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Spring Bird Monitoring by Sight and Song

2013 volunteer landbird survey results for Acadia National Park

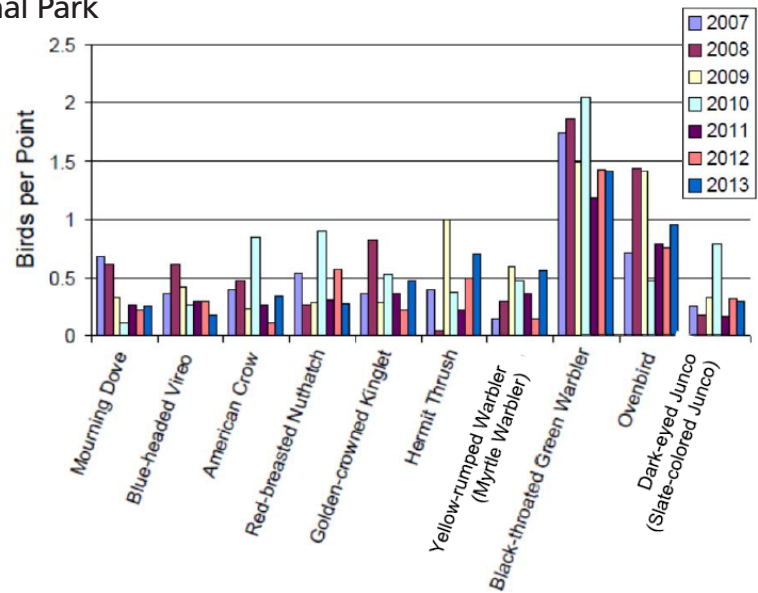
Background

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. 2013 marked the 7th year of annual landbird monitoring in the forests of Acadia. NETN and the Vermont Center for Ecostudies accomplished this only with the invaluable help of volunteer birders who crawled out of bed at ungodly 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 Acadia lying in the Atlantic Northern Forest 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

The recently published 2013 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 Acadia, they were split into two time periods (2007-2009 and 2010-2013) 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

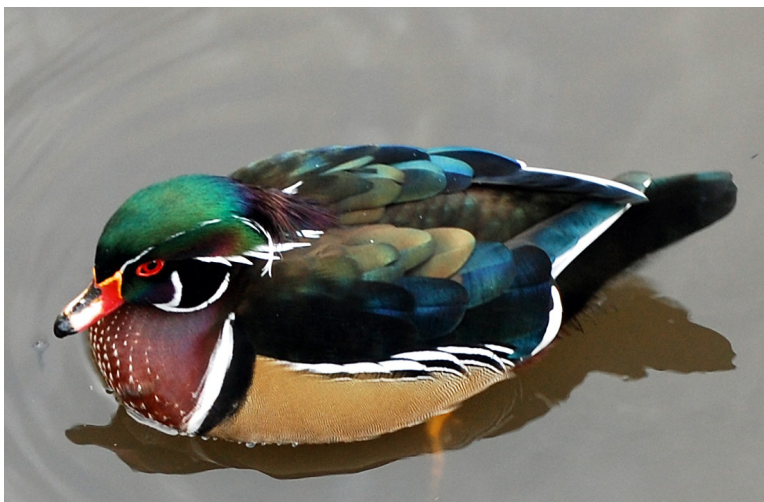


Most commonly detected birds in the park's forests - 2007 to 2013

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 (from "highly disturbed" to "pristine").

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



The incredibly ornate Wood Duck was detected for the first time during NETN surveys in 2013. Alexandra MacKenzie photo.

Alder Flycatcher	Least Flycatcher
American Crow	Magnolia Warbler
American Goldfinch	Mourning Dove
American Redstart	Nashville Warbler
American Robin	Northern Cardinal
Baltimore Oriole	Northern Flicker
Barred Owl	Northern Parula
Belted Kingfisher	Ovenbird
Black-billed Cuckoo	Osprey
Black-and-white Warbler	Palm Warbler
Blackburnian Warbler	Pileated Woodpecker
Black-capped Chickadee	Pine Siskin
Blackpoll Warbler	Pine Warbler
Black-throated Blue Warbler	Purple Finch
Black-throated Green Warbler	Red-breasted Nuthatch
Blue Jay	Red-eyed Vireo
Blue-headed Vireo	Red-winged Blackbird
Boreal Chickadee	Rose-breasted Grosbeak
Broad-winged Hawk	Ruby-crowned Kinglet
Brown Creeper	Ruby-throated Hummingbird
Brown Thrasher	Ruffed Grouse
Canada Warbler	Scarlet Tanager
Cedar Waxwing	Song Sparrow
Chestnut-sided Warbler	Spruce Grouse
Common Grackle	Swainson's Thrush
Common Loon	Swamp Sparrow
Common Raven	Veery
Common Yellowthroat	Warbling Vireo
Dark-eyed Junco	White-breasted Nuthatch
Downy Woodpecker	White-throated Sparrow
Eastern Phoebe	White-winged Crossbill
Eastern Towhee	Winter Wren
Eastern Wood-Pewee	Wood Duck
Golden-crowned Kinglet	Wood Thrush
Great Crested Flycatcher	Yellow-bellied Flycatcher
Hairy Woodpecker	Yellow-bellied Sapsucker
Hermit Thrush	Yellow-rumped Warbler
Herring Gull	

All species that have been detected in Acadia's forests since 2007.

Results and Findings

Acadia has seven study sites with a total of 51 point count stations between them. Volunteer birders visit each point at least once per year between late May and June, and record the species of each individual bird as well as the time and distance away when they were first detected. During 2013, observers conducted a total of 66 point counts, detecting a total of 578 birds of 53 species, including six species detected for the first time during NETN surveys (Wood Duck, Osprey,

Belted Kingfisher, Black-billed Cuckoo, White-breasted Nuthatch, and Canada Warbler). A total of 75 species have been recorded over the 7 years of monitoring.

Average abundance during the first site visit increased from 7.5 birds per point in 2012 to 9.0 birds per point in 2013, which is slightly below the 7-year average of 9.4 birds per point. Along with an increase in number of individuals in 2013, species richness increased from 43 to 50 species detected during the first round of surveys, the highest since surveys began in 2007. Five species of regional or USA/Canada conservation concern were detected during the 2013 surveys (Belted Kingfisher, Eastern Wood-Pewee, Veery, Canada Warbler, and Scarlet Tanager). In addition, two relatively common species - Ruffed Grouse and Pine Siskin - that are showing significant declines across the region were detected.

Of the 10 most abundant species detected at all park sites combined across all years, the relative abundances of four (Blue-headed Vireo, Red-breasted Nuthatch, Black-throated Green Warbler, and Dark-eyed Junco) decreased from 2012, and the relative abundances of six of the 10 species were below the 7-year average. The combined forest avian ecological integrity assessment comparing the first 3 years of surveys at Acadia National Park (2007-2009) to the last 4 years (2010-2013), resulted in nine categories with no change, and four showing improvement. Three categories ranked as "Caution" in the early years (High Canopy Forager, Omnivore, and Canopy Nester) improved to "Good," while the Shrub Nester guild improved from "Significant Concern" to "Caution," suggesting that the park's forest bird community appears to be doing well. The assessment has also been calculated for each study 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 of Acadia's sites, visit the Google Earth Park Maps web page (accessible through the left most 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 parks.

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Full Report online at:
<https://irma.nps.gov/App/Reference/Profile/2208494>

NETN Website
<http://science.nature.nps.gov/im/units/NETN/index.cfm>



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