

USE OF INVERTEBRATES BY BIRDS IN RED MAPLE
FORESTED WETLANDS AND CONTIGUOUS FORESTED UPLANDS
IN SOUTHERN RHODE ISLAND

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ABSTRACT

Successful management of wetland wildlife populations requires a basic understanding of invertebrate ecology and their availability as food to higher life forms. Community structure, abundance, and seasonal dynamics of litter invertebrates in red maple forested wetlands are unknown. Differences in these parameters may influence where wildlife species forage along a wetland-upland gradient. I studied invertebrate use by ground-foraging birds along moisture gradients from upland forests to red maple (Acer rubrum) forested wetlands at three sites in Washington County, Rhode Island from April through August 1991. I examined diets of ground-foraging birds by stomach-flushing birds with saline solution and immediately preserving stomach contents. The invertebrates within the stomach samples were identified at least to order. I collected invertebrates along the upland-wetland gradient at each site to determine the mean biomass of invertebrates available to ground-foraging birds. Additionally, I monitored water tables, sampled shrub density and identified microhabitat types along the gradient at each site to correlate with invertebrate biomass. The most common invertebrates found in ground litter were larval Diptera, larval Coleoptera, adult Hymenoptera (Formicidae), adult Coleoptera and Araneae. The mean biomass of the litter invertebrates was greater in the wetland habitats at all three sites ($P < 0.05$). The mean biomass of litter invertebrates differed significantly from month to month along the gradient at two sites

($P < 0.05$). Adult Coleoptera, larval Lepidoptera, and Araneae were the most common invertebrates in bird diets. The target bird species did not eat invertebrates in proportion to their availability ($P < 0.05$). Veeries (Catharus fuscescens) selected adult Coleoptera, adult Diptera, and larval Lepidoptera; Northern Waterthrush (Seiurus noveboracensis) selected adult Coleoptera and adult Diptera; Canada Warblers (Wilsonia canadensis) selected adult Coleoptera, adult and larval Lepidoptera, adult Hemiptera, and Orthoptera; Gray Catbirds (Dumetella carolinensis) selected adult Coleoptera, adult Diptera, adult and larval Lepidoptera, adult Hemiptera, Trichoptera and Orthoptera; Ovenbirds (Seiurus aurocapillus) selected adult Coleoptera, larval Lepidoptera, and adult Hemiptera. Differences in mean biomass of those invertebrate taxa eaten by the target birds between upland and wetland zones were noted only at Arrow Swamp; mean biomass was greater in the wetland zones than in the upland zones for two bird species ($P < 0.05$). The mean biomass of those invertebrate taxa eaten by the target birds prey at each site tended to decrease from April to August.