

## DUTIES OF OBSERVER

### Before Beginning:

**Equipment required:** rangefinder (optical or laser), spare battery (for laser unit), magnetic compass (if lateral angles are needed), inclinometer (if elevation angles are needed), duties reminder sheet, binoculars, food, drinking water, sunscreen, suitable clothing, rainwear, headgear and footwear, map of survey area and route. Then:

1. Check that you know **which species** are to be counted and the **diagnostic features** of each
2. Familiarize yourself with **rangefinder** design and use (see below).
3. Familiarize yourself with the **magnetic compass** design and use. How many degrees per scale marking? If lateral angle bearings are needed, check that you can read the compass to the nearest degree.
4. If angles of elevation are needed, practise using the **inclinometer** beforehand.

### When using a laser rangefinder:

1. Focus on a fixed object at the detection point's distance, not an animal itself.
2. While looking through the instrument, press button once to show the target zone, centre a reflective object that is about the same distance as the animal(s) and press again to display the distance.
3. Note that rangefinders gives a reading only between a minimum and maximum distance. Find out by trial and error what these are for the model you are using.
4. Measure very short detection distances another way (e.g. pacing). Use the map to help estimate very long distances (e.g. over 1 km).
5. Beware of twigs and leaves between you and your target — these will give a faulty result. Query any unbelievable reading. If unsure repeat measurement.

### Tasks:

#### While travelling a transect:

1. Scan the field of view ahead continuously and thoroughly between 90° to the left and 90° to the right using the unaided eye (no binoculars!).
2. Recognize individuals or groups of the target species once they become visible. Count the number of individuals visible by eye in the group.
3. Measure the detection distance with a rangefinder. Don't estimate distances.
4. If required, measure the lateral angle bearing between the transect direction and detection point.
5. If required, measure the angle of elevation between eyelevel and the detection point with an inclinometer. Don't guess!
6. Make sure all observations are recorded. Check if in doubt.

- At the Start:* Note the positions of any **animal observable from your starting point**; do not include it in your count (its distance will be too short). Include only those you detect once you begin to move forward.
- On the transect:* To minimize disturbance, **move inconspicuously and quietly**; pause if animals flush.
- Scan through the full arc from 90° to the left of your path to straight ahead to 90° to your right, and try to **give all directions equal attention**.
- Travel slowly** (at strolling pace) and stay in front of but close to your navigator. (Walking too quickly often results in missing animals when they first become visible and seeing them later at a shorter distance and greater lateral angle, leading to error in estimates.)
- Try to keep the overall pace even**; if you have been stationary for a time using the rangefinder, move forward briskly for a short time afterwards to bring you to where you would have been otherwise.
- Ensure there is **always someone looking** for animals (e.g. when the observer is using the rangefinder, the navigator/recorder should watch for additional animals and point out their number and positions).
- Making Observations:* When an animal or group is first detected, **measure the horizontal distance** from the observer to the point where it was first detected.
- Check the species**, with binoculars if necessary, but do not use binoculars to search for animals; doing so alters their chance of detection and can bias estimates.
- Treat animals close together as a group**, and measure distance to the approximate group centre. If individuals are well-scattered (thus giving different observing distances), treat them as members of separate groups.
- If **new individuals** are detected in a group that has been counted already, treat the new individuals as new observations at a new distance.
- Measure as accurately as your rangefinder allows**, sighting on fixed objects at the approximate detection distance. Best targets are the edge of a reflective surface like a white tree-trunk or dense waxy foliage of a bush or tree.
- In **heavy cover**, listen for animals that flush ahead but remain unseen; try to work out their approximate flushing point, measure the distance to it and include the detection in your data.
- Animals detected at angles greater than 90°** (i.e. those you missed that are now behind you) should be disregarded. That possibility is allowed for by the technique.
- Animals that overtake from behind** should be counted only. Do not measure their detection distance or bearing.
- At the End:* Include in the count any **animals ahead of you at the finishing point**.