Five steps for surveying wildlife

1. Locating and mapping your site
All surveys need to include location information, and it’s useful to prepare a site map showing compartments and habitats, plus an agreed set of grid references.

Habitat mapping can be done to different levels of precision. A first step might be to use an aerial photo (e.g. via Google maps) to outline the major areas of woodland and grassland etc. These can be refined by adding ‘target notes’, which are labelled on the map and annotated with information about particular features of importance: ponds, ancient trees, individuals of especially rare plants etc.

More detailed mapping can be carried out, such as Phase 1 habitat surveys (see: http://jncc.defra.gov.uk/page-2468) or indicator species densities, and you may decide that you need a series of maps to show wildlife features next to archaeological features, management plans, site access and infrastructure (e.g. gates, fences) etc. But if you can start off from an agreed base map, set of compartments and a central grid reference for each compartment you will be in a much better position to link all the data you may collect in future.

2. Baseline data
First of all, contact your local records centre to find out what is already known for your common! But to add to and update existing lists, any and all records will be useful for discovering what lives on the common. Ideally recording should compile separate lists for each habitat compartment. All species groups will add to your knowledge of the site, but a list of plants should be one of the priorities. Start by recording the more obvious and familiar species – you can add further species as your skills develop, or if a more experienced plant recorder visits.

Other than plants, groups for which good information is available include:

- Birds
- Butterflies
- Mammals
- Reptiles/amphibians
- Dragonflies/damselflies
- Ladybirds

There are further surveys that can be applied to particular habitat features, e.g. pond survey methodologies or the ancient tree hunt survey. Beyond that there are of course many other groups of species, especially among the insects and fungi, that will provide further information, but these are likely to need some input from a specialist – you may be lucky enough to have a local expert, or you could arrange for a local or national recording group to visit, or you may want to commission surveys if there is a particular gap that needs filling.

Having a list of species for your common (preferably for each habitat compartment) provides essential information about the biodiversity the common supports, and what might need to be considered in the management plan. Species surveys are also an enjoyable and rewarding activity for volunteers and local residents.
3. Interpreting species lists

Once you have a species list what can you do with it? It is useful to know which species are considered to be conservation priorities. This may be formally indicated through national lists, such as:

- Red Data Book species
- Nationally Scarce species
- Biodiversity Action Plan Priority species
- Protected species

A spreadsheet of designated species is available from: [http://jncc.defra.gov.uk/default.aspx?page=3408](http://jncc.defra.gov.uk/default.aspx?page=3408). In addition, there may be local lists, or local knowledge, highlighting species important in the area of your common. These may all help you define what species and habitats should be monitored further, and what management aims should be.

Another useful concept is “indicator species”. There are various approaches to this, of which the most well-known is probably the established list of “Ancient Woodland Indicator” plants, but examples exist for other habitats and species groups. Unfortunately this information is widely scattered but your local records centre or Wildlife Trust may be able to help. For instance, there are descriptions of habitats and indicators in the Local Wildlife Sites Criteria available from TVERC (see page 19 onwards: [http://www.tverc.org/cms/sites/tverc/files/LWS%20criteria%20Nov%2009.pdf](http://www.tverc.org/cms/sites/tverc/files/LWS%20criteria%20Nov%2009.pdf)). There are also tables of indicator species for grassland’s in Natural England’s Farm Environment Plan Manual (see for instance the grassland section that starts on page 55 of this lengthy document: [http://publications.naturalengland.org.uk/publication/32037?category=35001](http://publications.naturalengland.org.uk/publication/32037?category=35001)). And the online botanical atlas, from BSBI and BRC, shows how species are linked to availability of light, nitrogen, soil humidity etc. ([http://www.brc.ac.uk/plantatlas/](http://www.brc.ac.uk/plantatlas/) - search for the species you are interested in and then look for the Habitats link).

