

Influence of forest structure on terrestrial microhabitat use and movement patterns of Eastern Gray Treefrogs

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Forest structure influences environmental conditions, such as humidity and temperature, with physical characteristics of trees and species composition playing a key role in creating microhabitats that support diverse microclimates. Biotic interactions, such as cavity excavation and bark removal by woodpeckers (*Picidae* spp.), further enhance habitat heterogeneity and may provide suitable microhabitat for species with specific physiological needs. Heterogeneous landscapes with forests that contain trees with refuges adjacent to aquatic breeding sites are vital for temperate treefrogs' (*Dryophyte* spp.) life-history fulfillment. We hypothesized that treefrogs prefer trees with cavities excavated by woodpeckers because they provide suitable microhabitat. We tracked 20 Eastern Gray Treefrogs (*D. versicolor*) from two breeding wetlands in southern New Brunswick, Canada, using radio telemetry from June to September 2023. We mapped 1457 living and standing dead trees (>7cm DBH) within 15m of each frog's location. Frogs used 33 trees in total, with an average of 2.54 trees per frog. These trees were located an average of 28.61m from breeding wetlands, with a maximum distance of 127.71m. We quantified microhabitat by inventorying woodpecker cavities and recording cavity type, height in tree, size class, opening orientation, and associated cavity-excavator species for each cavity. Acoustic recording units were used to identify cavity-excavating bird species present at the sites. A total of six woodpecker species were using the area, representing three cavity-size classes. Our results provide insight into treefrog habitat use, but further analysis is needed to determine if they prefer trees with woodpecker-made cavities.

Key words: treefrogs, habitat selection, microhabitat, microclimate, woodpeckers