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Dietary Breadth and Migratory Flexibility in Aerial Insectivores

Aerial insectivore (AI) populations are declining throughout North America. AI of the family Tyrannidae (Flycatchers) are not declining as steeply as those of Hirundinidae (Swallows), Apodidae (Swifts), and Caprimulgidae (Nightjars). *Why?*

How is the difference in dietary breadth and flexibility of migration timing between flycatchers and swallows a factor in their disproportionate decline?

- Generalist species can replace loss of preferred prey and, with flexibility of migration timing, lessen the effects of phenological mismatches.
- Specialist species are caught in ecological traps, inducing greater population loss.

If the more generalist species (*i.e.* greater dietary breadth and migratory flexibility) are declining less rapidly, environmental changes affecting diet and timing of migration are major factors in the decline of flycatchers and swallows.

- Lower quality prey and decreased abundance of prey.
- Mismatched timing between insect emergence and breeding season.

To accomplish this, we will be sampling the feces of common flycatchers and swallows in Eastern New Brunswick:

- Stable Isotope Analysis (SIA)
- DNA analysis

A mixed model incorporates both SIA and DNA data to estimate the proportion of diet from certain food items.

For migratory flexibility, we will use daily estimated totals of observed migratory birds in Atlantic Canada from the Canadian Migration Monitoring Network (CMMN) from NatureCounts of Birds Canada.

Data collection begins in Summer 2021; Expected completion of project in 2022-2023.



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