



2015 Monitoring Summary for Homestead National Monument of America, Nebraska

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 Homestead National Monument of America (HOME), Nebraska. 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 HOME. 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 nine points by Jesse M. Bolli and Brittani Salvatore on June 10, 2014.
- 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 (Sharpe et al. 2001).
- 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 HOME (Table 1).
- The most commonly occurring and widespread bird on HOME is the Dickcissel.
- One species – Red-headed Woodpecker – is a species of conservation concern for the Central Mixed-grass Prairie Bird Conservation Region (Figure 1).
- Hot-spot-analysis showed that species richness did not vary greatly across the Monument (Figure 2).

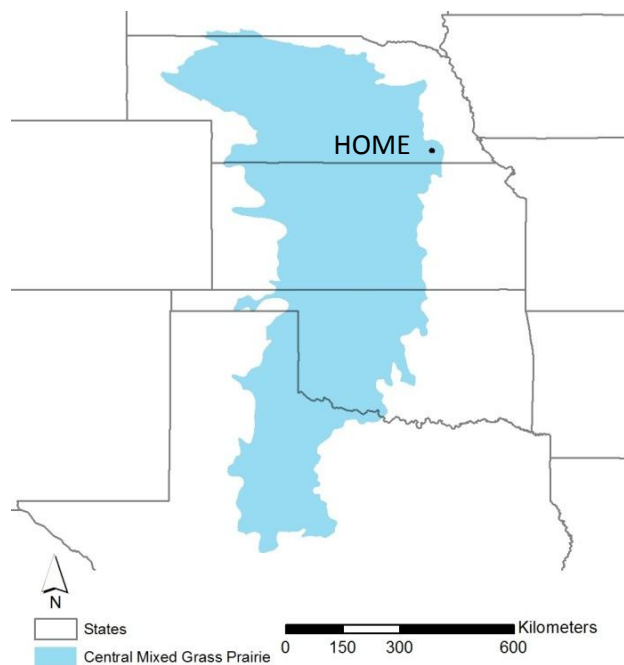


Figure 1. Central Mixed-grass Prairie Bird Conservation Region.

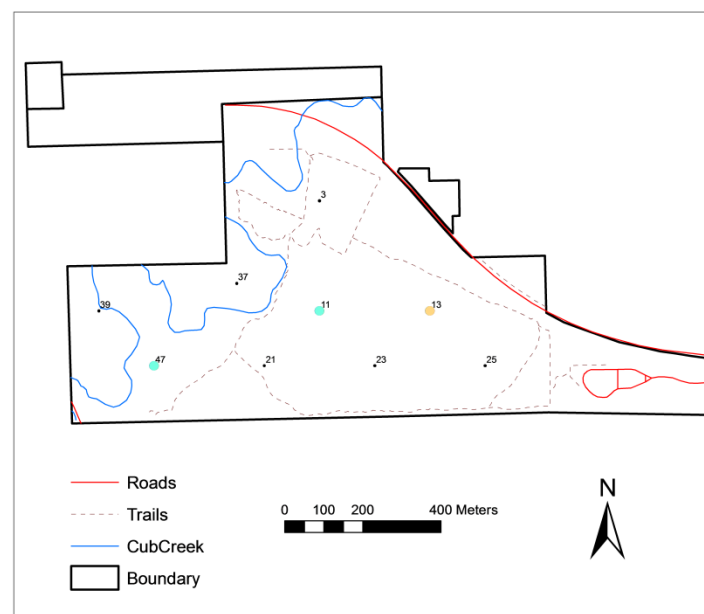


Figure 2. Concentrations of plots with high (orange) to higher (red) and low (blue) to lower (dark blue) breeding bird species richness at Homestead National Monument of America, Nebraska in 2015.

Table 1. Number of individuals encountered per plot visit, and proportion of plots out of nine occupied by breeding bird species at Homestead National Monument of America, Nebraska during the 2015 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	Residency ¹	Individuals / plot visit	Proportion of plots occupied
American Goldfinch	R	0.33	0.22
American Robin	R	0.44	0.44
Barn Swallow	SR	0.22	0.11
Blue Jay	R	0.56	0.44
Brown-headed Cowbird	R	0.11	0.11
Brown Thrasher	SR	0.11	0.11
Common Grackle	SR	0.11	0.11
Common Yellowthroat	SR	0.56	0.33
Dickcissel	SR	2.00	0.67
Downy Woodpecker	R	0.11	0.11
Eastern Bluebird	SR	0.11	0.11
Eastern Kingbird	SR	0.22	0.22
Eastern Meadowlark	SR	0.33	0.22
Eastern Towhee	SR	0.11	0.11
Eastern Wood-pewee	SR	0.11	0.11
Field Sparrow	SR	0.33	0.33
Gray Catbird	SR	0.11	0.11
Great Blue Heron	R	0.22	0.11
Hairy Woodpecker	R	0.11	0.11
House Wren	SR	1.00	0.33
Mourning Dove	R	0.11	0.11

Northern Bobwhite	R	0.89	0.44
Northern Cardinal	R	0.56	0.56
Northern Rough-winged Swallow	SR	0.11	0.11
Red-bellied Woodpecker	R	0.67	0.44
Red-headed Woodpecker	R	0.22	0.11
Red-winged Blackbird	R	1.56	0.44
Ring-necked Pheasant	R	0.56	0.33
Ruby-throated Hummingbird	SR	0.11	0.11
Warbling Vireo	SR	0.11	0.11

¹ Residency status: R = year around resident; SR = summer resident (Sharpe et al. 2001).

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

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Citations:

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

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