



Assessing the importance of the Belizean North-east Biological Corridor for Neotropical Migratory Birds

Third project update – Spring Migration

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Dr. Nick Bayly
&
Camila Gomez

Summary

During two months of mist-netting and observations timed to coincide with spring migration, 840 migrant birds of 40 species were captured and 976 individuals of 39 species were detected through transects. Major differences were apparent from the results of spring migration relative to the autumn such as fewer total numbers of birds and the absence of certain species like the Empidonax flycatchers. Further, the fuel stores of migrants on arrival were greater than those observed in autumn and indicate that the fuel required to cross the Gulf of Mexico to North America had been accumulated at sites to the south of us. Whilst carrying out fieldwork, we trained 20 Belizeans from different institutions in bird ringing techniques and completed an education project with local students from Sarteneja called the “migration leaflet” and will soon present it to the community. To ensure continued bird ringing training, a course has been planned in conjunction with the University of Belize for September 2008.

Mist-netting and Transects

Our spring migration ringing season produced 840 individuals of 40 species of Neotropical migrants during 4679.2 net hours between the 17th March - 14th May. During the same period, 29.5 km of transects complemented the ringing data with an additional 976 individuals of 39 migratory species (see Appendix 1). These data revealed several differences between spring and autumn

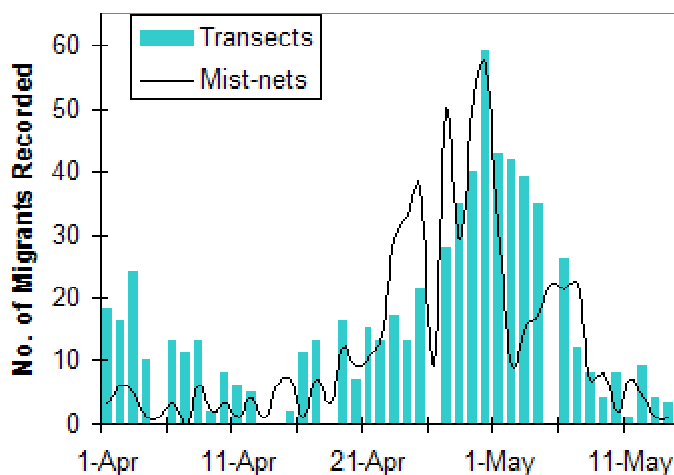


Figure 1. Number of mist-net captures and transect observations of migrants during April and May 2008 in North-east Belize.

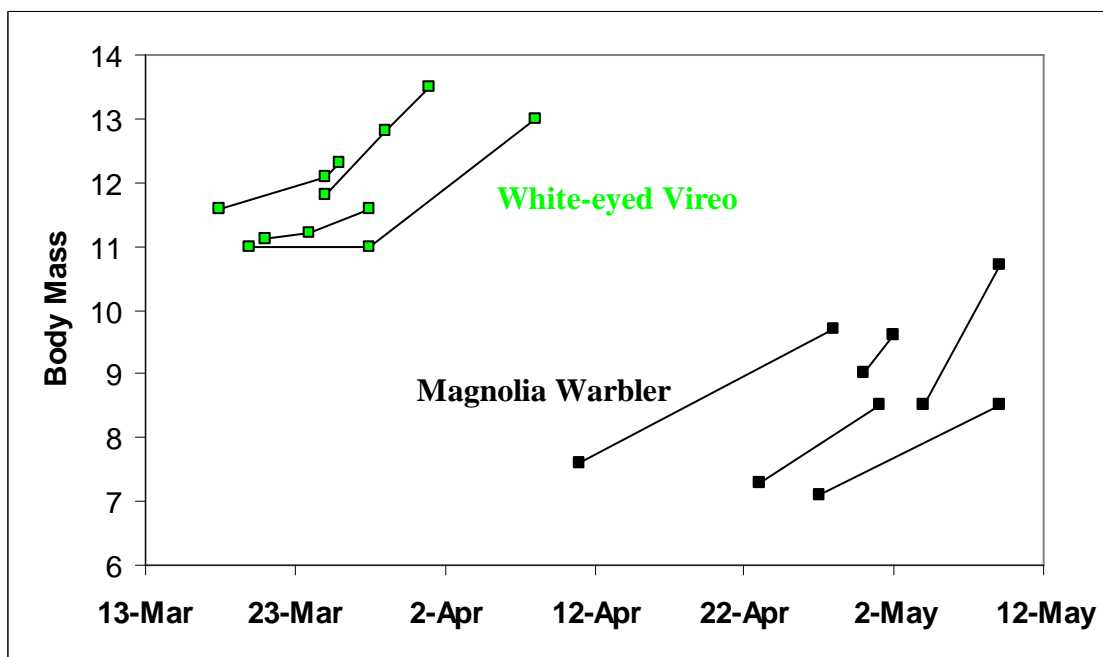
migration in terms of length, the number of individuals involved and in species composition. Relative to the protracted autumn migration, the majority of birds passed through in a very short space of time in spring (approx. just 10 days between the 24th April – 6th May (see Fig. 1). Despite an increase in mist-net effort in the spring, the number of captures was much lower than that in autumn (840 in spring vs 1399 in autumn despite increased mist-netting effort). Combined with the finding that the majority of birds were carrying large fat/fuel stores on capture, the low capture rate suggests that less birds were using the area in spring primarily because they had no need to stop. Indeed, most birds were

