BIRD CONSERVATION

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FOREST BIRD SURVEY ENTERS FINAL WINTER

White Christmas– heavy December snow created a postcard landscape for conducting forest bird surveys.

"This portion of our region is a diverse one, with heavily urbanized areas near the coastline and extensively forested regions along the northern boundary."

Frigid early January temperatures followed by freezing rain yielded a blanket of ice across the landscapes of southern New England.

The last field season of the *Forest Bird Survey of Southern New England* began in mid-December and will continue until the end of February. The eight-year long project is culminating with a survey of the winter bird life of southwestern Connecticut.

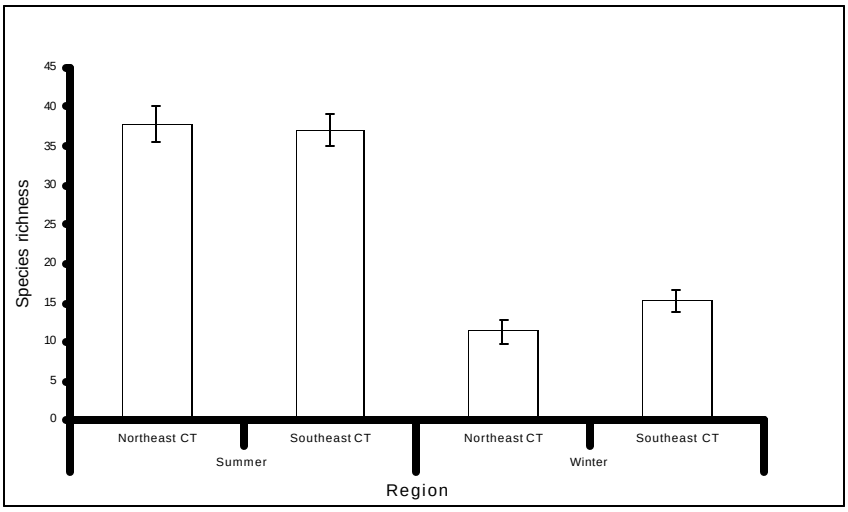
This portion of our region is a diverse one, with heavily urbanized areas near the coastline and extensively forested regions along the northern boundary. Northern portions also are rather mountainous, and more closely allied with the Litchfield hills in terms of climate, topography and plant life. Southern portions, in contrast, are low-lying and characterized by milder conditions and more southerly-associated plant life. Trees like the black walnut, eastern redbud and sweetgum reach their northern range limit near the southwestern coast.

Because of the shifts in landscapes and forest types that occur in southwestern Connecticut, bird life there exhibits significant north-south changes in species composition and population density. Toward the north in summer, species like the boreal-associated yellow-bellied sapsucker are present, whereas toward the south coastal plain breeders like the white-eyed vireo occur.

In early winter surveys conducted thus far, population densities of birds have been lowest in the mountainous, northern portions of the region and highest in coastal locations. This finding is consistent with that found for other portions of our study area.

Early winter surveys have produced concentrations of "winter finches." These typical inhabitants of boreal forests migrate south to our region only irregularly, although they have done so for the last two winters. To date, the pine siskin has been present abundantly, and modest numbers of red crossbills also have appeared. Other finches observed thus far include the common redpoll and evening grosbeak.

Forest Bird Survey Produces its First Paper



Diversity of forest birds is nearly equal in northeastern and southeastern Connecticut in summer, but in winter greatest diversity is found toward the south.

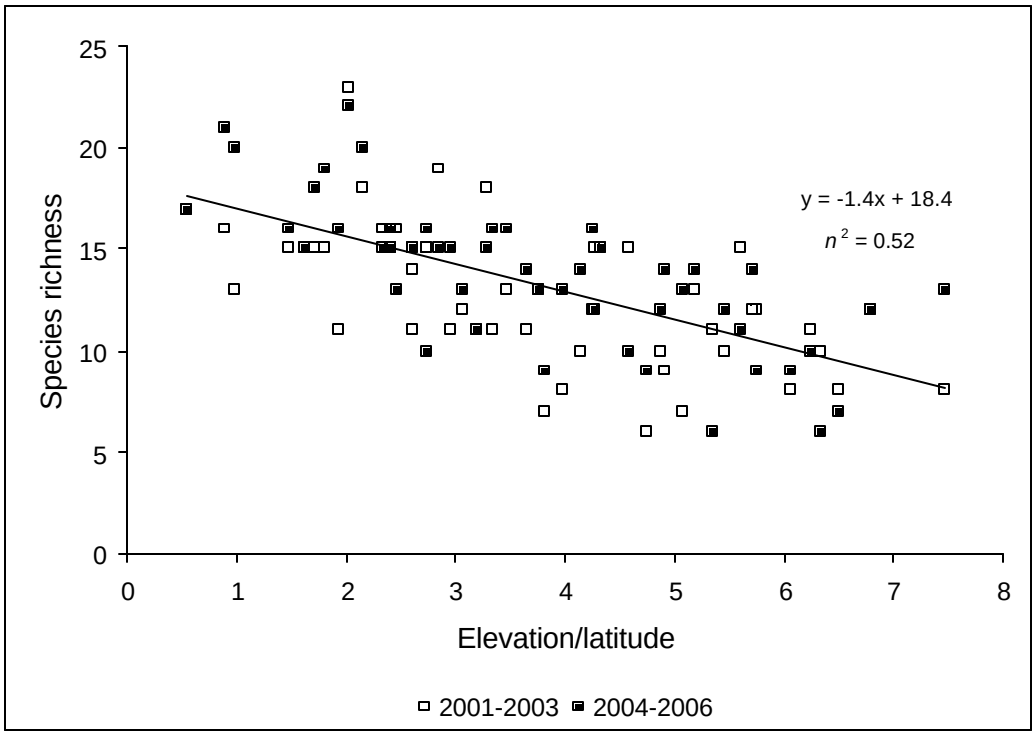
The first technical paper resulting from the *Forest Bird Survey of Southern New England* is now in the process of receiving peer review. The present version of the abstract is reprinted below:

