

General reminder

DON'T FORGET

EQUIPMENT: Clip-board with sufficient lined and plain paper; record sheets; plastic sheets (as rain cover); bird outline guide-sheets (supplied here as sheets 1–4 for photocopying); sharp pencils (HB); penknife; eraser; binoculars, 8 x 32 or 10 x 40, preferably rubber-coated for protection (with case to keep dry if raining); sheet with list of abbreviations to be used for species recorded (see Appendix in chapter 12, page 242); stop-watch or wrist watch, with elapsed-time facility; map of area to be sampled with suitable detail locations; bird identification books; plastic/cloth bags and labels for specimen samples; alcohol (methylated spirits is suitable if no alternative) or 5% formalin; syringes; paper towels; insect repellent; suitable clothing; food; water; haversack for equipment.

Method

Plan your sampling regime before you go into the field, decide the method to be used and follow it through.

- Undertake the sampling early and up until 09.30 h, or in the later afternoon, after 15.30 h.
- Mark any sample bags as soon as they are used. Never leave this task until later as you will forget the details.
- Do not be tempted to remain longer at any one site than you have allowed just because there are many birds present.
- Only record those genera and species you are certain are correctly identified or that you have identified in a form that you can use on all future counts (e.g. reference numbered, outline guides on sheets 1–4).
- For feeding parties of birds, either record their presence or absence in number classes (1–5, etc.).
- When recording raptors, it is possible during the nesting season to search for nests: note the presence or absence of green vegetation in the nest, or food debris on the ground beneath the nest to confirm occupancy.
- Be aware of migrant species that are uncommon or possibly occurring in confusing immature or female plumage.
- During sampling, keep detailed field notes (either hard copies or on a tape recorder, which will be transcribed later).
- Specimens collected for subsequent pesticide residue analysis must be labelled, preserved (if necessary) and carefully packed.
- Do not forget to note any important information on vegetation, unusual weather, or over-run of time spent during observations.

Tip: *Never rely on your memory to store field data, it always ends up in a muddle! Write information down or use a tape recorder (check batteries, bring spares!).*

OTHER CONSIDERATIONS

Mark the sampling sites/quadrats/transects for future visits, use waterproof paint (or spray paint if available).

Be sure of your chosen census technique and planned approach.

Timed point counts

DON'T FORGET

EQUIPMENT: Binoculars; clip-board (carry a plastic bag in your pocket into which you can put the board if it rains); data recording sheets; copies of Appendix A; sharp pencils; eraser; penknife; blank sheets of paper for additional notes; field guide to bird identification; a watch or stop-watch.

Thoroughly check all equipment before you go into the field.

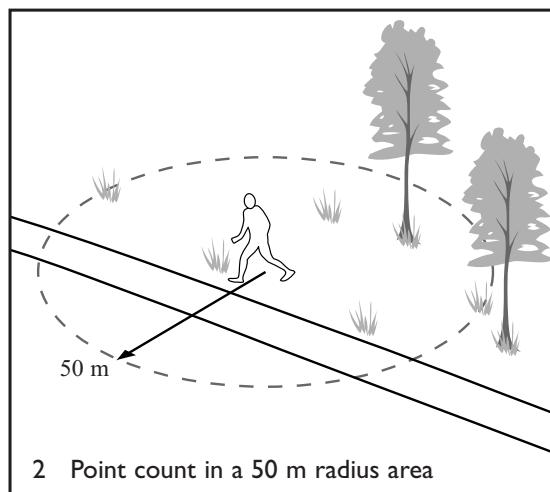
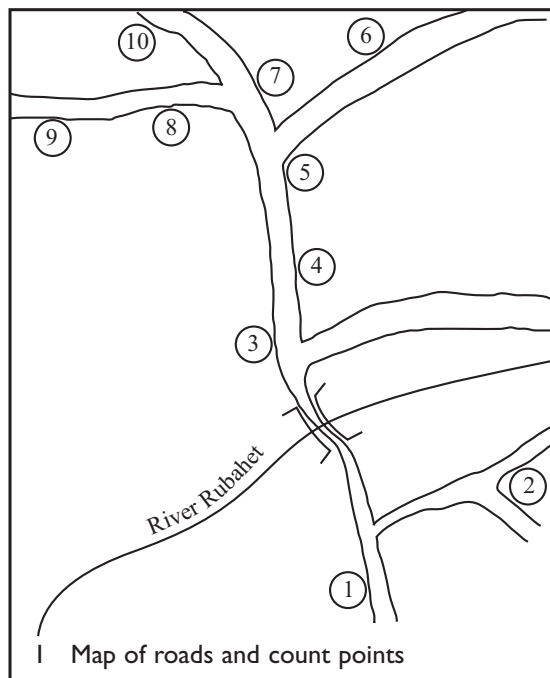
Identify and mark the sample points in each area during preliminary surveys. Number each sample point clearly with rainproof paint on a rock, tree trunk or other permanent structure. Mark the roads and sample points on a map (see diagram 1).