estimated to be capable of flying directly to North America across the Gulf of Mexico with the fuel loads they were carrying. The final conclusion from this study is likely to show that for the majority of long-distance migrants NE Belize does not act as an important stopover (refuelling site) during their migration. Indeed, it suggests that areas further south such as Honduras or even northern South America provide the critical resources for making the long journey from wintering grounds, across the Gulf of Mexico, to North America.

Rather than just utilising other areas to accumulate fuel, some migratory species appeared to take a different route altogether relative to the autumn and did not pass through the study area. An obvious example is the Empidonax flycatchers, particularly the Willow and Alder Flycatchers, which were caught in large numbers in the autumn but were completely absent in the spring.

Nevertheless, for some species the study area appeared to provide more than just a place to rest between nocturnal flights and there was evidence for species such as the Magnolia Warbler and Yellow Warbler remaining in the area to accumulate fuel. Further, for many of the migrants that wintered in our study area, the study area also appeared to be crucial for gaining the fuel necessary to make the flight across the Gulf of Mexico (see Fig. 2).

Figure 2: Selected body mass trajectories for Magnolia Warbler and White-eyed Vireo in NE Belize where each line represents an individual bird and symbols its body mass on each capture occasion. These increases in body mass reflect increasing fat stores to be used for the journey to the breeding grounds. The two species show how the timing of the mass increase is related to their arrival times on breeding grounds, with White-eyed Vireo being an early migrant and Magnolia Warbler having an average arrival time.



Training & Education

The spring ringing season had a strong training component. We received 20 Belizeans for varied periods of time to learn how to catch and ring birds, take a range of data and understand the applications of the data collected. Trainees varied from university students, to college students to Nature Reserve wardens. All of them showed great enthusiasm for learning and the training either complemented their already advanced knowledge on the local birds or initiated a strong interest in them to keep learning.



Trainee collage

This experience only served as an introduction to bird ringing as the technique requires considerable time to master before the safety of the birds and the quality of data taken can be guaranteed. Unfortunately, none of the individuals that received training could devote more than one week during our spring ringing season and thus we have been working hard to create further opportunities for gaining experience. Central to our strategy is to hold a 10 day intensive course in bird ringing in September in conjunction with the University of Belize. To ensure that there is a legacy to the course, we will spearhead the formation of Belize's first ringing group at the University by donating equipment and accompanying the group on its first two outings. The group will not be exclusive to the university and any individuals interested in gaining or increasing their experience will be able to join the group. We hope that members of the group will go on to develop monitoring and conservation projects focused on Belize's diverse avifauna that utilise bird ringing.

Education activities during the spring were focused on the Migration Leaflet project. With a group of interested students from the Sarteneja Cornerstone Academy and their teacher Mr. Erlindo Novelo, we designed and carried out the leaflet project. This involved four field trips for bird identification in different habitats around Sarteneja and a couple of independent research sessions to find the information needed to construct the leaflet. The students took photos, identified birds and worked with our complete bird lists of the different habitats to determine which habitats were important to migrant birds around Sarteneja. The leaflet is in its final stages of design and will be presented and distributed by the students to all the community during the first week in June.



Appendix 1. List of migrant species and number of individuals recorded during mist netting and transects from the 17th March to the 14th May 2008 in North-east Belize.

