

Norfolk Species Surveillance Network

Monitoring long term changes in Norfolk's wildlife



CONTENTS

Introduction	2
Project Background	3
Working Together	4
Methods	7
Site Recording	9

INTRODUCTION

This guide is designed to provide the necessary information to undertake species surveys as part of the NBIS species surveillance pilot project.

The overall aim of the project is to establish a long-term species surveillance system in Norfolk. In order to do this we need to:

- Increase the number of recorders of previously under-recorded groups
- Establish a network of local recording groups each undertaking regular survey of a small network of reference sites
- Use standardised methodologies to ensure that the recording at each of the reference sites is comparable
- Develop a support network to help with identification of species

Utilise online recording and verification to give feedback on the surveys

This guide outlines the standard methodologies that should be used for sampling and recording, and for entering the results online. Information on undertaking the work safely is also provided.

Whilst this guide gives details of the methods that should be used it is not necessarily a comprehensive guide and more details will be given during the training workshops provided by NBIS, particularly with regards to species identification.

PROJECT BACKGROUND

NBIS holds over 2.5 million species records covering the whole of Norfolk and ranging in date from 1670 to the present day. Whilst this represents a great deal of recording effort, much of it has been of an ad hoc nature. Very little of the data either at a county or site level has been collected as part of a structured monitoring system. As a result it is difficult to determine trends in distribution and populations. This has implications when trying to assess the status of rare species, or when bodies such as Natural England need to report on protected species.

To address these issues we have been looking at new ways to analyse our existing data and also to develop ways of undertaking more structured survey. Whilst we were assessing ways of building a species monitoring system for Norfolk the opportunity arose to bid for funding from Defra to develop a volunteer led species surveillance system. We successfully bid for a contract to trial this work in Norfolk and this project is the result.

The majority of records held by NBIS have been collected by volunteers so this type of approach to data collection is nothing new. The main opportunity offered by the project is the dedicated support we will be giving to the volunteers who take part. We want to help increase the recording skills of this community of volunteers through training and mentoring, we are also able to help with access to identification materials such as identification keys and microscopes.

