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Spring Bird Monitoring by Sight and Song

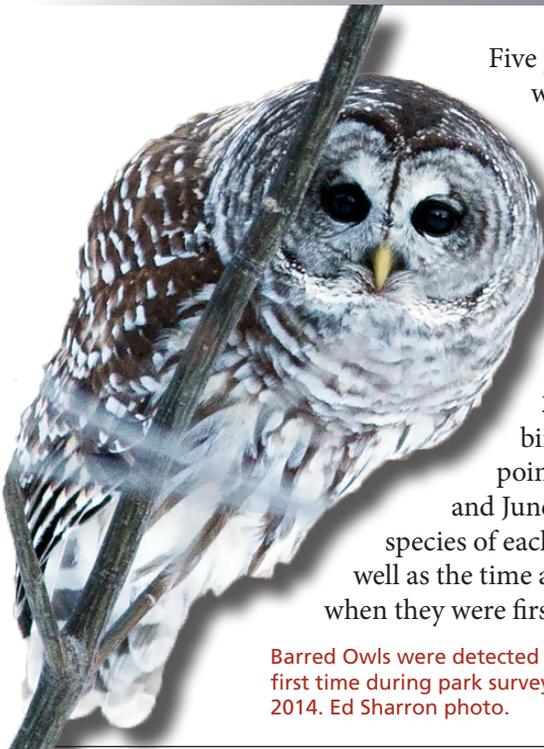
Annual volunteer landbird survey results for Weir Farm NHS

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 6th year of landbird monitoring in the forests of Weir Farm NHS. NETN and the Vermont Center for Ecostudies are able to maintain this bird monitoring program only with the invaluable help of volunteer birders who crawl out of bed at ungodly early hours, endure hordes of biting mosquitoes and black flies, and contribute their time, efforts, and expert birding skills each season.

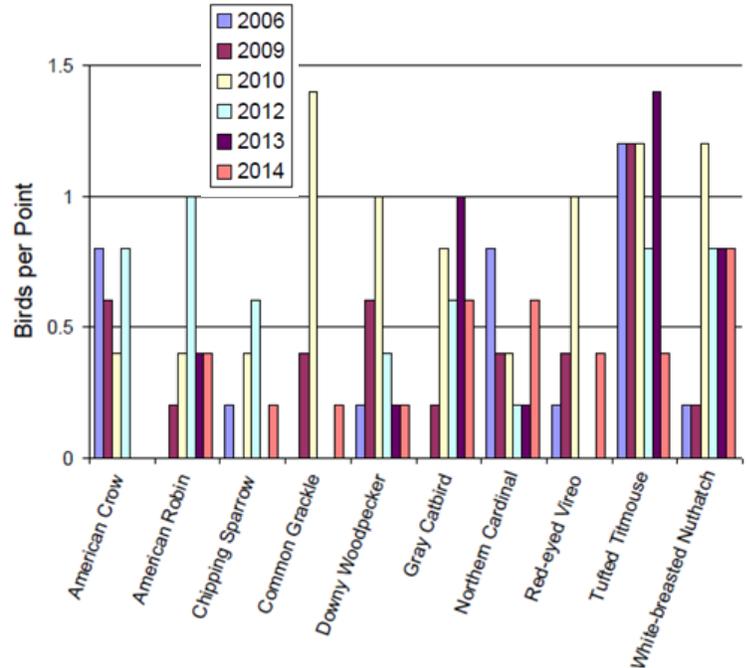
On a broad scale, all 13 NETN parks are located within the temperate deciduous forest biome. At a more refined level, the parks range across four Bird Conservation Regions (BCR) with Weir Farm lying in the Southern New England/Mid-Atlantic Coast BCR. BCR's, developed by the North American Bird Conservation 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



Five point count stations were established at Weir Farm National Historic Site in 2006. Two annual surveys have been conducted in 2006, 2009, 2010, and 2012 - 2014. A volunteer birder visits each point between late May and June, and records the species of each individual bird as well as the time and distance away when they were first detected.

