

# The Effects of Varying Spring Temperatures and Latitude on the Arrival Times of Ovenbirds

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## Introduction:

- Ovenbirds are categorized as long distance migrants since they breed in Central and Eastern parts of North America, but relocate to Central America and the Caribbean for the winter range.
- The arrival date of an Ovenbird has significant effects on the bird's likelihood of survival, yet the drivers of arrival time are still unknown
- The combination of varying temperatures in May possibly due to climate change and the latitudes of the Ovenbird's habitat could account for when the Ovenbird decides to migrate.



Figure 1.  
An Ovenbird (*Seiurus aurocapilla*)  
<https://www.allaboutbirds.org/guide/Ovenbird/id>

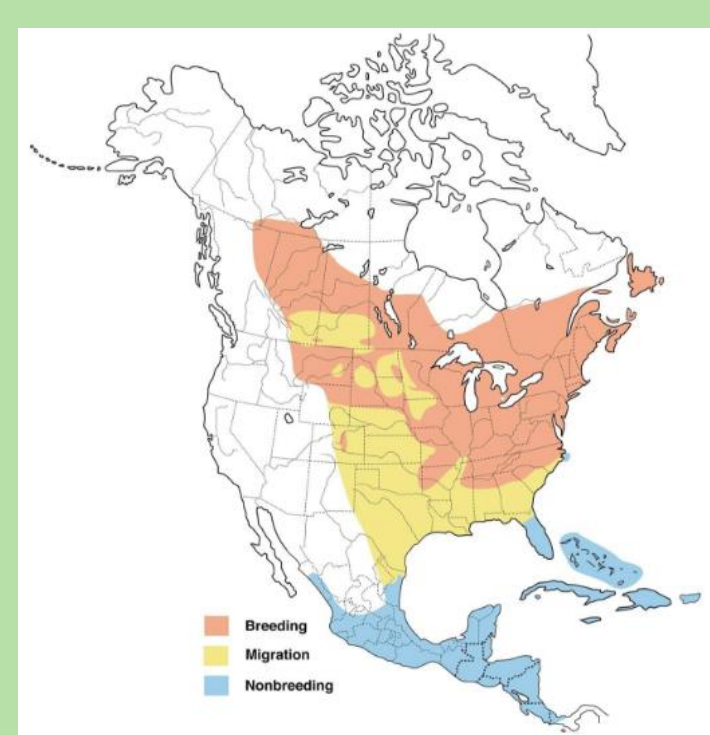


Figure 2.  
Map of North America showing  
Ovenbird's breeding (orange), migration  
(yellow) and nonbreeding (blue) ranges.  
<http://www.allaboutbirds.org/Ovenbird/maps-range>

## Methods:

- The collected data came from the Alberta Biodiversity Monitoring Institute (ABMI) database, which employed 50 out of 1400 autonomous recording units across Northern Alberta.
- Data was then analyzed using spectrograms to determine the exact day and time that an Ovenbird arrived at each site.
- If the species was detected on four out of seven days (excluding weather days) after the first detection, the individual was assumed to have arrived and settled a territory.