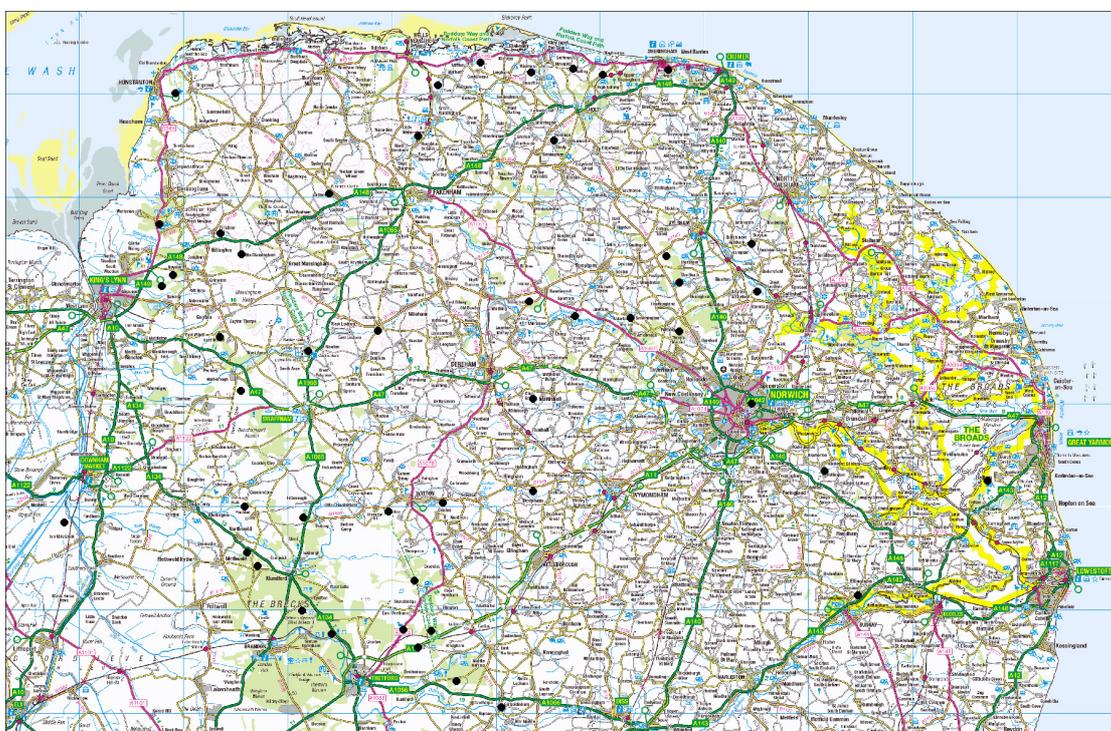
WORKING TOGETHER

The main aim of this project is to foster a new network of volunteers who can contribute to recording and surveillance of species in Norfolk. Alongside the support that NBIS and the County Recorder network for Norfolk can offer we hope that you will be able to work with other volunteers to help to record sites, develop skills and help with species identifications.

We would like to see this network develop based on your own skills, interests and needs, but there are several ways in which we would like to see this happen.

Sites

There are 60 reference sites in the project and to ensure the best survey coverage of these we would like to see cooperation between recorders. This could for instance help with ensuring the correct number of transects are recorded during the survey season, or that pit-fall traps are regularly emptied.



Map 1. Reference site locations

Identification

The volunteers for this project have experience across the range of taxa and we are hoping that with help from the County Recorders you will be willing and able to help others with identifications. To help this process we will be organising regular workshops where there will be access to microscopes and species experts. Training workshops for each of the taxa will be organised early in the project covering field techniques, survey methods, identification, and online recording and verification. These workshops will also be an opportunity to meet your fellow volunteers.

Support

NBIS will provide as much support as we can throughout the project. This could take a number of forms. We already have a library of identification guides and have been purchasing more to ensure that they are available for the project. We have a pool of equipment such as bat detectors and GPS units which can be made available and materials for trapping can be provided. We will also be taking part in the project as recorders so will be learning the methodologies and developing our species identification skills alongside you.

The County Recorders for each of the taxa to be surveyed by the project have agreed to be involved and will help by providing training and help with identification.

National Schemes and Societies

The methodology developed for this project has where possible been based on existing techniques developed by national recording schemes. This allows us to use tested methods and ensures that data collected in Norfolk can feed into national datasets to help monitor the distribution and status of species. Data collected during this work will be passed to the following National Schemes and Societies:

Association of British Fungus Groups – CATE2 database

British Bryological Society

British Lichen Society

Botanical Society of British Isles

Carabid Recording Scheme

UK Butterfly Monitoring Scheme – Butterfly Conservation

UK Moths

Bat Conservation Trust

- ◆ Mammal Society
- ◆ Peoples Trust for Endangered Species

County Recorders for each of the taxa will make the link with the National Schemes and Societies. These recorders are listed in the contacts section at the back of the handbook.

Data will also be used locally to inform planning decisions, research and conservation work. The data collected through the environmental data form and analysis of the species present will also be used to inform management of the sites.

Keeping in touch

NBIS will keep you informed about the project via email or your preferred means of contact. You will also be able to see the progress of the recording on the NBIS website via the Norfolk Species Surveillance Network pages.

www.nbis.org.uk/SpeciesSurveillanceNetwork

The records will also be feeding into iRecord where you will be able to view the records collected during the project.

We would also like to publicise the findings of the project so we encourage you to post to the NBIS Facebook page and Twitter feed. In particular we would like to hear about any exciting records.

www.facebook.com/NorfolkBiodiversityInformationService

[#NBISSpeciesNet](http://www.twitter.com/NorfolkBIS)

METHODS

Site Details

The 60 reference sites have been identified by NBIS in order to ensure an appropriate coverage of the county. For each of these survey sites a small information pack will be produced which will give details of the following:

- ◆ Location
- ◆ Site owners
- ◆ Site manager/warden
- ◆ Other contacts
- ◆ Site designations
- ◆ Any access issues such as parking, seasonal restrictions, hazards etc

Access

During the project no sites should be surveyed without notifying the landowner or site manager. Permission to undertake the surveys has been obtained by NBIS on this condition. This is both out of courtesy to the people who are kindly allowing us to do this work, and also for your own safety. Many of the sites will have management work taking place, and grazing animals may be present. In the case of farmland sites it is particularly important to ensure that surveys do not interfere with the day to day operations of the farm.

