Bird Conservation

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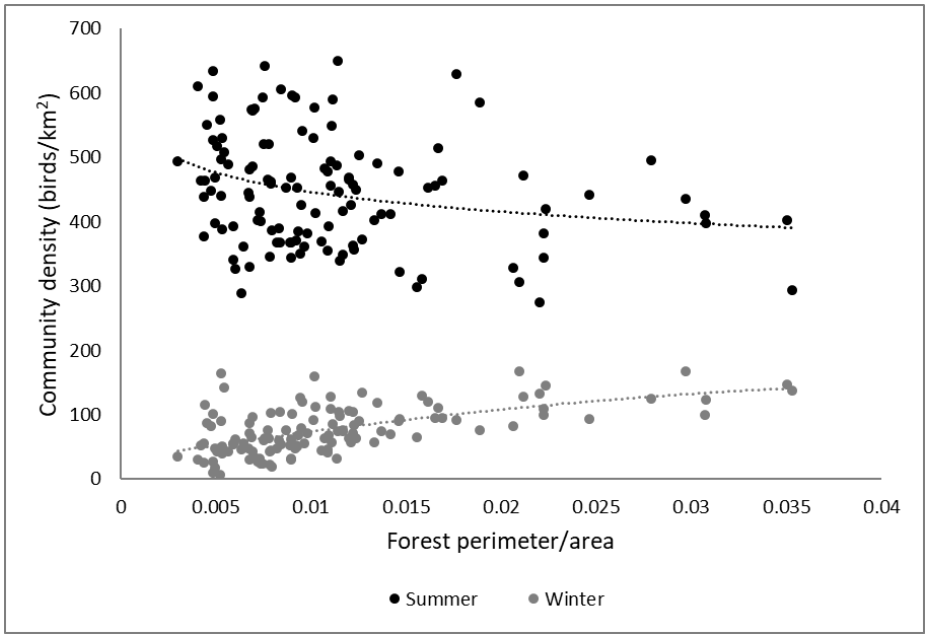
Forest Fragmentation Study Now Available



As forest fragmentation increases, the density of summer forest birds declines, whereas the density of winter birds increases.

The multi-year study into the effects of habitat fragmentation on forest birds in Connecticut is now complete, with the first draft available at https://www.birdconservationresearch.org/pdf/forest%20fragmentation.pdf. The study performed a comparative analysis in both winter and summer of four landscape measures to determine which predominated in influencing the structure of bird communities. These measures, made within an 800 m wide corridor along each of 121 study sites, were 1) perimeter/area of forest cover—a measure of how fragmented the forests were—2) amount of core

(Continued on page 2)

FRAGMENTATION
-CONTINUED

The ecological generalist White-breasted Nuthatch was the only species studied that showed no significant summer relationship to landscape or habitat variables., although in winter its numbers increased with increasing forest fragmentation and deciduous cover.

"The figure on page 1 illustrates that summer bird communities are fundamentally different from those of winter ..."

forest, defined as the amount of forest more than 100 m from an edge, which is another type of fragmentation measure, 3) the total amount of forest present, and 4) the amount of human-associated and natural forest breaks present.

In addition to these landscape measures, we gathered data at each of our 1,815 survey points on the forest type, soil moisture, canopy cover, understory density, stand age, elevation and vertical vegetation complexity. These measures were also compared to characteristics of the bird community to determine if these habitat features were more or less important than landscape features in influencing the communities.

The study reports on analyses performed on observations of 36,702 summering individuals of 123 species and 13,742 wintering individuals of 63 species. The figure on page 1 illustrates that summer bird communities are fundamentally different from those of winter in how they respond to environmental variables. Forest fragmentation effects showing a weak negative effect on community densities in summer but having a stronger positive effect on them in winter. This occurs because many summering species have very specific habitat needs, whereas in winter adaptable generalist species predominate.

Native Communities of the Field Station

This Reed Canary Grass-Sensitive Fern meadow at the field station is a persistent native community of environments not wet enough for emergent marsh vegetation but too wet for many types of upland vegetation.