Describe the habitat (topography, soil, trees, shrubs and herbs/grasses, land use, etc.) around each sample point.

Prepare and annotate the data recording sheets.

Method

- On arrival for the survey, complete the first part of the data recording form, i.e. sample area, date, time and wind speed and cloud cover (in octas, i.e. the amount of cloud cover currently visible imagining the sky divided into eight equal parts, each part is one octa). This allows time for birds to 'settle' after your arrival.
- Identify the 50 m radius area of the sample point in which birds seen or heard will be counted. Make a written note of the landmarks which identify the extent of the area.
- Record the time of starting the survey.
- Start the stop-watch on arrival at the first point. Walk slowly around the area within a 50 m radius of the first point. Ignore birds seen beyond the 50 m limit, but count any bird heard within the 50 m area (see diagram 2).
- Record numbers of *ALL* species of interest seen or heard during a set time period (3–10 min).
- If a bird party containing species of interest is present in the sampling area, extend the sampling period up to 10 min, if necessary, to enable their enumeration. Note the extra time spent.
- If a flock of birds is heard but not seen, record the presence of a flock on the record sheet with the letter F.
- Stop recording at the end of the pre-determined sample period.
- Record the time each count ends.
- After completing the sampling period, walk or drive to the next point and repeat the process.
- Check the data sheet for legibility as soon as possible upon return to the office, as the data will be fresh in your mind.



OTHER CONSIDERATIONS

Visit every census point in a sample area.

If you are likely to collect dead birds, take:

- a 20 ml syringe for injecting formalin into the abdomen and brain of specimens collected
- a solution of 5% formalin in a secure container (disposable rubber gloves if available)
- a supply of strong polythene bags, and a means of fastening them (plastic-coated wire is good, or simply tie a knot in the top of the bag if you have sufficient and are not concerned about re-using them)
- some stout labels made from white card and a pencil to write labels.

Wear suitable clothing (preferably camouflaged) for the prevailing conditions, and take food, water and insect repellent. Let somebody know your route in case of breakdown.

In habitats with a high density of birds it is easy to be uncertain whether an individual has already been recorded. If in doubt, do not record.

The actual duration of the 'count' depends on the habitat and species of interest. If counts are too short then individuals are likely to be overlooked; if too long, some may be counted twice (or more).

Transect counts

DON'T FORGET

EQUIPMENT: Binoculars; clip-board (carry a plastic bag in your pocket into which you can put the board if it rains); data recording sheets; a plan of the area with the transect routes mapped; sharp pencils; eraser; penknife; notebook for additional notes; field guide to bird identification; a watch.

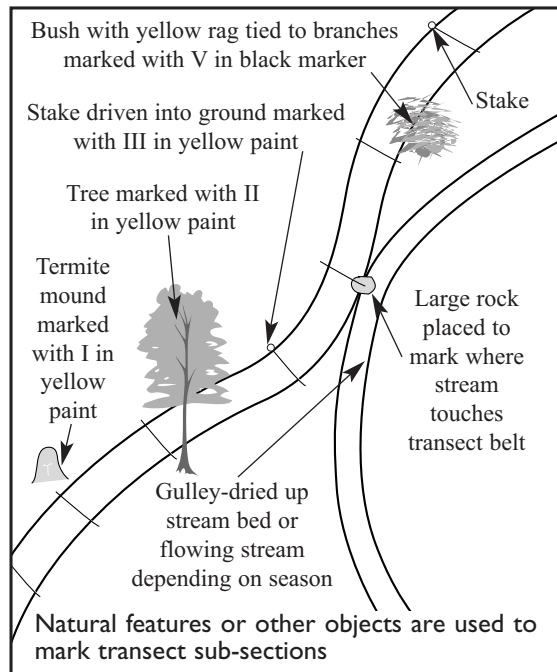
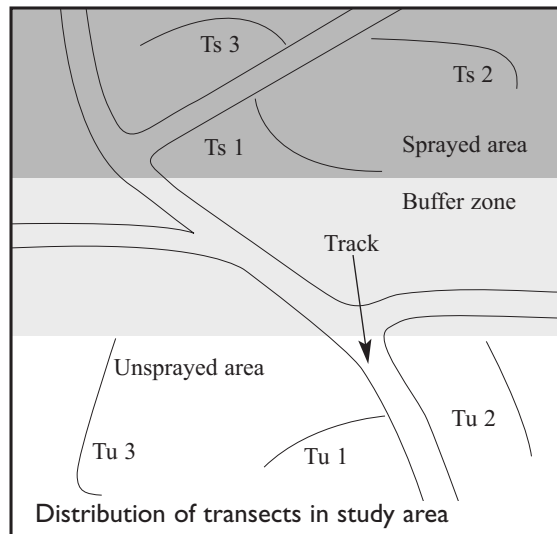
Thoroughly check all equipment before you go into the field.

