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MORRISTOWN NHP • ROOSEVELT-VANDERBILT NHS • SAINT-GAUDENS NHS • SAUGUS IRON WORKS NHS • SARATOGA NHP • WEIR FARM NHS

Spring Bird Monitoring by Sight and Song

Annual volunteer landbird survey results

Background

The Northeast Temperate Network (NETN) monitors a variety of natural resource indicators, called vital signs, for 12 parks in the northeast and the Appalachian National Scenic Trail. Breeding birds are one of these vital signs because they are a reliable indicator of ecological integrity and a high profile taxonomic group. 2014 was the 9th year of continual landbird monitoring in the forests of Saratoga NHP and many other network parks. NETN and the Vermont Center for Ecostudies accomplished this only with the invaluable help of volunteer birders who crawled out of bed at ungodly early hours, endured hordes of biting mosquitoes and black flies, and contributed their time, efforts, and expert birding skills.

On a broad scale, all 13 NETN parks are located within the temperate deciduous forest biome. At a more refined level, the parks range across four Bird Conservation Regions (BCR) with this park lying in the Lower Great Lakes/St. Lawrence Plain BCR. BCR's, developed by the North American Bird Conservation Initiative, are ecologically defined areas that provide a consistent framework for bird conservation across North America. Each BCR has its own unique list of "priority" species ranked by conservation importance according to a standardized set of criteria.

Methods

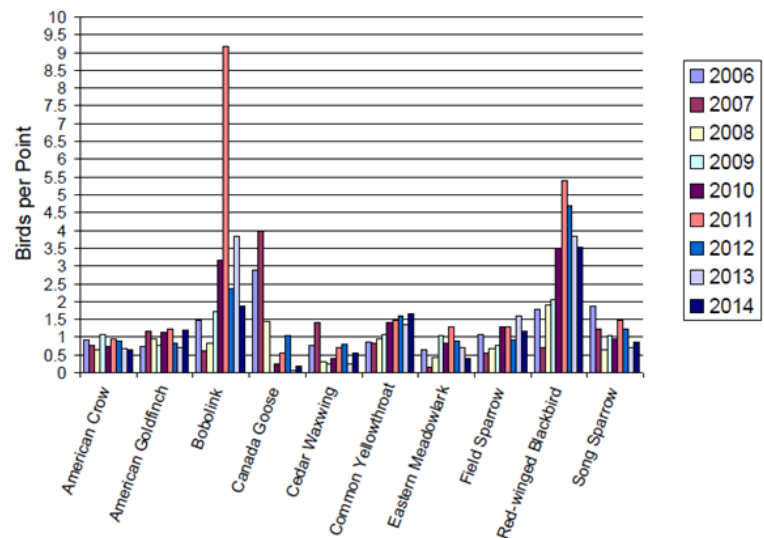
A total of six study sites (three grassland sites and three forest sites) consisting of 51 point count stations were established in 2006 and 2007 at Saratoga National Historical Park, and a new forest site (with eight point count stations) was established in 2011 to replace one that was deemed too dangerous by park staff.

The recently published 2014 Landbird report includes an assessment of the ecological integrity of the forest breeding bird community at each park. For this report, instead of combining data from all survey years into a single assessment for the park, they were split into two periods (2006-2010 and 2010-2014) to compare changes over time. The ecological integrity assessments are based on groups of bird species that require similar habitat, food, or other elements for their survival.

Over time, these assessments will help to shed light on changes in a broad landscape context and indicate the direction that breeding bird habitat may be going (either towards "highly disturbed" or "pristine").

The forest avian ecological integrity assessment consists of 13 guilds in three ecological integrity categories, with each guild being broadly categorized

Belted Kingfishers were detected during park surveys for the first time in 2014. Kevin Cole photo.



Most commonly detected species in the park.

as "specialist" or "generalist." A specialist is a bird species with very specific habitat needs, or one that has a low rate of population growth. If there are a relatively wide variety of specialist guilds in a park, this indicates a high-integrity habitat condition usually associated with large areas of mature forest. On the other hand, a dominance of generalist species indicates a low-integrity condition. The integrity categories are compositional (indicating species diversity), functional (highlighting ecological processes), and structural (related to the presence of important physical elements, such as tree snags and a shrub layer).

For forest breeding birds, a rank of *Good*, *Caution*, or *Significant Concern* is assigned based on species richness thresholds. "Good" represents acceptable or desired conditions; "Caution" suggests a problem may exist; "Significant concern" indicates undesired conditions that may be in need of management actions. Project organizers recognize that the assessment is based on ecological criteria, and that especially at historical parks, management goals may not always seek to attain "ecological integrity." A management assessment could be developed by those parks and NETN scientists that would reflect progress towards avian and ecological management goals. For more information about the avian ecological integrity assessment, as well as project methodologies, sampling scheme, etc., see the Breeding Landbird Monitoring Protocol available on NETN's website.