4. Recording change

No matter how good your baseline data is, as fast as you can compile it the species and habitats on your common will be changing! Repeated species recording over time (especially for the indicator and priority species) can provide valuable information on change, but to pick up changes more quickly and accurately some form of repeated, systematic survey is required (sometimes defined as “surveillance”). Examples include:

- Common Bird Census
- Butterfly transects
- Site floras
- Timed counts
- Fixed-point photos

Surveillance surveys can be quite time-consuming, and can be seen as less interesting to take part in due to their repetitive nature over time, but the reward for doing them is that useful, systematic data can be gathered, and analysis of this can provide real insights into how your common is changing over time.

5. Monitoring your management

Once you have a management plan that defines your aims for managing the common, you should ideally have monitoring projects in place to assess whether your management is achieving its intended objectives. The surveillance approaches listed in section 4 may be appropriate for monitoring, but the essential difference for management plan monitoring is that you should have a pre-defined objective, the success of which can be judged from your monitoring.

For instance, suppose that your baseline surveys have found a colony of the rare Adonis Blue butterfly, and subsequent surveillance surveys have shown that on a butterfly transect at least 50 adult butterflies are counted in summer in most years. Since this species is a conservation priority, your management plan may contain an objective to “Maintain favourable conditions for the Adonis Blue such that at least 50 summer-brood adults are recorded on the transect every year”. If your transect counts show that this figure is not being attained, that would focus attention on habitat management to improve conditions for the butterfly.

For more information on this search for “site / habitat condition assessment”, e.g. within Natural England publications ([http://publications.naturalengland.org.uk/search?q=condition+assessment&num=100](http://publications.naturalengland.org.uk/search?q=condition+assessment&num=100)), or ask your local Wildlife Trust.
Creating a wildlife record: the four Ws

Who? What? Where? When?
A wildlife record simply means recorded information about a plant, animal or habitat. It can range from the very detailed to the very simple, and can be anything from a handwritten scrap piece of paper to a spreadsheet or database. Whichever form it takes it must always include these four essential elements:

Who?
The “recorder” is the name of the person who is making the record. This may seem an obvious thing, but it is amazing how many species lists there are in filing cabinets that have become detached from their covering letter, or spreadsheets no longer attached to a covering email! Without knowing who did the recording valuable information is lost, the validity of the records becomes harder to judge, and some of the human interest is lost when looking at historical records.

The other name needed is the “determiner”, which is the person who did the identifying and decided on what species it was. Often this is the same person as the recorder, but in some cases a specimen or photo will have been identified for the recorder by someone else, and that person is the determiner.

What?
This is the name of the plant or animal that has been observed. For wildlife groups that have well-established English names these will be sufficient, but if there is any chance of confusion it’s best to include a scientific name.

Where?
It is paramount that information on the location of your sightings be recorded accurately and ideally this should take two different forms:

- A grid reference, with at least six figures (i.e. localised to a 100m square). Eight (10m square) or even ten (1m square) figures can be useful for rare species, or a four-figure (1km square) reference may be appropriate for mobile species such as birds.
- The name of the location, preferably taken from a recognised source such as an Ordnance Survey map.

When?
The date that the plant or animal was observed is very important for your record. It is surprising how often people forget to do this, and with no date, the record is virtually useless. The exact date, written out in full (e.g. 1st June 2010), is best, but a date range (June–July 2010) or a year (2010) or even a year range (2009-2010) may be more appropriate in some cases. Try not to use the short date (e.g. 1/6/10) as some people put the month first rather than the day which can cause confusion. Some biological recorders put the month in Roman numerals to avoid this problem, e.g. 1st June 2010 is shown as 1.vi.2010.