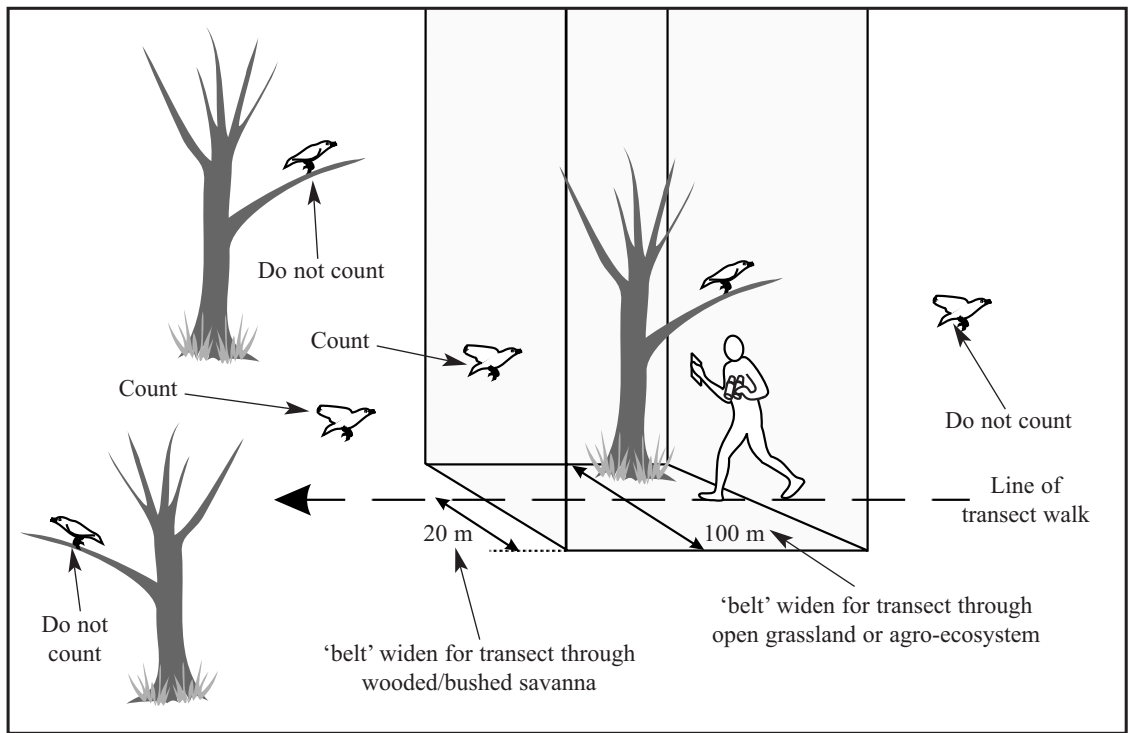
Visit all possible transect sites in the study area (sprayed and unsprayed) and select about 8 km of transect in the area to be sprayed and about 8 km outside. Walk and sub-divide transects into approximately equal sub-sections and mark sub-section boundaries with rainproof paint or plastic streamers.

For the best visibility, choose routes where the sun will be behind you during the sampling period. Prepare maps of the study areas showing transects and sub-divisions (note landmark features which identify sub-division boundaries and keep a written record of these).

