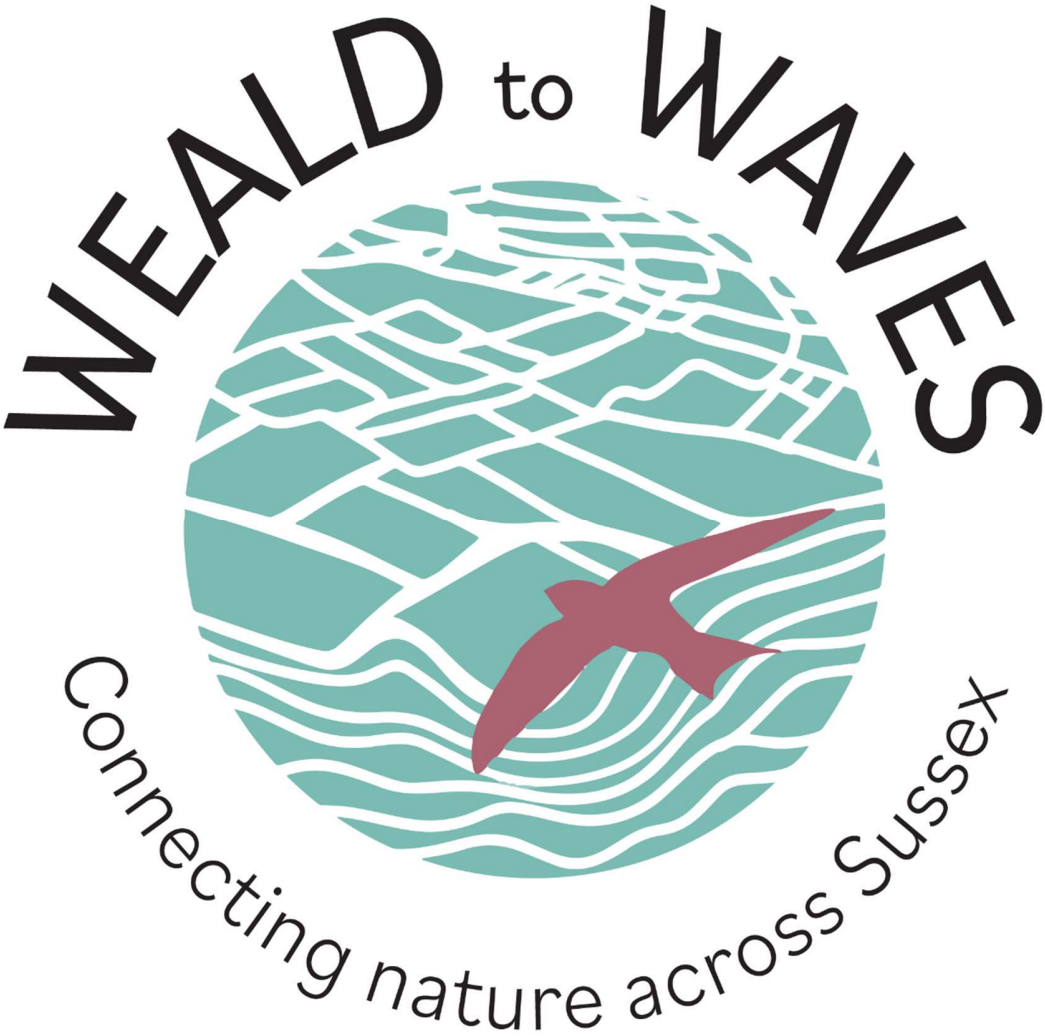


BioBox Loan Scheme

Sussex Wildlife Trust

LLOYDS BANKING GROUP

Sussex Biodiversity Record Centre

Contents

Introduction

How to use this BioBox

This BioBox is designed to encourage and support biological recording. We do not specify how it should be used, this is up to you! The equipment in this box could be used to do ad-hoc surveys, establish long term monitoring schemes, or used in engagement activities such as bioblitzes.Please read your loan agreement for guidance on how this box should be used safely and responsibly. A full checklist is also included in this agreement. Please check this carefully!

Why We Want You to Conduct Wildlife Surveys

The Weald to Waves project aims to create a thriving nature corridor, connecting habitats across the Sussex landscape and supporting biodiversity. By participating in wildlife (ecological) surveys, you are playing a vital role in gathering evidence to help us understand and protect the species and habitats within this corridor.

The Importance of Species Data

Collecting species data is essential for monitoring the health of ecosystems, identifying key areas for conservation, and understanding how wildlife populations change over time. Your findings will contribute to a larger picture of biodiversity within the Weald to Waves corridor, helping to guide conservation efforts and track the success of habitat restoration.

Ecological Baselines Surveys

An ecological baseline survey serves as a starting point for tracking changes in the environment over time. To ensure accurate comparisons, the same methods and level of effort are applied consistently across all survey sessions. This approach eliminates bias and makes the data reliable and comparable.
The frequency of these surveys can vary depending on the species being studied or the timeframe for planned habitat changes. For example:

- For breeding birds, surveys could take place four times annually during the summer months.
- Plant surveys might be conducted less frequently, as changes in plant populations often occur more slowly. For instance, the abundance of spring-flowering plants could be recorded within fixed quadrats every three years during the same month.

Community Collaboration

By involving landowners and community groups, we aim to create a shared sense of stewardship for the natural world. We hope that monitoring using the BioBoxes will not only support conservation but also foster a deeper connection to the wildlife and habitats around you.