When you receive details of the site you will be given the relevant contact details of the landowner and any site managers who need to be contacted prior to accessing the site. You will also be provided with a letter confirming your role as part of this project which you can produce if challenged by a landowner or member of the public. Any issues arising such as problems with access, or requests for information about the project should be referred directly to NBIS.

Permissions

The owners of all of the reference sites in the project have given permission for survey; you should not however survey any sites without previously making contact. If challenged by anyone about your presence you should produce your letter confirming your permission to be there and if further challenged refer them to NBIS. If challenged about the presence of equipment such as pitfall traps then again clarify your permission to use them and refer any further requests for information to NBIS. Large items of equipment will also be labelled with the NBIS contact details.

Notifying landowners

The site details for each of the reference sites will contain the contact information for the landowner, and also any site manager or warden who should be informed prior to surveys taking place. In the case of SSSI sites there will be an officer responsible for the site at Natural England who must also be informed, likewise Scheduled Monuments, where it will be necessary to contact English Heritage. In the latter cases it may be possible to make contact once at the start of the surveying season.

SITE RECORDING

Whilst the aim of this project is to undertake monitoring of species we want to collect information about the sites themselves. In order to do this the environmental data record should be completed on setting up the recording plot, and any major changes to the site such as management work or establishment of grazing recorded as they occur. The form is designed to capture information on:

- ◆ Physical nature of the site
- ◆ Vegetation structure
- ◆ Site management

The following gives guidance on how to complete the form.

Aspect

If the plot occurs on a slope record the main aspect from the following categories: N, NE, E, SE, S, SW, W, NW.

Slope

Record the main slope angle: flat (0-5°), moderate (6-30°), or steep (11-30°).

Vegetation height

Record the presence of the following height classes scoring each on a scale of 1 to 3 with 1 being less than a third of the area; 2, a third to two-thirds; and 3, greater than two-thirds: <10 cm, 11-30 cm, 30-100 cm, 101-300 cm and >300 cm.

Management

Any obvious management at the time of survey such as the presence of livestock, ditch clearance, hedge-cutting, coppicing, etc. with an indication of the intensity. For arable land this could include evidence of weed or pest control. Field observations should be supplemented with more details where known (e.g. history of grazing on the site).

The following categories are likely to be encountered most frequently:

- ◆ Arable cropping
- ◆ Cutting / mowing
- ◆ Fenced to exclude grazing
- ◆ Fertilised to improve soil fertility
- ◆ Grazing – livestock
- ◆ Grazing – rabbits/deer
- ◆ Herbicides to control weeds
- ◆ Scrub clearance / tree felling

Grazing

The intensity of grazing including both livestock and wild animals: high, moderate, low.
(see table below for explanation of categories).

Level	Grazing
High	Vegetation very short and clearly maintained by high levels of livestock and/or deer/rabbit grazing; there are often visible signs of their presence such as dung, animal fibres, tracks, warrens/dens and infrastructure associated with livestock (e.g. water-troughs, supplementary feeders, etc.). Trees and shrubs are likely to be rare on such sites or if present with clear signs of grazing (e.g. loss of lower leaves, bark, etc.). Many herbs and grasses lacking flowering stems.
Moderate	Evidence of grazing animals being present (tracks and signs) but the vegetation height is often variable with a mixture of taller and shorter areas; shrubs and trees more likely to be present and showing little evidence of grazing damage. Most herbs and grasses with flowering stems.
Low	No or very little evidence of grazing animals being present; the vegetation height usually being uniformly tall and often with an abundance of shrubs or trees. No evidence of flowering stems having been removed though many species unable to flower due to height of vegetation

Species recording

Whilst we have produced a recording form for the site itself we have not produced recording forms for the individual taxa. In some cases these already exist because we are using methodologies produced by national recording schemes who have already produced forms. For other taxa we can provide forms but are happy for you to use your own favoured approach to species recording.

