

# BIRD CONSERVATION

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## FOREST BIRD ANALYSIS UNDERWAY



The White-breasted Nuthatch is a year-round resident of southern New England's forests.

Based on nearly 31,000 observations, the populations of every species of forest bird in eastern Connecticut and Rhode Island are being computed.

Because large numbers of observations have been made on each bird species, populations can be computed to a high degree of accuracy. Furthermore, because observations in eastern Connecticut have been repeated over four

years, the generality of the estimates can be assessed.

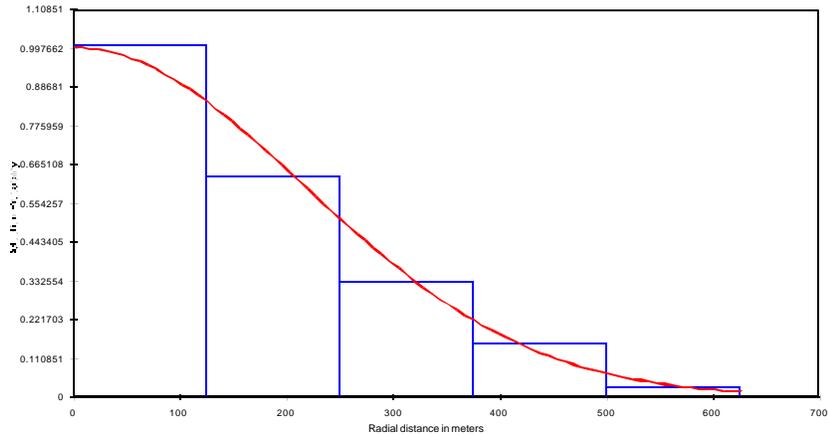
The White-breasted Nuthatch provides a case study. Based on 459 observations, the number of summering Nuthatches per square kilometer is 6.7 in eastern Connecticut and 5.0 in Rhode Island. In winter, 695 observations show that densities rise to 7.2 in eastern Connecticut and 7.6 in Rhode Island.

Populations have been fairly consistent during the years of the study.

Present research is investigating how bird populations vary as a consequence of geographic differences in habitat factors. In particular, the role of habitat in influencing species diversity and community density is being assessed.

# DETECTABILITY PROFILES YIELD POPULATION ESTIMATES

**“Detectability is the measure of how easy it is to find a bird.”**



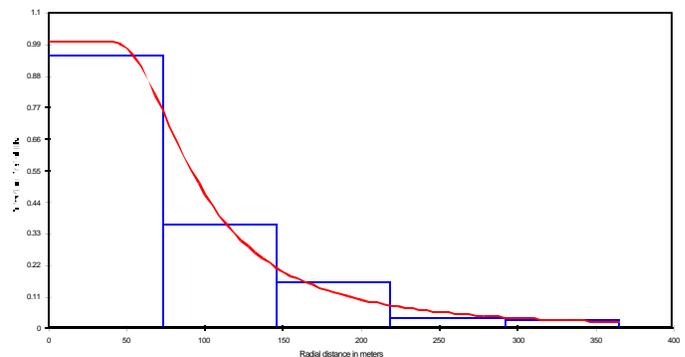
**The detectability curve of the Red-shouldered Hawk shows a dropoff in probability of detection with distance from an observer.**

Every species of bird has its own particular detectability profile. Detectability is the measure of how easy it is to find a bird. Typically, birds very close to an observer can be found 100% of the time, but detectability drops when birds are further away.

Red-shouldered Hawk, the detectability curve yields average (based on four years of data) summer populations of 0.13 birds per square kilometer in eastern Connecticut and Rhode Island. Winter populations are 0.04 in eastern Connecticut and 0.02 in Rhode Island.

Birds per square kilometer of the small summer resident Broad-winged Hawk (with a detectability that drops off quickly with distance) is 0.16 in eastern Connecticut and 0.49 in Rhode Island.

How quickly the rate of detectability declines is measured with a detectability curve. This curve is fitted to field data on bird detection distances. Curve fitting uses mathematical procedures that compare the shape of curves to actual data. When a curve (also known as a mathematical model) is judged to adequately represent the data, the curve can be used to generate population estimates.



**The detectability curve of the Broad-winged Hawk shows a markedly different shape from that of the Red-shouldered Hawk.**

In the case of the Red-

# UPCOMING PROJECTS: COASTAL THICKETS

As we enter the final year of the *Forest Bird Survey of Southern New England*, we are preparing to make use of our findings in crafting follow-up studies. One of the key findings of the survey has been the importance of coastal woodlands and thickets in harboring winter populations of resident bird species. Population densities of many of our species tend to concentrate in these habitats during the winter months. In fact, their numbers actually increase from summer to winter.

Although coastal woodlands are disproportionately valuable for wintering bird species, they are in short supply. Hence, populations that rely on them to survive are potentially threatened. To assist with remedying this situation, BCR is developing a program of habitat restoration for the rarest coastal woodland habitat—shoreline thickets.

Shoreline thickets once covered much of the coasts of Connecticut and Rhode Island, and contained a distinctive flora that included a number of southern species that reach their range limit on these shores. Species like the American Holly, Smooth Holly, Persimmon, Post Oak and Chinkapin Oak are among these. Today, most of the area once covered by these habitats is in residential development. Surviving coastal thickets are highly fragmented, and



Although widespread in coastal Rhode Island, American Holly is rare in Connecticut. This specimen in Stonington is one of the few present in Connecticut’s coastal forests.

most have been degraded by centuries of human activity. Many thickets lack full tree species compliments.

To begin the process of habitat restoration, BCR has undertaken an inventory of existing thickets in Connecticut and Rhode Island to 1) locate remnant populations of surviving species, 2) assess the degree of degradation of these thickets, 3) locate sites where thicket restoration may be undertaken and 4) assess more fully present bird use of

these habitats.

Part of the process of restoration will involve replanting missing species in degraded areas. Surviving local populations will act as source materials. Pilot studies are examining seed germination and propagation through cuttings.

**“Although coastal woodlands are disproportionately valuable for wintering bird species, they are in short supply.”**

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# Bird Conservation Research, Inc.

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