

Public Abstract

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Title:Non-breeding competition between migrant American Redstarts (*Setophaga ruticilla*) and resident Adelaide's Warblers (*Dendroica adelaidae*) in the Guanica Biosphere Reserve, southwest Puerto Rico

I tested the hypothesis that migratory American Redstarts (Redstart; *Setophaga ruticilla*) and resident Adelaide's Warbler (Adelaide's; *Dendroica adelaidae*) compete for food in a dry forest of southwest Puerto Rico.

Competition will not occur unless food is limiting and the two species forage in the same places using the same methods of attack. In dry years, leaf fall was pronounced in all vegetative layers, total arthropod biomass declined and body condition of both species decreased. Moreover, these species had a very high degree of overlap in both foraging location and type of attack, both when assessed at the level of the population and at the level of individuals. Thus, they are indeed using the same limiting resources, and should be competing. Simulated territorial intrusions supported this hypothesis.

Adelaide's did not shift their foraging niche after Redstarts left, indicating that depletion competition does not occur. In addition, detailed territory mapping showed that interspecific overlap of territories was significantly greater than the intraspecific territory overlap of either species, so interference competition is not present.

Adelaide's and Redstarts do seem to be competing for food, but not through niche partitioning or interspecific territoriality. Instead, the evidence suggests that Redstarts listen to the frequent vocalizations of Adelaide's, and forage in areas of their territory that reduces the risks of confrontation at any given time: they use temporary competition refuges. I conclude that competition does occur between these species, and is mediated through aggressive confrontations and the behavioral flexibility of Redstarts.