

# BIRD CONSERVATION

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## SOUTHWEST CONNECTICUT SURVEYS TO BEGIN

The final year of the Forest Bird Survey of Southern New England begins this May in the low hills of southwestern Connecticut. Much of this region is heavily urbanized, so the amount of forest present is limited. Plans at present are to survey 18 tracts of extensive forest remaining in the region.

Most of these remaining forests are found away from the coast, particularly toward the borders of Litchfield County. However, several sizeable coastal tracts survive in places like the Greenwich-Stamford Byram River gorge and New Haven's West Rock park.

The fragmentary nature of southwestern Connecticut's forests provides opportunities to further investigate the role of forest fragmentation in influencing bird communities. To date, studies in the vicinity of Hartford, CT and Providence, RI have suggested that entire suites of species can be missing from urban forests.



**Kettletown State Park, bordering Lake Zoar on the Housatonic River, will be one of this year's study sites.**

Near both Providence and Hartford, birds of the forest floor were notable in their absence. Even in situations where forests were

very similar in appearance to those of more rural areas, species like Ovenbirds and Veeries were virtually absent.

## WINTER SURVEY OF LITCHFIELD COMPLETE

***“These types of findings point out that energy is a limited and precious resource for birds at this season.”***



**The southern Berkshire hills along the Housatonic River were the final locations surveyed this winter .**

Northwestern Connecticut's mountainous terrain makes it substantially colder than the rest of southern New England. During a typical winter, much more snow also falls there than in lower lying areas.

Conditions like these make life harder for forest birds, and the consequence is that the winter forests of the northwestern Connecticut are only sparsely populated by birds. Particularly southerly-distributed species like the Tufted Titmouse, Carolina Wren and

Red-bellied Woodpecker are largely absent. The few that are present are located primarily along the region's southern boundary.

Findings like these have come out of this past winter's forest bird survey of the Litchfield hills, along with a host of additional discoveries. The value of a systematic, quantitative and statistically defensible survey is indeed in its ability to demonstrate conclusively the occurrence of such patterns.

Other patterns of note this winter were that at the highest elevations, in such places as the upper slopes of Bear Mt. and Caanan Mt., there are very, very few birds, even in fine stands of mature mixed forests. In fact, the difference in bird activity from high elevation and lower elevation areas is striking.

These types of findings point out that energy is a limited and precious resource for birds at this season.



**White birches and white snow characterized the winter habitats of northwestern Connecticut this year. Even when much of the rest of the state had no snow, the Litchfield hills still sported substantial snow cover.**

***“Diversity is, in part, a measure of how many species live in a habitat.”***

## **DIVERSITY IS RELATED TO ENERGY**

**D**iversity is, in part, a measure of how many species live in a habitat. It is also, however, a measure of how abundant each species is. Scientists have long been interested in learning about what factors control diversity. Understanding their nature assists with developing strategies for protecting diversity.

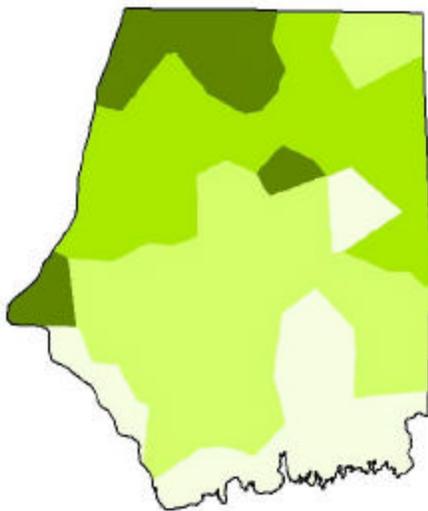
Although features of a habitat, including the types of plants present and how moist the soil is, are often thought to be largely re-

sponsible for producing diversity, other more fundamental factors may also exert a strong influence. All life on Earth is ultimately a product of energy received from the Sun. When energy is in short supply, as it is in the northern hemisphere winter, the importance of energy for regulating diversity becomes particularly apparent.

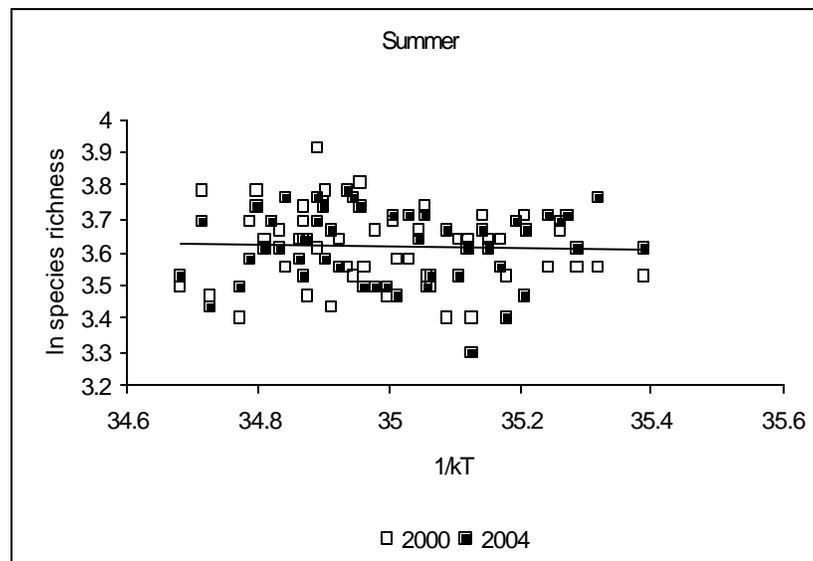
In comparing the graphs on the following page, there is no clear relationship between summer species rich-