The above forms the essential bones of a record, but depending on what type of survey you are doing additional information may be useful (especially for rare or unusual species) or required, such as:

- Abundance (how many, e.g. 3 badgers, five large clumps of frog spawn, 12 flowering spikes)
- What sex and/or stage e.g. adult, juvenile, female and young, larvae, saplings, mature trees
- Dead or alive, how it died
- Behaviour e.g. swimming downstream, nest-building, feeding
- Time of day and weather conditions where relevant
- Information about the habitat in which the species was found
Watching wildlife: survey selection

**Birds**
- In January each year, spend an hour watching birds for the RSPB’s Big Garden Birdwatch – possibly the easiest formal wildlife survey ever! [http://www.rspb.org.uk/birdwatch/results.aspx](http://www.rspb.org.uk/birdwatch/results.aspx)
- Take your garden bird-watching a step further by joining the BTO’s Garden BirdWatch scheme: [http://www.bto.org/volunteer-surveys/gbw](http://www.bto.org/volunteer-surveys/gbw)
- Record any or all bird sightings on BirdTrack: [http://www.bto.org/volunteer-surveys/birdtrack](http://www.bto.org/volunteer-surveys/birdtrack)

**Mammals**
- “Mini Mammal Monitoring” and other surveys from The Mammal Society: [http://www.mammal.org.uk/surveys](http://www.mammal.org.uk/surveys)
- People’s Trust for Endangered Species (PTES) mammal surveys include “Living with Mammals” (April and June) and “Mammals on Roads” (July to September): [http://www.ptes.org/index.php?cat=6](http://www.ptes.org/index.php?cat=6)

**Amphibians and Reptiles**
- Various survey projects are coordinated by the National Amphibian and Reptile Recording Scheme (NARRS): [http://narrs.org.uk/how.php](http://narrs.org.uk/how.php)

**Butterflies and moths**
- Butterfly Conservation runs a range of surveys, from simple garden recording to regular transects throughout the season: [http://www.butterfly-conservation.org/110/recording-schemes.html](http://www.butterfly-conservation.org/110/recording-schemes.html) See also the Big Butterfly Count (includes day-flying moths!): [http://www.bigbutterflycount.org/](http://www.bigbutterflycount.org/)
- Butterfly Conservation also runs the National Moth Recording Scheme, collating all records of the larger moths: [http://www.mothscount.org/text/27/national_moth_recording_scheme.html](http://www.mothscount.org/text/27/national_moth_recording_scheme.html)

**Plants**
- Treezilla is a new project from The Open University - take part to help map all the trees in Britain and learn about the environmental benefits they provide: [http://www.treezilla.org/](http://www.treezilla.org/)
- The Woodland Trust’s Ancient Tree Hunt: [http://ancienttreehunt.org.uk/](http://ancienttreehunt.org.uk/)

**For kids**
- The RSPB’s WildSquare project produces various fun surveys at different times of year: [http://www.rspb.org.uk/wildsquare/](http://www.rspb.org.uk/wildsquare/)

**General**
- Open Air Laboratories (OPAL) has a range of surveys available to download, suitable for anyone with an interest in the environment, including children: [http://www.opalexplornature.org/surveys](http://www.opalexplornature.org/surveys)
- Record signs of the seasons with Nature’s Calendar: [http://www.naturescalendar.org.uk/](http://www.naturescalendar.org.uk/)
- For help with wildlife identification for any survey use iSpot: [http://www.ispot.org.uk/](http://www.ispot.org.uk/)

*See also the further information sources page, below.*
Top tips for taking identification photos

- Identification photography is different from traditional wildlife or landscape photography: if your photo is beautifully composed and aesthetically pleasing that’s a bonus, but for identification what’s needed is to see the features needed to distinguish the species. It does help to have things in focus though!

- Take several photos, from different angles – you never know which one may contain the vital distinguishing feature. But try and include some that are from directly above, or exactly side-on, which will be easier to compare with images in books and keys.

- Try to include something in the photo that will give it a scale (e.g. a coin or ruler in the background), or alternatively make sure you record an accurate (i.e. measured) assessment of size at the time of taking the photo.

- You’ll probably need photos that are as close as possible to the species in question, but try to take a few of the surrounding habitat as well.

