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Spring Bird Monitoring with Sight and Song

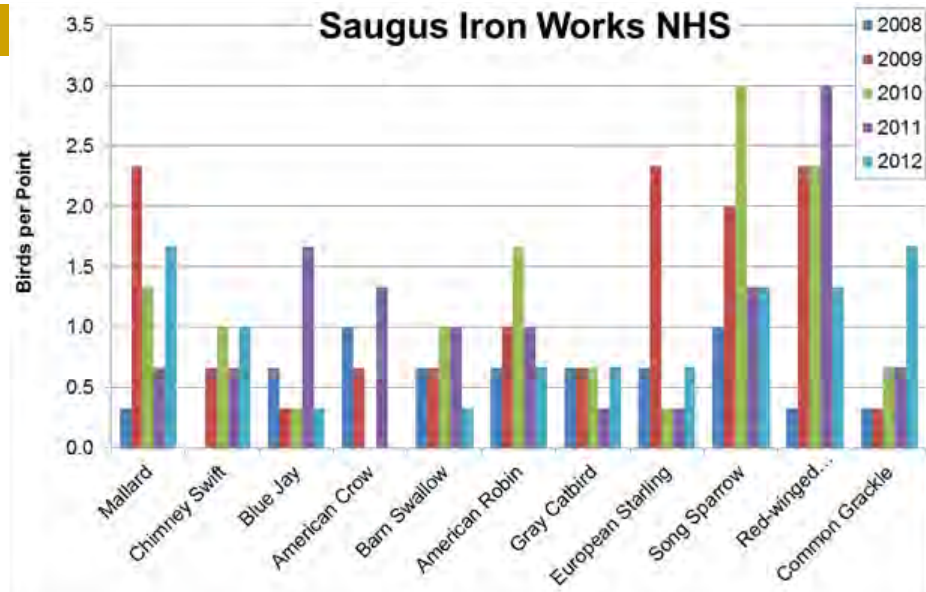
Annual volunteer landbird survey results for Saugus Iron Works NHS

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. 2012 was the fifth year of continual landbird monitoring in the forests of Saugus Iron Works NHS, with many other park notching their seventh consecutive year. 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 bird, the Common Yellowthroat is vulnerable to a large number of bird-eating predators, like Merlins and Loggerhead Shrikes. They are even occasionally preyed upon by largemouth bass. Cephas photo.



Most commonly detected species in the park.

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 6 years of data). In the future, project organizers plan to work with park managers to produce a parallel assessment based on park management goals.

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 surveys were conducted in 2009, and two in 2010, 2011, and 2012. Due to the limited number of point counts in the park, multiple visits are needed to increase sample size. The avian ecological integrity 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,

American Crow	Great Egret
American Goldfinch	Herring Gull
American Robin	House Sparrow
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	Red-eyed Vireo
Chimney Swift	Red-tailed Hawk
Common Grackle	Red-winged Blackbird
Common Yellowthroat	Rock Pigeon
Double-crested Cormorant	Song Sparrow
Downy Woodpecker	Spotted Sandpiper
Eastern Kingbird	Tufted Titmouse
Eastern Phoebe	Warbling Vireo
European Starling	White-breasted Nuthatch
Gray Catbird	Yellow Warbler
Great Blue Heron	

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

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 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, a total of 96 individual birds representing 30 species were detected during the two surveys (six point counts), which may include some double-counted individuals. Four species (American Crow, Black-Crowned Night Heron, Downy Woodpecker, and Northern Mockingbird) were detected only during the second survey in 2012. A total of 44 species have been detected at the park during the four years of surveys, including six that were observed only during the repeat site surveys in 2009 (Great Egret, Killdeer, and Carolina Wren), 2011 (Double-crested

Cormorant and White-breasted Nuthatch), and 2012 (Northern Mockingbird).

Average abundance during the first site visit was 15.87 birds per point. In 2012, relative abundance for the first survey increased to 17.33 birds per point from the previous year, and species richness increased by 10 species, though it should be noted that it is possible that the removal of several dozen Norway maple trees from near the point count stations in spring 2011 may have been a sufficient disturbance to affect the 2011 counts. Of the 11 most commonly detected species across all years, the relative abundances of six equaled or increased from 2011, while the relative abundances of seven species in 2012 were below the 5-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 includes 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 park-wide forest avian ecological integrity assessment for all years combined for the park resulted in one category ranked as “Good”, three categories ranked as “Caution” and nine ranked as “Significant Concern”. These results represent no change from the 2011 results. Overall, the scarcity of “Good” rankings is not surprising considering the heavily urbanized location of this small park, and the fact that the tool was primarily 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/2194186>

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



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