Method

- Aim to cover 4 km of transect in a morning's observation (i.e. four transects of 1000 m in 4 h).
- On arrival, complete the first part of the data recording form, i.e. sample area, date, time and wind speed and cloud cover (in octas, i.e. the amount of cloud cover currently visible imagining the sky divided into eight equal parts, each part is one octa).
- Note the time of starting.
- Walk at a slow steady pace along the transect, pausing only if necessary to identify and record numbers of **all** species of interest seen or heard within the agreed transect width (e.g. 20 m). Stop at the end of each transect sub-section and note vegetation, temperature, etc.
- Record the time the transect count ends.
- Check the legibility of your records as soon as possible on return to the laboratory.





OTHER CONSIDERATIONS

On repeat visits, cover the same length of transect as on previous occasions.

If you are likely to collect dead birds, take:

- a 20 ml syringe for injecting formalin into the abdomen and brain of specimens collected
- a solution of 5% formalin in a secure container, disposable gloves if possible
- a supply of strong polythene bags, and a means of fastening them (plastic-coated wire is good, or simply tie a knot in the top of the bag if you have sufficient and are not concerned about re-using them)
- some stout labels on which to add all relevant field data made from white card and a pencil to write labels.

Wear suitable clothing (preferably camouflaged) for the prevailing conditions, and take food and water.

The length of a transect will depend on the habitat type. Suggested distances are:

150–400 m in closed habitats (rainforest, brush, reedbeds, etc.)

250–1500 m in open habitats (grassland, agricultural land, open savanna, woodland, etc.).

Territory mapping

DON'T FORGET

EQUIPMENT: Binoculars; clip-board with a detailed map of the study area (carry a plastic bag in your pocket into which you can put the board if it rains); sharp pencils; eraser; penknife; tape recorder and cassette with pre-recorded song of the species of interest.

Thoroughly check all equipment *before* you go into the field.

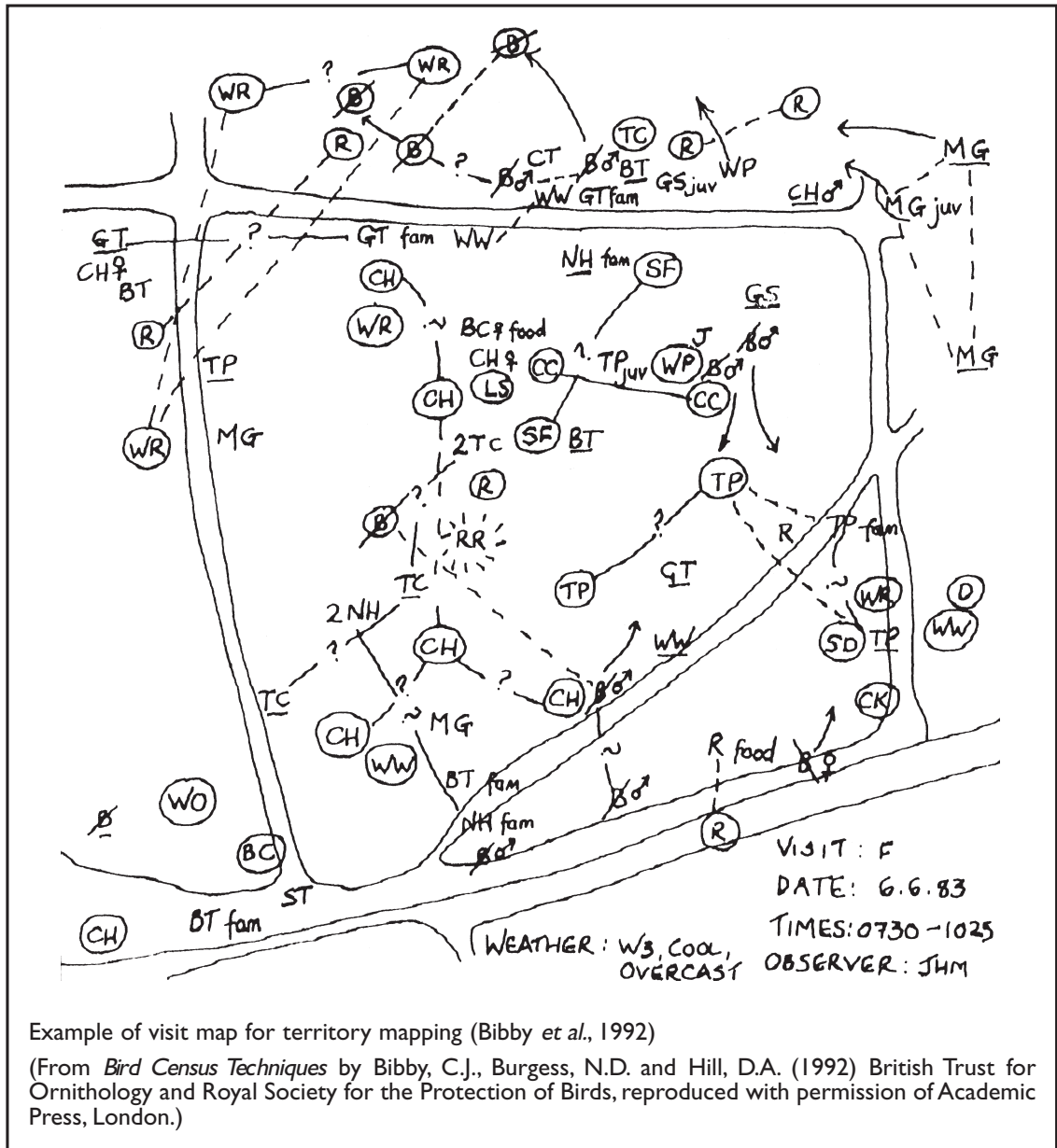
Depending upon the availability of staff, thoroughly investigate 1–2 study plots in the area to be sprayed, and 1–2 similar ones outside. Plots should be 10–20 ha in woodland and 50–100 ha in grassland or farmland.

