

Sleeping Lizard Project Overview

Anoles commonly sleep exposed on leaves and twigs, so they can sense approaching predators (e.g., a snake slinking down a branch) and have time to drop off the leaf onto the ground and escape. This is a great strategy when you live in a warm tropical environment, but in temperate climates, lizards may be exposed to abiotic conditions outside of their physiological limits (i.e., cold temperatures). Enter the green anole! Ancestrally from the tropics, it is now found as far north as Kentucky. In the warm months, it is common to see them sleeping exposed out on leaves, but they disappear completely in the winter. Where do they go? When does the switch happen? Let's find out!

To pinpoint when and why the native green anole (*Anolis carolinensis*) changes sleeping habits, we will be performing weekly/bi-weekly sleeping lizard surveys. Surveyors will follow a set transect using headlamps and/or flashlights to spotlight sleeping lizards. Depending on your lab's IACUC-approved protocol, lizards may be occasionally captured so body temperature can be measured and compared to air temperature.

Equipment

Required

- Datasheet
- Writing implement
- Clipboard
- Tape measure
- Headlamp and/or flashlight

Optional

- iButtons (or other temperature data logger)
- Lizard pole
- Thermocouple

Study Site & Transect Selection

We selected a ~7 acre natural area on campus (Fig. 1), where cultivation of native plants is prioritized and trails provide easy access to the entire area. We mapped a ~720m transect through the study area to be walked by researchers each survey night. Both sides are surveyed at the same time. It is important that researchers follow the transect, so search effort can be quantified and lizards are not re-sampled.

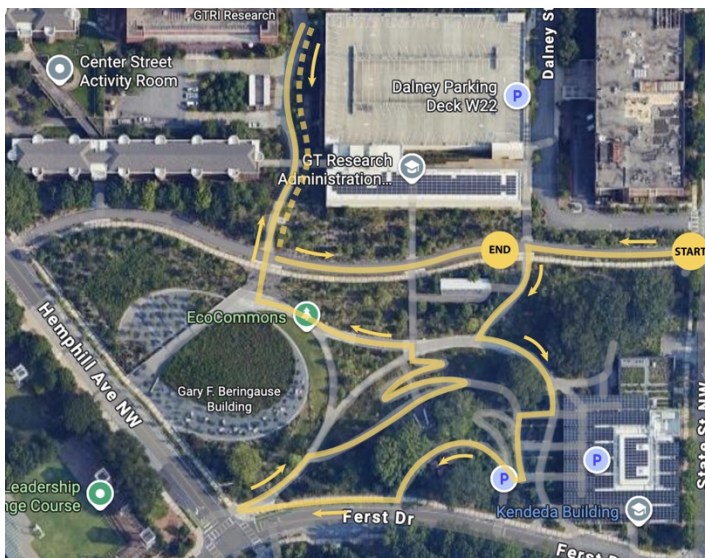


Fig. 1 Study area and transect. Dotted line is not re-surveyed.



Fig. 2 iButtons are secured inside a protective copper tube and deployed in the study area.

Temperature Loggers

We deployed iButton temperature loggers (Fig. 2) throughout the study area to collect hourly temperature data in prospective sleeping locations (*i.e.*, trees, leaf litter, rocks/crevices). This is not a requirement to participate in the study, as climate data can be pulled from local weather towers, but it is useful to gather site-specific information. iButtons were paired, to account for the relatively high failure rate in our lab stock, placed in a painted copper pipe (2cm diameter x 7cm), and secured inside with corks. Tree loggers were affixed to branches ~2m off the ground with zip ties. Leaf litter loggers were buried in leaf litter and/or pine straw that was of sufficient depth to fully cover the copper tube. Rock loggers were either placed under rocks, ensuring that the rock could be replaced flush with the ground to protect the 'animal' from the elements, or in a crevice where it could be easily retrieved.

Measuring Body Temperature (T_{body})

Body temperature is measured cloacally with a thermocouple and thin wire probe. Once a lizard is captured, body temperature should be measured as quickly as safely possible. Take care to hold the subject by the head to prevent hand-to-lizard heat transfer that could skew body temperature measurements. This should NOT be done on every survey or on every lizard. We DO NOT want lizards to change their sleeping habits to avoid detection.

Data Collection

Start time: 1 hour after sunset

Duration: until transect is completed (~1 hour)

Procedure:

1. Record all starting information in the datasheet:
 - Survey date
 - Start time
 - Starting air temperature (T_{air} ; if applicable)
 - The initials of every surveyor participating in that evening's survey
2. Begin looking for lizards! Surveying both sides of the transect at the same time.
3. When a lizard is spotted, **ALWAYS** record:
 - The researcher who found it
 - The time it was found
 - The perch type (branch, trunk, leaf, ground, rock, root)
 - Height and width of the perch
 - Any notes associated with that lizard
 - **If the lizard is COLLECTED** record:
 - Air temperature (T_{air})
 - Body temperature (T_{body})
4. Continue the survey until you reach the end of the transect!
5. Record all ending information in the datasheet:
 - End time
 - Ending air temperature (T_{air})
6. Following the survey, ensure data is copied and recorded in multiple locations to prevent data loss.