



Songbird Monitoring at Voyageurs National Park

Park biologists began conducting songbird surveys at Voyageurs in 1995. There are 80 survey points distributed around the park, and each is visited during the month of June to count and document what birds are singing (which is how birds defend a nesting territory). Though points were positioned along 10 transects (usually hiking trails, only four of the transects were consistently surveyed over the years: Blind Ash Bay Trail, Black Bay Ski Trail, Echo Bay Trail, and the Rainy Lake Visitor Center area.

Data for 78 songbird species collected from the four transects were analyzed to identify population trends by species and among guilds (functional groups) organized by *migration strategy* (permanent resident, short-distance migrant, and long-distance/Neotropical migrant); *habitat preference* (grassland/open, wetland, successional/scrub, woodland, urban); *diet* (frugivore, granivore, insectivore, omnivore); and *forage substrate* (air, bark, ground, shrub/low canopy, high canopy).

Overall Trends—Species and Guilds

Just one species significantly increased in numbers (Blue-headed Vireo), while **eight species showed significant declines** (Nashville Warbler, Ovenbird, American Crow, Mourning Warbler, Chestnut-sided Warbler, Rose-breasted Grosbeak, Great Crested Flycatcher, and Evening Grosbeak). No conclusions could be made for 40 other species, generally due to low abundance.

Seven guilds exhibited significant declining trends—woodland, grassland/open, and successional habitat guilds; omnivore and insectivore diet guilds; and ground and shrub/low canopy foraging substrate guilds. Decline of the American Crow population influenced the general decline of the grassland/open habitat guild, while declines of the Mourning and Chestnut-sided warblers influenced the overall decline of the successional habitat guild.

The Take-Away

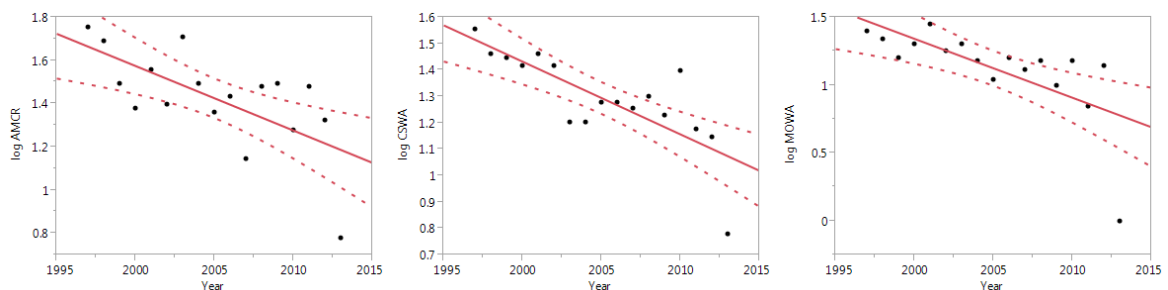
The Blue-headed Vireo population trend reflects regional trends. North American Breeding Bird Survey data reveal significant population increases for the species across the boreal

hardwood transition ecoregion (BHT) (3.9% increase per year), in Minnesota (2.6% per year), and in Ontario (8.4% per year). The declines of seven species in the park also reflect larger regional trends, but the American Crow, in contrast to park trends, has been increasing in the BHT and in Minnesota and Ontario since 2002.

Declines within guilds suggest changing forest structure, but it is difficult to determine what the changes may be. Analysis of landscape changes at Voyageurs showed a small amount of disturbance (0.68% of park land) resulting from a combination of beaver activity, wind storms, or fire between 2002 and 2007, but none of these occurred near bird survey routes. Nevertheless, the welfare of birds is tied to their habitats. Continued monitoring will track both and hopefully illuminate the connections.



The Blue-headed Vireo is the only species showing a statistically significant population increase at Voyageurs, growing at a rate of 2% per year. Photo by Dominic Sherony/
Wikimedia Commons.



The American Crow (AMCR, *left*), Chestnut-sided Warbler (CSWA), and Mourning Warbler (MOWA) all declined at a rate of 2% per year, pushing the overall declines of the grassland/open habitat guild (crow) and the successional habitat guild (the two warblers). Species abundance data in the three graphs are log-transformed, with a linear trend line shown for each.