



Results of the 2014 Birding Efforts at Hopewell Culture National Historical Park, Ohio

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 Hopewell Culture National Historical Park (HOCU), Ohio. 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 HOCU. 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 28 points by David L. Hess, Dafna Reiner, Stephen R. Roethle and Jacob J. Sisler, between May 28th and June 6th.
- 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 (Peterjohn 2001)
- Using hot-spot-analysis in ArcGIS, areas of higher and lower species richness on the park were determined.
- Calculated number of individuals encountered per plot visit, and proportion of plots occupied by a species.

Summary of Findings:

- Sixty-four bird species were observed during surveys. All species are resident or summer resident species thus are considered breeding species at HOCU (Table 1).
- The most commonly occurring and widespread bird on Red-winged Blackbird.
- Three species – Henslow's Sparrow, Prairie Warbler, and Wood Thrush – are species of conservation concern for the Appalachian Mountains Bird Conservation Region (Figure 1).

- Hot-spot-analysis showed concentrations of plots with low species richness at the Mound City Unit of HOCU, and concentrations of plots with high species richness at the Hopeton Earthwork Units (Figure 2).

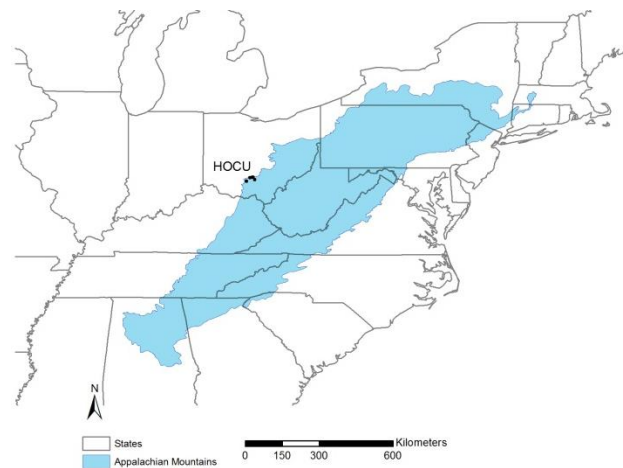


Figure 1. Appalachian Mountains Bird Conservation Region.

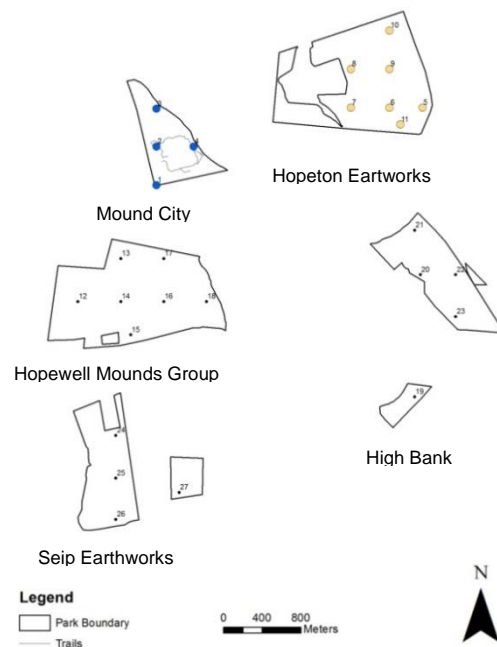


Figure 2. Concentrations of plots with high (orange) to higher (red) and low (blue) to lower (dark blue) breeding bird species richness at Hopewell Culture National Historical Park, Ohio in 2014.

Table 1. Number of individuals encountered per plot visit, and proportion of plots out of 28 occupied by breeding bird species at Hopewell Culture National Historical Park, Ohio during the 2014 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
Acadian Flycatcher	SR	0.07	0.07
American Crow	SR	0.46	0.39
American Goldfinch	SR	0.36	0.29
American Robin	R	0.64	0.50
Bank Swallow	SR	0.18	0.14
Baltimore Oriole	SR	0.11	0.11
Barn Swallow	SR	0.54	0.39
Blue-gray Gnatcatcher	SR	0.25	0.21
Blue Grosbeak	SR	0.04	0.04
Blue Jay	R	0.18	0.18
Brown-headed Cowbird	SR	0.29	0.25
Brown Thrasher	R	0.32	0.25
Canada Goose*	R	--	--
Carolina Wren	R	0.04	0.04
Cedar Waxwing	SR	0.39	0.14
Common Grackle	R	1.14	0.54
Common Yellowthroat	SR	0.68	0.50
Dickcissel	SR	0.68	0.39
Downy Woodpecker	R	0.11	0.11
Eastern Bluebird	SR	0.21	0.21
Eastern Kingbird	SR	0.11	0.11
Eastern Meadowlark	SR	0.93	0.43
Eastern Towhee	SR	0.29	0.25
Eastern Wood-pewee	SR	0.25	0.25
(Eastern) Tufted Titmouse	R	0.25	0.25
European Starling	R	0.71	0.50
Field Sparrow	SR	0.68	0.64
Great Blue Heron	SR	0.04	0.04
Great Crested Flycatcher	SR	0.04	0.04
Gray Catbird	SR	0.11	0.11
Grasshopper Sparrow	SR	0.36	0.25
Henslow's Sparrow	SR	0.25	0.11
House Wren	SR	0.25	0.21
Indigo Bunting	SR	0.86	0.64
Killdeer*	SR	--	--
Mallard	SR	0.11	0.04
Mourning Dove	R	0.43	0.32
Northern Bobwhite	R	0.04	0.04
Northern Cardinal	R	0.54	0.50
Northern (Yellow-shafted) Flicker	R	0.14	0.14

Northern Mockingbird	R	0.04	0.04
Northern Parula	SR	0.04	0.04
Northern Rough-winged Swallow	SR	0.71	0.29
Orchard Oriole	SR	0.18	0.18
Prairie Warbler	SR	0.11	0.07
Prothonotary Warbler	SR	0.04	0.04
Red-bellied Woodpecker	R	0.29	0.29
Red-eyed Vireo	SR	0.21	0.21
Rock Dove	R	0.11	0.04
Rose-breasted Grosbeak	SR	0.07	0.07
Ring-neck Pheasant	R	0.04	0.04
Red-winged Blackbird	R	2.54	0.75
Scarlet Tanager	SR	0.07	0.07
Song Sparrow	R	0.64	0.57
Tree Swallow	SR	0.11	0.11
Turkey Vulture	SR	0.14	0.14
Vesper Sparrow*	SR	--	--
Warbling Vireo	SR	0.21	0.21
White-eyed Vireo	SR	0.07	0.07
White-breasted Nuthatch	R	0.04	0.04
Willow Flycatcher	SR	0.32	0.29
Wood Thrush	SR	0.21	0.21
Yellow-breasted Chat	SR	0.21	0.18
Yellow Warbler	SR	0.25	0.21

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

* Breeding species recorded outside of 5-minute survey periods.

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

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Citations:

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