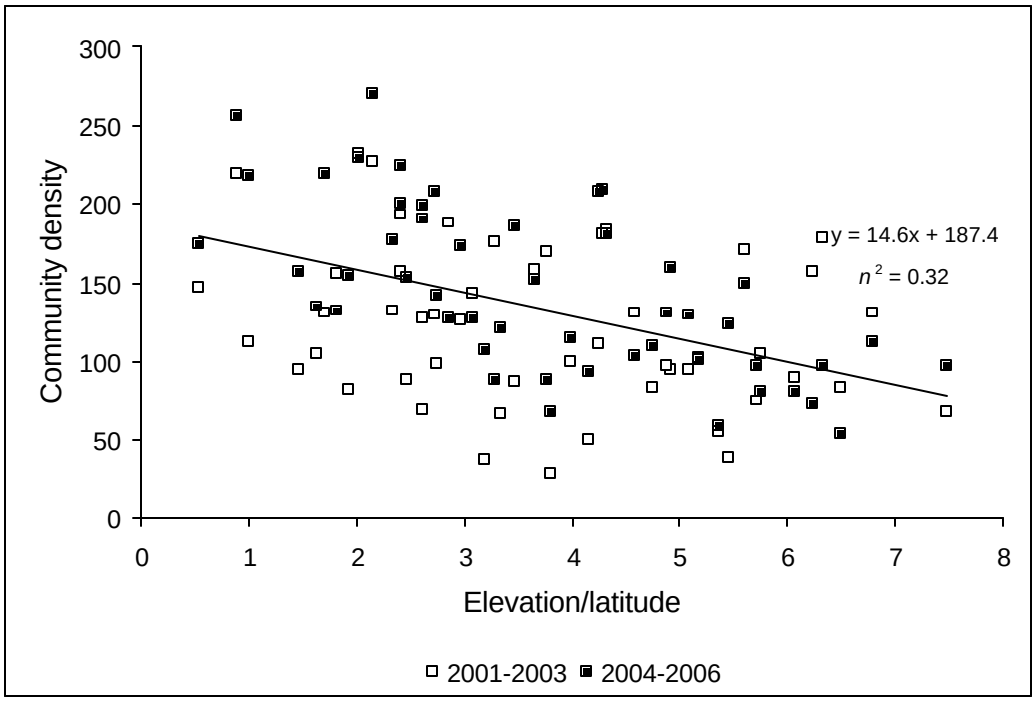
I examined the distribution of bird species richness, population density and community evenness in the temperate seasonal forests of eastern Connecticut to determine whether: 1) regional temperature variation explains the greatest proportion of geographic variation in these diversity variables, 2) geographic variation in habitat explains the bulk of remaining variation in diversity, and 3) seasonal divergence in diversity is explained by seasonal alteration in energy and importance of habitats. To evaluate these predictions, I used the variable circular plot technique to estimate bird populations and quantified the geographic location, elevation, forest type, vegetation type, canopy cover, moisture regime and understory density of study sites. I found that 1) summer richness and populations are roughly equal in northeastern and southeastern Connecticut, whereas wintering species and populations concentrate toward the coast, 2) summer richness increases weakly with increasing conifer cover and decreasing canopy cover, whereas winter richness increases strongly with decreasing elevation/ latitude, 3) summer populations increase weakly with decreasing canopy cover and elevation/ latitude, whereas winter populations increase more strongly with decreasing elevation/ latitude, and 4) community evenness is lowest in summer and weakly increases with increasing deciduous cover in winter. Of environmental variables considered, only those associated with energy- primarily winter energy- show strong relationships with species richness and community density. However, although energy and habitat distributions play a role in explaining community patterns, they leave much of the variance in regional diversity unexplained, suggesting that, as predicted by neutral models, a large stochastic component to diversity also may exist.

"I found that ... wintering species and populations concentrate toward the coast."

Populations of Forest Bird Species Decrease With Greater Elevation

The graphs opposite demonstrate that bird species number and population densities decline with increasing elevation and latitude.





POWERPOINT PRESENTATIONS FOR EDUCATORS

Species Interactions: Competition

- **Tinian monarch (above) vs. rufous fantail (below): two species of tropical island birds that both feed on flying insects:**
- **On islands where both species occur, the more aggressive Tinian monarch occupies the forest canopy, whereas the smaller rufous fantail uses the forest understory.**
- **Where only the rufous fantail occurs, it uses the entire forest profile, from canopy to understory.**

A PowerPoint slide from the presentation *Animal Communities* is available for download.

The first in a series of resources intended for educators is now available through our web site, www.birdconservationresearch.org. Ten PowerPoint presentations that highlight aspects of the science of ecology may be downloaded from the *Publications* page .

These presentations, intended for upper level high school and community college students, survey the principal bio-climatic regions of the world (biomes) as well as the communities of organisms found within them. Special emphasis is placed on habitats found within southern New England. Additional topics explore the nature of population biology and the structure of the physical environment.

Presentations now available:

Biomes
Communities
Animal communities
Populations
Energy flow through ecosystems
Soils
Southern New England habitats I
Southern New England habitats II
Southern New England habitats III
Southern New England habitats IV

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MEMBERSHIP DRIVE

It is time once again to renew your membership. Please support us by returning the member renewal form that comes with the printed version of this newsletter. Memberships provide a large part of the funds necessary to conduct our research and public education activities.

In order to continue providing these services, we need your continued support! Membership applications and payment options are also available at www.birdconservation-research.org