How Your Data Makes a Difference

The data you collect will:

- Help identify species present in the corridor.
- Highlight important ‘hot spots’ of species diversity and wildlife abundance
- Highlight areas in need of conservation or restoration
- Inform future initiatives to strengthen and expand the corridor

Join the Weald to Waves Movement!

Whether you're an experienced naturalist or a first-time wildlife surveyor, your contributions are invaluable. Together, we can work to create a resilient landscape for wildlife to flourish, from the Weald to the waves.

Have fun and happy surveying!

Mammal Surveys

Ink Tunnel Trap

Objective: Ink tunnel traps are a method for detecting the presence of small mammals by recording their footprints as they pass through a tunnel with inked surfaces. This survey method is non-invasive, making it ideal for monitoring species without disturbing them.

When to Use: Best used at night or during dawn/dusk when small mammals are most active. Avoid setting up tunnels during heavy rain or strong winds, which can obscure tracks and damage the tunnels.

Where to Set Up

- Along hedgerows, fence lines, river banks (out of the flood-zone) or the edges of woodlands
- Within grassy field margins or meadows
- Near garden compost heaps or log piles
- In areas with evidence of small mammal activity, such as droppings or well-worn pathways

Likely Species

- Wood mice (*Apodemus sylvaticus*)
- Bank vole (*Myodes glareolus*)
- Field vole (*Microtus agrestis*)
- Common Shrew (*Sorex araneus*)
- Hedgehog (*Erinaceus europaeus*)
- Weasel (*Mustela nivalis*)
- Stoat (*Mustela erminea*)

Survey Methodology

BioBox Equipment Required

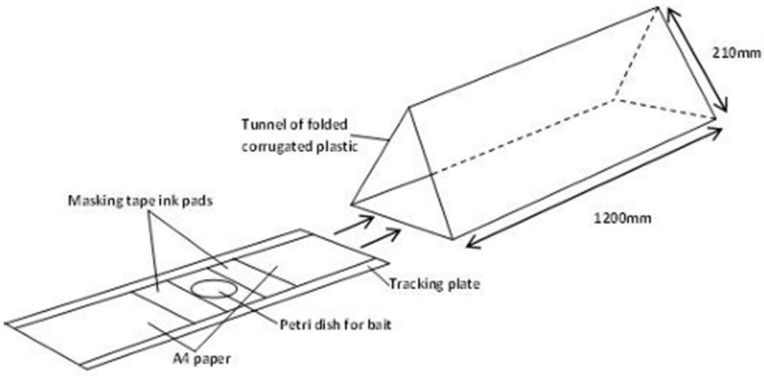
- Powdered charcoal
- FSC Guide to tracks

Other Materials Needed

- White A4 paper
- Cardboard (ideally 1230x1000mm)
- Bait (e.g., wet cat or dog food)
- Masking tape
- Twine or string
- Shallow tray for bait
- Vegetable oil

Ink Tunnel Trap (Continued)

Step-by-Step Instructions



1. **Construct the Tunnel:**
   - Use a knife and a straight edge to cut a piece of the cardboard off that is 210mm x 1000mm. This will make the tracking plate.
   - Fold the remaining cardboard into three equal sections to form a triangle with a flat base.
2. **Prepare the Base:**
   - Cut two pieces of white paper to fit the floor section. Use masking tape to secure the paper to each end of the cardboard.
3. **Attach the Tray:**
   - Place the tray in the middle of the tunnel between the two paper sections. Secure it with tape and place bait on the tray.
4. **Create the Ink Pad:**
   - Fill the gaps between the paper and the tray with strips of masking tape. Mix equal parts charcoal powder and vegetable oil in a bowl and spread liberally over the tape.
5. **Assemble the Tunnel:**
   - Fold up the sides of the cardboard to form a triangular shape. Create holes along the top and secure with string.
6. **Position the Tunnel:**
   - Place the tunnel in a quiet, sheltered location for one week and check it daily for activity.
7. **Record and Identify Tracks:**
   - When tracks appear, photograph them with a ruler placed next to them for scale. Use the provided identification key and online resources to identify which species made the tracks.
8. **Reuse the Tunnel:**
   - If the tunnel is in good condition, replace the used paper and ink mixture. You can set it up again in the same location or move it to a new one.

Health and Safety Considerations

Hygiene and Disease Prevention

- Always wear gloves when handling bait, paper, or traps to avoid direct contact with animal droppings, urine, or saliva, which may carry diseases.
- Wash hands thoroughly after handling traps or associated materials.

Animal Welfare

- Check tunnels daily to ensure no animals are trapped, injured, or in distress.

Site Placement

- Place tunnels in locations where they won't create trip hazards for people or risk being disturbed by pets or other animals.

Camera Trapping

Objective: A camera trap survey is a non-invasive method used to monitor and study wildlife, particularly nocturnal or elusive species, by capturing images or videos of animals in their natural habitats without disturbing them.

When to Use: Camera traps can be used year-round. However, surveys are most effective during active periods for target species, such as early spring to late autumn. Check cameras periodically, depending on settings, battery life and memory capacity, typically every 1-2 weeks.

Where to use: Set camera traps in areas with high wildlife activity, such as animal trails, water sources, or feeding areas. Ideal locations include forests, grasslands, wetlands, and areas with visible signs of animal presence like tracks or droppings. Ensure cameras are positioned where animals are likely to pass, such as near natural features like trees, shrubs, or streams.

