pregnant should be radio-tagged and tracked back to their roost. Emergence surveys at any roosts identified should be undertaken throughout the breeding season to identify the number of *Nathusius' pipistrelle* occupying the roost and, where possible, confirm breeding. If you would like more advice on this, please contact the project coordinators ([daniel@batdan.co.uk](mailto:daniel@batdan.co.uk); [batgroups@bats.org.uk](mailto:batgroups@bats.org.uk)).

#### After each survey

1. Traps should be checked to ensure they were not put away wet etc. Please also check the strings and replace as necessary.
2. All reusable equipment including traps, nets, containers, bags or callipers that have been in direct contact with bats should be disinfected between uses to promote good field hygiene. For more advice on read box 1 (field hygiene) and 3 (disinfectants) in the IUCN's *Recommended Strategy for Researchers to Reduce the Risk of Transmission of SARS-CoV-2 from Humans to Bats* AMP: Assess, Modify, Protect. Found under 'Bat Researchers' on this webpage: <https://www.iucnbsg.org/bsg-publications.html>.
3. Both the lures and spinner batteries need to be charged after each survey in accordance with manufacturer's instructions.
4. Go to <https://nnpp.azurewebsites.net/> to enter all your data online. If you need a login or have any problems with the online data entry form, please email [mnewman@bats.org.uk](mailto:mnewman@bats.org.uk) and copy in [batgroups@bats.org.uk](mailto:batgroups@bats.org.uk).