- Different species groups may need different approaches. For example, when photographing fungi (which are notoriously hard to identify from photos) you should try to get photos from above and below the mushroom cap, as well as of the stem. For moths the best angle is usually from above, while for bees and flies you may need shots from several angles to see all the features needed. For snail shells you often need to see both sides of the shell. For plants you may need to see leaves from the base and from higher up the stem, along with flowers and sometimes fruits.

- Some species can only be identified from photos if the photo shows exactly the right characters; some species cannot be identified from photos at all. It’s best to accept these limitations, and only identify things to genus or group. You can then choose to concentrate only on those species that can be identified photographically, or you can proceed to collect specimens or other evidence in those cases where photos alone are not sufficient.
Wildlife recording: further information sources

All the links below, plus additional information, are available from Martin Harvey’s website at:
https://sites.google.com/site/kitenetter/Home/bio-recording

Biological recording schemes
Contact details for national recording schemes for the various species groups are maintained by the Biological Records Centre:
http://www.brc.ac.uk/recording_schemes.asp
For information about recording in your area contact your local environmental records centre; contact details can be found here:
http://www.alerc.org.uk/

Wildlife data
Many of the above recording schemes make their data available via the National Biodiversity Network:
- http://www.nbn.org.uk/ (main site)
- http://www.searchnbn.net/ (species maps and data)
And you can add your records of any wildlife to the iRecord website, from where it will be passed on to the recording schemes:
http://www.brc.ac.uk/iRecord/

Other survey projects and groups
Contact your local Wildlife Trust for information about current surveys and opportunities to help monitor nature reserves:
http://www.wildlifetrusts.org/your-local-trust
For other local natural history groups and societies see Nature Societies Online, from the Natural History Museum:
http://www.nhm.ac.uk/jdsmi/research-curation/library/digital-library/nature-societies-online/

Further reading
NBN’s “Darwin Guide to Recording Wildlife” provides an excellent overview of the subject, and can be downloaded from
The Merseyside BioBank records centre has a helpful recorders’ manual:
This is a very good (but ridiculously expensive) book covering many aspects of survey and monitoring:
Many other resources, including some downloadable documents, are listed by the Institute of Ecology and Environmental Management:
http://www.cieem.net/sources-of-survey-methods-sosm-

Courses
- The Field Studies Council runs many excellent courses on wildlife identification and recording:
http://www.field-studies-council.org/individuals-and-families.aspx
- Manchester Metropolitan University, in conjunction with the Field Studies Council, offers courses in biological recording:
http://www.ssste.mmu.ac.uk/recording/
Online mapping and grid references

There are some excellent mapping resources on the web, making it easy to look up grid references and find other data (although this may be producing generations of people that can no longer map-read!).

General maps and grid references

- Where’s the Path – OS maps and aerial photos side by side, allows a detailed grid reference to be obtained, also information on tetrads and vice-counties available: http://wtp2.appspot.com/wheresthepath.htm

- Grab a Grid Reference (developed by Bedfordshire Natural History Society but the maps cover the whole country) – also shows maps alongside aerial photos, and shows grid squares at different scales: http://www.bnhs.co.uk/focuson/grabagridref/html/index.htm

Look up place names, grid refs and vice-counties

- Find a grid reference and vice-county from a place name: http://herbariaunited.org/USGIAplacenamesearch/

- Find a vice-county from a grid reference: http://herbariaunited.org/gridrefVC/

Protected areas and other mapped information


- SSSIs and Biodiversity Action Plan habitats: http://www.natureonthemap.org.uk/

- Protected sites and other environmental designations: http://magic.defra.gov.uk/

- Geological information and maps from the British Geological Survey: http://www.bgs.ac.uk/data/mapViewers/msdviewers.html

Mapping and measuring tools

- Free map tools – a variety of tools including a distance and area calculator: http://www.freemaptools.com/

