

Methodology

Six study plots were located in forests ranging from 18.7 to >10,000 hectares in total area. These plots were split into two size classes, large (>100 ha) and small. The cut-offs for plot sizes were determined using information from studies done on minimum habitat requirements of songbirds (Robbins et al. 1989). All



sites were characterized by second growth, mixed-deciduous, oak dominated forest and all forest fragments were isolated from similar habitats by suburban development, agricultural fields, highways, or a combination of these.

We assessed the breeding success of Ovenbirds by monitoring color banded males and noting the presence or absence of mates and young during the breeding season (mid-May to mid-August). The decision was made not to search actively for nests because we believed this activity would put the nests at a greater risk of being detected by predators (Major 1989, Vickery et al. 1992). Furthermore, parental behavior of Ovenbirds precluded the need to locate nests. Since male and female Ovenbirds care for young (see Porneluzi et al. 1993), a male with fledged young was interpreted as successful.

Mammalian abundance on each plot was obtained by live-trapping along transects which ran through the middle of each plot. During the course of the season, 40 traps were set for three consecutive days at three different times over the songbird breeding season (one trap open for one 24 hour period = 1 trap-night; 360 trap-nights/fragment; 1080 trap-nights/size-class). One site of each size class was trapped per week although no two plots were trapped in consecutive weeks.

Traps were checked in the early morning (by 0830). To distinguish captures between trap days, each individual was marked on the abdomen with a non-toxic permanent marker. This enabled me to tally a total num-

ber of captures over three days and not count any one animal twice. Additionally, the weight, sex, and age (when possible) of each individual caught was recorded. The relative abundance (RA) of each species was calculated as the proportion of the actual number of individual animals caught on a given plot versus the total number

of trap-nights multiplied by one hundred; RA per plot = [(total number of animals caught-recaptures)/(number traps-sprung traps)] x 100.

Chi-square tests, analyses that test for proportional differences between variables, were run on the RA to separately compare mammal abundances and Ovenbird breeding success in large and small forests.

The results suggest a possible relationship between the small mammal community and songbird breeding success in small forests.

Figure 1. Recorded data of small mammal abundances and Ovenbird reproductive success on three large (> 100 ha) plots in southeastern Pennsylvania from the 1993 breeding season.

