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SCHOOL OF ENVIRONMENT AND NATURAL RESOURCES



## **Autumn 2024 SENR Seminar Series**

**November 12, 2024  
4:00 p.m. - 5:00 p.m.  
103 Kottman Hall**

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# **Unraveling the impacts of anthropogenic hazards to nocturnally-migrating birds**

## **ABSTRACT**

Over two thirds of bird species in North America migrate twice annually between breeding and non-breeding grounds. These migrations are a time of relatively high mortality for many birds species that are also experiencing long-term populations declines. Thus, minimizing the myriad of natural and anthropogenic hazards that threaten migrant survival could help slow bird population declines. Because nearly 80% of migratory birds in North America migrate at night, it is challenging to observe how migrating birds interact with hazards along the way. I use weather surveillance radar as a research tool to get unprecedented observations of birds migrating at night. I will highlight three aspects of my recent research using radar to quantify how nocturnally migrating birds are impacted by anthropogenic hazards, which include, 1) wind energy development in the Great Lakes region, 2) habitat loss in the agricultural mid-western US, and 3) pollution from artificial light at night (ALAN) throughout the US. By integrating terrestrial and aerial habitat use in the Great Lakes region, my colleagues and I found that migrants were concentrated in terrestrial stopover habitats within 20 km from shorelines and within heights swept by turbine rotors prior to dawn. We've also discovered that widespread conversion of native habitats within the prairie biome of the mid-western US to agriculture (i.e., the "Corn Belt") now poses as an ecological barrier to migration. This is supported by the concentration of stopover migrants along the edge of the biome and faster travel over the prairie biome during passage like how migrants negotiate other ecological barriers. Lastly, I will discuss how widespread attraction of migrating birds to ALAN causes migrating birds to stopover in high densities along the fringes of urban areas throughout the entire US. Our effort to model the stopover distributions of migrating birds throughout the entire US can facilitate conservation through the identification of stopover sites that are disproportionately selected for by migrating birds.



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