Prepare accurate and detailed maps of each study plot showing paths and all obvious landmarks. If there are too few landmarks, put a grid of numbered stakes in the study plot at 50 m intervals, and mark the grid on the map.

Draw up a key to symbols for species names, age, sex, nests, movements and other activities to be used on the map (see Bibby *et al.*, 1992).

Method

- At the start of a visit, fill in the basic details of the sample site (locality, date, time and weather conditions) on the record map.
- Make a note of the meteorological conditions, especially wind speed and cloud cover (in octas, i.e. the amount of cloud cover currently visible imagining the sky divided into eight equal parts, each part is one octa).
- Walk slowly through the plot recording the route taken until one of the study species is seen or heard. Plot its position and record its activity and movements during a 3 min period.
- If the bird is singing, listen for another of the same species and approach it to establish its precise position to record on the map. The territorial boundary between the two will fall somewhere in between the two song posts.
- If two birds are fighting or singing vigorously close together, the site may mark a territorial boundary. Record the event on the map.
- If the bird is feeding, flush it, follow it, and record its movements on the map. It is unlikely to move into an adjacent territory, but note the whereabouts of any others of the same species as you move.
- If time is limited, concentrate observations in areas where there remains uncertainty about territorial boundaries from previous visits.
- Repeat the process in a series of observations after spraying has been carried out.



OTHER CONSIDERATIONS

An assistant is useful to keep an eye on the bird while you record details on the map.

Searching for nests is not a very productive use of time in territory mapping but if a nest is found the site should be recorded on the map.

The number of visits required to a study plot will depend on the duration of observations and activity recorded.

If it is likely that dead specimens will be collected you will need:

- a 20 ml syringe for injecting formalin into the abdomen and brain of specimens collected
- a solution of 5% formalin in a secure container, disposable gloves if possible
- a supply of strong polythene bags, and a means of fastening them (plastic-coated wire is good, or simply tie a knot in the top of the bag if you have sufficient and are not concerned about re-using them)
- some stout labels made from white card and a pencil to write labels.

Remember to wear suitable clothing (preferably camouflaged) for the prevailing conditions, and take food and water.

Nest density

DON'T FORGET

EQUIPMENT: Detailed maps (1:50,000 to 1:5000, depending on nest or colony spacing); binoculars; clip-board (carry a plastic bag in your pocket into which you can put the board if it rains); sharp pencils; eraser; penknife; notebook for additional notes; a torch and small mirror for tree hole nesting species, mounted at an angle to the handle.

Thoroughly check all equipment before you go into the field.

Investigate suitable areas in sprayed and unsprayed areas for the presence of the species of interest and similarity of ecological conditions.

Learn through careful observation of breeding birds where they nest, and what their nests look like.

Train field assistants and check their reliability.

