

Progress Report to the Nuttall Ornithological Club

1 September 2018

Project title: Migration Behavior of Veery (*Catharus fuscescens*)

Name: Dr. Daniel P. Shustack, Associate Professor

Address: Environmental Studies Department, Massachusetts College of Liberal Arts, 375 Church Street, North Adams, MA 01247, 413-662-5301, D.Shustack@mcla.edu

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Blake-Nuttall Fund Award amount (2017): \$2,340.00

2018 Summary

Overview:

The goal of this project is to understand the migratory behavior of Veery (*Catharus vireescens*) through use of light-level geolocators. Veeries are caught, banded and fit with geolocators. Then, the Veeries are released, allowed to go about normal breeding and migration activity, and then recaptured the following breeding season. The data recorded on the geolocators is used to determine the location and timing of the birds' movements over the previous year. In 2017, I deployed seven geolocators on Veery in western Massachusetts (**Figure 1**). I used to Blake-Nuttall award to purchase geolocators for the 2018 field season. During the 2018 field season, we recovered four of the 2017 geolocators and deployed 20 geolocators on Veeries. We will continue our regular active and passive mistnetting in 2019 in order to recover the geolocators deployed in 2018. This report highlights progress on the research objectives and initial results from the four geolocators recovered in 2018. The final report submitted to the Nuttall Ornithological Club in spring 2020 will also include results from geolocators recovered in 2019.

Research objectives: 1) describe the migration routes, stop over locations, and wintering locations using data collected from geolocators deployed on Veeries that breed in western Massachusetts; 2) determine the timing of migration, stopover, and wintering of Veeries using geocator data; 3) compare the migration behavior of Veeries from western Massachusetts to Veeries from other parts of its breeding range, specifically Delaware, over the same time period; and 4) provide ornithological field training opportunities for students from Massachusetts College of Liberal Arts (MCLA). Objective four is included as a research objective because many of the students at MCLA are first generation college students (25% of the student body) and come from disadvantaged backgrounds, as evidenced by the high percentage of Pell eligible students. [Pell eligible indicates a family income below \$60,000 a year. At MCLA 43%



Figure 1. Location of study site in western Massachusetts.

of students are Pell eligible versus 27% in the Massachusetts state system as a whole (MCLA Institutional Research, 2016).]

Summary of 2018 field season:

We used a combination of passive and active (i.e., audio lure of Veery territorial singing), to capture 49 Veeries in our North Adams, Massachusetts study site (**Table 1**). This includes nine Veery which were banded in a previous year and 37 new captures, plus three fledglings. This high proportion of new captures might reflect our increased mistnetting effort in 2018 compared to 2017. In order to increase our detection and recovery rates in 2018, we added several mist nets and increased the total number of netting hours compared to 2017. We deployed six to eight 12m mist nets for more than 150 hours in 2018 (compared to ~100 hours of mistnetting in 2017), We also spent additional time searching for banded birds throughout the study site. The 2018 field season was atypically dry so there was only one day where we were “rained out.”

Table 1. Number of Veeries captured, banded and fit with geolocators during the 2018 field season (ASY= after second year; SY=second year)

	banded and geolocator	banded only
males ASY	7	12
males SY	8	19
females	5	15
fledglings	0	3
total	20	49

Our detection and recapture rates appear to be very high. We only observed one Veery banded in 2017 which was not recaptured in 2018. It did not have a geolocator. We did not observe any cases where the bird lost the geolocator. We tended to recapture previously banded Veery early in the season. Six of nine previously banded Veery were recaptured in the first week of mistnetting (May 14-21). Three of the four recovered geolocators were recovered within the first week of mistnetting. The fourth geolocator was recovered in the third week of mistnetting.

We deployed 20 geolocators in 2018; 15 on males and five on females. Females, which tend to be lighter and smaller than males, were often too small for attaching geolocators. For the bird’s safety, the USGS Bird Banding Laboratory requires the data logger and attachments be less than 3% of a bird’s body weight. Because the goal is to maximize recoveries of geolocators, I specifically deployed geolocators on males and females that were confirmed nesting in the study site or which remained territorial on the site for at least two weeks. However, our 2017-2018 geolocator recovery rate of 57% (4/7) is exceptionally high compared to other studies, and we expect the 2018-2019 recovery rate will be lower.

