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Eastern Towhee Migration Study: Central Indiana

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Since the federal Breeding Bird Surveys (BBS) began in 1966, bird populations in North America have declined by about 30%, a loss of nearly 3 billion birds (Rosenberg 2019). The Eastern Towhee (*Pipilo erythrophthalmus*) has experienced a significant decline across its breeding range, declining by 43% between 1970 and 2014. To address these declines, it is necessary to develop foundational knowledge of Eastern Towhees across their range. Due to their time spent near the ground in dense and shrubby vegetation, however, little is known about these birds, especially regarding their migratory behavior as they move from northern states to the southern U.S. Currently, there is little to no information on the migration routes of Eastern Towhees in the scientific literature and the timing of fall migration in northern states, such as Indiana, is unknown.

My research objective is to better understand the migration behavior of Eastern Towhees in a portion of their northern breeding range in Central Indiana. I attached radio transmitters to a sample of male and female Eastern Towhees at Purdue University-owned properties. These radio transmitters emit signals that are picked up by Motus Wildlife Tracking Network towers (Taylor et al. 2017), some of which are strategically placed at three Purdue properties. This research is important because:

- Bird movement throughout history has been understudied and only recently do we have the technology to feasibly and affordably document migration behavior, using technology like Motus
- The potential effect of climate change on wildlife migration and movement is not well understood. We must understand what "normal" migration behavior is for comparison
- Migratory birds, such as Eastern Towhees, play an important role in the food webs of our local ecosystems

Interestingly, my sample of Eastern Towhees left much earlier than anticipated. By late July, all tagged individuals left their breeding territories. These results illustrate the need for additional movement studies with not only Eastern Towhees, but other declining songbirds.

FOR FURTHER READING:

- Rosenberg, K. V., et al. 2019. Decline of the North American avifauna. Science 366:120-124. DOI: <u>10.1126/science.aaw1313</u>
- Taylor, P. D., et al. 2017. The Motus Wildlife Tracking System: a collaborative research network to enhance the understanding of wildlife movement. Avian Conservation and Ecology 18:8. DOI: <u>10.5751/ACE-00953-120108</u>



Figure 1. A male Eastern Towhee, captured at Martell Forest, near Purdue University, West Lafayette, IN, affixed with a small radio transmitter called a Cellular Tracking Technologies PowerTag.



Figure 2. A female Eastern Towhee, captured at Martell Forest, near Purdue University, West Lafayette, IN, affixed with a small radio transmitter called a Cellular Tracking Technologies PowerTag.