

CBBS Protocol for Neotropical Migrant Monitoring in Belize

The Calgary Bird Banding Society (CBBS) Neotropical Migrant Monitoring program in the foothills of the Maya Mountains in Belize is located at the Toucan Ridge Ecology and Education Society (TREES) site. This protocol covers the operating procedures to be following during banding operations.

Site Preparation

The final net lane selection was made after the 2017 season and no changes are anticipated to net lane locations going forward. If unforeseen circumstances occur that require the abandonment of a net lane, the decision to switch to a new net lane would be made by the CBBS President in consultation with the Banders in Charge who have worked on site and the CBBS Board of Directors.

Each year, once the dates of operation have been established, TREES staff will be asked to clear the net lanes of vegetation and any other debris. During the banding sessions, TREES staff will also be asked to keep the vegetation under and over the nets cut to an appropriate height. The Bander in Charge (BIC) will monitor the net lanes daily and undertake minor vegetation modification where appropriate.

Opening and Closing Nets

The first BIC of the monitoring period will set up the nets and the last BIC will take them down.

The BIC will direct crew members in opening nets each day. This will depend on number of people in the crew and whether the resident crew is working that day. The first net check should be made while returning to the banding station. Each party must carry a radio while away from the banding station. The time of opening of each net or group of nets must be noted and documented on the daily Net Log; carry a notebook and pencil/pen with you to record this data. Always use the PVC poles for pushing or pulling the upper trammel loops into position during opening and closing of the nets, and during net checks. This reduces wear and tear on the nets. Wrap the furling ties either low on the pole or on the tie-back line so that they are visible to the closing crew.

In a properly set net, the trammel lines should be taut. The bottom panel should hang no less than 30-40cm (12-16 inches) above the ground. Birds, when caught in the bottom panel, should not be laying or hanging in vegetation, especially if it is wet. Birds in the bottom panel are also susceptible to injury and predation by ants, snakes, lizards and small mammals. Be prepared to make minor adjustments to the nets while they are open, such as adjusting the height of the bottom panel as the net dries or is moistened by precipitation.

Promptly remove any large insects (bees, beetles) from the nets, as they will chew through the mesh if left, and are a potential hazard for trapped birds. It is recommended to always carry needle-nosed or other pliers for removing insects from the net that you cannot extract alive. Before furling nets at closing time remove all branches, leaves, beetles and other foreign objects from the net. Holes in the net should be repaired as soon as possible, to avoid injury to birds and to avoid possible reduced capture rate. Avoid excessive repair. The BIC will make the decision on when a net should be replaced. Furl all nets and tie each closed with the ties provided. If ties are missing or you feel there are not enough, advise the BIC. It is the BIC's responsibility to ensure that all nets have been closed and properly furled.

Start Time and Net Rounds

If the crew departs the cabin area at 05:15 for the banding station (Toucanet Camp) there should be no difficulty opening all nets by 05:30. Always carry bird bags while opening nets because birds may be caught during that time. Nets will be open each day for six hours, weather permitting. This requirement will only be waived when dictated by adverse weather conditions, potential for capture of more birds than can be handled safely, or if the BIC is sick and unable to band.

The first net check will occur immediately after net opening during return to the banding station. Additional net checks should be made every 20-30 minutes thereafter. Whether opening, checking or closing nets, ALWAYS meet up with the next crew before heading back to the banding station, either in person or via radio, to ensure all nets have been checked. The timing of net runs is the responsibility of the BIC, with input from the crew. If the BIC is very busy banding, it is recommended that another crew member be assigned the responsibility of keeping track of the time for net runs. Each crew member must carry a radio so that they can request assistance from the BIC or other more experienced crew member as needed.

BE VERY AWARE of the temperature and any nets that may come into the sun during the banding session, as hyperthermia is a real threat to bird safety. It is recommended that when the temperature reaches 30°C that net runs be made every 20 minutes. When the temperature reaches 32°C the nets should be closed. Hypothermia doesn't pose the threat to wet birds that it does at less tropical latitudes, so nets may be kept open during light rain. It is up to the BIC to make a local decision on whether to close for weather conditions, with input from the crew.

Ideally, two or more people will check nets each round, starting at opposite ends of the net circuit and always meeting somewhere along the way (this ensures that if one person has a lot of birds or a difficult extraction, help from another crew member is always on the way). Each person continues to walk along the circuit until meeting up with the other net checker. After all nets are cleared, checkers return directly to the banding table together to assist, where needed, in the banding and processing of birds.

Net checkers should be careful to walk the full extent of every net and check each net carefully, paying special attention to the bottom panel. Even with nets set rather high off the ground, it is easy to pass by a bird lying still and hidden in the bottom panel. To avoid this, net checkers should lift the bottom trammel of every net they check, as any bird hanging quietly will tend to begin struggling and thus be more easily seen.

Each crew member, when making a net check, must carry bird bags and tools (e.g., 2-mm diameter crochet hook) for dealing with tongue-stuck birds. Don't carry empty bags in your hands. A fanny-pack or cargo pockets are ideal for carrying empty bags. Wooden clothes pins, marked with the net number and found on the ropes at the end of the net, must be attached to each bag with a bird in it. Hummingbirds should be released immediately at the net. Sensitive species (such as Ochre-bellied Flycatchers, Northern Bentbill, manakins, etc.), obviously stressed birds, females with fully developed brood patches, or any bird needing special attention and immediate processing, should be identified to the BIC as priority birds.