Expected Species:
Depending on the placement of the camera trap, expected species may include:

- **Mammals**: Badger, Fox, Hedgehog, Roe Deer and Stoat
- **Birds**: Pheasant, Jay, Blackbirds or owls

Survey Methodology

BioBox Equipment Required

- Python Mini Cable Lock
- SanDisk Ultra Memory Card (64GB)
- Browning Dark Ops Pro X 1080
- Batteries (6x AA)

Camera Trapping (Continued)

Step-by-Step Instructions

1. **Camera Setup**
   - Set camera to the desired settings (refer to manual or instructional video such as: https://tinyurl.com/jhyfa3ar)
2. **Choose a Survey Location**
   - Select a site with visible signs of wildlife activity, such as animal tracks, droppings, trails, feeding areas, or water sources.
   - Choose a quiet, low-foot traffic area to reduce disturbance.
3. **Mount the Camera**:
   - Secure the camera at an appropriate height and angle to capture the target species effectively:
     i. Use the provided straps to position the camera.
     ii. Adjust the camera angle to ensure it covers the desired area.
     iii. Remove or adjust vegetation that might trigger false detections.
     iv. Insert batteries and SD card.
4. **Set Camera Settings**:
   - Set the camera to the appropriate mode based on the survey's purpose:
     i. **Time-lapse mode** for monitoring specific areas over extended periods.
     ii. **Motion-activated mode** for capturing animals as they pass by (choose between still images or videos).
     iii. Adjust the trigger speed, image resolution, and video length.
     iv. For nocturnal species, ensure infrared (IR) setting is activated for clear night images.
5. **Test the Camera**:
   - Test the camera to ensure it is properly detecting movement and capturing images or videos. Make any necessary adjustments.
6. **Deploy the Camera Trap**
   - Leave the camera in place for a predetermined duration.
   - Consider scattering some peanuts or other bait to attract in wildlife.
   - Mark the location using GPS or reference point for easy retrieval.
7. **Data Collection & Review**
   - After the survey period, return to the camera location and retrieve the camera trap.
   - Once retrieved, check the SD card for images and videos. Record any species observed as well as additional information including times of activity and behaviours.

Health and Safety Considerations

Personal Safety
- Obtain landowner permission prior to deploying any equipment.
- Be cautious when traveling to remote locations.
- Wear sturdy footwear and carry a fully charged phone.

Wildlife Welfare
- Animals are sensitive to smells and disturbance; avoid placing cameras in locations where they may disturb nesting or denning sites.

Environmental Considerations
- Ensure camera is securely mounted to avoid harm to animals or damage to equipment.
- Ensure the camera is set up in a location where it won't be damaged by rain, wind, or extreme temperatures. Always check weather forecasts before deploying.

Avoid setting up the camera near public footpaths to reduce the risk of theft or accidental damage. Always use the lock provided.

Bat Transects- Echo Meter Touch 2 & Magenta bat 5 bat Detector

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Objective: An ecological survey transect involves establishing a route through a specific ecosystem and systematically collecting data along its length. Bat transects are a method for detecting and identifying bat species by recording their echolocation calls as they forage or commute.

When to Use: Bat transects are most effective between May and September when bats are most active. Surveys should be conducted shortly after sunset on dry, calm evenings with minimal wind or rain, as adverse weather reduces bat activity.

Where to use: Ideally choose routes with a mix of open and sheltered areas to increase the likelihood of detecting a range of bat species, such as:

- Woodland edges and clearings
- Hedgerows and field boundaries
- Wetlands and watercourses
- Urban parks and gardens

Common Species Found in Sussex

- Common Pipistrelle (*Pipistrellus pipistrellus*)
- Soprano Pipistrelle (*Pipistrellus pygmaeus*)
- Noctule (*Nyctalus noctula*)
- Serotine (*Eptesicus serotinus*)
- Daubenton's Bat (*Myotis daubentonii*)
- Brown Long-eared Bat (*Plecotus auritus*)

Survey Methodology

BioBox Equipment Required

- Echo Meter Touch 2 and/or Magenta Bat 5 bat detector
- **A Guide to British Bats**
- High visibility vest

Other Materials Needed

- Smartphone/tablet with Echo Meter app (for Echo Meter Touch 2)
- Notebook and pen/pencil for field notes
- GPS device or map for route tracking
- Torch or headlamp

We recommend recording with the Bat Conservation Trust Sunset Survey recording form: https://tinyurl.com/26dhfzbz

Bat Transects- Echo Meter Touch 2 & Magenta bat 5 bat Detector (Continued…)

Step-by-Step Instructions

1. **Plan the Transect**
    - Define a route of around 1-3 km that passes through varied habitats to maximise detection opportunities. Avoid areas with excessive noise or light pollution.
    - Practice walking the route first in daylight to ensure it is traversable, mark the route on a printed map or using a route-tracking app.
2. **Prepare the Equipment**

For Echo Meter Touch 2:

- Download the free app from your device's app store and explore its features, including real-time species identification and call recording.
    - Ensure your phone or tablet has sufficient charge and storage space.
    - Change your geographic location to "Europe" and "United Kingdom" to ensure British species are detected.
    - Connect the Echo Meter Touch 2 to your device and test its functionality.

For Magenta Bat 5

- Check the device's batteries and familiarise yourself with the frequency settings for detecting calls.

3. **Start the Survey**
    - Begin the transect shortly after sunset.
    - Walk the route at a steady pace, pausing occasionally to listen for calls.
4. **Record Bat Calls**
    - **Echo Meter Touch 2**:
        - The app will automatically record echolocation calls and display a real-time spectrogram for species identification.
    - **Magenta Bat 5**:
        - Take note of the frequency and characteristics of each detected call, such as rapid clicks or "slaps." The included guide on bats provides identification guidance for echolocation.
5. **Document Observations**
    - Note the time, location, and habitat for each detection.
    - Record environmental conditions (e.g., temperature, wind speed, cloud cover).
    - Use the Echo Meter app or other identification guides to confirm the species that were detected.