Results and Findings

During 2014, surveys were conducted at 43 point count stations, where observers detected a total of 941 individual birds representing 61 species, including three species that were detected for the first time (Belted Kingfisher, Pine Warbler, and White-throated Sparrow). During the 9 survey years a total of 7,355 individual birds representing 95 species have been detected in the park, with a mean abundance of 22.61 birds per point. During 2014, relative abundance and species richness both increased slightly from 2013. Of the 10 most commonly detected species across all years, the relative abundances of five increased from 2013, while the relative abundance of four species were above the 9-year mean. Nine species of regional or USA/Canada conservation concern were recorded during 2014: Baltimore Oriole, Belted Kingfisher, Blue-winged Warbler, Eastern Kingbird, Eastern Towhee, Eastern

Acadian Flycatcher	House Wren
Alder Flycatcher	Indigo Bunting
American Crow	Killdeer
American Goldfinch	Least Flycatcher
American Kestrel	Louisiana Waterthrush
American Redstart	Mourning Dove
American Robin	Northern Bobwhite
American Woodcock	Northern Cardinal
Baltimore Oriole	Northern Flicker
Barn Swallow	Northern Harrier
Belted Kingfisher	Northern Mockingbird
Black-and-white Warbler	Northern Rough Winged Swallow
Black-billed Cuckoo	Northern Waterthrush
Black-capped Chickadee	Orchard Oriole
Black-throated Green Warbler	Ovenbird
Blue-headed Vireo	Pileated Woodpecker
Blue Jay	Pine Warbler
Blue-gray Gnatcatcher	Prairie Warbler
Blue-winged Warbler	Purple Finch
Bobolink	Red-bellied Woodpecker
Broad-winged Hawk	Red-breasted Nuthatch
Brown Creeper	Red-eyed Vireo
Brown Thrasher	Red-tailed Hawk
Brown-headed Cowbird	Red-winged Blackbird
Canada Goose	Rose-breasted Grosbeak
Cedar Waxwing	Ruby-throated Hummingbird
Chestnut-sided Warbler	Savannah Sparrow
Chipping Sparrow	Scarlet Tanager
Common Grackle	Sharp-shinned Hawk
Common Raven	Song Sparrow
Common Yellowthroat	Tree Swallow
Cooper's Hawk	Tufted Titmouse
Downy Woodpecker	Turkey Vulture
Eastern Bluebird	Veery
Eastern Kingbird	Vesper Sparrow
Eastern Meadowlark	Warbling Vireo
Eastern Phoebe	White-throated Sparrow
Eastern Towhee	White-breasted Nuthatch
Eastern Wood-Pewee	Willow Flycatcher
European Starling	Wild Turkey
Field Sparrow	Winter Wren
Golden-winged Warbler	Wood Thrush
Gray Catbird	Yellow Warbler
Great Blue Heron	Yellow-bellied Sapsucker
Great Crested Flycatcher	Yellow-billed Cuckoo
Green Heron	Yellow-rumped Warbler
Hairy Woodpecker	Yellow-throated Vireo
Hermit Thrush	

All 95 species that have been detected in the park's forest and grasslands since 2006.

Wood-Pewee, Field Sparrow, Veery, and Wood Thrush. A list of species, their relative abundances, and other summary statistics are provided in the full report.

The combined (all forest sites) forest avian ecological integrity assessment comparing the first 5 years of park surveys (2006-2010) to the last 4 years (2011-2014), resulted in a change to just one category. The proportion of High Canopy Foragers increased slightly, nudging that category from "Significant Concern" to "Caution." In general, the structural and functional metrics were dominated by "Caution" or "Significant Concern" ratings, which continue to suggest that the park's forest bird community may be affected by the generally fragmented landscape consisting of small forest blocks broken up by fields and early successional habitats. In addition, other stressors may be affecting vegetation structure, including deer over-browse of the understory and invasive species, such as European buckthorn and Japanese barberry. The forest avian ecological integrity assessment has also been calculated for each forest site (with all survey years combined), and these results are in the full report.

The combined (all grassland sites) grassland avian ecological integrity assessment comparing the first 5 years of surveys (2006-2010) to the last 4 years (2011-2014), resulted in changes to three categories, all of which declined, while three others remained the same. Two guilds that evaluate the proportion of grassland-dependent species detected both declined from "Good" to "Caution," the most significant of which was a 33% decline in Partner's-in-Flight (PIF) Grassland Obligate species (e.g. those listed as conservation priorities for BCR 13). The other guild that showed a decline were the Edge Generalists, which dropped from "Caution" to "Significant Concern" due to a 5% increase in the proportion of edge species detected. Grassland communities are considered a high priority in the region, and it would be prudent for the park to continue its efforts to manage grassland habitat to support grassland species. However, because 54% of shrub-dependent birds are of high conservation concern in the region, there is also value in providing habitat for these rare and/or declining species. The grassland avian ecological integrity assessment has also been calculated for each grassland site (with all survey years combined), and these results are provided in the full report.

More Information

To get a "bird's eye" view of all the park's monitoring sites, visit the Google Earth Park Maps web page (accessible through the leftmost suite of menu choices on NETN's homepage), which also contains bird monitoring routes, Avian Ecological Integrity Assessments and species detection frequencies for all participating NETN park units.

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Full Report online at:
<https://irma.nps.gov/App/Reference/Profile/2220973>

NETN Breeding Landbird Webpage
<http://go.nps.gov/netn-birds>



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