SHORT-TERM EFFECTS OF GYPSY MOTH DEFOLIATION ON NONGAME BIRDS

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ABSTRACT

The response of a nongame bird community to tree defoliation and mortality caused by gypsy moths was studied during the summers of 1984, 1985, 1987, and 1988 in deciduous forest habitat of eastern West Virginia. Birds and structural vegetation characteristics were sampled on 42 permanent stations. The 1984 and 1985 stations were considered undefoliated because whole tree defoliation did not occur until 1986. The 1987 and 1988 stations were categorized as defoliated or undefoliated based on canopy coverage and snag density values when compared to the pooled 1984 and 1985 station values. Some bird species showed higher frequencies of presence at defoliated compared to undefoliated stations, but no species showed lower frequencies of presence at defoliated stations.

For each of 32 bird species, two-group discriminant analyses were used to construct a bird presence gradient and a defoliation gradient based on vegetation characteristics at each station. Regression analyses were used to examine the dependency of canonical variable scores along the presence gradient and canonical variable scores along the defoliation gradient. Results showed that 17 species responded positively, 4 species responded negatively, and 11 species displayed no response to gypsy moth induced defoliation and tree mortality.

We suggest the short-term pattern of generally positive effects of gypsy moth defoliation on nongame birds is related to the increased amount of suitable habitat, increased habitat diversity, and increased food supply. However, a potential exists for the future reduction in reproductive success of many species because of increased nest predation and brood parasitism. Therefore, we caution that the long term responses of bird species to heavy defoliation and subsequent tree mortality remain unknown.