



2015 Monitoring Summary for Pipestone National Monument, Minnesota

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 Pipestone National Monument (PIPE), Minnesota. 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 PIPE. 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 17 points by Sarah E. Campbell, Chris D. Langland, and Shannon M. Regan, between June 6 and June 10.
- 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 (Janssen et al. 2003).
- Using hot-spot-analysis in ArcGIS, areas of higher and lower species richness on the Monument were determined.
- Calculated number of individuals encountered per plot visit, and proportion of plots occupied by a species.

Summary of Findings:

- Thirty-three bird species were observed during surveys. Thirty-one of the 33 species are resident or summer resident species thus considered breeding species at PIPE (Table 1).
- The most commonly occurring and widespread bird on PIPE is the Common Grackle.
- Two species – Dickcissel and Grasshopper Sparrow – are a species of conservation concern for the Prairie Potholes Bird Conservation Region (Figure 1).

- Hot-spot-analysis showed that species richness was highest in the north-central section of the Monument (Figure 2).

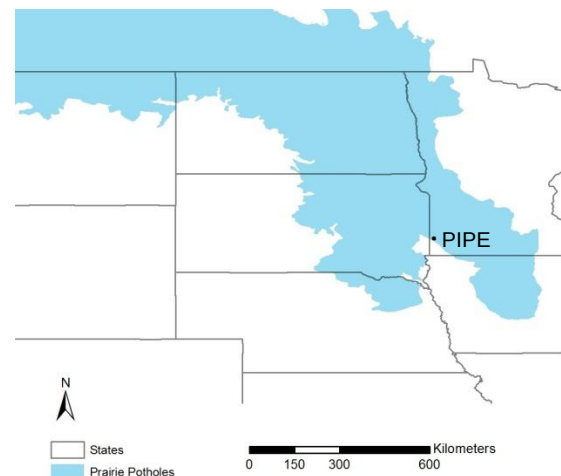


Figure 1. Prairie Potholes Bird Conservation Region.

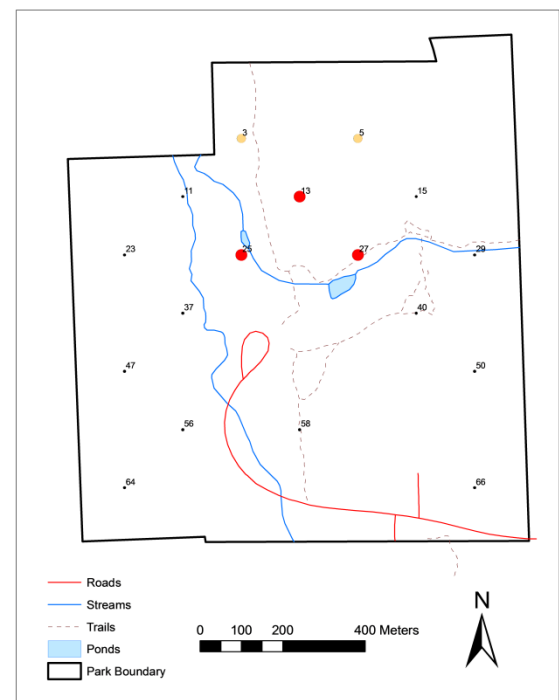


Figure 2. Concentrations of plots with high (orange) to higher (red) and low (light blue) to lower (dark blue) breeding bird species richness at Pipestone National Monument, Minnesota in 2015.

Table 1. Number of individuals encountered per plot visit, and proportion of plots out of 17 occupied by breeding bird species at Pipestone National Monument, Minnesota 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 Crow	R	0.65	0.29
American Goldfinch	R	1.00	0.41
American Redstart	T	--	--
American Robin	R	0.88	0.47
Barn Swallow	SR	0.65	0.41
Bobolink	SR	1.94	0.71
Brown-headed Cowbird	SR	0.35	0.24
Brown Thrasher*	SR	--	--
Cedar waxwings	R	0.12	0.06
Chipping Sparrow	SR	0.06	0.06
Clay-colored Sparrow	SR	2.29	0.76
Common Grackle	SR	5.82	0.77
Common Nighthawk	SR	0.06	0.06
Common Yellowthroat	SR	1.12	0.65
Dickcissel	SR	0.35	0.24
Eastern Kingbird	SR	0.82	0.41
Eastern Meadowlark	T	--	--
Field Sparrow	SR	0.24	0.24
Grasshopper Sparrow	SR	0.76	0.47
Gray Catbird	SR	0.06	0.06
Green Heron	SR	0.06	0.06
Henslow's Sparrow	SR	0.24	0.12
House Wren	SR	0.12	0.12
Mourning Dove	R	0.41	0.24
Northern Flicker	R	0.12	0.12
Red-tailed Hawk	R	0.06	0.06

Red-winged Blackbird	SR	0.77	0.53
Ring-neck Pheasant	R	0.94	0.59
Ruby-throated Hummingbird	SR	0.06	0.06
Savannah Sparrow	SR	0.29	0.18
Sedge Wren	SR	0.18	0.12
Song Sparrow	R	0.76	0.47
Yellow Warbler	SR	0.29	0.18

¹ Residency status: R = year around resident; SR = summer resident; T = transient (Janssen et al. 2003).

*Breeding species recorded outside the 5-minute survey period.

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

Report Prepared By:

David G. Peitz and Chad S. Gross
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:

Janssen, R.B., D.D. Tessen, and G. Kennedy. 2003. Birds of Minnesota and Wisconsin. Lone Pine Publishing International, Auburn, Washington. 376 pp.

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

Peitz, D. G., G. A. Rowell, J. L. Haack, K. M. James, L. W. Morrison, and M. D. DeBacker. 2008. Breeding bird monitoring protocol for the Heartland Network Inventory and Monitoring Program. Natural Resource Report NPS/HTLN/NRR-2008/044. National Park Service, Fort Collins, Colorado. 152pp.

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/>]].