Rights-of-Way Ecology at Penn State

Plant and animal community response to long-term vegetation management on rights-of-way

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Bird Population & Nesting Studies

Bird populations have been extensively studied on the SGL33 right-of-way since 1982. Over 40 bird species have been noted on the right-of-way, with the most common being those that nest in brushy or grassy vegetation created by integrated vegetation management practices. Bird populations proved to be more plentiful in the treated right-of-way than adjacent forest, including herbicide-treated units, especially those with basal and foliar methods of application. In areas treated with herbicides, there were 712 birds observed per day per 100 acres, compared to 552 birds on areas mechanically maintained. Forty-four different species of birds were counted in 2000 through 2001 on the right-of-way compared to 39 in 1987 through 1988.

Properly maintained vegetation within a right-of-way benefits many bird species, especially those adapted to brushy, early successional habitats. In the northeastern United States, populations of bird species using early successional vegetation as a group are declining faster than other groups such as forest or wetland birds. Therefore, a properly managed right-of-way is key to the conservation of birds such as the chestnut-sided warbler (Dendroica pensylvanica) or eastern towhee (Pipilo erythrophthalmus) that require early successional habitat.

The nesting ecology study conducted from 1991 to 1992 showed an increased survival for birds raising young in a well-managed right-of-way. Overall, the nesting success along the right-of-way is 66 percent, which is higher than success reported in other studies of songbirds (approximately 50 percent), including those conducted in managed forest stands (clear-cuts) in central Pennsylvania. Six different native plant species—including blackberry, witch hazel, mountain laurel, blueberry, hay-scented fern, and poverty grass—provided a variety of nest sites within the right-of-way for different bird species that depend on this linear, early successional habitat for breeding.

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Key Findings

1. Vegetation management treatments provide valuable habitat for spring and summer bird populations.

2. Bird abundance is about sevenfold higher within the treated right-of-way compared to the adjacent forest.

3. The number of bird species is 33 percent greater on herbicide treated units compared to those that were mechanically treated.

4. The diversity of native plant species on the right-of-way provide a variety of nest sites for different bird species that depend on early successional habitat for breeding.

5. Within the right-of-way, nearly four times as many birds were observed in the shrubby border zones as in the wire zones. Hence, the border zone is a very important habitat, with its combination of shrubs and a mix of herbaceous and tree species.

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