

## **The Second Nebraska Breeding Bird Atlas**

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BOOK REVIEW

## ***The Second Nebraska Breeding Bird Atlas***

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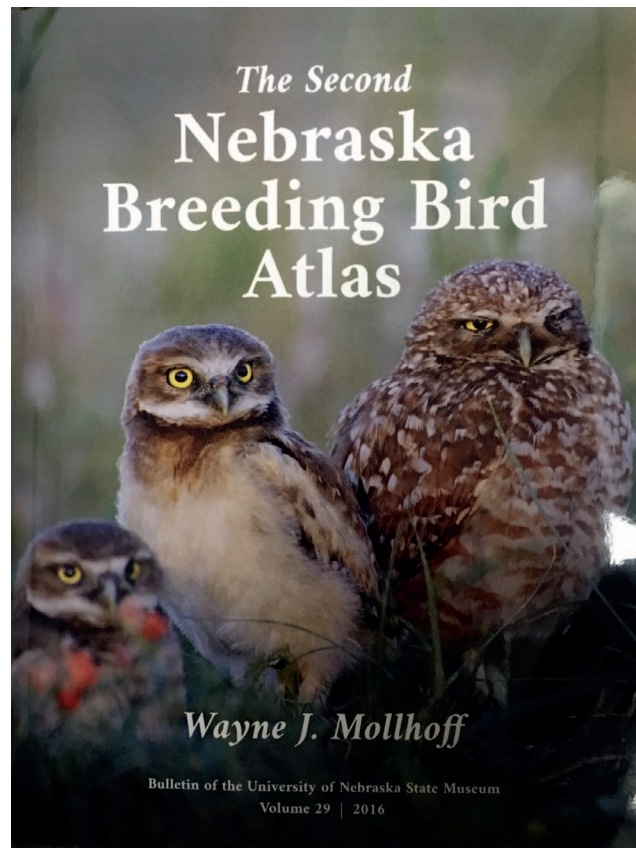
**The Second Nebraska Breeding Bird Atlas** by Wayne J. Mollhoff. 2016. Bulletin of the University of Nebraska State Museum vol. 29. 320 pp., 1 color photograph and numerous color maps and tables. \$30 (paperback). ISSN 0093-6812.

About halfway across the 400-mile stretch running east to west across Nebraska is the traditional line of ornithological demarcation, the 100th meridian, dividing eastern and western species of North America. Additionally, there is another, somewhat oversimplified, division of the state caused by a twofold decline in annual rainfall from east to west that led to a transition from tall-grass prairies that formally dominated the eastern part of the state to mixed-grass and, finally, short-grass prairies that dominated the far west. Another gradient across the state is that of elevation, from less than 1,000 feet in the east, near the Missouri River, to more than 5,000 feet at the western borders with Colorado and Wyoming. Before settlement, trees were sparse and mostly confined to river bottoms, and Nebraska was a prairie, kept as such by fire, caused by lightning and sometimes deliberately by native Americans. Today, crop-based agricultural systems dominate the east while drought-burdened ranch lands and grasslands dominate most of the western part of Nebraska.

As a lifelong easterner, my first western birding trip included a few days spent in the Sandhills region of western Nebraska, which, at 19,000 square miles, comprises one-quarter of the entire state. The birds, the history, and the land itself are so appealing that I have made several subsequent trips there, including twice during the conduct of the second Nebraska Breeding Bird Atlas (NBBA2), allowing my wife and me to contribute modestly to the project and to meet Wayne Mollhoff, the man mainly responsible for organizing and publishing the second atlas as well as its predecessor (NBBA1) that was conducted between 1984 and 1989 (Mollhoff 2001).

An atlas project for Nebraska necessarily will be different from projects conducted in smaller, more densely populated states. Like NBBA1, NBBA2 was a survey of only 5% of potential  $3 \times 3$  mile atlas blocks, which pales in comparison to some states where surveyors monitor 100% of atlas blocks. Additionally, NBBA2 surveys were conducted by a total of only 225 individuals—far fewer, for example, than the nearly 2,000 individuals who contributed to the second atlas in my own state of Pennsylvania (Wilson et al. 2012).

The NBBA2 is organized and formatted in a manner similar to other atlases, beginning with several chapters



that precede a collection of species accounts. In the Introduction, Mollhoff nicely defines the various ecological regions across Nebraska with two well-delineated color maps of the native vegetation and biologically unique landscapes. Additionally, he provides an outstanding characterization of the presettlement ecosystems and compares them with what exists now as a result of cropland creation, replacement of bison by cattle, encroachment by trees, and suppression of fire.