Health and Safety Considerations

Personal Safety:

- Obtain landowners permission if surveying off public footpaths
- Ensure you are familiar with your route prior to starting the survey
- Carry a torch or headlamp and wear high-visibility clothing if surveying near roads or footpaths.
- Inform someone of your planned route and expected return time.
- Preferably walk transect in pairs or small groups.

Weather and Environmental Hazards:

- Avoid conducting surveys in extreme weather conditions such as heavy rain, strong winds, or lightning.
- Be mindful of slippery paths, dense undergrowth, or steep slopes that could pose a risk of injury.

Environmental Safety:

- Avoid disturbing wildlife or damaging habitats during the survey.

Equipment Handling:

- Protect electronic devices from moisture or accidental damage by using waterproof cases.

Bird Surveys

Bird Transects & Point Counts

Objective: Bird surveys aim to record the presence, abundance, and behavior of bird species within a given area. An ecological survey transect involves establishing a route through a specific ecosystem and systematically collecting data along its length Transects allow for systematic surveys over a set route, while point counts are ideal for static observation from a single location.

When to Use: Bird surveys are best conducted during the early morning when birds are most active and vocal, typically starting shortly after sunrise. Surveys are ideally performed during the breeding season (late February to early August) to maximise species detection.

Where to use:

> **Transects**: Conduct in woodlands, meadows, coastal paths, farmland, or urban parks. Choose routes that encompass diverse habitats to record a variety of species.
>
> **Point Counts**: Ideal for gardens, local parks, or green spaces. Select an open spot with good visibility of trees, shrubs, and other features that attract birds.

Common Species Found

- **Woodlands**: Blue Tit, Great Tit, Nuthatch, Treecreeper, Blackbird
- **Grasslands**: Skylark, Meadow Pipit, Yellowhammer
- **Urban Areas and Gardens**: House Sparrow, Starling, Robin, Blackbird, Goldfinch
- **Wetlands or Coastal Areas**: Mallard, Lapwing, Moorhen, Curlew

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Survey Methodology

BioBox Equipment Required

- Binoculars
- FSC Birds Wildlife Pack
- FSC Garden Safari Wildlife Pack

Other Materials Needed

- Method of recording data
- GPS device (Optional)
- Route map

We recommend recording with the BTO Breeding bird survey recording sheet: https://tinyurl.com/atcds6wc

Bird Transects & Point Counts (Continued…)

Step-by-Step Instructions

Bird Transects

1. **Plan the Route**
    - Determine a transect route through diverse habitats. The length can vary depending on the survey area.
    - Practice walking the route beforehand to ensure it is safe and accessible
    - Use GPS or a map to mark the route, noting clear starting and ending points.
2. **Set Up for the Survey**
    - Conduct the survey early in the morning or late afternoon when birds are most active.
3. **Conduct the Transect**
    - Walk the route slowly and steadily, recording all birds seen or heard within a predefined distance.
    - Categorise distances of birds from the transect line as:
        i. within 25 metres
        ii. between 25-100 metres
        iii. more than 100 metres.
    - Record species, number of individuals, and observed behaviours (e.g., feeding, singing, territorial displays). Use the BTO two-letter codes if familiar.
    - Avoid recounting the same individuals where possible to ensure accuracy.
8. **Data Recording**:
    Note down species, date, time, and environmental conditions (e.g., weather, temperature).
    - For birds in mixed flocks, estimate the number of adults.
9. **Repeat the Survey**
    - Conduct multiple (a minimum of 4 visits) during the breeding season for consistency.

Point Counts

1. **Select a Location**
    - Choose a single spot with good visibility and proximity to trees, shrubs, (or feeders if in a garden).
2. **Prepare for Observation**
    - Settle into the location quietly for a few minutes before starting the survey to reduce disturbance.
3. **Conduct the Survey**
    - Use binoculars to observe birds within a set radius (e.g., 20 meters) for a fixed time (e.g., 10 minutes).
    - Record species, number of individuals, and observed behaviours.
4. **Document the Data**
    - Note the date, weather conditions and time of day for reference.
5. **Repeat the Survey**
    - Perform point counts at the same time of day on multiple occasions to enhance reliability.

Health and Safety Considerations

Personal Safety:

- Obtain landowners permission if surveying off public footpaths
- Ensure you are familiar with your route prior to starting the survey
- Wear appropriate footwear for uneven terrain and dress for the weather, including waterproof clothing if necessary.
- Carry a fully charged mobile phone, map, or GPS device in case of getting lost, especially in remote areas.

Weather and Environmental Hazards:

- Avoid conducting surveys in extreme weather conditions such as heavy rain, strong winds, or lightning.
- Be mindful of slippery paths, dense undergrowth, or steep slopes that could pose a risk of injury.

Wildlife and Plant Safety:

- Keep a safe distance from nesting birds and avoid disturbing wildlife.
- Be cautious of hazardous plants like nettles or brambles

Health Precautions:

- Bring water, suncream, and insect repellent to stay hydrated and protected from sunburn or bites.
- Check for ticks after the survey, especially if working in areas with long grass or dense vegetation.

Fieldwork Logistics:

- Inform someone of your survey route and estimated return time, particularly if working alone.
- Carry a first aid kit for minor injuries or emergencies.

Reptile Surveys

Reptile Survey Refugia

Objective: Artificial refugia constructed of corrugated roofing material provide shelter and warmth, attracting reptiles and allowing for easy observation and identification.

