Bird Monitoring in the United States: BBS and IMBCR

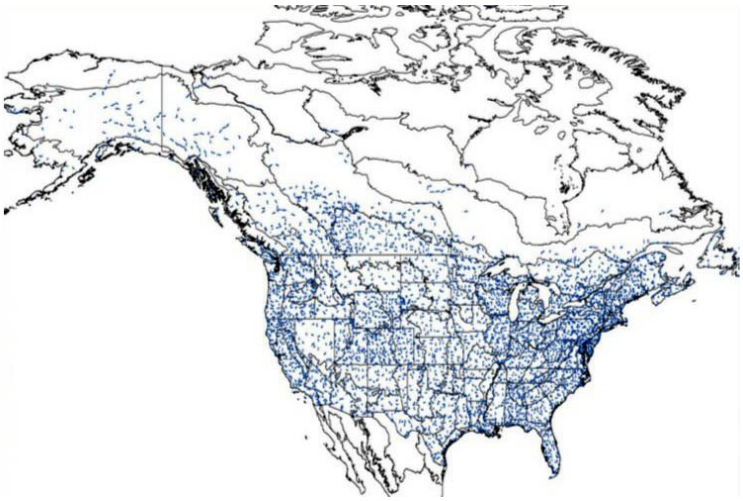
OVERVIEW

It's been over 100 years since the Migratory Bird Treaty Act was passed and in that time, many bird species across the U.S. have declined. There are likely many causes for these declines, but one thing is certain: without monitoring populations, we wouldn't know if conservation efforts were having the intended impact on these populations. Within the U.S., two large-scale monitoring programs collect data on breeding bird populations every year: **Breeding Bird Survey** (BBS) and **Integrated Monitoring in Bird Conservation Regions** (IMBCR). Both of these programs aim to provide long-term datasets about bird populations that can be used to inform conservation or management decisions, but they differ in several ways.

Lark Bunting. Photo by Bill Schmoker.

PROGRAM COMPARISONS

	BBS	IMBCR
Temporal Extent	1966-present	2008-present
Spatial Extent	Continental U.S. & Canada	Great Plains to the Intermountain West
Inference	Road-based	Non-road-based including private and public
Data Products	Trends on population indices	Density, abundance, occupancy, and population



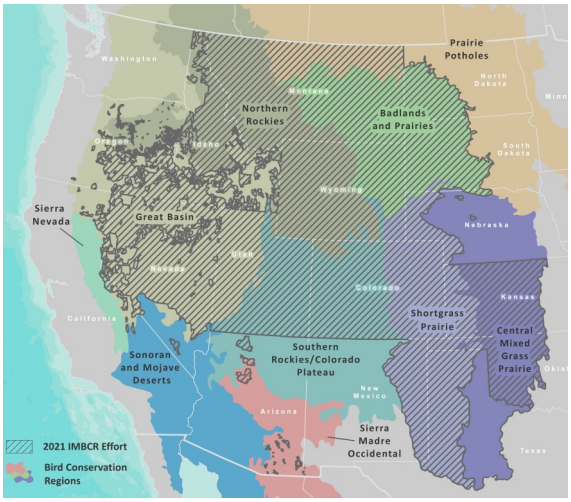


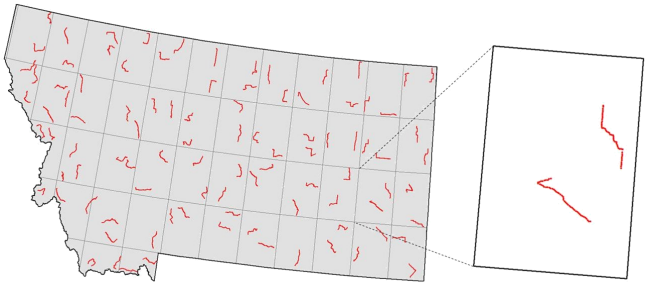
Figure 1. *Extent of Breeding Bird Survey program (left) and Integrated Monitoring in Bird Conservation Regions program*

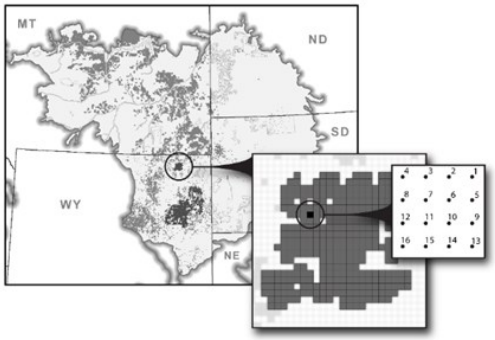
METHODS & DESIGN

BBS

IMBCR

Figure 2. *Example sampling designs for the BBS (left) and IMBCR program (right).*





- Sampling unit is a ~39.4-km long route on secondary roads
- 50 3-min point count surveys at approx. 0.8-km intervals along route
- Record all individuals seen and heard
- States stratified into 1° lat/long grid
- Route locations within grid blocks randomly selected
- Not all routes are surveyed each year

- Sampling unit is a 1-km^2 grid cell
- 6-min point count surveys at 16 points within a grid cell on private and public land
- Record all individuals seen and heard, distance from observer, and vegetation cover and height
- Sampling frames stratified based on fixed boundaries

APPLICATIONS

BBS data are used to estimate annual population indices, relative abundances and long-term trends. Analysis of populations can be conducted at scales from the full range of a species down to individual states, Bird Conservation Regions (BCR) or smaller subsets of either. These data can be used to understand the relative importance of an area to a species and landscape-scale habitat or environmental associations. Currently, trend estimates for over 400 species are available. Visit the North American Breeding Bird Survey website for more information and the latest population trends, or visit Partners in Flight Avian Conservation Assessment Database to find regional and global assessment scores for North American birds based largely on BBS data.

IMBCR data are used to estimate density, occupancy, and trend for species at multiple scales from individual management units to states or BCRs. These estimates are provided by Bird Conservancy of the Rockies each year. The nested design provides context for local populations to the surrounding region, and the vegetation data allow us to model local-scale habitat relationships. The IMBCR sampling design is also used to answer specific management questions and evaluate conservation efforts, such as forest restoration or grazing practices. Existing data inform management plans and project-level planning. Visit our website for more information about IMBCR or the Rocky Mountain Avian Data Center to find population estimates for >300 species, as well as general survey locations and species counts.

Through data integration, monitoring datasets, like the BBS and IMBCR, can complement and inform each other to better guide conservation efforts. Citizen science monitoring efforts, such as eBird, can also improve our understanding of bird populations, especially for less common species.

Bird Conservancy of the Rockies

IMBCR

For more information about the IMBCR program, contact:

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