Mollhoff's descriptions of Nebraska's distinctive regions are wonderful. Predominant in size and undoubtedly of greatest ornithological significance is the Sandhills ecosystem of west-central Nebraska, often considered the largest remaining intact prairie in North America. Although certainly altered from its original state, the Sandhills region still has the appearance of uninhabited prairie, largely treeless and with a human population density of about one person per square mile—a region where Long-billed Curlews (*Numenius americanus*), Sharp-tailed Grouse (*Tympanuchus phasianellus*), Swainson's Hawks (*Buteo swainsoni*), and millions of Western Meadowlarks (*Sturnella neglecta*) nest. Largely undrained by rivers, the region has many lakes and ponds that are sustained by the underlying Ogallala Aquifer, providing high-quality habitat for numerous species. In the far northwest, the Pine Ridge region has many species that are found primarily in the western mountains, adding to the roster of nesting species in Nebraska. Much of eastern Nebraska, with dependable annual rainfall, is dominated by traditional agricultural land. Birds there are adapted to cropland or to the trees that came with western settlement. The Rainwater Basin in the southeast is a flat, poorly drained region with wetlands that harbor water-related species despite extensive conversion of this area to cropland. Upland deciduous forests along the Missouri River and its major tributaries, especially the Platte and Niobrara rivers, harbor eastern forest species that reach their western limit in eastern Nebraska.

Following the Introduction, Mollhoff thoroughly describes the methods he employed to conduct the atlas. He nonrandomly selected 443 survey blocks, due to concerns that random selection would include many blocks of homogeneous habitat, particularly cropland in the east or upland prairie in the west, that would have substantially reduced the likelihood of detecting many critical species found predominantly in the relatively small land area associated with rivers, streams, lakes, and ponds. Additionally, Mollhoff selected 114 blocks so that NBBA2 would survey more public lands. Surveyors logged 9,214 hours of observation for NBBA2, a 31% increase in average number of hours per block compared to NBBA1. The 54,800 individual bird observations more than doubled the number from the first project, and the

average number of observations per block jumped from 48 in NBBA1 to 58 in NBBA2. NBBA1 surveyors found 191 potentially breeding species, of which 183 were confirmed as nesting. With the increased effort, the number of species found for NBBA2 rose to 225, of which 204 were confirmed.

Overall, compared to NBBA1, Mollhoff found 135 species detected within a greater proportion of survey blocks, while 50 species were detected in a lesser proportion of blocks in NBBA2. The most notable declines were in the Loggerhead Shrike (*Lanius ludovicianus*), Black-billed Magpie (*Pica hudsonia*), and Black-capped Chickadee (*Poecile atricapillus*), each in agreement with Breeding Bird Survey (BBS) trends in Nebraska. All such changes must be viewed in the context of the 31% increase in sampling effort as well as limited statistical confirmation, making apparent gains questionable—but increasing confidence that apparent losses, despite greater effort, are real.

At the heart of NBBA2 is its collection of species accounts, with each species presented on a single page in which one paragraph expounds briefly on the survey results, including comments on the species' previous status and history and the possible validity of any apparent abundance changes from NBBA1. For the latter, Mollhoff compares national or state BBS trend analysis for species of sufficient abundance, although it is sometimes unclear whether a comparison is being made to national results or only to Nebraska routes. One final sentence of the written account relates details of any nest finds. Following that, Mollhoff presents distribution maps from both NBBA1 and NBBA2 together, allowing one to quickly discern possible changes in distribution and abundance during the 20-year period between the two projects. The maps include county boundaries and rivers, allowing location of positive blocks and identification of species found primarily along rivers. Following the species accounts are seven Appendices, including estimates of the relative abundance and safe dates for each species and short accounts of 12 species deemed to be nonbreeding vagrants in the state.

Mollhoff has done an excellent job of presenting the atlas results. His writing is concise and straightforward. Considering the limits both of money and of surveyors in Nebraska, he has extracted an impressive array of results and conclusions, making an invaluable contribution, not only to Nebraska ornithology, but to ornithology about the center of the United States. Any Nebraska field biologist should have this book, and anyone interested in Nebraska birds will certainly find it highly informative and useful, whether professional land managers, owners of large tracts concerned about what species are on their properties, or birders who wish to track various species. The incorporation of atlas results also will be critical to

the Nebraska Natural Legacy Project, part of the state's Wildlife Grants Program. The state of Nebraska can thank Mollhoff for his dedication to producing books for both atlas projects.

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