When to Use: Surveys are most effective during spring and early autumn when reptiles are most active (generally mid-March to late September). Check refugia in the morning or late afternoon, as reptiles are likely to be basking at these times.

Where to set up: Choose quieter, secluded areas and avoid anywhere used regularly by dog walkers. Place reptile refugia in areas with abundant cover, such as grasslands, woodland edges, heathlands, and scrub. Ideal locations include sites near ponds, marshes, or close to stream edges for damp-loving species (avoid flood zones areas during heavy rains). Ensure refugia are positioned in sunny spots, essential for warming them up, with nearby vegetation or rocks for shelter and safety. Avoid overly wet or disturbed areas.

Common Species Found Using Reptile Refugia

- **Reptiles:**
  - Slow Worm (*Anguis fragilis*)
  - Common Lizard (*Zootoca vivipara*)
  - Grass Snake (*Natrix helvetica*)
  - Adder (*Vipera berus*)
- **Amphibians (Occasionally):**
  - Common Frog (*Rana temporaria*)
  - Common Toad (*Bufo bufo*)
  - Smooth Newt (*Lissotriton vulgaris*)
- **Small Mammals (Occasionally):**
  - Shrews, voles, and mice may also use refugia as shelter

<u>Survey Methodology</u>

BioBox Equipment Required

- Artificial reptile refugia (Number required depends on survey area)
- Reptile Identification Guide

Other Materials Needed

- GPS device or notebook to record refugia sites
- Gloves

We recommend recording with the Froglife reptile survey form: https://tinyurl.com/ycxsjn4m

Reptile Survey Refugia (Continued)

Step-by-Step Instructions

1. **Prepare and Place Refugia:**
   - Identify locations based on habitat suitability. A baseline density of **10 refugia per hectare** is recommended, but higher densities will increase detection chances.
   - Ensure refugia are laid flat and securely positioned to prevent movement by wind or animals.
   - Space refugia evenly across the site to ensure thorough coverage. If targeting reptile hotspots, position refugia closer together, at a density of **2 to 5 meters apart** along suitable habitat areas.
2. **Mark and Record Locations:**
   - Label each refugia with a unique number.
   - Use a GPS device or create a detailed site map to record the exact placement of each refugia.
3. **Allow Settlement Time:**
   - Leave refugia undisturbed for at least **1 to 2** weeks to allow reptiles to discover and begin using them.
4. **Conduct Survey:**
   - Check refugia in the **morning** or **late afternoon** when reptiles are basking or seeking shelter.
   - Walk quietly and tread gently to avoid alerting reptiles, as they can sense ground vibrations.
   - Scan the upper side or adjacent spots for basking lizards before lifting.
   - Carefully lift refugia, ensuring minimal disturbance underneath. Be cautious of fast-moving or hidden animals.
5. **Record Observations:**
   - Identify and count reptiles under refugia using the identification guide.
   - Note life stage (adult or juvenile), notable behaviour, and environmental conditions (e.g., temperature, cloud cover, humidity).
   - Take photographs for identification confirmation and record-keeping.
   - Only handle reptiles if licensed and trained. Minimise stress by handling only briefly, using gloves and releasing carefully.
6. **Complete the Survey:**
   - Repeat checks during the active reptile season (spring to early autumn).
   - After the final survey, remove all refugia materials to prevent littering or habitat disruption.

Health and Safety Considerations

Personal Safety:

- Obtain landowner permission prior to deploying any equipment.
- Wear gloves to protect against sharp edges, hidden insects, or potential reptile bites
- Be cautious of uneven terrain, such as rocky or wet areas, when placing or checking refugia.
- Check yourself over for ticks after the survey, especially if working in areas with long grass or dense vegetation

Wildlife Welfare:

- Do not place adjacent to paths or in places where disturbance by dogs or curious people is likely to occur.
- Take care when lifting refugia to avoid injuring any animals sheltering underneath.

Environmental Considerations:

- Avoid placing refugia in areas prone to flooding or high human traffic.
- Ensure that refugia are securely positioned to prevent them from being disturbed by wind or animals.
- Remove all materials at the end of the survey.

Invertebrate Surveys

Pond Dipping

Objective: Pond dipping is a hands-on method for studying aquatic biodiversity including freshwater invertebrates, amphibians, and other small aquatic life. By collecting and observing organisms in a pond or freshwater habitat, this survey method provides valuable insights into species composition, water quality, and ecosystem health.

When to Use: Spring and summer are ideal, as aquatic life is most active during warmer months. Surveys are best conducted during daylight hours to maximise visibility and sampling success.

Where to conduct survey: Conduct pond dipping surveys in shallow, accessible areas of ponds, lakes, or slow-moving streams with diverse aquatic vegetation. Choose sites with a mix of sun and shade, avoiding strong currents, steep banks, or heavily polluted waters. ALWAYS ensure children are supervised around water and carefully follow risk assessments (see your loan hire agreement).