Method

- Delineate the areas to be searched each day and prepare a map, noting features to help with nest location.
- Systematically search suitable habitat and possible nest sites. Record the location and number of nests found on the map (use GPS if possible).
- If the nests are well concealed, quietly observe adults and follow them to the nest, *but do not disturb the nest*.
- *Very carefully* examine each nest (if the bird is sitting do not disturb it) and record its status and contents in the notebook as follows:
 - old – no fresh nest material in the structure
 - new – fresh nest material present
 - used – recent droppings, or broken fragments of eggshell, suggest recent use
- record the number and condition of any eggs or chicks as follows:
 - fresh eggs – eggs warm, or if the incubating bird flushed on approach
 - eggs deserted – eggs cold, or partially covered by leaves, or cobwebs across nest entrance
 - chicks alive – down covered, or feathers still in waxy sheaths, or well-feathered
 - chicks dead – down covered, or feathers still in waxy sheaths, or well-feathered.

OTHER CONSIDERATIONS

Local hunters are often expert climbers and know where to find the nests of interest – they may make good field assistants.

Feeding behaviour and diet assessment

DON'T FORGET

EQUIPMENT: Binoculars; clip-board with data recording sheets and a detailed map of the study area (carry a plastic bag in your pocket into which you can put the board if it rains); stop-watch; sharp pencils; eraser; penknife; labelled vials to store pellets if diet is to be studied.

Thoroughly check all equipment before you go into the field.

Depending upon the availability of staff, choose one or two study areas where the species of interest is common. If only one observer is available, choose an area which will be sprayed. If two sites are available, choose a similar area outside the sprayed area.

During preliminary field visits, prepare detailed sketch maps of the study areas with grids for reference. Alternatively, name observation sites within the study areas, so that all observations made at a particular site can be analysed as a sub-set.

Method

- At the start of a visit fill in the basic details of the recording sheet, locality, date and weather conditions, especially wind speed and cloud cover (in octas, i.e. the amount of cloud cover currently visible imagining the sky divided into eight equal parts, each part is one octa).
- Locate a feeding individual of the species of interest and note the time and site reference on the data recording sheet.
- Start the stop-watch and record all feeding behaviour (number of feeding attempts, number of successful attempts, prey items caught) for as long as possible, up to 10 min.
- If the success of any feeding attempt is uncertain, or the prey cannot be identified, record the result as 'unknown'.
- If the bird moves to a new area to feed, attempt to follow it and continue observations. If this is impossible, note the time observations were ended. If the bird ceases to feed, note the time feeding ceased, and find another bird.
- After 10 min observation of a feeding bird, locate another feeding individual and repeat the process.
- Attempt to observe five or more different individuals feeding for 10 min during an observation period.
- Take a break, before repeating the work intermittently through the day.
- Repeat the work daily, at about the same times each day, for 4–5 days before the spraying operation and for a similar period afterwards. Ensure observations in sprayed and unsprayed areas are made more or less simultaneously.

OTHER CONSIDERATIONS

If it is likely that dead specimens will be collected you will need:

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- some stout labels made from white card and a pencil to write labels.

Remember to wear suitable clothing (preferably camouflaged) for the prevailing conditions, and take food and water.

BIRD SHAPES

SHEET 1

Time

Date

Time

Date

Time

Location

Location

Habitat

Habitat

Habitat

Numbers seen

Numbers seen

Numbers seen

Size in relation to:

Size in relation to:

Size in relation to:

Call

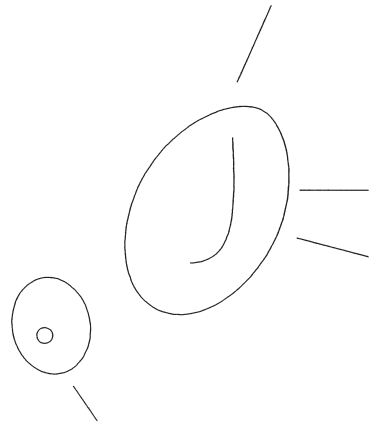
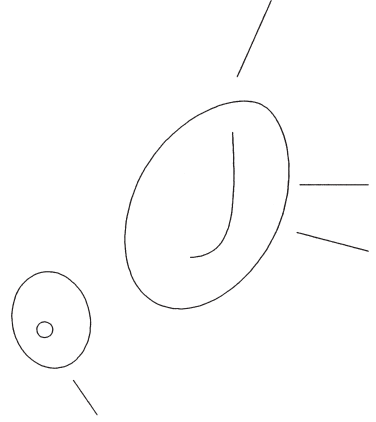
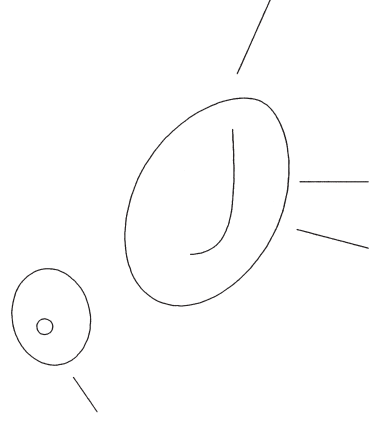
Call

