

12-2012

Distributions of Phytophagous Larvae in Mid-Successional Allegheny Hardwoods: Impacts of Bird Exclusion

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DISTRIBUTIONS OF PHYTOPHAGOUS LARVAE IN MID-SUCCESSIONAL
ALLEGHENY HARDWOODS: IMPACTS OF BIRD EXCLUSION

A Thesis

Submitted to the School of Graduate Studies and Research

in Partial Fulfillment of the

Requirements for the Degree

Master of Science

Rebekah A. Keating

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December 2012

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Title: Distributions of Phytophagous Larvae in Mid-Successional Allegheny
Hardwoods: Impacts of Bird Exclusion

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In this study birds were excluded from branches of six dominant tree species of the Allegheny National Forest. Larval Lepidoptera (caterpillars) and Symphyta (sawflies) collected from exposed and protected branches indicate that pin cherry (*Prunus pensylvanica*) and black cherry (*P. serotina*) act as important sources of larvae for birds throughout the breeding season, whereas American beech (*Fagus grandifolia*) and sugar maple (*Acer saccharum*) act as potentially important sources during the post-fledging period. The removal of larvae by birds is dependent on the available biomass on a host tree, though differences in the response of birds to available biomass on tree species during June indicate foraging preferences for tree species beyond available biomass. Overall, the exclusion of avian predators from temperate forest trees shows that plant quality scales up in value to the third trophic level as trees with higher larval biomass are increasingly used as a food source for birds.