WILDLIFE RESPONSES TO INVASIVE SHRUBS IN EARLY-SUCCESSIONAL HABITATS OF SOUTHEASTERN NEW HAMPSHIRE

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In New England, disturbance-generated habitats include native shrublands and early-successional forests. Regionally, these habitats support a diverse assemblage of plants and animals that may include several species that are of conservation concern [e.g., New England cottontails (*Slyvilagus transitionalis*) and golden-wing warblers (*Vermivora chrysoptera*)]. Management activities used to perpetuate early-successional habitats (e.g., timber harvests, mowing, or controlled fires) may increase their vulnerability to encroachment by alien plants because physical disturbances can temporarily remove native plants that are able to prevent alien plants from colonizing a site via competition. Concern is increasing regarding the consequences of alien plant invasions. In addition to reducing the abundance and diversity of native plants, the suitability of alien plants for wildlife may be less than native plants. For example, alien plants may be less palatable to native herbivores (including phytophagous insects) because native herbivores lack adaptations to the chemical or structural defenses that alien plants possess. In fact, this release from herbivore pressure has been suggested as one explanation for the success of some alien plants (*the enemy release hypothesis*). A reduction in insect abundance and diversity therefore may have ramifications on other wildlife taxa that are dependent on insects as a major food (e.g., nesting birds, amphibians, reptiles, and some small mammals).

We investigated the suitability of alien shrubs, including buckthorn (*Rhamnus* spp.), autumn olive (*Elaeagnus umbellata*), and multiflora rose (*Rosa multiflora*) on six sites in southeastern New Hampshire. Abundance of alien shrubs ranged from 13 to 93% of shrub cover. At each site, insect abundance and diversity were sampled among alien and native shrubs using timed counts and pitfall traps. Relative abundance and distribution of amphibians and reptiles were based on captures associated with cover boards and plastic cover sheets. Small mammals were inventoried with baited livetraps.

Our preliminary results indicate that alien shrubs did indeed support fewer species of insects. However, responses by insectivorous vertebrates were less definitive. Amphibian captures were too few to evaluate. Reptiles captured included garter (*Thamnophis sirtalis*), redbelly (*Storeria ccipitomaculata*), and milk snakes (*Lampropeltis triangulum*), but samples at all sites were dominated by garter snakes. This generalist snake did not respond to the abundance of alien shrubs. Small mammal captures included deer mice (*Peromyscus* spp.), short-tailed shrews (*Blarina brevicauda*), chipmunks (*Tamias striatus*), and jumping mice (*Zapus hudsonius*). Again, the generalist deer mouse dominated the sample and apparently was not affected by the abundance of alien shrubs. We conclude that alien shrubs can affect insect populations but the ramifications of this effect on insect consumers warrants additional investigation, especially among specialized consumers that are likely to respond to changes in the abundance of insect prey.