Partying Parulidae: Interspecific Social Networks of Parulidae Warblers in Active Migratory Passage

Gitre, Xavier (School: Blacksburg High School)

Remarkable declines in migratory songbird populations necessitate the investigation of persistent gaps in the study of migration ecology. As songbirds in active migratory passage have proven frustratingly enigmatic, almost no literature has investigated the sociobiology of nocturnal migrants, despite strong evidence from radar and acoustic observations suggesting they frequently interact in flight. Studying these interactions will provide insight into the social structures of nocturnal migrants, how they facilitate information exchange, and, crucially, if social factors influence poorly understood variables linked to population declines (chiefly window collision rates, which correlate with flight calling behavior). Advances in flight call recording have opened an exciting window into the interspecific ecology of species in active migratory passage. Here, I utilize this technology to investigate the sociobiology of an abundant and diverse lineage of nocturnally migrating songbirds, Parulidae warblers, using social network analysis. I test the hypotheses that 1) their social interactions are structured by a nonrandom and ecologically relevant social network that resembles an ecological community, 2) variables relevant to nocturnal migration underlie that structure, and 3) migrants' social behavior is associated with their risk of window collisions. I find strong support for the first and third hypotheses, while the second is partially supported but remains somewhat ambiguous. These results merit further investigation into interactions between migrating songbirds on larger taxonomic and spatiotemporal scales and their implications for window collision rates.

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