Migrant and resident birds must be returned to the appropriate banding table, and placed in the correct order for processing. If there is no resident banding crew on a given day, all residents will be identified if

possible and released at the net immediately after extracting; for resident recaptures record the band number. Always carry a notebook and pencil/pen for recording data at the net.

Extracting Birds

When approaching a net to extract birds, net checkers are instructed to always look down the length of the net or line of nets to see if one bird appears to require more immediate attention (e.g., a tongued bird or a bird caught by one leg or one wing). Always work to extract these birds first, even if it means passing up “good” or easier birds. The next priority should be birds in the bottom panel, as they might be in danger of being stepped upon if you are working on a bird in a higher panel above them.

The “body grasp” technique is the preferred method of extracting a bird from the net. When the net is freed from around their wings and head, many birds will “let go” of netting that may, at first glance, appear to be badly tangled around their feet and toes. This is the quickest, most efficient, and safest method of extraction. In extracting birds, be extremely careful not to unnecessarily damage or disarrange the bird’s plumage, (e.g., take care not to bend flight feather shafts to the breaking point).

Occasionally birds will be much more entangled in the nets, requiring far more than the minimum amount of time to extract. If a net checker is having trouble extracting a bird, he or she should never hesitate to ask for help. Unless real progress at an extraction is being made, it is better for the net checker to simply wait with the bird (keeping the net slack, if necessary, and shading the bird from direct sunlight using their body or a hat, but not handling the bird further) until help arrives. Continual handling of a badly caught bird when no real progress is being made causes unnecessary stress to that bird. DO NOT cut the net to free a bird that you are having trouble extracting. Only the BIC is to carry scissors and cut the net to get a bird out in an emergency.

Processing Birds

Birds should be prioritised so that those hanging in the bags the longest are the first to be processed (after priority birds, of course). Clear and concise records must be kept for all activities performed during normal operation of the monitoring station. The minimum data taken from each captured bird will be band number, species, age and sex (see record-keeping procedures below). Wing chord, body mass, fat condition and moult (if present) will also be recorded unless there are more birds being captured than can be processed in a reasonable amount of time or other extenuating circumstances. An attempt to band all birds captured will be maintained although no individual bird will be held for more than one hour.

The following data forms are expected to be filled out each day, before leaving the field:

- *Daily Log* - includes the names of all participants present including BIC and members of the resident banding crew. Short narratives focusing on bird migration, bird injuries and mortalities, non-avian fauna and flora, and any management of the station that had to be performed may be recorded. It is most important that any injuries or mortalities are carried forward from the data sheet(s) to the Daily Log;
- *Data Sheet(s)* - contains space for all data taken from individual birds captured. The minimum data recorded on these sheets for banded birds must include disposition code, band number, species, age, sex, net run time, banding time, net number and bander. Secondary data, listed in order of importance, will also be collected except under unusual circumstances - wing chord, mass, fat condition and moult. **An entry is necessary for each new banding, recapture, lost or destroyed**

band, escape and mortality; and

- *Net Log* - contains columns for the opening and closing times for each net, total amount of time each net is up, as well as space to record brief weather data and any relevant notes.

The health and safety of the netted birds is paramount. Birds should not remain unprocessed in bags for more than one hour from the time they were brought to the processing station.

Safety (of the birds and you)

Your safety is high priority in everything you do. Pay attention to rules, requests, and advice of TREES staff and more experienced crew members (these folks know the area better than you). Hazards can be encountered any time and any place, so please be mindful and look before you step or grab. Pay attention to the weather ... wear appropriate clothing, drink lots of water and use sunscreen and insect repellent.

The safety of the birds you capture is also high priority. Be sure that nets are set properly and that they are checked regularly and frequently (in relation to the circumstances). Always be in control of the banding situation and able to safely process the number of birds being captured. Capture-related stress in birds is directly related to total handling time – be completely familiar with this protocol which, when practiced, will minimize handling time. You should be familiar with the symptoms and signs of stress in birds and recommended treatments as described in the CBBS Protocol for First Aid for Birds Injured During Banding Projects (updated 2017). The most common problem is capture-related stress (shock) which should be treated by either trying to get the bird to flutter its wings (to induce an increased heart rate) or holding undisturbed in a box in a shaded and quiet place for at least 20 minutes. Broken legs, if encountered should be reset and splinted with vet wrap. Frequent net checks and proper handling prevent most injuries.

How to Handle Waves of Birds

When large numbers of birds are in the nets it is critical that the BIC continually thinks about the number of birds left to be processed. The following guidelines are adapted from the Tortuguero Bird Monitoring Station Protocol (Ralph et al. 2008):

- Birds should be removed from nets as quickly as possible. The birds are vulnerable to net injuries, predation, and sun exposure while in the nets.
- Try to do net rounds as quickly as possible, every 15 to 20 minutes is not too often, to minimize the time each bird is in the net and the degree of entanglement.
- If too many birds are encountered in nets for processing before the next round, consider taking minimum data until capture rates slow down. Be sure to maintain quality, especially of species identification, and the age and sex determination. Releasing captured birds at the net without processing is very much a last resort, and they should be recorded as released (unbanded).
- If too many birds are captured, even with taking minimum data, close nets are they are cleared of birds and do not re-open until it appears safe to do so.
- Use personnel effectively - two people process much more than twice the number of birds if one records for the other.

Responsibilities of Crew Members

All crew members are responsible for contributing to the completion of each day's duties, including data input and verification, prior to engaging in non-project-related activities. Please check with the BIC before disengaging from the project for the day.

References

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Suggested citation for this document: Calgary Bird Banding Society. 2019. CBBS protocol for neotropical migrant monitoring in Belize. Calgary, AB.