Call

Behaviour notes

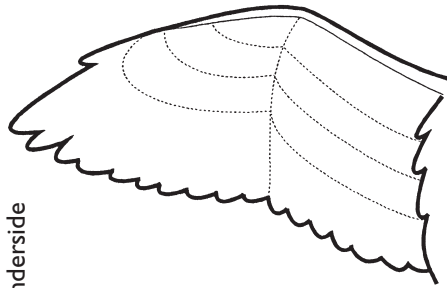
Behaviour notes

Behaviour notes

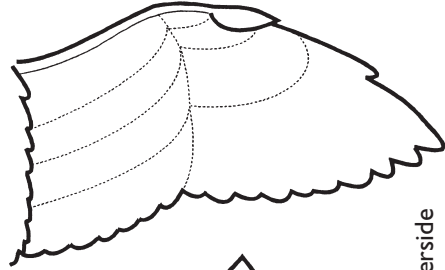


BIRD SHAPES

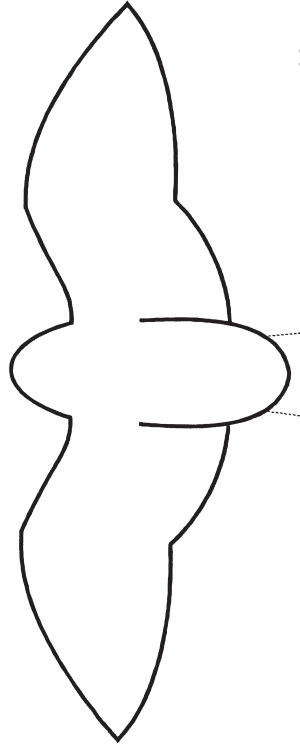
SHEET 2



Underside



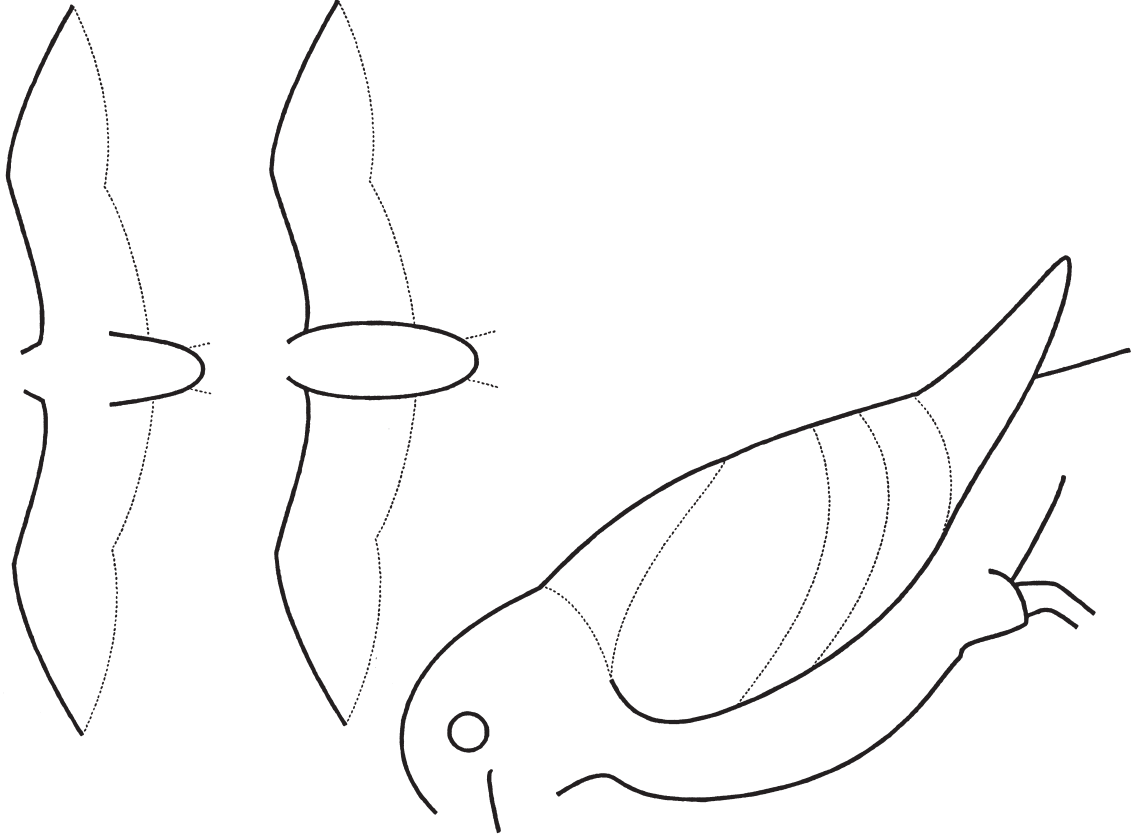
Upperside



Date	Time
Location	
Habitat	
Numbers seen	
Size in relation to:	
Call	
Behaviour notes	