Equipment

The following is based on the BSBI/Plantlife recommended equipment list for undertaking surveys as part of their surveillance scheme. This is a general list suitable for most of the surveys in this project, but is a guide only and we suggest that you take as much equipment as you feel you need to undertake the work. Further specialist equipment will be required for the invertebrate and bat surveys

- ◆ Waterproof jacket / trousers
- ◆ Compass
- ◆ 30 cm ruler
- ◆ 30 m tape measure
- ◆ Site details pack
- ◆ Aerial photograph of site showing locations of priority habitats
- ◆ OS map of site
- ◆ Survey guide and record cards
- ◆ Identification guides
- ◆ Hand lens
- ◆ Mobile phone
- ◆ Notebook and pens
- ◆ Flexible canes for marking plot corners (not essential)

Recording

For the purposes of this project, recording will take place on permanent recording plots, transects or points. These will in the most part be established using methods adapted from those used by national recording schemes. The methods for each taxon are outlined below:

Recording plots:

- ◆ Fungi
- ◆ Lichen
- ◆ Bryophytes
- ◆ Vascular Plants
- ◆ Hymenoptera
- ◆ Beetles

Transects:

- ◆ Butterflies
- ◆ Day-flying moths

Fixed points:

- ◆ Bats

Establishing a recording plot

For Fungi, Lichen, Bryophytes and vascular plants the recording method used will be that developed for vascular plants by BSBI/Plantlife in their UK Plant Surveillance Scheme Pilot. This method is based on recording all species present within a 100m² area of habitat. These same plots will also be used as the recording units for Hymenoptera and beetles.

Depending on the habitat being recorded there are 2 different types of plot that should be used:

1. Square plot
2. Linear plot

Square plots

Square plots measuring 10 × 10 m should be used to sample **grassland** or **heathland**.

For grasslands occurring on road verges or other constricted areas, these can also be rectangular plots as long as they have the same physical area (i.e. 50 × 2, 25 × 4, 20 × 5 m).

Linear plots

Linear plots should be used to record **arable field margins**. These are linear plots measuring 100 × 1 m and should follow the edge of the cultivated area so as to avoid damaging the crop. All types of annually cultivated fields can be included (i.e. cereals, root vegetables) as well as uncropped cultivated margins and overwintered stubbles. However, abandoned or uncultivated fields containing, for example biofuels (e.g. Miscanthus, Salix, etc.), cut-flowers and Set-aside should be avoided. Plots should not include game cover strips and sown wildflower or grass margins.

In locating plots please bear in mind the following factors:

- Except in the case of arable margins, you should always aim to sample a homogenous and representative area avoiding boundaries between habitats that merge together (ecotones), mosaics, and areas recently disturbed by management, etc.
- The plots should fit comfortably within the habitat to avoid edge effects, although note that for a few habitats marginal areas are considered a priority for sampling habitat (e.g. hedges, water bodies, arable field margins, road verges, etc.).

Select locations that will be easy to re-locate i.e. that are close to permanent features such as walls, roads, trees, etc.

The plots once established will be permanent so it is important that they can be re-located in the future. For this reason they should be positioned in relation to landmarks or permanent features so that they are easy to find in the future. Stone features such as walls, buildings, gateposts are preferable to trees and fence-posts as these are much more permanent. The corners of plots, or the start and end points of transects, should be recorded using a hand-held GPS, preferably with a high sensitivity receiver (WAAS-enabled) as these tend to be accurate to within a few metres, even when the sky is obscured by tree cover or cliffs. Bearings to obvious landmarks, with paced distances, are also useful but are not sufficient to re-locate plots with accuracy (unless positions are triangulated using a sighting compass and tape measure). A sketch map, or annotated aerial photograph of the location is vitally important preferably noting rough distances and bearings to landmarks or permanent features. See Figure 1.

Ideally plot dimensions should be marked accurately using a tape measure with corner right-angles measured using a '3-4-5 m' triangle. Estimates using paces should be avoided. For recording purposes it may be helpful to temporarily mark the corners of the plots with wooden canes or other visible markers (e.g. tent pegs with flags). Photographs of plots will often be helpful for locating plots in subsequent years. It is vitally important that the plots can be found by other recorders so photographs and maps should be clear and understandable.

Once your plot is established you should record it using the NBIS environmental data form on each visit. The details should then be entered online at:

www.nbis.org.uk/SpeciesSurveillanceNetwork

* = capture tin



MONSEHOLD HEATH

SITE = MH1

Plot.
SW corner
Oak tree in
open area
TQ-242310SF.
Corners marked
with small
wooden pegs.
See attached
photos

Fig 1. Annotated site plan showing plot and locating features

Establishing a Transect

Butterflies and day-flying moths will be recorded using the UK Butterfly Monitoring Scheme (UKBMS) Transect methodology as outlined below. More detail can be found in the guidance given by UKBMS.