Barred Owls were detected for the first time during park surveys in 2014. Ed Sharron photo.



Most commonly detected species in the park.

The recently published 2014 Landbird report includes an assessment of the ecological integrity of the forest breeding bird community at each park. 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 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" indicates a problem may exist; "Significant concern" indicates undesired conditions that

American Crow	House Finch
American Goldfinch	House Wren
American Redstart	Louisiana Waterthrush
American Robin	Mourning Dove
Baltimore Oriole	Northern Cardinal
Barred Owl	Northern Flicker
Black-capped Chickadee	Ovenbird
Black-throated Green Warbler	Red-bellied Woodpecker
Blackpoll Warbler	Red-eyed Vireo
Blue Jay	Red-tailed Hawk
Carolina Wren	Red-shouldered Hawk
Chipping Sparrow	Red-winged Blackbird
Common Grackle	Scarlet Tanager
Common Yellowthroat	Song Sparrow
Downy Woodpecker	Tufted Titmouse
Eastern Bluebird	Warbling Vireo
Eastern Phoebe	White-breasted Nuthatch
Eastern Wood-Pewee	Wood Thrush
Gray Catbird	Yellow-billed Cuckoo
Great Crested Flycatcher	Yellow-throated Vireo
Hairy Woodpecker	Yellow Warbler

All species that have been detected in the park's forests since 2008.

may be in need of management actions. Project organizers recognize that the assessment is based on ecological criteria, and that park management goals may not always seek to attain “ecological integrity.” In the future, a management assessment may be developed by park staff and NETN scientists that could reflect progress towards avian and ecological management goals for individual parks. 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

A total of 48 individual birds of 21 species were detected in 2014. These totals include Barred Owl, which was detected for the first time at WEFA, and four species that were only detected on the second survey (Barred Owl, Eastern Wood-Pewee, Mourning Dove, and Wood Thrush). In total, 42 species have been recorded over the 5-survey years (including six species that were only detected on repeat surveys: Barred Owl, Black-throated Green Warbler, Common Yellowthroat, Eastern Bluebird, Louisiana Waterthrush, and Yellow-billed Cuckoo), with an average abundance of 7.03 birds per point. In 2014, relative abundance rebounded from an all-time low of 4.80 birds per point in 2013, to 6.20 birds per point. In addition, species richness increased from

nine to 17. Among the 10 most commonly detected species across all years, the relative abundances of seven equaled or increased from 2013, and the relative abundances of half were at or above the 6-year average. Although five species of USA/Canada conservation concern (Eastern Wood-Pewee, Yellow-throated Vireo, Wood Thrush, Scarlet Tanager, and Baltimore Oriole) have been detected during the 6-survey years, none were detected in 2014. Among these species of concern, Scarlet Tanager and Yellow-throated Vireo have only been detected in 1-survey year, Wood Thrush and Baltimore Oriole in two survey years, and Eastern Wood-Pewee in 3-survey years. A list of species, their relative abundances, and other summary statistics are provided in the full report.

The forest avian ecological integrity assessment comparing the first 3 years of surveys at WEFA (2006, 2009-2010) to the last 3 years (2012-2014), resulted in changes to eight of the 13 categories, of which only Bark Probers improved. The remaining seven guilds declined, five from “Caution” to “Significant Concern.” Among the largest changes were a 17% increase in the proportion of Resident species detected, a 9% drop in the proportion of Single-brooded species detected (both from the Compositional category), a 10% decrease in High Canopy Foragers (from the Functional category), and a 12% decrease in the proportion of Interior Forest Obligates (from the Structural category). Guilds within the Structural category earned only “Significant Concern” ratings in the latter years, suggesting that structural diversity of the forest may be limited, and may also be indicative of the park’s location within a highly fragmented, suburban landscape.

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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