Native grasslands are highly restricted in their occurrence in Connecticut. Early successional grasslands like Little Bluestem meadows develop on dry sites that have lost their woody vegetation but they are temporary communities replaced over time by woody plants unless they are regularly mowed.

In contrast, Dune Grass communities of the coastline are persistent over time, as they are among the few species to survive the salt spray and unstable sands of beach environments. Another coastal-associated and persistent grassland is the Switchgrass meadow, which develops at the upland border of salt marshes. When elevation increases slowly, this community can develop into one covering several acres at the upland border of salt marshes. Like Dune Grass, it exhibits some tolerance to saline environments.

A persistent inland grassland is the Reed Canary Grass meadow that develops along the upland border of freshwater marshes. This grass is an aggressively competitive species within its preferred habitat such that it can exclude invasion by woody vegetation. In low, flat areas such as along the Connecticut River, it can develop into an extensive community covering many acres. A small example of this community type exists at the BCR field station. It is notable in being one of the only native habitats that is suitable for nesting by the Sedge Wren–a rare species in Connecticut.

"It is notable in being one of the only native habitats that is suitable for nesting by the Sedge Wren–a rare species in Connecticut."

Plants With Wildlife Value

Spicebush is a native fleshy-fruited shrub or small tree that flowers in early spring. It is able to compete aggressively with alien invasive species.

"The Spicebush is one of these species and it has also proven to be an aggressive competitor with invasive alien species."

A number of our native shrubs have their seeds dispersed by songbirds and as such they are valuable food source for them. The Spicebush above is one of these species and it has also proven to be an aggressive competitor with invasive alien species.

A number of native viburnum species also produce fruits consumed by birds and some of these are also able to invade alien thickets such as those found along the borders of the field station. One of these, the Nannyberry, was highlighted in the last edition of this newsletter. Another is the Arrowwood, which also successfully invades disturbed environments.

Another important group of bird-friendly shrubs are the dogwoods. Among the more competitive species is the Red-osier Dogwood, although the Gray Dogwood is also capable of competing with alien shrubs and vines.

Additional competitive, heavily fruiting species used and dispersed by birds are the sumacs. Smooth Sumac, Winged Sumac and Staghorn Sumac are all common.

The Flycather Family

The Willow Flycatcher nests in shrub swamps and marsh edge shrubs.

During summer, the flycatcher family is well represented by a number of species in Connecticut. Some are associated with interior forest, although others are found at the forest edge, open environments and shrubby wetlands.

A member this latter group is the Willow Flycatcher illustrated above, as well as its close relative the Alder Flycatcher. The Willow Flycatcher is widespread, whereas the Alder Flycatcher is largely restricted to northern, higher elevation parts of the state.

The most common interior forest-associated species is the Eastern Wood Pewee, which is particularly associated with more deciduous, particularly oak-dominated forests with more closed canopies and open understories. An uncommon forest interior species is the Acsdian Flycatcher, which is associated with more mesic, closed canopied forest with lower understory density and greater coniferous cover. The Great Crested Flycatcher is also forest-associated, and is found in more deciduous, lower elevation, oak-dominated forests. Still another forest species is the more northerly distributed Least Flycatcher, which is found in more open, earlier successional forests. The Eastern Phoebe can also be found in forests, although it is more typical of forest edge, open habitats and marsh edges.

"The most common interior forest-associated species is the Eastern Wood Pewee, which is particularly associated with more deciduous, oak-dominated forests..."

The Newsletter of
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A Great Egret appeared in the field station gardens this summer.

MEMBERSHIP

There is still time to renew your membership for 2023. If you have not yet become a member, you may do so online through GoFundMe (https://www.gofundme.com/f/1nqlss). Memberships remain one of our principal means of funding the projects that we conduct, so please consider joining us. Membership applications and contribution options are also available on our web site: https://www.birdconservationresearch.org/