

EFFECTS OF SILVICULTURE ON MATURE FOREST AND EARLY-SUCCESSIONAL SHRUBLAND PASSERINE BIRDS IN NORTHERN AND CENTRAL NEW ENGLAND

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In this presentation, we will outline some general patterns of mature forest and early successional shrubland bird distribution and reproductive success in relation to various silvicultural treatments. Mature forest birds are negatively affected by even-aged management during the nesting portion of the reproductive cycle because breeding habitat is lost in the treatment area itself, and because bird territories are displaced, and nesting success lower, in adjacent mature forest habitat. After the young leave the nest, however, many mature forest birds move into regenerating clearcuts with their broods; in New Hampshire we found that the ratio of mistnet captures in clearcuts versus mature forest was >100:1.

Even-aged management is beneficial to early successional birds. Regenerating clearcuts and shelterwoods are typically colonized within a few years of treatment. The time period during which the habitat created by these practices remains suitable varies among species, with some dropping out 3-5 years (e.g. mourning warbler), and others declining in abundance but remaining on site for as long as a decade (e.g. chestnut-sided warbler). It does not appear that patch size affects the distribution or reproductive success of shrubland birds in northern New England as long as patches are >0.5 ha and located in a cluster, as practiced in group selection (King et al. 2004). It is not clear whether small, isolated patches are lower quality habitat for these species. In southern New England, however, some species do appear to prefer larger patches (e.g. prairie warblers). Nest success in clearcuts in New Hampshire is extremely high, far higher than nest success in powerline rights-of-ways or managed wildlife openings. Nest success in Massachusetts clearcuts substantially lower than nest success in New Hampshire clearcuts. Whether this difference is due to differences in landscape composition, predator community, or habitat is the subject of current research.

Most mature forest and early successional birds are less abundant in stands managed using uneven-aged management than unmanaged forest and early regeneration even aged stands, respectively. There are exceptions to this (e.g. some flycatchers). Also, most if not all early successional passerines use openings created by group selection in northern New England as long as patches are >0.5 ha. Prairie warblers, which occur in southern New England, are far less abundant in small patches relative to clearcuts in Missouri, and the same is probably true for this and other species in southern New England. Group selection removes habitat for mature forest birds, and results in increased nest predation in adjacent mature forest, and because it creates more edge per unit area cut than even-aged management, group selection can contribute to the fragmentation of forest stands.