BIRD SHAPES

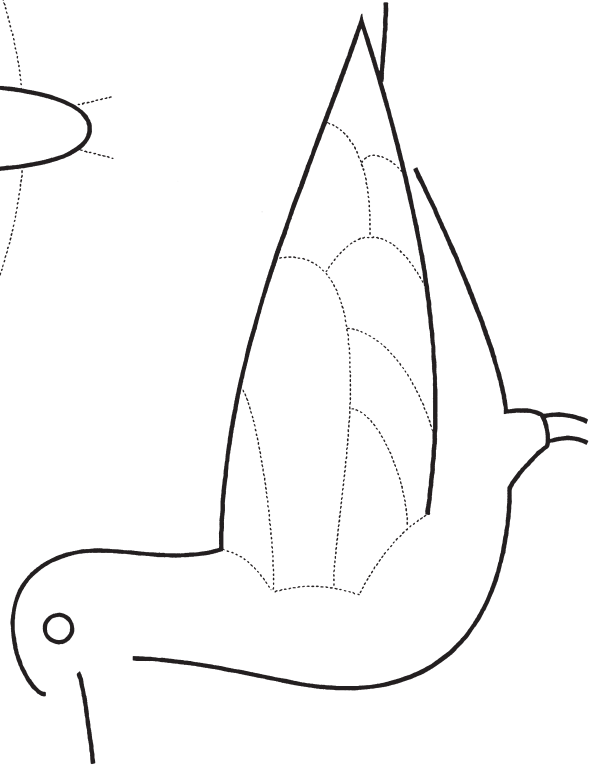
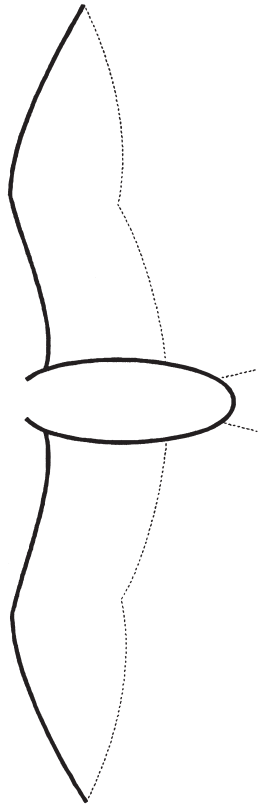
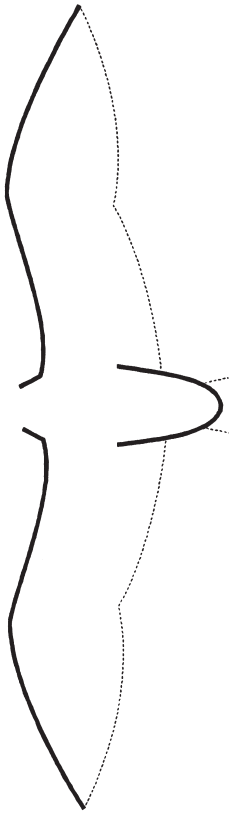
SHEET 3



Date	Time
Location	
Habitat	
Numbers seen	
Size in relation to:	
Call	
Behaviour notes	

BIRD SHAPES

SHEET 4



Date	Time
Location	
Habitat	
Numbers seen	
Size in relation to:	
Call	
Behaviour notes	