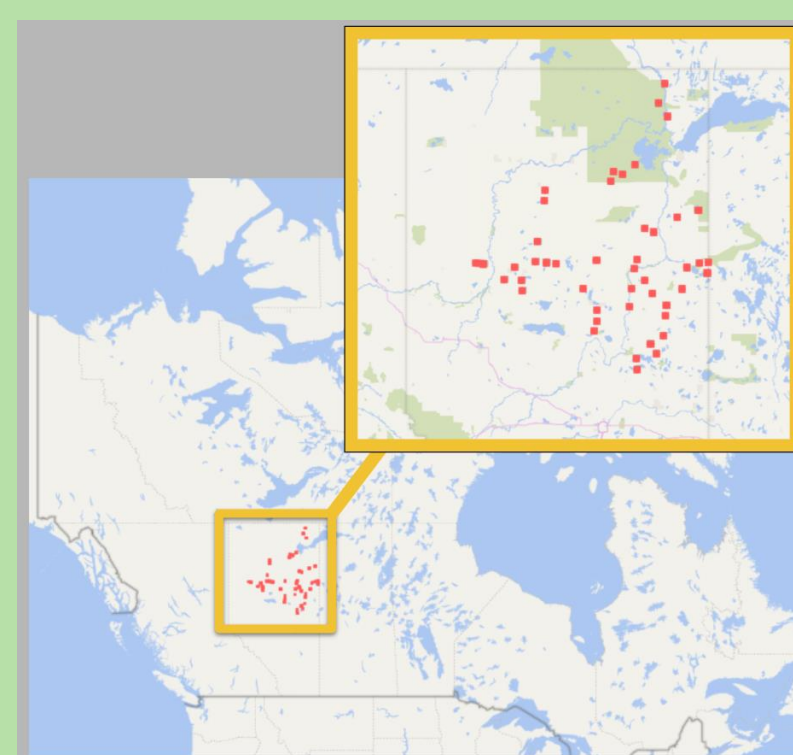


Figure 5.  
The ABMI's locations of the  
ARUs that were used to  
collect data

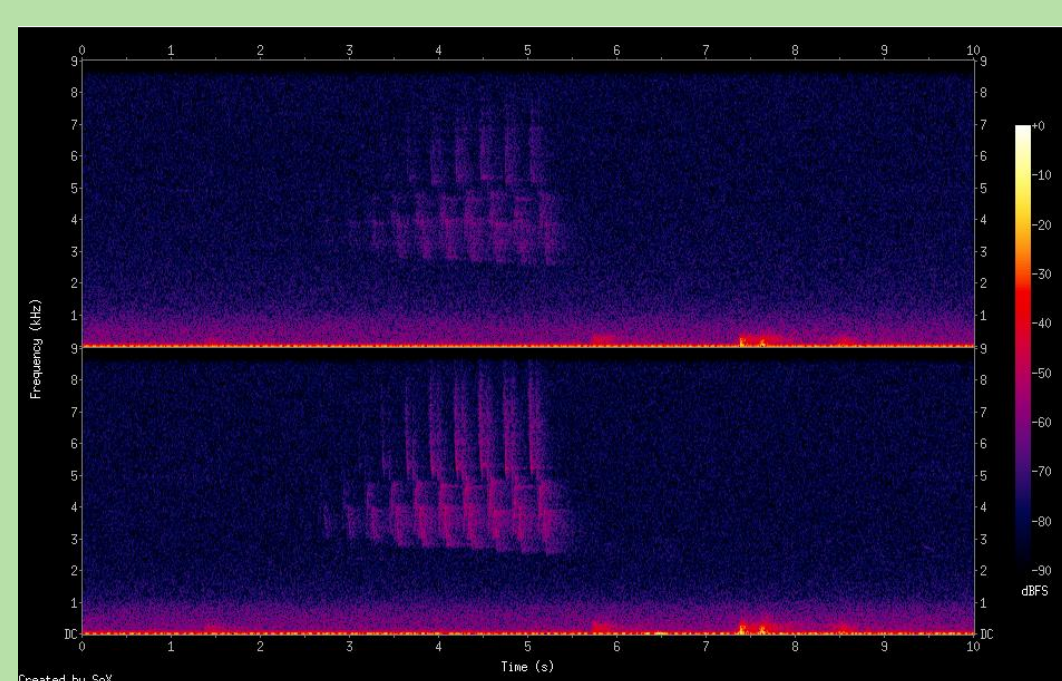


Figure 4.  
A typical Ovenbird will sing at a frequency  
of 2500-8500 Hz as shown in the  
spectrogram. Spectrograms such as this  
one was used when analyzing the data



Figure 5.  
An audio recording unit (ARU) that  
is set up to record any singing birds  
in the area

## Results:



Figure 6.  
The correlation between the arrival dates  
and where the Ovenbird is located for 2015 (red) ,  
2016 (green) and 2017 (blue)

