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

Spring Bird Monitoring with Sight and Song

Annual volunteer landbird survey results for Minute Man NHP

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. 2012 was the seventh year of continual landbird monitoring in the forests of Minute Man 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.

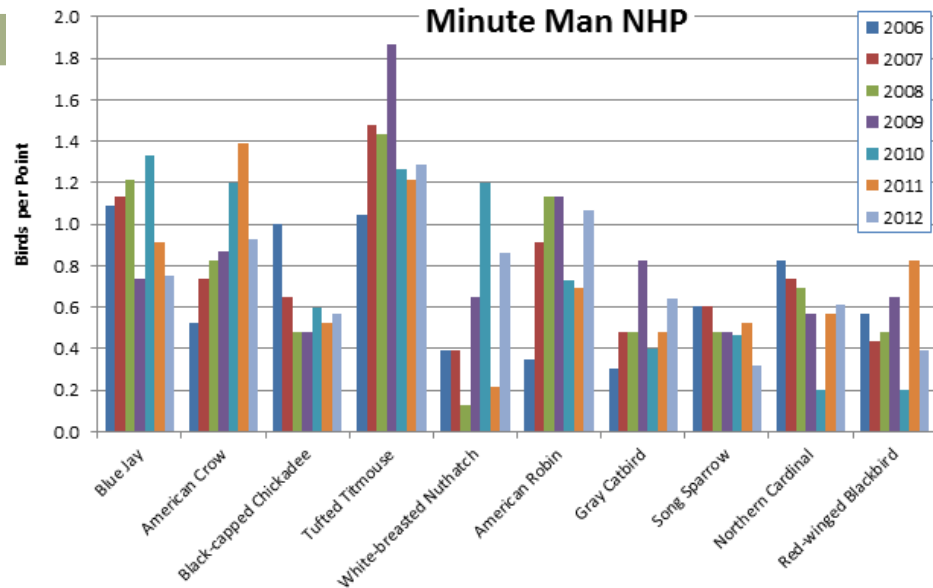
On a broad scale, all 13 NETN parks are located within the temperate deciduous forest biome. At a more refined level, the parks range across four Bird Conservation Regions (BCR) with this park lying in the Southern New England/Mid-Atlantic Coast BCR. BCR's, developed by the North American Bird Conservation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

A small flycatcher of northern wet thickets, the Alder Flycatcher can only be distinguished from Willow Flycatchers by its voice.
Ken Schneider photo.



A recently published NETN report summarizes data collected from 2006 through 2012. In an attempt to better characterize the bird community at each park, the assessment results presented for each park were produced by combining data from all survey years (up to 7 years of data). In the future, project organizers plan to work with



Most commonly detected species in the park.

park managers to produce a parallel assessment based on park management goals.

Methods

Three study sites were established at Minute Man NHP. Two of these sites consist of eight point count stations each, and one consists of seven point count stations. The three study sites were established in 2006 and surveyed annually, with the exception of Miriam's Corner which was not surveyed in 2010. At the request of park staff, a new "grassland" survey site consisting of six point counts was established and surveyed in 2012. Although this site does not appear to support habitat for grassland obligate species (birds that require relatively treeless areas for most or all parts of their breeding cycles), it does provide open, park-like habitat dominated by grasses with a few scattered, mature trees. Volunteer birders visit each of these point count stations at least once per year between late May and June, and record the species of each bird as well as the time and distance away when they were first detected.

One way in which the health of the park's bird community is measured is through the Avian Ecological Integrity Assessment. This assessment is based on groups of bird species that require similar habitat, food, or other elements for their health and survival. Over time, it will help shed light on changes in a broader, landscape context and indicate the direction that breeding bird habitat at the park may be going. For forest breeding birds, a rank of Good, Caution, or Significant Concern is assigned based on species richness

Alder Flycatcher	Hairy Woodpecker
American Crow	Hermit Thrush
American Goldfinch	House Finch
American Redstart	House Sparrow
American Robin	House Wren
Baltimore Oriole	Indigo Bunting
Barn Swallow	Killdeer
Belted Kingfisher	Mourning Dove
Black-billed Cuckoo	Northern Cardinal
Black-capped Chickadee	Northern Flicker
Blue Jay	Northern Mockingbird
Blue-gray Gnatcatcher	Ovenbird
Blue-winged Warbler	Pine Warbler
Brown-headed Cowbird	Red-bellied Woodpecker
Carolina Wren	Red-eyed Vireo
Cedar Waxwing	Red-tailed Hawk
Chimney Swift	Red-winged Blackbird
Chipping Sparrow	Rose-breasted Grosbeak
Common Grackle	Scarlet Tanager
Common Yellowthroat	Song Sparrow
Downy Woodpecker	Swamp Sparrow
Eastern Bluebird	Tufted Titmouse
Eastern Kingbird	Veery
Eastern Phoebe	Warbling Vireo
Eastern Wood-Pewee	White-breasted Nuthatch
European Starlings	Wild Turkey
Fish Crow	Wood Thrush
Gray Catbird	Yellow Warbler
Great Blue Heron	Yellow-billed Cuckoo
Great Crested Flycatcher	

All species that have been detected during initial point count surveys in the park since 2006.

thresholds and ranks. “Good” represents acceptable or desired conditions; “Caution” indicates 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 2012 surveys, observers detected a total of 471 birds representing 45 species, including three European Starlings, a species not previously encountered in the park during surveys, detected at the newly established Battle Road site. A total of 62 species have been recorded over the 7 years of monitoring.

Average relative abundance during the first site survey across all 7 years was 12.92 birds per point. In 2012, relative abundance (12.64 birds per point) increased slightly from 2011, while species richness also increased, likely due to the increased number of points surveyed and the addition of sampling in open habitat. Of the ten most commonly detected species across all years, the relative abundances of six increased compared to 2011, while the relative abundances of half were equal to or above the 7-year average. A total of seven species of regional or USA/Canada conservation concern were detected during 2012, including four species that were detected in all years (Eastern Wood-Pewee, Wood Thrush, Scarlet Tanager, and Rose-breasted Grosbeak). A list of species, their relative abundances, and other summary statistics for the first survey of each point are provided in the full report.

The park-wide forest avian ecological integrity assessment for all years combined at the park resulted in one category ranked as “Good,” nine ranked as “Caution,” and three ranked as “Significant Concern”. These results represent no change from the 2011 assessment. While the only “Good” score was the “Nest Predator/Brood Parasite” guild, “Significant Concern” scores were found in two of the three integrity elements (and the score for “High Canopy Forager” is close to a “Significant Concern” rating in the third integrity element. These results are not unexpected, and are likely due to the urbanized and highly fragmented landscape of the park and surrounding area. The grassland avian ecological integrity assessment showed that five of the six guilds were rated “Significant Concern.” This assessment is not based on enough years of data to be reliable, and in addition the point counts for the Battle Road site were conducted later in the day than normal, resulting in a low number of bird detections. The ratings may improve as more data are collected, although the fragmented grassland habitat at the park is not expected to support grassland obligate species.

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.

Steve Faccio
Project Lead Scientist

E-mail
sfaccio@vtcostudies.org

Brian Mitchell
NETN Program Manager

Phone/E-mail
802-457-3368 ext. 37
brian_mitchell@nps.gov

Full Report online at:
<http://science.nature.nps.gov/im/units/NETN/index.cfm>



Northeast Temperate Network
54 Elm Street, Woodstock, Vermont 05091
802-457-3368
<http://www.science.nature.nps.gov/im/units/netn/>

