NABAT PROJECT VOLUNTEER INSTRUCTIONS

The North American Bat Monitoring Program (NABat) is a multi-agency national long-term monitoring program to assess status and trends of North American bats. The NABat project has randomly assigned 10 x 10 km grid cells across North America for sampling. Each grid cell has been assigned a GRTS ID. There are two survey methods: stationary point surveys and mobile transects. GADNR has already selected GRTS cells to sample in Georgia. Some cells include only mobile transects as a part of their surveys and some include both stationary point surveys and mobile transects.

Mobile transects will be conducted with a bat detector fixed to the roof of a vehicle which travels at a steady speed (20 mph) for approximately 15-30 miles. Acoustic surveys will also be done at stationary points located at various features across the landscape. Four units make up one grid cell. Each grid will have a unique ID and each survey must include some of the area within that grid.

The goal of NABat sampling is to be consistent across years so the data can be compared. Once a driving route and stationary sites are selected you need to be as consistent as possible in your survey timing (e.g. sampling the same week every year). *NABat protocol requires two mobile routes be run within the same four nights that the stationary detectors are deployed. If you are only conducting a mobile route, then please conduct the driving transect 2 nights within a 5 day period.* Mobile surveys should only occur on nights of clear weather and surveys are to begin 45 minutes after sunset.

If you have a route with both types of sampling, you may have to coordinate with someone to complete your mobile route in coordination with deployment of stationary units. It is important to watch the weather to ensure that you have the best chance of running the mobile route twice in the 5-day period. There is only one sampling period for each route during the summer so once the mobile route it run twice in a 5-day period, you are done for the summer! Here, the procedures for acoustic driving routes and stationary surveys are explained.

If you have questions or if any of the equipment does not appear to be working properly, please contact Katrina Morris or Emily Ferrall at the numbers below.

Acoustic Transects

Setting up Anabat, Microphone and GPS

1. Remove the Anabat, Microphone and GPS from the box. Ensure that all other accessories stay in the box and are returned with the Anabat.
2. Attach GPS to roof of vehicle on driver's side. Run GPS cord through the open window.
3. Attach the GPS, USB plug into the emergency battery power source or the cigarette lighter adapter. It's important you plug the GPS in first to ensure it has time to establish a location.
4. Attach microphone to the roof on the passenger side. The roof should be clear of dirt and debris so the base can establish a good connection. Depress the plunger on the suction cup until the red line is no longer visible.
5. Use the adjustment knob to turn the microphone until it is pointing straight up.
6. Ensure that both the GPS and microphone are securing attached to the vehicle.
7. Fill out data sheet (excluding start time and ending data).

8. Attach Survey in Progress signs to vehicle. Ensure the signs are placed on a flat surface and attached well before driving.
9. Enter the vehicle being careful not to shut cords in the door or dislodge survey equipment. You can roll up the window but do not roll it up all the way and pinch the cords.
10. Plug the GPS serial plug into the port on the Anabat.
11. Plug the microphone cord into the top of the Anabat. The small microphone may have to be removed first by pulling it straight off. DO NOT TWIST! The line on the plug should be pointed up.
12. Turn on the Anabat. The Record and Status lights should be lit. The Data light should be flashing indicating that the GPS is recording locations.
13. Check that the Audio Div is set to 16, and Data Div is set to 8.
14. The sensitivity knob should be set to 7. In case of excessive noise, adjust the sensitivity down slightly. You can turn the volume down without affecting the recording.

NOTE: Both the Standby and Data LEDs reflect things which can change.

The Data LED should only light when there is something being detected by the detector. However, what is being detected can vary a great deal. A low level of continuous noise can keep the LED alight, or at least flickering, without any sound coming through the speaker, because the frequency is too low. It should never be continuously off if there is sound coming through the speaker. Of course, the speaker can be turned off by turning the volume down, in which case there will be no sound even if there is a lot of data.

The Standby LED can be on in different conditions, but presumably it will only be seen to come on: a) with both the Record and Status LEDs when the unit is booting, but that won't normally take very long. However many factors affect boot times and it could conceivably take a few minutes with a large capacity, slow card the detector had not used last time, or depending on how it was formatted. b) when the GPS is sending data to the CF card it will flash every second, or maybe every two seconds depending on the GPS unit.

Completing Survey

1. Write down exact start time on data sheet.
2. Drive survey route from beginning to end at 20mph. If road conditions are poor, drive as close to 20 mph as possible, allowing for safety first.
3. Avoid extended stops and try to maintain a constant speed.
4. Note any road changes or alterations in route on the data sheet.
5. At end of survey, turn off the Anabat and record the exact stop time on the data sheet.
6. Finish the ending data boxes on the data sheet and return it to the folder in the completed data sheets section.

Disassembling the Anabat, Microphone and GPS

1. Unplug the GPS from the power source and turn off or unplug power source.
2. Unplug the microphone from the Anabat
3. Return the Anabat, Microphone and GPS to the box. Ensure that all other accessories stay in the box and are returned with the anabat.
4. Remove Survey in Progress signs from vehicle.
5. Ensure all equipment, signs, data sheets and instructions are secured before leaving the stopping point.

Stationary Surveys (if applicable)

Setting up Anabat Express Unit

1. Open Anabat and remove black microphone. Screw microphone into the connection on the front of the unit.
2. Make sure Anabat has proper batteries.
3. Press the ON button and check for lights to blink. Read instructions on inside of Anabat case for explanations on what lights indicate. Make sure the light that indicates NIGHT ONLY mode is selected.
4. Hold Anabat facing sky and wait for the GPS to connect. This may take several minutes. Verify GPS is connected via indicator light before moving on.
5. Close Anabat and lock it, making sure to return key to the case.

Placing Anabat on Location

1. Once exact location is found, use the cable lock to secure the unit to a tree. Run the cable through the top of the unit, around the tree, and back through the lock in the direction indicated by the arrow on the lock. Key must be inserted into lock to allow the cable to be pulled through. This can sometimes be tricky and it helps to have an extra set of hands to help.
2. Hold the Anabat on the tree in the desired location (keep in mind where the microphone is pointing and where bats might be flying during the survey) and cinch the cable as tight as possible.
3. You can wrap the tail of the cable around the tree and unit a second time to secure the bottom of the unit to the tree. Then tuck the tail under to keep it out of the way.
4. Anabats should collect data for **four** consecutive nights. At the end of the survey, turn off unit, unscrew and replace microphone inside the unit, and return Anabat, lock, and keys to the case.

Completing Survey

1. On the data sheet, record how many Anabat units you were able to set out, the exact coordinates of each (this should be already be on the datasheet DNR provides), and a short description of the site (such as "on east edge of forest, facing wetland").
2. Try your best to choose four nights with little chance of rain/fog/wind. Record general weather data for each night of the survey. It is important to mention if there was rain in the area at dusk or throughout the night.
3. Try to run the mobile acoustic routes twice during the four day survey period and fill out the appropriate information on the second page of the data sheet. DO NOT RUN MOBILE SURVEYS IN RAINY/FOGGY/WINDY WEATHER.

Problems or Questions?

- Call Trina Morris (678-836-5769) or Emily Ferrall (470-606-6666) only when troubleshooting problems that will prevent you from completing your route.
- For other questions related to your route, email (emily.ferrall@dnr.ga.gov; katrina.morris@dnr.ga.gov) or call Emily Ferrall office (706-557-3213), cell (470-606-6666) or Trina Morris office (706-557-3220), cell (678-836-5769).

Thanks for your help with this important project!!!