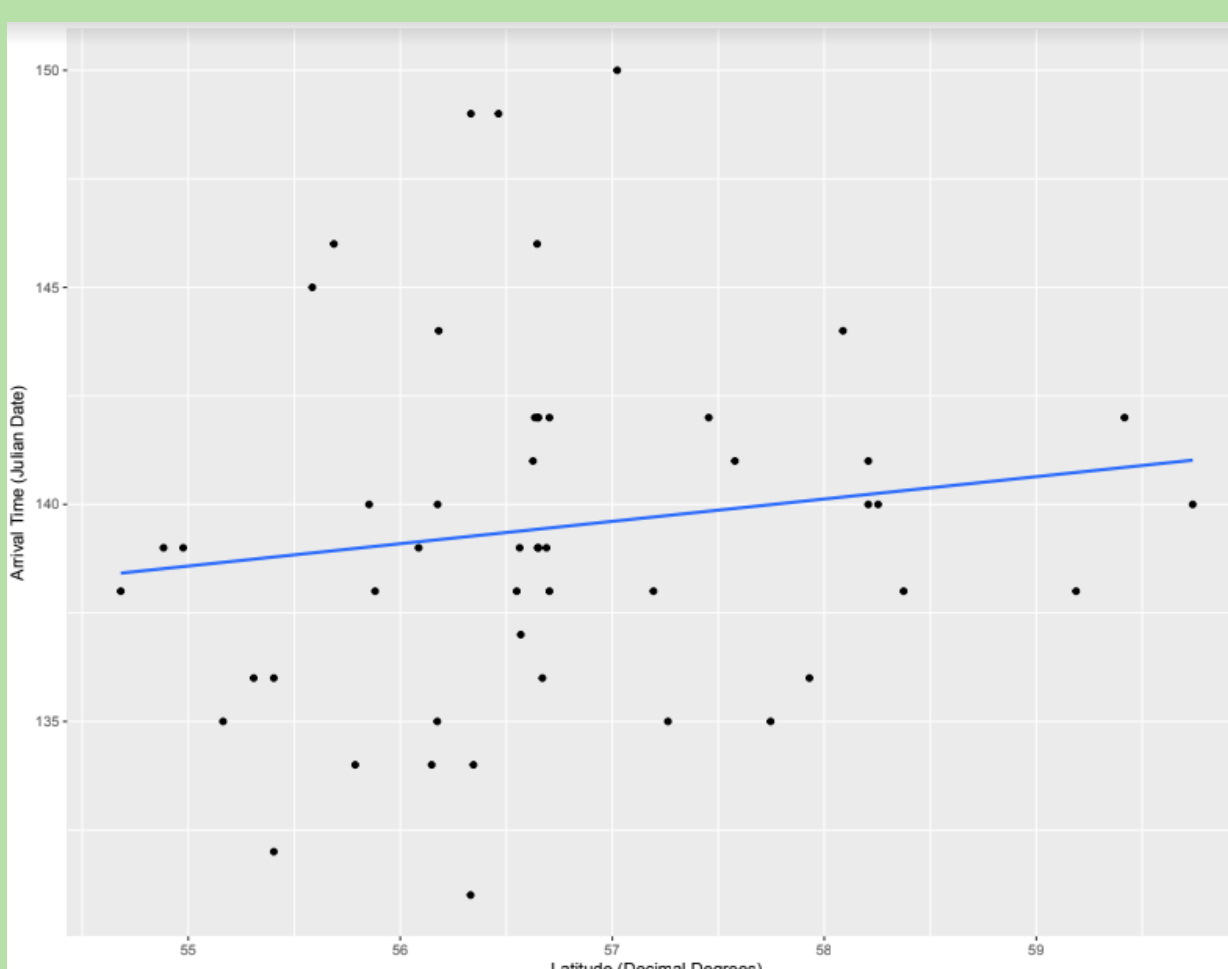


Figure 7.  
All three years plotted and the line of best fit  
(blue) is the average between arrival dates and  
latitude