Species likely to be detected:

Invertebrates:

- Water Boatmen (*Corixidae*)
- Pond Skaters (*Gerridae*)
- Water Beetles (*Dytiscidae*)
- Freshwater Shrimp (*Gammarus pulex*)
- Damselfly and Dragonfly Nymphs (*Zygoptera* and *Anisoptera*)
- Caddisfly Larvae (*Trichoptera*)
- Water Snails (*Lymnaea* and *Planorbidae*)

Vertebrates:

- Tadpoles (Frogs and Toads)
- Newts (Smooth, Palmate, Great Crested)
- Stickleback fish

<u>Survey Methodology</u>

BioBox Equipment Required

- White tray
- Clear plastic magnifier
- Collecting pot
- Pond net
- Pipette
- FSC Wildlife Pack: Ponds

Pond Dipping (Continued)

Step-by-Step Instructions

1. **Prepare Your Equipment:**
    - Fill a white tray halfway with pond water to create a safe temporary environment for your catch.
2. **Sweep the Pond:**
    - Use the net to make sweeping motions in a figure of eight pattern.
    - Sweep at varying depths (surface, middle, and bottom) to account for species living at different levels of the pond.
    - Avoid churning up the pond bottom excessively, as this can disturb sediment and harm delicate organisms.
    - Quickly lift the net out of the water to retain the catch.
3. **Transfer the Catch:**
    - Move away from the pond edge and immediately empty the contents of the net into the tray of pond water.
    - Rinse the net by swishing it in the tray to ensure all organisms are transferred.
4. **Examine and Identify:**
    - Allow sediment to settle in the tray before examining your catch.
    - Use the identification key to identify and record species, taking photos if possible, for documentation.
    - Use a pipette and collecting pot to isolate smaller organisms for closer observation, especially if using a magnifying glass.
5. **Repeat Sweeps:**
    - After recording the catch, refill the tray with fresh pond water and repeat the process.
    - Cover different areas of the pond and vary your sweeping technique.
6. **Explore the Pond Bottom (Optional):**
    - If searching the bottom of the pond, ensure you carefully sift through sediment to avoid damaging any species.
7. **Return the Organisms:**
    - Before moving to a new location or ending the survey, gently return all collected organisms back to the pond.
    - Rinse all equipment thoroughly after use to prevent the spread of invasive species or contaminants between water bodies

Health and Safety Considerations

Personal Safety:

- Obtain landowners permission prior to conducting a survey
- Wear appropriate footwear or waders to avoid slipping or getting wet in muddy areas.
- Avoid entering deep or unstable areas of the pond.
- Avoid leaning too far over the water to prevent falling in. Only sample within comfortable reaching distance.
- Never survey near water alone, ensure children are kept under supervision, always use a risk assessment.

Wildlife Welfare:

- Handle organisms with care, minimizing stress or injury.
- Release all organisms back into their habitat as soon as possible. Do not move animals between ponds.
- Beware of leaving any predators in the containers for too long as they may eat the rest of your catch. It's often helpful to separate carnivores out from the rest of your catch.
- Keep the trays in a shaded areas to prevent overheating or stressing the organisms.
- Clean nets and trays between surveys to prevent cross-contamination between sites.

Hygiene:

- Avoid direct contact with pond water, as it may contain harmful bacteria or pollutants.
- Wash hands thoroughly after the survey, especially before eating or drinking.

Sweep Netting/ Beating Sheet

Objective: Sweep netting and beating sheet surveys are complementary methods for sampling and identifying invertebrates in vegetation. Sweep nets target flying and surface-dwelling insects in grasses and shrubs, while beating sheets capture insects and other invertebrates dislodged from trees and bushes.

When to Use: Conduct surveys from spring to late summer when invertebrate activity is highest. Perform these surveys during dry weather with minimal wind to maximise catch sizes.

Where to use: Sweep netting is best conducted in habitats such as grasslands, meadows, field margins, hedgerows, low shrubs, and wetland edges where dense vegetation supports insect populations. Beating sheets are ideal for use under woodland edges, tree canopies, isolated shrubs, bushes, and dense hedgerows where insects often reside.

Common Species Groups Found

Sweep Netting:
- Grasshoppers, crickets, and leafhoppers
- Butterflies and moths
- Beetles (e.g., ladybirds and ground beetles)
- Flies

Beating Sheets:
- Spiders
- Caterpillars
- Beetles (e.g., weevils and bark beetles)

Survey Methodology

Biobox Equipment Required

- Sweep net
- White beating sheet
- White sampling tray
- Magnification boxes/ magnifying glasses
- FSC Wildlife Pack: Winged Insects
- FSC Garden Safari Wildlife Pack

Other Materials Needed

- Notebook and pen

Sweep Netting/ Beating Sheet (Continued)

Step-by-Step Instructions

Sweep Netting Survey

1. **Prepare Equipment:**
   - Check your sweep net is in good condition and has a sturdy frame.
   - Have a white tray and collecting containers ready to examine your catch.
2. **Survey Area:**
   - Select an area with tall vegetation such as grasslands, meadows, or vegetation along hedgerows.
3. **Begin Sweeping:**
   - Hold the net with both hands, sweeping through the vegetation in a figure-of-eight motion or in an arc.
   - Vary the height of your sweeps to collect a variety of species.
4. **Collect Specimens:**
   - Sweep the net across an area for about 1-2 meters and quickly pull the net upward.
   - Carefully empty the contents into the white tray or collecting containers.
5. **Examine and Identify:**
   - Inspect the specimens collected, using a magnifying glass if necessary for smaller insects.
   - Use the identification guide to identify and record species, taking photographs if necessary.
6. **Repeat the Process:**
   - Sweep in different areas of the vegetation to gather a variety of species.
   - Keep a record of species and numbers in a field notebook.
7. **Handle Specimens Carefully:**
   - Handle specimens gently to avoid injury.
   - Promptly and carefully release the insects after you have identified or photographed them.

