

FEATURE ARTICLES

EFFECTS OF SAVANNA RESTORATION ON THE FORAGING ECOLOGY OF INSECTIVOROUS SONGBIRDS

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Abstract. We studied the foraging behavior of insectivorous songbirds during the breeding season at four sites in Illinois, each with restored open-canopy savanna habitat (65% mean canopy closure) and closed-canopy forests (89% mean canopy closure). We sampled and compared apparent tree species preference, foliage layer preference, and proportional use of different prey-attack maneuvers in the two habitats. In closed-canopy forests, three of nine songbird species foraged in black oak (*Quercus velutina*) and white oak (*Q. alba*) more than expected based on availability, and foraged less than expected in shade-tolerant trees such as sugar maple (*Acer saccharum*) and red elm (*Ulmus rubra*). Four species also displayed apparent preferences for black locust (*Robinia pseudoacacia*) and hackberry (*Celtis occidentalis*). In contrast, songbirds used tree species according to availability in open-canopy habitat. We observed apparent preferences for the shrub and subcanopy vegetation layers (0–5 m and 6–10 m) in open-canopy habitat and apparent preferences for the subcanopy and lower canopy vegetation layers (6–10 m and 11–15 m) in closed-canopy forests. Relative use of prey-attack maneuvers in open versus closed-canopy habitat was significantly different for the Eastern Wood-Pewee (*Contopus virens*) and the Great Crested Flycatcher (*Myiarchus crinitus*), but not for foliage-gleaning species. These results suggest that restoration of oak savannas has important effects on the habitat use and foraging ecology of selected insectivorous birds.

Key words: closed-canopy forests, foraging behavior, habitat structure, insectivorous songbirds, oak woodlands, savanna restoration, sugar maple.