

GRADUATE STUDENT CLIMATE ADAPTATION PARTNERS (GRADCAP) WEBINAR SERIES

EVALUATING AVIAN TEMPORAL DYNAMICS ON A CENTRAL APPALACHIAN ELEVATION GRADIENT

BY GORDON DIMMIG, WEST VIRGINIA UNIVERSITY, WILDLIFE AND FISHERIES RESOURCES | NOVEMBER 2018

Songbirds can act as key indicators of changes occurring more broadly in our forest ecosystems. By assessing songbird distributions in the Appalachian Mountains, we can better understand how birds may be adapting to changing conditions by moving along the elevation gradient.

The steep elevation gradient and rugged topography of the Central Appalachian Mountains creates unique climatic conditions and a diversity of forest types. As a result, a rich assortment of songbirds occupy this region. This 4,000 foot elevation gradient provides a great canvas to study range shifts of birds and potential responses to changing climatic conditions over time. Birds may be forced to adapt by moving their elevational range which can also have strong effects on bird community assemblages and species interactions. Using a 25-year

historic dataset of avian point counts throughout the Monongahela National Forest, WV, we plan to model local colonization and extinction rates of several high and low elevation species. Our models will help determine if birds are shifting their ranges upward in elevation, as we would expect due to warming temperatures. We will also assess the turnover of bird communities over time to determine if they are destabilizing. These results will help us better understand the dynamics of songbirds over the past 25 years and how they may be adapting to climate change.

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Elevation Distribution of Warblers in the Monongahela National Forest

SPECIES KEY (left to right): Hooded Warbler (HOWA), American Redstart (AMRE), Black-and-white Warbler (BAWW), Worm-eating Warbler (WEWA), Canada Warbler (CAWA), Chestnut-sided Warbler (CSWA), Black-throated Blue Warbler (BTBW), Mourning Warbler (MOWA), Blackburnian Warbler (BLBW), Black-throated Green Warbler (BTNW), Magnolia Warbler (MAWA), Yellow-rumped Warbler (YRWA).

