Bird Banding Lab
Warner Park Nature Center
Teacher Resource Guide

Objectives for Bird Banding Lab
Students will:

- Observe a federally permitted researcher band a bird
- Articulate why bird banding research is conducted at WPNC
- Explore studies that use bird banding data to draw conclusions
- Interpret bird banding data
- Discuss how data might be used to inform land management and conservation

Video Length: 9min.

Video Outline

Introduction:

- Lab goals are introduced
- Examples of questions posed about bird biology

Bird banding

- What is bird banding
- Video & images showing banding process
- Video & images showing additional radio transmitter tagging

Banding Data

- Species life span and survivorship: examples of data interpretation followed by student activity
- Migration and site fidelity: examples of data interpretation followed by student activity
- Population status and species trends: examples of data interpretation followed by student activity

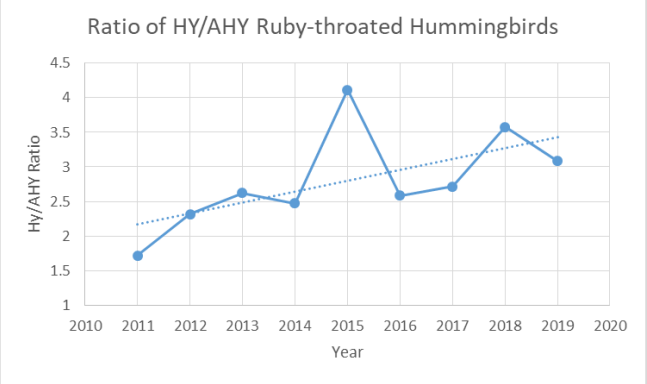
Discussion & Conclusion

Discussion question posed for classroom review

Data Review

Activity #1 HY/AHY ratio of newly banded Ruby-throated Hummingbirds

1. Graph the data
2. What overall trend does this data suggest? In this data set, the HY/AHY ratio is slowly increasing from 1.7 to 3.08 over nearly a decade, indicating a possible increase in breeding success of the population of RTHUs that are migrating across Tennessee.
3. If the HY/AHY ratio is increasing, what might that mean for the overall population and why? Field researchers use the reproductive index as an indication of the stability of a population. If RTHUs are successful in raising their young, which are then migrating to their wintering grounds, this indicates the overall population might also be increasing. However, this sample only focuses on birds moving through Tennessee in the fall. For some



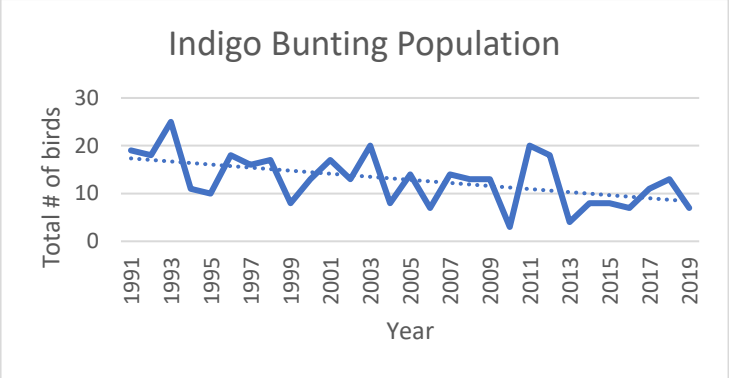
species, HY and AHY birds may follow different migratory paths. In addition, HY birds usually leave later in the year than adults. So this data would be just one factor that tells the story of population trends.
In addition, studies have yet to be completed that give us an idea of what a stable reproductive index would be for Ruby-throated Hummingbirds. As Birds of the World says "Although these birds are common, many aspects of its migration and breeding ecology remain poorly understood". Another reason why this research is so important!
Regardless, the trend line is certainly a good indication of reproductive success and RTHUs are listed as a species "Of Least Concern".

Activity #2 Gray-cheeked thrush migration and fidelity

1. <u>How long did it take GCTH 12420 to travel from Erie to Tallahassee?</u> There is a gap of 24 days between the time GCTH 12420 was detected in Erie until it was detected in Tallahassee. However, the bird could easily have flown there in a much shorter time. So where did it go and why?
2. <u>What was the longest length of stay detected for GCTH 12420</u> ? The longest stay detected was only 12 minutes. And yet, the birds tagged at WPNC in 2020 all stayed at the site for several days. So when GCTH 12420 was migrating, it did not come in range of a tower during any stop-over points unfortunately.
3. <u>What role might the habitat in Warner Park Nature Center play in the life of Gray-cheeked Thrushes?</u> In particular, it is important to note that WPNC is a large, intact URBAN park. Urban areas are known to attract migrants (especially HY birds) because of artificial light. When that happens, do they have a safe place (shelter, food, water, few predators) to refuel? It is possible that WPNC might serve as an essential safe stop-over habitat for thrushes as they migrate south in the fall. However, we need more data to support this. When these birds were banded in 2020, it had been a productive year at the park – lots of berries, insects, water and overall plenty of food and shelter for these thrushes. Droughts high winds, hurricanes, storms, etc might all cause these birds to have moved quickly through Nashville. This is another reason why long-term data sets are important because there are so many potential variables to consider.
4. <u>What might we detect in the fall of 2021 now that our tower is installed?</u> Hopefully we will get a better sense of where the birds in Nashville breed and over-winter, what route they take and if that route is the same year after year. Specifically, do the birds we tagged in 2020 return (show site fidelity)? Is there a correlation in stopover duration? Are all the birds coming through Tennessee from the same population further north, or is it a mix of birds funneling into one area / migration path? For example, a Swainson's Thrush picked up at a Clarksville, TN tower was from interior BC. Is that the main population of thrushes or will we have thrushes from other areas of their breeding range migrating through?

Activity #3 Population trends at WPNC

1. Graph the data
2. What overall trend does this data suggest? How does it compare to the national data? Overall it appears these 3 bird populations are declining as the national data has indicated. Major threats to these birds include habitat loss and degradation, climate change, invasive species, collisions with glass and other structures and pesticides. More details described here: https://abcbirds.org/wp-content/uploads/2019/09/Threats-to-Birds.pdf



3. What other interesting patterns do you notice in this data? As you might expect, the population levels fluctuate fairly regularly, although all 3 show a steady decrease in levels over time. Variables that might impact yearly population differences include weather events, temperature, precipitation, pollution, pesticide/herbicide, natural predation, non-natural predations (cats), habitat change, food availability, disease – and all of the variables could have an impact during any point of their life cycle including breeding, migration, wintering.