Results

I have begun initial examination of the geolocator data, with the assistance of collaborators at Delaware State University. One interesting finding is the returning Veeries arrive back on the North Adams, MA breeding area earlier than previously detected. Three of the four birds arrived by May 4th. (we initiated mistnetting efforts on May 14th in 2018.) There is also considerable variation in the pathways the Veery take on both southbound and northbound migration (**Figure 2A**). A closer examination of one bird (a male second year bird in 2017, **Figure 2B**), highlights the difference in pathway going south and north, but this bird used peninsular Florida during both fall and spring of migration. We will continue analysis after recovery of the 2018 geolocators during the 2019 field season.



Figure 2A. Migration routes of four male Veeries derived from geolocator data. Each color indicates a different bird from the four recovered geolocators. Birds were fitted with geolocators in Western Massachusetts in 2017 and recaptured in 2018.



Figure 2B. Migration pathway of a male Veery banded as a second year bird in 2017. Red dots show the fall migration and green the spring migration back to Massachusetts.

Budget: The \$2340 awarded by the Blake-Nuttall fund were used to purchase 16 geolocators and one Intigeo-IF interface necessary for programming and downloading data from the geolocators. Institutional funds from MCLA were used to purchase additional supplies (mist nets, net poles, color bands, machete, loppers, and miscellaneous banding supplies). Two MCLA undergraduate field assistants we provided \$2000 stipends through a combination of funds coming from a federal grant to MCLA, state funding to support undergraduate internships and private donations to the College.

Impact: The Blake-Nuttall funding provided for this project is having a wide-reaching impact. One of my objectives in conducting ornithological research is to engage undergraduate college students in avian research. While I did not receive Blake-Nuttall funding to provide stipends to undergraduate students, I was able to work with my institution, Massachusetts College of Liberal Arts, to advocate for stipends for two MCLA students interested in ornithological research. One student, as part of his funding requirement, developed his own research question which ultimately involved examining 39 Veeries for ticks and comparing those observations to tick populations in the surrounding vegetation (**Figure 3**). He is currently working on writing this report. In March 2019, I will be giving a presentation to the Hoffman Bird Club (Berkshire County, MA), based on this ongoing research on Veeries. The data from our 2017 geolocators which were recovered in 2018 was shared with our collaborators at Delaware State University for possible inclusion in a DSU graduate student thesis. In 2019, I will again be providing

avian field research opportunities for undergraduate students as we attempt to deploy and recover the 2018 geolocators.

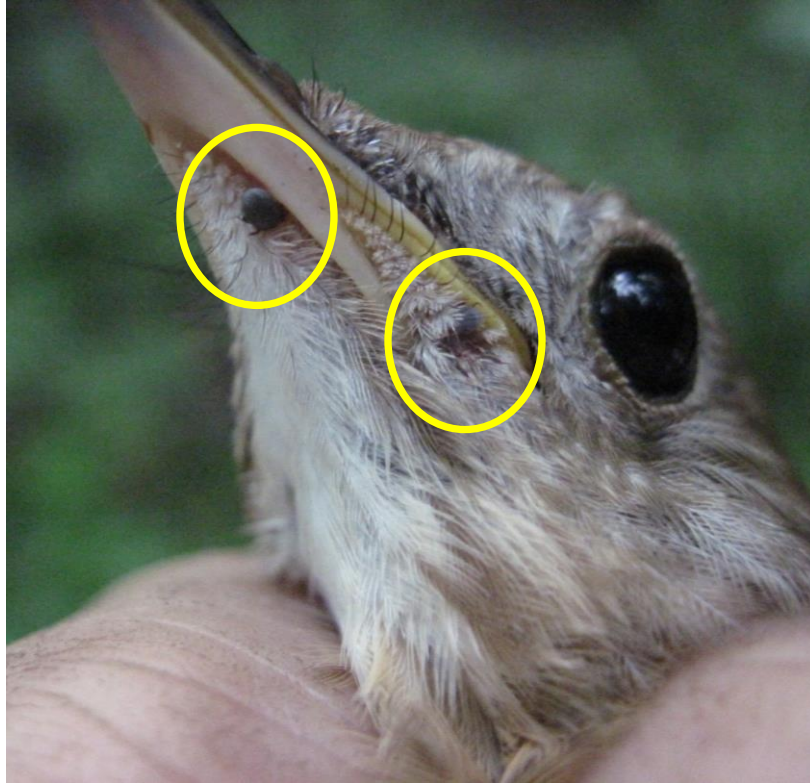


Figure 3. During the 2018 field season, MCLA undergraduate student, Noah Henkenius, studied the ticks found on Veeries and other songbirds. This second year male has two ticks around its bill.