Beating sheet Survey

1. **Select a Location:**
   - Choose trees or shrubs likely to harbour insects, include a variety of plant types for a diverse sample.
2. **Set Up the Beating Sheet:**
   - Hold the sheet horizontally under the branches you'll survey, ensuring it covers a wide area.
3. **Tap the Branches:**
   - Gently tap or shake branches above the sheet using a stick or pole to dislodge insects without damaging the tree.
4. **Collect and Record:**
   - Inspect the sheet and use pooters or containers to safely collect insects.
   - Identify specimens using the identification guide and record your findings.
   - Release insects after recording, unless specimens needed for further examination with a microscope.

Health and Safety Considerations

Personal Safety:

- Obtain landowners permission prior to conducting a survey
- Wear gloves to protect hands from potential insect stings or bites from species like bees or wasps.
- Be cautious of rough or uneven terrain, such as muddy, slippery, or rocky areas that could lead to slips and falls.
- Be cautious of hazardous plants like nettles or brambles
- Check yourself over for ticks after the survey, especially if working in areas with long grass or dense vegetation
- Wear appropriate footwear to protect against sharp objects or uneven ground.

Wildlife Welfare:

- Handle insects gently and promptly return them to their habitat to minimise stress or injury.
- Avoid over-handling delicate species, especially those with fragile exoskeletons or those that are not easily identified.

Environmental Considerations:

- Ensure that sweeping does not damage the habitat or disturb rare or protected species. Avoid excessive disturbance to the vegetation

Moth trap

Objective: The NHBS moth trap starter kit is a portable and lightweight tool designed for the effective monitoring and study of moth populations. This non-lethal method enables species identification, behavioral observation, and data collection.

When to Use: Set up the trap at dusk and leave it running overnight, ensuring you bring it in before first light in the morning. Conduct trapping during warm, dry nights for the best results, as moth activity decreases in cold or wet conditions.

Where to set up: Place the moth trap in sheltered, dark areas away from competing light sources, such as woodlands, gardens, meadows, or near nectar-rich plants like honeysuckle and buddleia. Avoid exposed or windy locations and position the trap on stable ground to attract the widest variety of moth species.

Common species in Sussex:

- Angle shades (*Phlogophora meticulosa*)
- Herald (*Scoliopteryx libatrix*)
- Peppered moth (*Biston betularia*)
- Brimstone moth (*Opisthograptis luteolata*)
- Cinnabar moth (*Tyria jacobaeae*)
- Buff Ermine (*Spilosoma luteum*)

Survey Methodology

BioBox Equipment Required

- NHBS Moth trap starter kit
- Moth trap
- Carry Bag
- Instruction manual
- 20W BL368 Blacklight Bulb x1
- Power supply
- 125ml Collecting pots x3
- Concise Guide to the Moths of Great Britain and Ireland

Other Materials Needed

- Egg boxes

Moth trap (Continued)

Step-by-Step Instructions

1. Assemble the Trap:
- Follow the manufacturer's instructions to set up the trap components, ensuring the frame, funnel, and light source are securely attached.
- Check all parts for stability before proceeding.
- **When installing the blacklight bulb:**
  - **i.** Screw the bulb tightly to ensure a waterproof seal but avoid overtightening to prevent damage to the contact within the holder.
  - **ii.** If the bulb does not light, turn off the trap, tighten the bulb slightly more, and test again.

- **Choose a Suitable Location:**
  - Select a sheltered, open area away from artificial light to reduce interference.
  - Place the trap on level ground, ideally near diverse vegetation or habitats that support a variety of moth species.
  - Keep trap away from wet areas where it may get damaged.

3. Prepare the Trap Interior:
- Line the inside of the trap with egg cartons or similar materials to provide resting spaces for captured moths.

4. Activate the Trap:
- Turn on the light source at dusk, as moths are most active during the night.
- Check the trap periodically to ensure it is functioning correctly, especially during windy conditions.
- Do put out the trap during heavy rain

5. Data Collection:
- Turn off the light source before dawn to prevent moths from overheating or escaping.
- Carefully remove moths from egg boxes, use collecting pots if necessary.
- Use an identification guide to record and list species, taking photographs for documentation.
- Record the weather conditions and the date that on which the trap was switched on, irrespective of when the moths arrived or when you checked.
- Release moths safely near the trapping site to minimise stress.

Health and Safety Considerations

Personal Safety:
- Obtain landowners permission prior to conducting a survey
- Avoid handling the light source while it is active to prevent burns or electric shock.
- Refrain from using moth trap during adverse weather such as heavy rain.
- Keep power sources dry and well-covered
- Use a headlamp or flashlight to navigate safely and ensure you can see obstacles, uneven ground, or hazards in the dark.
- Wear reflective clothing if near roads or paths used by vehicles.

Wildlife Welfare:
- Handle moths gently and avoid prolonged exposure to light to reduce stress.
- Ensure all moths are released promptly after identification into nearby vegetation or cover

Environmental Safety:
- Set up the trap away from water sources or areas where the light may disturb other wildlife.

Plant Surveys

Quadrats For Ground Flora

Objective: Quadrat sampling is a systematic method used to assess the presence of species within a specific area. This method is particularly effective for studying low-growing plant species, ground-dwelling invertebrates, or sessile organisms

Where to use: Quadrats can be used in diverse habitats such as grasslands, woodlands, heathlands, and coastal areas. Select areas representative of the study site or those with varied vegetation or species densities.