ness (a component of diversity) and local temperature (a measure of energy). In contrast, when food (potential energy) is limited and temperatures (kinetic energy) are low, as they are in winter, temperature exerts a strong influence on determining how many species are present.

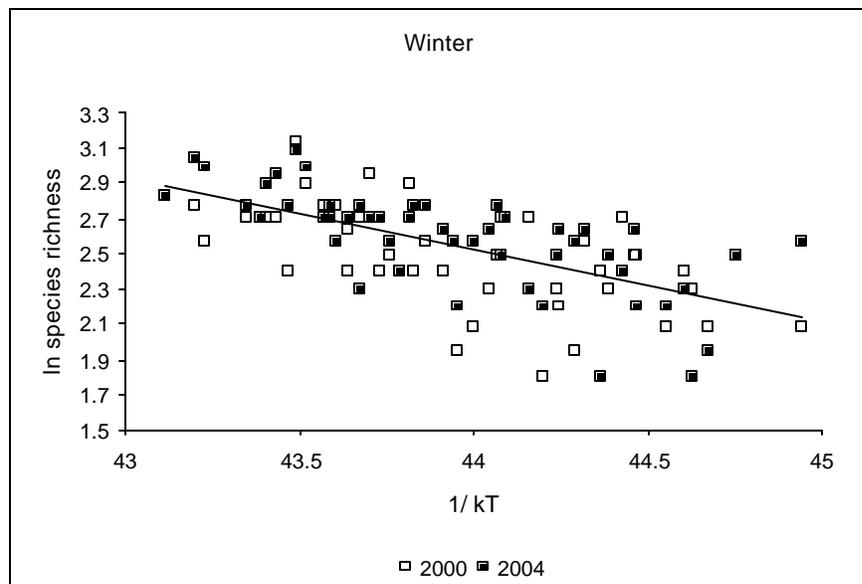
*The map of eastern Connecticut below shows how elevations decline from the northern part of the region to the coast. These declining elevations are associated with higher average temperatures toward the coast and, consequently, more species of wintering birds occurring there. From a conservation perspective, this means that coastal forests are particularly important as reservoirs for wintering species.*



## THE PROOF IS IN THE GRAPHS...



**Summer species show no increase in numbers with increasing average temperatures (measured, as it is by physicists, in units called Kelvins) of study sites in eastern Connecticut.**



**In contrast, winter species strongly increase in numbers as conditions at study sites become milder (smaller readings are related to higher average winter temperatures). Theory predicts that a line through the data should have a slope of about -0.6 to -0.7. The slope of the line is interpreted as the energy required to initiate metabolism. In our study, the slope of the line was computed to be -0.56, quite close to what theory predicts.**

# HABITAT VIDEO SERIES TO BE AVAILABLE



**A student measures the diameter of a tree in the Blackstone River floodplain in order to characterize the structure of the forest.**

Although we have been conducting pilot investigations into developing video productions based on New England habitats and BCR activities for some time, this year cameras have begun rolling and plans are to have episodes ready for classrooms by fall. The photos on this page are stills from the first footage shot for these videos.

The productions are aimed at teaching how real scientific research is conducted, how conclusions are drawn from research data, and how conclusions can be used for practical benefit. The videos use students, who carry out all phases of a scientific investigation from developing hypotheses to performing sophisticated analyses and draw-

ing conclusions.

Each episode features a particular New England habitat. The first features the floodplain environ-

ment, and the photographs here show students gathering research data that help to characterize the habitat. Vegetation, water chemistry and wildlife data (notably, from *The Forest Bird Survey of Southern New England*, provide a comprehensive view of the workings of this system, and why it is an important system for conservation action.

Additional episodes are planned for such habitats as bogs and tidal wetlands. A separate, more far-ranging video is planned specifically for the *Forest Bird Survey of Southern New England*. Once complete, the videos will be distributed to schools and environmental education programs throughout New England.



**Students lay out a tape measure in order to perform a point-centered quarter analysis of forest composition along the Blackstone River.**

***“The productions are aimed at teaching how real scientific research is conducted”***

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statistical analysis software, paid our student interns, and helped defray our considerable travel expenses. In order to expand our programs, we need your continued support.

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