

Integrated Monitoring in Bird Conservation Regions

IMBCR Vision and Mission Statement

Purpose Statement: During the 2018 annual meeting, IMBCR partners identified the development of a vision and mission document as a high priority for the program. Several members of the partnership volunteered to participate on the IMBCR Vision/Mission committee. The committee held four telephone conferences in 2018 working through drafts defining the Program's vision. This document provides a coherent message for the partners and identifies the strengths and unique contributions that IMBCR makes to bird conservation.

Committee Members:

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| Luke George, Bird Conservancy of the Rockies (Chair) | Liza Rossi, Colorado Parks and Wildlife |
| Mike Carter, Playa Lakes Joint Venture | Rick Truex, United States Forest Service |
| Erin Swiader, United States Forest Service | Geoff Walsh, Bureau of Land Management |
| Cara Staab, United States Forest Service | Chris White, Bird Conservancy of the Rockies |
| Jay Carlisle, Intermountain Bird Observatory | Matthew McClaren, Bird Conservancy of the Rockies |
| Russ Norvell, Utah Division of Wildlife Resources | David Pavlacky, Bird Conservancy of the Rockies |

Vision Statement: Provide reliable information on bird populations to guide conservation and management decisions.

Mission Statement: Through a collaborative network of scientists, land and wildlife management agencies, conservation organizations, and private citizens, provide scientifically defensible estimates of bird density, abundance, occupancy, and trend to inform impacts of natural and anthropogenic factors on bird populations.

Conceptual Model:

The conceptual model (see below) shows the relationship between population estimates from the IMBCR program and bird conservation, policy, and management.

IMBCR Conceptual Model

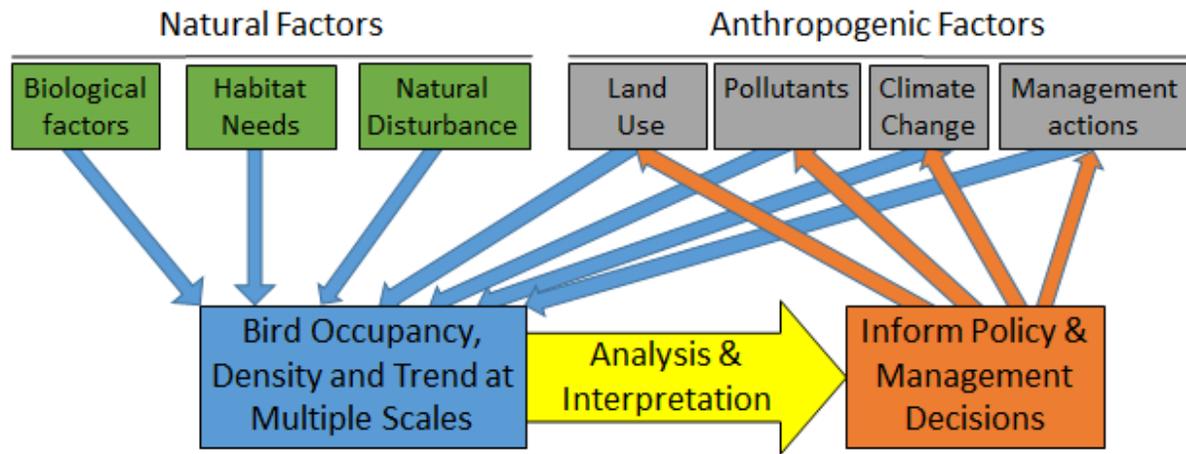


Figure 1. Conceptual model of Integrated Monitoring in Bird Conservation Regions (IMBCR) program. Natural and anthropogenic factors influence bird occupancy, density, and trend. Analysis and interpretation of spatial and temporal changes in bird density, occupancy, and trend in response to natural and anthropogenic factors inform policy and management decisions. The effects of policy and management decisions can then be evaluated using IMBCR data to inform future decisions (as with adaptive management).

Goals:

- Provide robust density, abundance, occupancy, and trend estimates available at multiple geographic extents.
- Provide a design framework to spatially integrate existing bird monitoring efforts in the region to provide more complete information on distribution and abundance of breeding landbirds, especially for high priority species.
- Provide habitat association data for most species to address habitat management needs.
- Maintain a high-quality, user-friendly online database that is accessible to all of our collaborators, as well as to the public, in the form of raw and summarized data.
- Generate user-friendly tools and resources in collaboration with partners that help guide conservation efforts and provide a robust measure of conservation success.
- Work with partners to identify and implement targeted projects to address specific management questions.
- Provide an adaptive management feedback loop whereby conservation projects are evaluated against goals and targets and modified as needed.

