Bird Communities

National Park Service
U.S. Department of the Interior

Heartland Inventory and Monitoring Network

2016 Monitoring Summary for Herbert Hoover National Historic Site, Iowa

Birds are an important component of park ecosystems, as their high body temperature, rapid metabolism, and high ecological position in most food webs make them good indicators of the effects of local and regional changes in ecosystems. Moreover, birds have a tremendous following among the public and many parks provide information on the status and trends of birds through their interpretive programs.

We use trends in the composition and abundance of bird populations as long-term indicators of ecosystem integrity in the varied habitats of Herbert Hoover National Historic Site (HEHO), Iowa. Ecosystem integrity is defined as the system's capability to support and maintain a balanced, integrated, adaptive community of organisms having a species composition, diversity, and functional organization comparable to that of the natural habitat of the region (Karr and Dudley 1981).

Changes in the population size and community composition of birds on the park may reflect the effectiveness of management in restoring and maintaining the various vegetative communities at HEHO. Long-term trends in community composition and abundance of breeding bird populations provide one measure for assessing the ecological integrity and sustainability of these systems.

Methods:

For details on methods of bird surveys see Peitz et al. (2008).

- Bird communities were monitored at 11 points by Chris R. Edwards and Ken L. Lowder on June 12.
- All birds seen or heard in a 5-minute sampling period at each plot were recorded.
- Residency status of each species was established prior to analysis of the data (Spess-Jackson et al. 1996).
- Using hot-spot-analysis in ArcGIS, areas of higher and lower species richness on the memorial were determined.
- Calculated number of individuals encountered per plot visit, and proportion of plots occupied by a species.

Summary of Findings:

- Thirty bird species were observed during surveys. All 30 species are resident or summer resident species thus considered breeding species at HEHO (Table 1).
- The most commonly occurring and widespread bird on HEHO is the Red-winged Blackbird.
- Three species – Dickcissel, Field Sparrow, and Red-headed Woodpecker – are species of conservation concern for the Eastern Tallgrass Prairie Bird Conservation Region (Figure 1).
- Hot-spot-analysis showed only slight variations in species richness at HEHO (Figure 2).

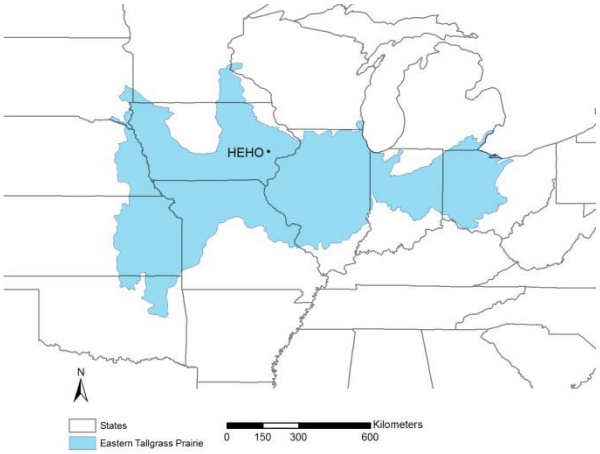

Figure 1. Eastern Tallgrass Prairie Bird Conservation Region.