Common Species:

Grasslands: Buttercups, Daisies, Clover, Meadow Grass, Ants, Beetles
Woodlands: Bluebells, Ferns, Leaf Litter Invertebrates (e.g., Millipedes, Woodlice)
Coastal Areas: Marram Grass, Lichen, Seaweeds, Barnacles, Coastal Beetles, Sandhoppers

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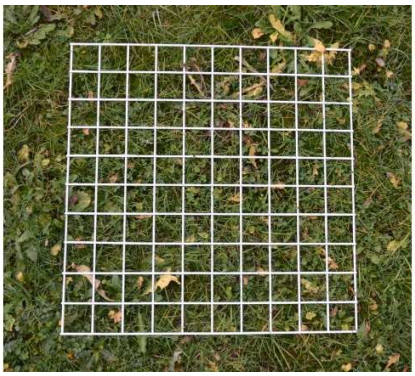
Survey Methodology



BioBox Equipment Required

- Quadrat frame
- Plant, invertebrate, coastal species identification guide
- FSC Wildlife Pack: Seashores
- Plant Identification for Phase 1 Habitat Survey: Grassland and Marsh

Other Materials Needed

- Recording sheet or notebook
- GPS device or site map for location tracking

Quadrats (Continued)

Step-by-Step Instructions

1. **Place the Quadrat**
   - Lay the quadrat frame flat on the ground at the selected location.
   - Ensure the quadrat is stable and fully within the target area without overlap or gaps.
2. **Survey Within the Quadrant**
   - Systematically observe and identify all species within the quadrat.
   - Record each species' presence on a data sheet.
   - If assessing species abundance, note either:
     i. The **total number** of individuals.
     ii. The **percentage cover** of each species (estimate if necessary).
3. **Measure Environmental Variables** (optional)
   - Note soil type, vegetation cover, moisture levels, or other relevant environmental factors.
4. **Document Observations**
   - Record observations, including survey date, habitat features and any unusual findings.
   - Use photographs to supplement notes, particularly for species or conditions that are difficult to describe.
5. **Repeat and Expand Coverage**
   - Move to the next survey point and repeat the process.
   - Complete the survey across all predetermined locations, ensuring consistent methods.

Health and Safety Considerations

Personal Safety:

- Obtain landowners permission prior to conducting a survey
- Wear sturdy boots to navigate uneven terrain and avoid injuries.
- Be mindful of potential hazards such as brambles, thorns, or rocky ground.
- Check yourself over for ticks after the survey, especially if working in areas with long grass or dense vegetation

Environmental Safety:

- Take care not to trample sensitive vegetation when placing the quadrat.
- Avoid sampling in areas with nesting birds or other protected wildlife.

Equipment Safety:

- Inspect the quadrat frame for sharp edges or damage before and after use.

Submit your findings to iRecord

What is iRecord?
iRecord is an online platform designed to help record and share wildlife observations. It allows individuals and organisations to submit their findings, which are then verified by experts and added to national biodiversity datasets. These records contribute to scientific research and conservation efforts by providing a clearer picture of species distributions and trends.

Why Use iRecord?
Uploading your species findings to iRecord ensures that your observations:

- Contribute to the wider understanding of species distributions and population trends.
- Support conservation initiatives by providing valuable data for policy and planning.
- Are reviewed and validated by experts, increasing the reliability of your records.

How to Use iRecord

- **Sign Up**:
  - Visit https://irecord.org.uk/ or download the app and create an account.
- **Submit Your Records**:
  - Log in and navigate to the Weald to Waves activity using this link: https://irecord.org.uk/join/weald-to-waves to enter a casual record or a list of species observations.
  - Input details (as a minimum should include the species name, date of observation and its precise location, either using the inbuilt map or entering a grid reference). Optional data fields include life stage, breeding behaviour, habitat type and any additional comments.
  - Upload photos to support identification where possible.
- **Review and Track Your Data**:
  - Once submitted, your records will be reviewed by a network of expert verifiers.
  - You can view and manage your submissions through your account dashboard via the website.
  - Use the species map and create filters

Additional Resources

More information on monitoring wildlife can be found in the Sussex Wildlife Trust booklet included in each BioBox!

Identification Tools

Apps

It is important to note that AI tools will have limitations when it comes to wildlife identification and should be used with caution. We recommend double checking what an ID app tells you by comparing photos online, checking an ID book or contacting an expert.

- **iNaturalist**: A global platform to upload photos of wildlife for identification by a community of experts and enthusiasts. Great for beginners, but the database can sometimes use American names rather than UK based ones.
    - Website: www.inaturalist.org
    - Features: Photo uploads, AI-assisted species ID, community input.

- **Seek by iNaturalist**: An app that uses your camera to instantly ID plants, animals, and fungi.
    - Website: www.inaturalist.org/pages/seek_app
    - Features: Offline functionality, badges for discoveries.

- **ObsIdentify by the Observation International Foundation:** Developed by a non-profit in The Netherlands, the app gives a percentage accuracy rating to help provide confidence in your record. It also draws from a European species database, meaning closer matches to our species in the UK. Good for identifying plants, large invertebrate such as moths, and fungi.
    - Website: https://observation.org/apps/obsidentify/
    - Features: Offline functionality, percentage accuracy rating, badges for discoveries.

Websites:

- RSPB Bird Identifier: comprehensive tool for identifying birds by appearance, behaviour, or location.
    - Website: www.rspb.org.uk
- UK Butterfly Monitoring Scheme: Resources for identifying butterflies in the UK.
    - Website: www.ukbms.org

Conservation and Citizen Science Resources

- **Froglife**: Resources for amphibian and reptile surveys, including ID guides and survey techniques.
    - Website: www.froglife.org
- **Butterfly Conservation**: Guidance on butterfly and moth recording and monitoring.
    - Website: www.butterfly-conservation.org
- **Plantlife**: Information and guides for identifying wildflowers and plants in the UK.
    - Website: www.plantlife.org.uk