- Another area calculator: http://www.acme.com/planimeter/

- More map tools, including sunrise/sunset times and height above sea-level: http://www.earthtools.org/

- Converting between grid ref, post code, lat/long etc.: http://www.streetmap.co.uk/streetmap.dll?GridConvert

GIS software

- For geographical information system (GIS) software, try the free, downloadable Quantum GIS: http://www.qgis.org/

Martin Harvey, email: kitenetter@googlemail.com
web: http://sites.google.com/site/kitenetter/
Protected species and codes of conduct

Anyone taking part in biological recording should do their best to protect the wildlife they are interested in, and needs to be aware of the legislation protecting wildlife sites and species. A range of laws and policy cover this area, and it can be quite tricky to be sure of what is and isn’t allowed. Here are a few points that can arise in connection with recording activity, but for full details please see the links below.

Birds: it is an offence under the Wildlife and Countryside Act to:
- intentionally kill, injure or take any wild bird
- take, damage or destroy a nest whilst it is in use or being built
- take or destroy an egg of any wild bird.
For the rarer species it is an offence to intentionally disturb these birds whilst nesting or to disturb their dependent young.

Bats: UK and European legislation mean that it is illegal to:
- deliberately kill, injure or capture (take) bats,
- recklessly disturb bats
- damage, destroy or obstruct access to bat roosts (whether or not bats are present)

Great Crested Newts: these are fully protected, and it is an offence to:
- Deliberately kill, injure or take any life stage of a great crested newt
- Deliberately disturb any life stage of great crested newts
- Deliberately damage or obstruct access to any place of shelter or protection of great crested newts.

Plants: Under the Wildlife & Countryside Act it is an offence for any person to intentionally uproot any wild plant unless they are authorised. Authorised people include landowners, land occupiers, persons authorised by either of these or persons authorised in writing by the Local Authority. It is not illegal to pick most wild flowers or fruits (such as blackberries) but it is good practice to leave enough seed and leave the flowers for others to enjoy. Some rare species receive additional protection.

The above is just a summary of some areas of the law, see the links below for more information, or contact your local records centre or wildlife trust for advice specific to your area.

Wildlife legal protection:
- RSPB: http://www.rspb.org.uk/advice/law/
- Bat Conservation Trust: http://www.bats.org.uk/pages/bats_and_the_law.html

Codes of practice:
- Invertebrate Link collecting code: http://www.royensoc.co.uk/InvLink/Index.html
- Butterfly Conservation codes on photography and collecting: http://butterfly-conservation.org/3216/conservation-policies.html
Risk assessments


It is safer and much more fun to go wildlife surveying in pairs or in a group. If you are going out alone to record wildlife, ensure that someone knows where you are going and when you will be back. Consider any possible hazards you might come across and what you can do to minimise any risk of injury or accident. This might mean taking certain equipment to assist you or taking into account weather conditions on the day. If the risk is higher, consider not going alone or waiting until another day. Always take care to avoid problems and, whenever an incident occurs, seek qualified assistance as soon as possible.

Potential hazards to be aware of might include:
- Weather – extreme cold or heat, exposure to the sun, ice.
- Habitat – steep slopes, uneven ground, mud, tides, deep water, thorny bushes.
- Animals – livestock, dogs, insect stings and bites.

The following notes are for information only and simply concentrate on a few of the more serious diseases and infections that can affect workers in the countryside. It is important to remember that they are rare, but you should always take action to minimise your risk of exposure.

