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Spring Bird Monitoring by Sight and Song

Annual volunteer landbird survey results for Saugus Iron Works NHS

Background

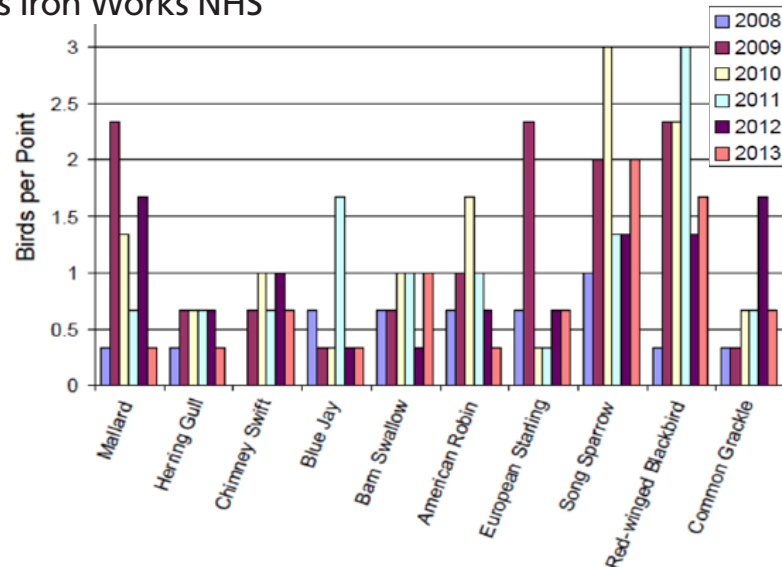
The Northeast Temperate Network (NETN) monitors a variety of natural resource indicators, called vital signs, for 12 parks in the northeast and the Appalachian National Scenic Trail. Breeding birds are one of these vital signs because they are a reliable indicator of ecological integrity and a high profile taxonomic group. 2013 was the 6th year of continual landbird monitoring in Saugus Iron Works NHS. 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. BCRs, 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

Three point counts were established in 2008 at Saugus Iron Works National Historic Site. A volunteer birder visits each point at least twice per year 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. A single survey of these three point counts was conducted during June 2008, while three

Ospreys have a reversible outer toe that allows them to grasp prey with two toes in front and two behind, and barbed pads on the soles of their feet to help grasp slippery fish. Andy Morffew photo.



Most commonly detected species in the park.

surveys were conducted in 2009, and two in 2010 - 2013. Due to the limited number of point counts in the park, multiple visits are encouraged to increase sample size.

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 the park, they were split into two time periods (2008-2010 and 2011-2013) 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 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).

American Crow	Herring Gull
American Goldfinch	House Sparrow
American Robin	House Finch
Baltimore Oriole	House Wren
Barn Swallow	Killdeer
Belted Kingfisher	Mallard
Black-capped Chickadee	Mourning Dove
Black-crowned Night-Heron	Northern Cardinal
Blue Jay	Northern Mockingbird
Canada Goose	Northern Flicker
Carolina Wren	Osprey
Cedar Waxwing	Red-eyed Vireo
Chimney Swift	Red-tailed Hawk
Common Grackle	Red-winged Blackbird
Common Yellowthroat	Rock Pigeon
Double-crested Cormorant	Snowy Egret
Downy Woodpecker	Song Sparrow
Eastern Kingbird	Spotted Sandpiper
Eastern Phoebe	Tree Swallow
European Starling	Tufted Titmouse
Gray Catbird	Warbling Vireo
Great Black-backed Gull	White-breasted Nuthatch
Great Blue Heron	Yellow Warbler
Great Egret	

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

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.

Results and Findings

During 2013 surveys, a total of 103 individual birds representing 33 species were detected during the two surveys (six point counts), including four species detected for the first time (Osprey, Tree Swallow, Cedar Waxwing, and House Finch). Five species (Great Black-backed Gull, Grey Catbird, Cedar Waxwing, Tree Swallow, and Common Yellowthroat)

were detected only during the second survey. A total of 47 species have been detected at the park during the 6 years of surveys, including six that have only been observed during repeat site surveys (Great Egret, Killdeer, White-Breasted Nuthatch, Cedar Waxwing, Tree Swallow, and Northern Mockingbird).

Average abundance during the first site visit was 16.0 birds per point. In 2013, relative abundance for the first survey decreased slightly to 17.0 birds per point from the previous year, but species richness increased by two species. Of the 10 most commonly detected species across all years, the relative abundances of five equaled or increased from 2012, and the relative abundances of three species equaled or were above the 6-year mean. Three species of regional or USA/Canada conservation concern (Chimney Swift, Eastern Kingbird, and Baltimore Oriole) and three non-native species (Rock Pigeon, European Starling, and House Sparrow) have been detected. The full report contains a list of the species detected, relative abundance, and other summary statistics from the first survey of each point. Mallard, Song Sparrow, and Red-winged Blackbird continue to be the most commonly detected species.

The forest avian ecological integrity assessment comparing the first 3 years of park surveys (2008-2010) to the last 3 years (2011-2013), resulted in changes to two categories within the Functional integrity element. The proportion of Bark Probers that were detected increased, improving that guild’s rank from “Significant Concern” to “Caution. However, the proportion of Low Canopy Foragers declined markedly, dropping that category from “Good” to “Caution” and eliminating the only “Good” ranking from the assessment. The scarcity of “Good” rankings is not unexpected for this small park considering its urban location and the fact that the tool was developed to assess the breeding bird community of interior forests.

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/2208494>

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



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