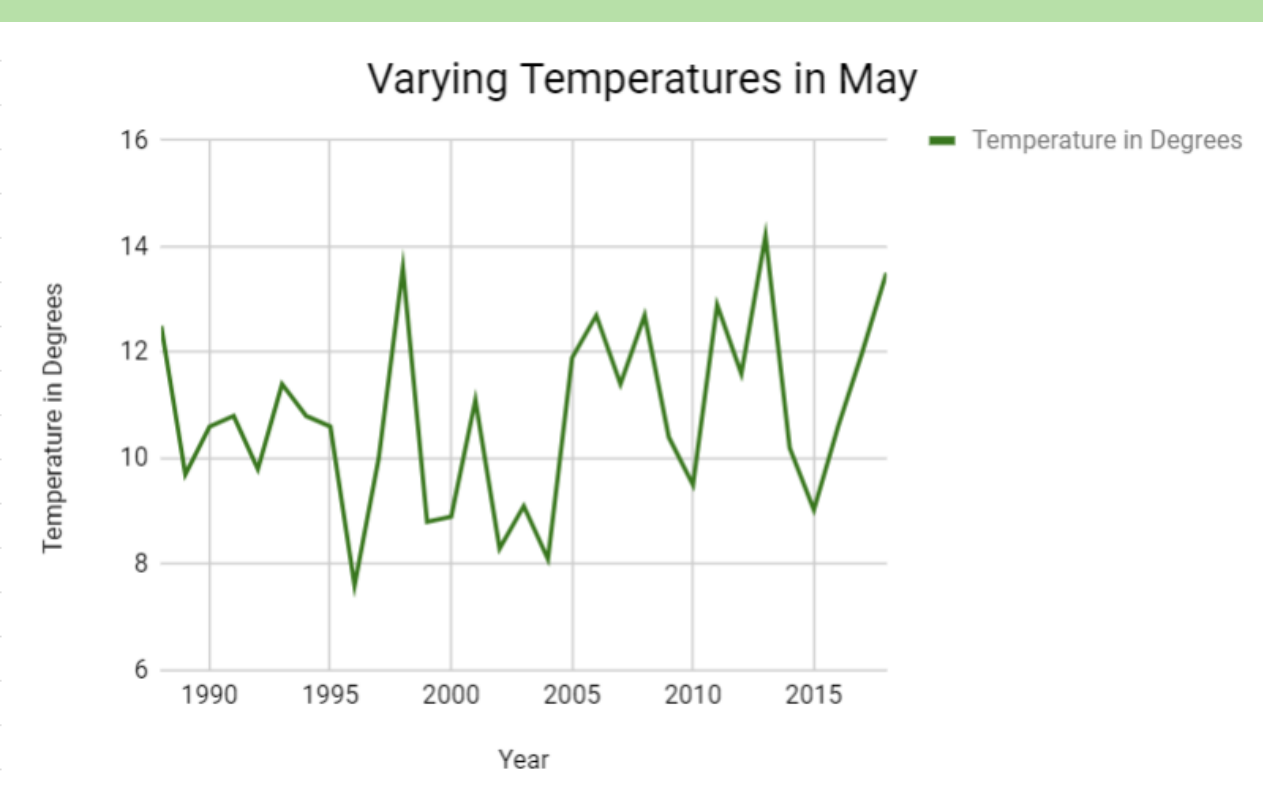


Figure 8.  
Varying May temperatures provided by  
Government of Canada focused on  
Northern Alberta

| Year | Temperature in Degrees |
|------|------------------------|
| 2015 | 9.03                   |
| 2016 | 10.6                   |
| 2017 | 12.1                   |

Figure 9.  
The average temperatures in May for the  
years studied

## Conclusion:

- As shown in Figure 8, temperatures in May vary greatly from year to year, implicating difficulties for the Ovenbird when they return.
- It is crucial that Ovenbirds time their migration to their breeding grounds correctly so they do not miss out on food sources, the loss of habitat to competition and have time to prepare for breeding.
- From Figure 6, and Figure 7, it can be concluded that as latitude increases, the arrival date gets later into the month of May. However, this only explains parts of arrival time as there is variation around the line of best fit.
- Comparing this to Figure 8, shows no relation or predictable pattern to the temperature in May with the arrival date and latitude.
- Other possible factors that must be considered are more related to the individual; wintering location, body conditions, and age. Further research must be conducted through the process of tracking individuals to confirm this.



Figure 10.  
Close up photograph of an Ovenbird  
(*Seiurus aurocapilla*)  
<http://www.birdcanada.com/ovenbirds-flipping-out/>

## Acknowledgements:

We would like to thank our Principal Investigator Dr. Erin Bayne and our Supervisor Dr. Richard Hedley for allowing us this remarkable opportunity to work within their lab; Justin Johnson for the project plan and support; Jeremiah Kennedy, Cesar Estevo, Kathleen Enns and Harsimran Bains for all the help and encouragement; and all those who have welcomed us into Bayne Lab. We would also like to thank ABMI for providing the data along with the Biological Department in the University of Alberta for the space and support. A special thank you to WISEST and STEP for their sponsorship and making this whole experience possible.

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