

BREEDING BIRDS OF THE CORNISH HARDWOOD MANAGEMENT AREA: AITKIN COUNTY, MINNESOTA 1998-2000

JoAnn Hanowski
Natural Resources Research Institute

What we studied

We counted breeding birds for three consecutive years (1998-2000) in the Cornish Hardwood management area (CHMA), located in northeast Aitkin County. We did these surveys to: 1) establish a long-term breeding bird monitoring program in the CHMA that would detect annual changes in species abundances, 2) determine whether bird community composition and species abundances are affected by uneven-aged forest management, and 3) compare the bird community in the CHMA with other northern hardwood stands in northern Minnesota.

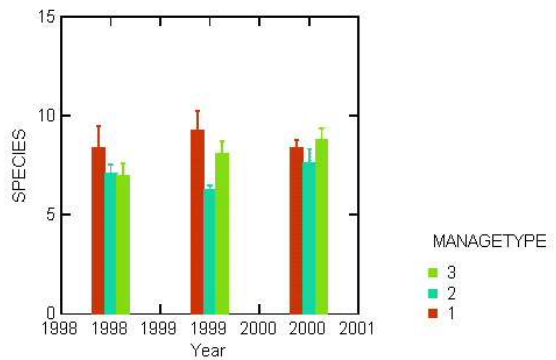
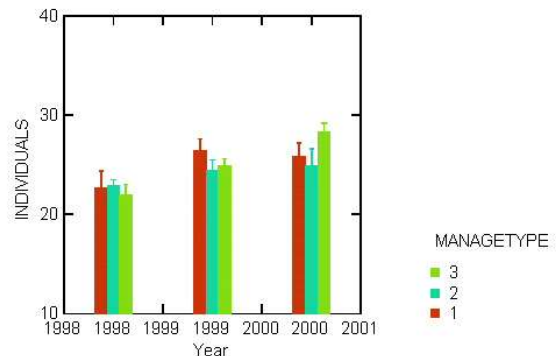
We selected 26 forest stands that were greater than 40 acres for monitoring. Eight stands were harvested within the past 10 years (managed), eight stands were in the management area, but had not been recently managed (unmanaged), and 10 sites were located in Savannah Portage State Park. One breeding bird survey was conducted at each point with an unlimited radius 10 minute point count in June of 1998, 1999 and 2000.

What we found

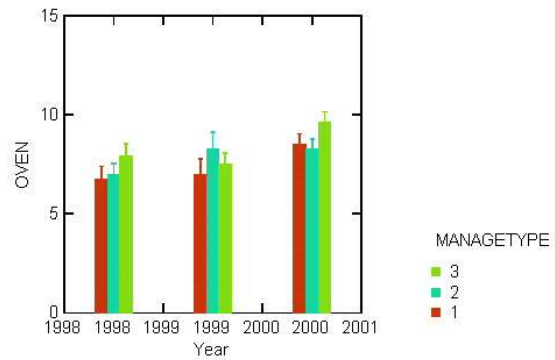
In all the charts, the red color represent the managed sites, the blue are the unmanaged sites, and green are reference sites.

On average, we observed 22 individuals and 7 to 8 species in each stand in 1998, a slightly higher number, 25 individuals and 8 species in 1999, and an average of 26 individuals and 8 species in 2000. The total number of individuals varied annually, increasing from 1998 to 2000.

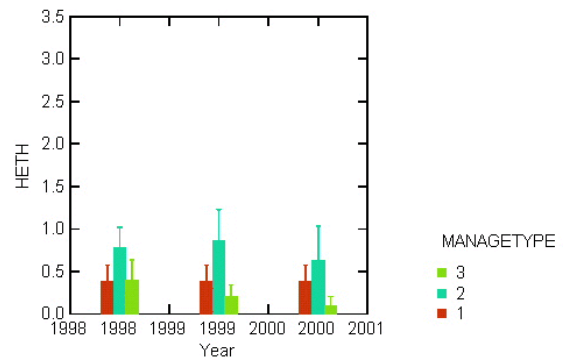
We also found that unmanaged (type 2 in figure) stands had fewer species than managed or reference stands.



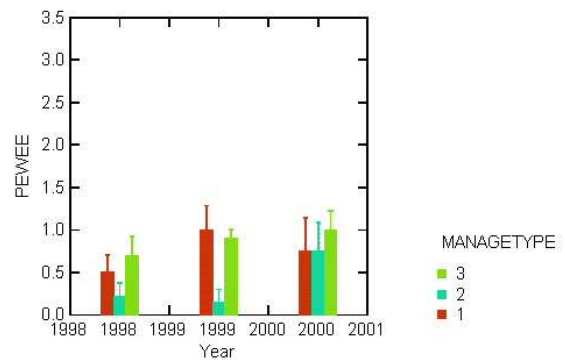
We found a significant annual difference in numbers of Ovenbirds, with numbers increasing from 1998 to 2000. This species nests on the ground and is found in many forest types in northern Minnesota.



More Hermit Thrushes were found in unmanaged stands (manage type 2 in figure) than in either managed or reference stands. This species nests on the ground and is a habitat generalist, occupying both upland and lowland conifer and deciduous habitat types. It occurs in areas with more shrubs, but with a forest canopy. This habitat condition may have developed on unmanaged sites because the canopy was previously opened, allowing shrubs to grow in the understory.



The opposite pattern was found for the Eastern Wood-Pewee. This species was more abundant in reference and managed stands than in unmanaged stands. This species nests in canopy or subcanopy layer of forests and is an upland forest habitat generalist (occurs in both conifer and deciduous forests). It is a flycatching species that requires a more open mid-canopy layer.





The Black-throated Blue Warbler is an uncommon breeding bird in northern Minnesota. This species is rarely found in northern hardwoods in north central Minnesota but occurs in selected northern hardwood stands in northeast Minnesota, primarily in the Lake Superior highlands. This species has a high priority ranking in the Great Lakes region, primarily because a large percentage (29%) of its range occurs here. We observed 2 individuals in the CHMA in 1999 in a recently harvested stand that had a dense shrub layer (approximately 1-3 m in height). Because this species responds to shrub growth after the canopy is opened, creation of small gaps with forest management activities is likely beneficial to this species population. Small gap formation in northern hardwood forests with forest management treatments, versus overall thinning is a practice that will benefit this species.

We found that the composition of bird communities among management types was significantly different. Sites were distributed along axis 1 along a gradient of sites with more bird species that require open forest floor conditions (negative associations) to sites with more bird species associated with shrubs (positive associations) (see adjacent figure). Along axis 2, sites with more shrub birds had a negative association and sites with more mature forest bird species were positively associated with axis 2. Management opens the

canopy and increases the density of small trees and shrubs. Our observation of more shrub bird species in recently managed areas supports this result. In contrast, the reference sites tend to have more bird species and individuals that are classified as requiring mature forest conditions. These conditions were present in stands that have not been harvested for >70 years. Results suggest that uneven-aged management has some effect on bird communities in this region, but that the effect is generally short-lived. Management of this type will add to the diversity of forest birds in this region because it creates more diversity in the forest structure on a landscape level.