<table>
<thead>
<tr>
<th>Problem</th>
<th>Symptoms</th>
<th>Prevention</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lyme Disease</td>
<td>Infection may cause red rashes or patches 3-4cm across, usually ring shaped. Flu-like symptoms are also common. Consult a doctor explaining you have been bitten by a tick and may be suffering from Lyme disease. It is treatable with antibiotics.</td>
<td>Wear long trousers tucked in to socks and light coloured clothes so ticks are more visible. Use insect repellent. Check for ticks when undressing as they can stay on clothing before attaching to you. Remove any ticks attached at the mouthpart with tweezers - do not remove by pulling at the body.</td>
</tr>
<tr>
<td>Leptospirosis</td>
<td>Symptoms begin within 3 to 19 days of being exposed to the bacteria. Flu like symptoms are common, including a high temperature and muscle pains. Other symptoms can include conjunctivitis and jaundice.</td>
<td>Wear gloves and boots when in contact with stagnant water or soil. Cover all cuts and broken skin with waterproof plasters. Ensure that water does not get into eyes, nose or mouth do not bite your nails. Always wash your hands and forearms afterwards with soap &amp; water. Use alcohol gel if soap and water is not available. All equipment should be rinsed and dried as soon as possible. Avoid contact with rat urine.</td>
</tr>
<tr>
<td>Blue Green Algae blooms</td>
<td>Illnesses can include skin rashes, eye irritation, vomiting, diarrhoea, fever and pains in muscles and joints.</td>
<td>Avoid algal scum and water around it, in areas where scum is present. Alcohol gel, available from most supermarkets can be useful to take out as part of your basic first aid kit.</td>
</tr>
</tbody>
</table>

All outside workers should be protected by tetanus injection, and anyone carrying out conservation work should check with their doctor that they have an up to date tetanus jab.
Storing and managing your records

There are various ways of storing wildlife records, and as long as they include the “four Ws” (see above) as a minimum set of information they will act as a proper record. However, there are considerable advantages to having records stored electronically: they can be sorted and analysed more quickly, they can be backed up safely, and they can be passed on to recording schemes and others more easily.

**Online systems** are increasingly being used, of which the most well-developed is BirdTrack (for bird records, surprisingly enough!):

- [http://www.bto.org/volunteer-surveys/birdtrack](http://www.bto.org/volunteer-surveys/birdtrack)

iRecord does a similar job for all wildlife species, and allows you to keep track of all your wildlife sightings from all sites:

- [http://www.brc.ac.uk/iRecord/](http://www.brc.ac.uk/iRecord/)

Records can be stored on your own computer using a **spreadsheet**. A number of formats are possible, and the best thing to do is to ask the recording scheme to which you are contributing what format they would recommend. One possibility is to download the free “Species Recorder” spreadsheet from the Sussex Biodiversity Records Centre; this is designed for Sussex use, but can be adapted for other areas:


Spreadsheets are great for keeping simple record lists, but for more complicated analyses and mapping a **database** is the best tool. There are several packages available, or if you wish you can construct your own:

- MapMate: [http://www.mapmate.co.uk/](http://www.mapmate.co.uk/)
  - see also the training material here: [http://mapmate.bsbi.org.uk/](http://mapmate.bsbi.org.uk/)
- AditSite: [http://www.aditsite.co.uk/](http://www.aditsite.co.uk/)
Choosing an existing wildlife survey project – checklist to consider

There are lots of existing survey projects that you can join in with. Here are some things to think about before deciding which survey to devote your time to.

Who is this survey aimed at?
- ☐ beginners/wider public
- ☐ people with some experience of watching wildlife
- ☐ people with a lot of experience of recording wildlife

Does the information provided tell you:
- ☐ Where to do the survey
- ☐ When to do the survey
- ☐ What species to look for
- ☐ What information to record (other than presence of the species)
- ☐ What the survey is for
- ☐ What the results will tell us
- ☐ How the results will be analysed

What prior knowledge is needed to do the survey?

What training is available?

Overall, do you think this survey will create:
- ☐ raised awareness of biodiversity
- ☐ robust data that will be suitable for detailed analysis
- ☐ repeatable methods that can be compared over time
- ☐ an enjoyable survey experience
- ☐ an indication of some environmental change (such as climate change or pollution)

Will the data from the survey will be
- ☐ stored safely?
- ☐ analysed and put to some purpose?
- ☐ made available to others, e.g. national recording schemes and local records centre?