

Andren, H. and P. Angelstam. 1988. Elevated predation rates as an edge effect on habitat islands: experimental evidence. *Ecology* 69(2):544-547.

Abstract: Studies of the fauna and flora of habitat islands in a fragmented landscape have usually applied island biogeographic theory to explain patterns of distribution and abundance of organisms on the habitat islands. However, as pointed out by MacArthur and Wilson (1967:114), habitat islands are very different from true islands. A habitat island is not surrounded by a habitat which is as hostile to organisms as the sea is to most terrestrial organisms. The surroundings of a habitat island contain both potential competitors and predators that may enter and interact with species living inside the island. The effect of such interactions from adjacent habitats, a type of edge effect, should increase as the size of the habitat island decreases, because the ratio of circumference to area increases as islands become smaller (Levenson 1981). The loss of bird species from forest fragments as fragmentation progresses is well documented (Svensson 1978, Whitcomb et al. 1981, Ambuel and Temple 1983, Helle 1984), but in most cases the cause of extinction is unknown. A number of explanations have been suggested for this decline in the number of species (see, for example, Whitcomb et al. 1981). Some of these explanations take into account interspecific interactions from outside the habitat islands, e.g., increased brood parasitism (Brittingham and Temple 1983) and increased nest predation (Robbins 1980, Ambuel and Temple 1983) in small forest fragments as compared to large ones. Wilcove (1985) tested the idea that the difference in nest predation rates within small vs. large forest fragments is one mechanism causing reduction in the bird faunas of small fragments. He found a higher predation rate on dummy nests in small as compared to large forest fragments. Furthermore, Wilcove et al. (1986) found that predation rate was higher closer to the forest edge, suggesting that the high predation rate in small forest fragments was due to predators living in the surrounding habitat and penetrating the forest fragment. To see if this pattern might be a general feature of fragmented landscapes, we tested whether predation rate on ground nests in forest fragments is influenced by distance from farmland-forest edge. The study was performed in the same type of environment and in the same way as Wilcove (1985) and Wilcove et al. (1986). This replication of previous studies is important in determining the generality of results.