Common Name	Scientific Name	Mist nets	Transects
Blue-winged Teal	<i>Anas discors</i>		3
Solitary Sandpiper	<i>Tringa solitaria</i>	1	1
Ruby Throated Hummingbird	<i>Archilocus colubris</i>	1	
Yellow-billed Cuckoo	<i>Coccyzus americanus</i>	1	
Eastern Wood-Pee-wee	<i>Contopus virens</i>	4	8
Least Flycatcher	<i>Empidonax minimus</i>	1	19
Great Crested Flycatcher	<i>Myiarchus crinitus</i>	1	
Eastern Kingbird	<i>Tyrannus tyrannus</i>		5
White-eyed Vireo	<i>Vireo griseus</i>	28	35
Yellow-throated Vireo	<i>Vireo flavifrons</i>	1	1
Red-eyed Vireo	<i>Vireo olivaceus</i>	83	37
Yellow-green Vireo	<i>Vireo flavoviridis</i>	6	4
Veery	<i>Catharus fuscescens</i>	10	2
Gray-cheeked Thrush	<i>Catharus minimus</i>	3	
Swainson's Thrush	<i>Catharus ustulatus</i>	5	1
Wood Thrush	<i>Hylocichla mustelinus</i>	7	1
Gray Catbird	<i>Dumetella carolinensis</i>	22	3
Blue-winged Warbler	<i>Vermivora pinus</i>	1	
Golden-winged Warbler	<i>Vermivora chrysoptera</i>		1
Tennessee Warbler	<i>Vermivora peregrina</i>	21	65
Northern Parula	<i>Parula americana</i>	7	5
Yellow Warbler	<i>Dendroica petechia</i>	145	200
Chestnut-sided Warbler	<i>Dendroica pensylvanica</i>	5	8
Magnolia Warbler	<i>Dendroica magnolia</i>	167	284
Yellow-rumped Warbler	<i>Dendroica coronata</i>	4	9
Black-throated Green Warbler	<i>Dendroica virens</i>	4	23
Prairie Warbler	<i>Dendroica discolor</i>		1
Bay-breasted Warbler	<i>Dendroica castanea</i>	9	9
Black-and-White Warbler	<i>Mniotilta varia</i>	38	22
American Redstart	<i>Setophaga ruticilla</i>	26	62
Prothonotary Warbler	<i>Protonotaria citrea</i>	35	5
Worm-eating Warbler	<i>Helmitheros vermivorus</i>	3	2
Ovenbird	<i>Seiurus aurocapillus</i>	8	10
Northern Waterthrush	<i>Seiurus noveboracensis</i>	85	7
Kentucky Warbler	<i>Oporornis formosus</i>	1	
Mourning Warbler	<i>Oporornis philadelphia</i>		1
Common Yellowthroat	<i>Geothlypis trichas</i>	42	19
Hooded Warbler	<i>Wilsonia citrina</i>	23	23
Yellow-breasted Chat	<i>Icteria virens</i>	3	
Summer Tanager	<i>Piranga rubra</i>	3	3
Scarlet Tanager	<i>Piranga olivacea</i>	5	22
Rose-breasted Grosbeak	<i>Pheucticus ludovicianus</i>	3	3
Blue Grosbeak	<i>Passerina caerulea</i>	1	
Indigo Bunting	<i>Passerina cyanea</i>	27	13
Painted Bunting	<i>Passerina ciris</i>	1	
Dickcissel	<i>Spiza americana</i>		10
Baltimore Oriole	<i>Icterus galbula</i>		2
Total		840	976

Appendix 2. List of individuals and their organisation/institution who received bird ringing training during April and May 2008.

Name	Organisation/Institution
Melissa Castillo	University of Belize
Eduardo Barrientos	University of Belize
Marvin Vasquez	University of Belize
Emerson Garcia	University of Belize
Dr. Elma Kay	University of Belize
Stephen Mitten	St John's College
Antonio Hagar	St John's College
Karena Mahung	St John's College
David Bustamante	St Mathews Village
Liberato Pop	Harpy Project at BFREE
William Garcia	Harpy Project at BFREE
Pedro Che	Harpy Project at BFREE
Wilfred Mutrie	Harpy Project at BFREE
Joel Diaz	Shipstern Nature Reserve Warden
Miguel Perez	Shipstern Nature Reserve Warden
Damian Aldana	Shipstern Nature Reserve Warden
Dolores	Shipstern Nature Reserve Warden
Kent Garcia	Belize Audubon Society Warden
Dereck Hendy	Belize Audubon Society Warden
Israel Manzanero	Belize Audubon Society Warden
Marcelo Pau	Belize Audubon Society Warden