Transects should take about 45-60 minutes to walk and be about 1-2km in length.

You should identify a route (transect walk) that provides a fair representation of the habitats and other features present at your site. Some thought should be given to how the site might change over time, and the route designed to include areas that are likely to become more suitable for butterflies in future (e.g. through site management).

This transect is 'fixed' and the same route should be followed on every visit and in each year. For this reason the route should be easy to re-locate for yourself and any alternative recorders of the site.

The transect route should be split into sections (5-15) which, ideally, will be of equal length with each section representing a change in habitat or management type.

The habitat type of each section should be described in detail on an F1 site details form (available from Butterfly Conservation - BC) and where possible classified with reference to the standardised Eunis biotopes project using guidance note G4 (also available from BC).

The route of the transect walk should be drawn on a 1:10 000 or 1:12 500 copy of an OS map and aerial photograph which will be provided, and the different sections clearly marked. This will ensure that the transect remains 'fixed' for each visit and will allow multiple recorders to follow the same transect (see example map in guidance note G3). Add habitat details if possible, and produce annual maps showing management change by section as necessary.

Establishing fixed points

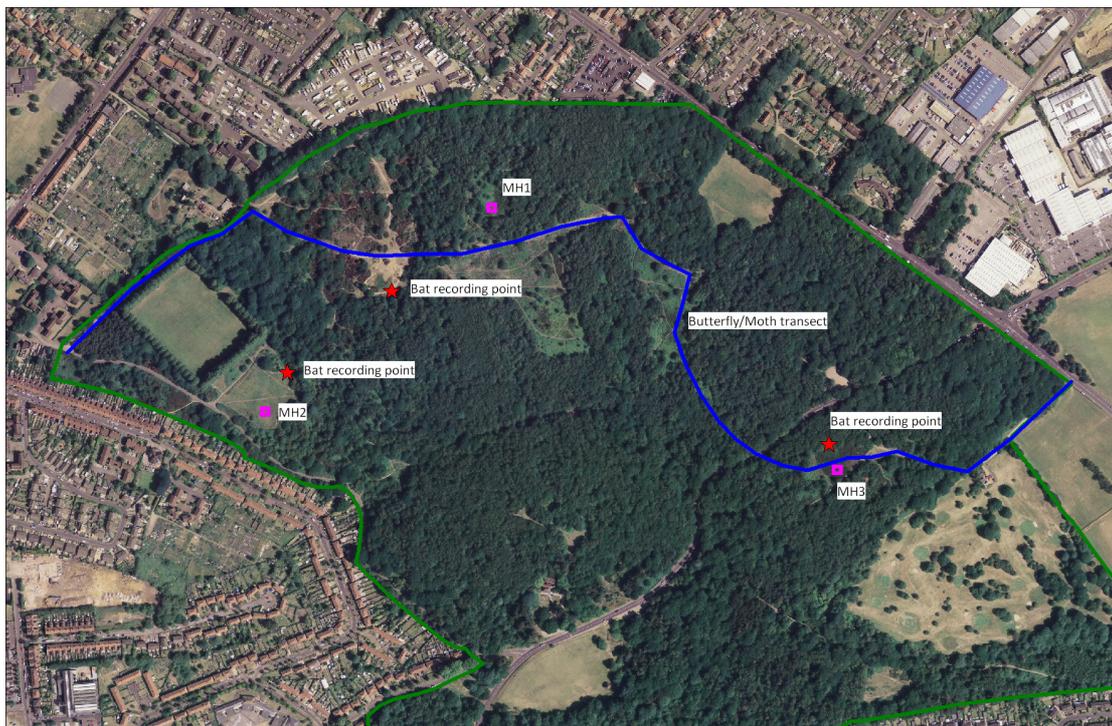
For the recording of bats a number of fixed recording points will be established. The siting of these should follow the guidance below:

The points should allow the detector to be placed close to a linear feature where possible (e.g. close to a hedge, trees), to maximise chance of detecting bats, which use these features for navigating along.

The points should be sited away from running water or other background noise.

The point should be sited to minimise the risk of detectors getting damaged or stolen. The detector can be hidden fairly easily in vegetation on the ground, and the microphone and lead can either be attached to high vegetation (as high as you can reach) or using the telescopic pole and stake provided.

Once the fixed point for the site is established the location should be recorded using GPS and marked on a map to allow re-location on future visits.



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