
**INVASIVE, EXOTIC SHRUBS: A
PARADOX FOR NATURAL AREA
MANAGERS?**

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The rapid spread through natural areas of many different exotic, invasive shrubs, such as *Euonymus* spp., *Lonicera maackii*, *L. tatarica*, and *Rhamnus cathartica*, is of major concern to managers. These species often displace native species, alter micro-environments and patterns of succession, and change vegetation structure. Natural area managers use prescribed burning, cutting, application of herbicides, or some combination of the above to control these and other exotic plant species (e.g., garlic mustard, *Alliaria officinalis*). A common goal of these control programs is to eliminate, quickly and thoroughly, the exotic species from the managed site. Our recent

work examining the habitat relations of songbirds in a woodland habitat at The Morton Arboretum in Lisle, Illinois, however, suggests that rapid elimination of weedy, exotic shrubs may, under at least some circumstances, have negative impacts on a variety of bird species by concomitantly eliminating nest sites of these birds. We describe our evidence for this management paradox, and suggest a long-term resolution involving consideration of the reproductive status of the exotic shrubs when setting priorities for shrub removal.

Our studies have taken place primarily in the 200-ha East Woods of The Morton Arboretum, from early May to mid-August of 1990 and 1991. This woodland is characterized by a canopy including *Acer saccharum*, *Fraxinus americana*, *Prunus serotina*, *Quercus alba*, and *Q. rubra*, and an understory including *Ostrya virginiana* and smaller size classes of some of the species in the canopy. Although native shrubs (e.g., *Corylus*) apparently were once common in these woods, today these species are very poorly represented throughout most of the woods. Some parts of the woodland, however, have been invaded successfully by exotic shrubs, including non-native species of *Lonicera* and *Rhamnus*, and *Rosa multiflora*.

We mapped the location of bird territories and nest sites, identified the plant species containing nests (when appropriate), and monitored nests for success/failure. In addition, we conducted a vegetation survey (to determine importance values for trees and shrubs) in 40 randomly located 0.01-ha quadrats throughout the woods, as well as in similar quadrats immediately around the nests of a number of different bird species. This allowed us to compare importance values (IV, calculated as [relative frequency + relative density + relative basal area] ÷ 3) of trees and shrubs of habitat surrounding nest sites to an average importance value for the East Woods as a whole.

We found that a surprising number of individuals of several bird species nested in these invasive, exotic shrubs. For instance, 18 out of 27 nests of wood thrush (*Hylocichla mustelina*) were found in either *Lonicera* or *Rhamnus*. Similar nesting

choices were made by catbirds (*Dumetella carolinensis*), American robins (*Turdus migratorius*), cardinals (*Cardinalis cardinalis*), rose-breasted grosbeaks (*Pheucticus ludovicianus*), and to a lesser extent, by blue jays (*Cyanocitta cristata*) and red-eyed vireos (*Vireo olivaceus*). The selectivity for exotic shrubs is also reflected in importance values (IV for *Rhamnus* from random plots: 3.97; IV for *Rhamnus* for wood thrush nest sites: 28.9).

could be safely removed. This sort of management requires a rather long-term view, but we feel that it helps to ensure that natural areas remain viable for all components of the system.

Why should these bird species nest preferentially in these plant species? We believe that the most likely explanation is that these plants provide a branch structure that facilitates nest building, within the range of heights at which these bird species normally build. We caution that if no native shrubs are present as alternatives for nest sites (and this appears to be the case in many small, fragmented, woodlots in the Midwest), quick and total elimination of the exotic shrubs, through cutting or some other control measure, could lead to local extirpation of the bird species using these shrubs.

Does this situation preclude the use of any control measures against exotic shrubs? We believe not. We suggest simply that elimination of these plant species may affect components of natural areas in ways that are not immediately apparent. We urge that the schedule for removal of exotic shrubs be revised according to the reproductive status of the targeted plants. For instance, in the East Woods of The Morton Arboretum, many *Lonicera* and *Rhamnus* under the forest canopy are not reproductive (they are apparently too shaded to produce fruit, or, as in the case of *Rhamnus*, they may be male plants incapable of fruit production). Because these plants are not producing fruit, they pose no threat in terms of massive, and possibly long-distance dispersal by vertebrate animals (e.g., birds, raccoons). Therefore, these plants could be left standing for a number of years while reproductive, fruit-producing plants (e.g., those in sunnier areas along some forest edges) could be cut. During this time, native shrubs could be planted along woodland edges or into tree-fall gaps (or other suitable areas). When the planted, native shrubs are large enough to provide nesting habitat, then the nonreproductive exotics