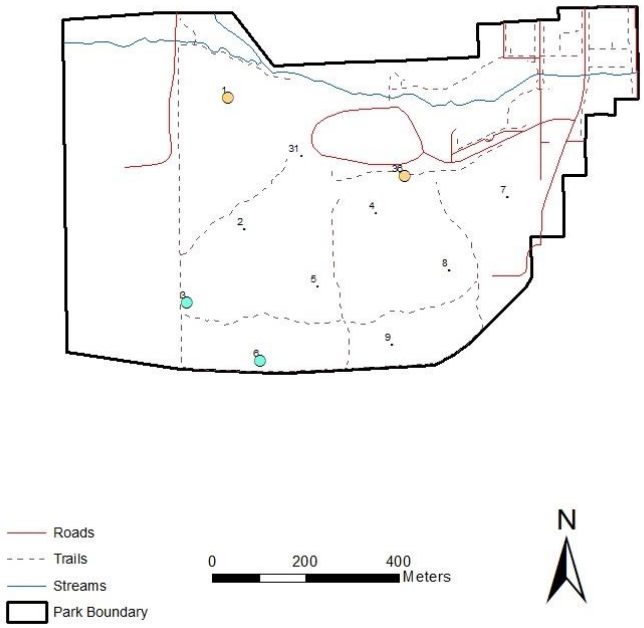

Figure 2.Concentrations of plots with high to higher and low to lower breeding bird species richness at Herbert Hoover National Historic Site, Iowa in 2016.

Table 1. Number of individuals encountered per plot visit, and proportion of plots out of 11 occupied by breeding bird species at Herbert Hoover National Historic Site, Iowa during the 2016 bird surveys. Number of individuals per plot, and proportion of plots occupied includes all individuals recorded on plots during a 5-minute survey, including flyovers.

Common name	Residency1	Individuals / plot visit	Proportion of plots occupied
American Goldfinch	R	0.55	0.45
American Redstart	SR	0.09	0.09
American Robin	SR	1.91	0.82
Baltimore Oriole	SR	0.09	0.09
Barn Swallow	SR	0.27	0.27
Blue-gray Gnatcatcher	SR	0.09	0.09
Brown-headed Cowbird	SR	0.09	0.09
Cedar Waxwings	SR	0.18	0.18
Chipping Sparrow	SR	0.09	0.09
Common Grackle	SR	2.36	0.82
Common Nighthawk	SR	0.09	0.09
Common Yellowthroat	SR	0.82	0.55
Dickcissel	**SR**	**1.55**	**0.91**
Eastern Bluebird	SR	0.09	0.09
Eastern Meadowlark	SR	1.55	0.82
Eastern Phoebe	SR	0.09	0.09
Eastern Wood-pewee	SR	0.18	0.18
European Starling	R	0.27	0.18
Field Sparrow	**SR**	**0.64**	**0.55**
Gray Catbird	SR	0.18	0.18
Great-horned Owl	R	0.09	0.09
House Sparrow	R	0.18	0.09
House Wren	SR	0.09	0.09
Indigo Bunting	SR	0.55	0.45
Mallard	SR	0.09	0.09
Mourning Dove	SR	0.73	0.55
Northern Cardinal	R	0.46	0.46
Red-headed Woodpecker	**R**	**0.09**	**0.09**
Red-winged Blackbird	R	2.82	1.00
Rock Dove	R	0.18	0.09

[1] Residency status: R = year around resident; SR = summer resident (Spess-Jackson et al. 1996).

Bolded species names are those species considered of conservation concern for the Eastern Tallgrass Prairie Bird Conservation Region (U.S. Fish and Wildlife Service 2008).

Report Prepared By:

David G. Peitz, Wildlife Ecologist
Heartland I &M Network
6424 W Farm Road 182
Republic, MO 65738

For More Information Contact:

David G. Peitz, Wildlife Ecologist
Heartland I &M Network
6424 W Farm Road 182
Republic, MO 65738
David_Peitz@nps.gov

Citations:

Karr, J. R., and D. R. Dudley. 1981. Ecological perspective on water quality goals. Environmental Management 5:55-68.

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Spess Jackson, L., C.A. Thompson, and J.J. Dinsmore. 1996. The Iowa Breeding Bird Atlas. University of Iowa Press, Iowa City. 484 pp).

U.S. Fish and Wildlife Service. 2008. Birds of Conservation Concern 2008. United States Department of Interior, Fish and Wildlife Service, Division of Migratory Bird Management, Arlington, Virginia. 85 pp. [Online version available at <http://www.fws.gov/migratorybirds/>]).