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The Conservation Value of Residential Landscapes for Native Bird Communities: Patterns, Processes, and Management Implications

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Abstract

Urbanization, as it transforms natural biotic systems into human-dominated landscapes, is recognized as one of the greatest threats to biodiversity throughout the world. Furthermore, urban dwellers are becoming increasingly disconnected with the natural world. Here I investigate whether residential landscape designs that mimic the natural environment can provide habitat for native birds. First I uncover some of the patterns of bird distribution in residential yards by incorporating habitat features, urbanization measurements and socioeconomic factors with bird monitoring data into a multivariate analysis. The results indicate that native birds associate with neighborhoods with native plants and shrubs, neighborhoods closer to desert tracts, and higher income neighborhoods. Very few bird species associate with low income and predominantly Hispanic neighborhoods. Additional analyses based on social survey data demonstrate that residents notice the varying levels of bird variety in their neighborhood. Second, I address whether perceived habitat quality differs between residential landscape designs by testing foraging decisions at artificial food patches. Birds foraging in yards landscaped with native plants consume fewer resources than birds foraging in exotic landscaped yards. This suggests that alternative food sources are more available in the native landscaped yards, indicating better quality habitat. Third, I investigate the relationship between native bird diversity and neighborhoods with a Homeowner Association (HOA). Neighborhoods with an HOA have higher native bird diversity, perhaps due to an active and enforceable landscape maintenance plan. I suggest an HOA adapt features from the Sustainable Sites Initiative to further improve habitat conditions for native birds and other wildlife. Results from the Dissertation support the implementation of native landscaping in residential yards to help reverse the loss of urban biodiversity. Consequentially, these landscapes will provide positive opportunities for urban dwellers to reconnect with the natural world.

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