Program Value:

The IMBCR program has several unique characteristics that are encompassed within four categories: Partnerships, Design, Data Quality, and Data Access. Partners participate in the program to collect data across political and land ownership boundaries and obtain a better understanding of bird populations in a regional context to compare and evaluate local management actions.

- **Partnership Strengths:** IMBCR is supported and implemented by many partners whose participants agree with the program's shared vision and strive to reach shared goals. The participants share monitoring resources to increase the spatial and temporal extent of the program compared to individual efforts. The program provides critical data to inform management decisions and landscape planning efforts, as well as advance bird conservation science and research.
- **Design Strengths:** IMBCR's spatially balanced sampling provides robust estimates across large regions at a variety of desired scales and management units. The use of skilled field technicians following standardized protocols in concert with calibrated training ensure high-quality and reliable data across the program. Vegetation data are also collected at each survey location to inform management actions. With extensive outreach to landowners, private lands are included in the sampling frame, which allows inference to entire regions.
- **Data Quality:** Pooling data across a large area provides precise estimates of detection probability, resulting in robust estimates of density, abundance, occupancy, and trend. This allows partners to obtain estimates for more species with greater precision than would be possible using individual data. Robust data are also used to generate decision support tools to guide conservation efforts and provide a quantitative measure of conservation success.
- **Data Access:** Estimates of bird density, abundance, occupancy, and trend at multiple spatial scales are accessible on the web and available for use in research projects and planning documents. Raw data are available to partners or can be requested by those outside the partnership via a data sharing agreement.

Target Species and Estimates:

The IMBCR program was designed to provide density, abundance, occupancy, and trend estimates for most regularly occurring diurnal songbird species that breed within the IMBCR footprint (Great Plains, Rocky Mountains, Intermountain West). We currently provide population estimates for over 250 species. Warblers, sparrows, finches, pigeons and doves, corvids, flycatchers, vireos, swallows, chickadees, thrushes, wrens, tanagers, grosbeaks, and some gamebirds and raptors are examples of groups of species that are well monitored by the IMBCR program.

Generally, very low density species, species that have large territories, and species that are associated with open water or very specific and isolated habitats are not monitored well by the IMBCR program. Examples include ducks, some raptors, shorebirds, grouse, and gulls. The program can be adapted to better monitor these species by increasing effort, adapting seasonal and daily survey timing, and stratifying sampling areas to target these species. Partners may also modify the sampling design to monitor non-avian wildlife. However, partners should consider increased costs and decreased efficiency that may result from modifications intended to target specific species or groups of species.

Sustaining the Program:

Partners continually work together to find creative funding opportunities. The IMBCR program is able to provide robust estimates that can inform management actions using a relatively small investment from each partner. Below are examples of how IMBCR partners address shifting targets and budgets, while remaining open to new possibilities that maintain long-term monitoring and support current management needs.

- Partners develop common goals in a region for long-term commitment to funding the program.
- The IMBCR program balances cost, value, and time with adaptive monitoring; the sampling design can be modified to evaluate special projects without disrupting the integrity of the data, and the baseline monitoring provides regional context for special projects.
- In addition to annual estimates provided by Bird Conservancy, partners are able to conduct their own analyses, ensuring the relevance and use of IMBCR data.
- IMBCR partners work to ensure conservation strategies are implemented and evaluated, and support consistent monitoring to assess long-term population objectives and management and conservation efforts. By identifying and investing in species that are in decline, we can avoid costly threatened or endangered species listings in the future.
- Participating in IMBCR represents a fraction of the conservation costs for species of concern, but provides data to evaluate the efficacy of actions at local and regional scales.
- The conservation delivery biologist with Bird Conservancy of the Rockies keeps partners up-to-date with data applications, publications, and new developments, and also shares results of analyses and special projects to partners and the public.

Considerations for Expansion of the Program:

Current Extent

The IMBCR program currently covers the Great Plains to the Intermountain West in 10 Bird Conservation Regions. In 2018, IMBCR partners completed over 2,100 surveys and the area of inference was approximately 2 million km² (Figure 2). The IMBCR partnership currently includes over 30 organizations in the western United States.

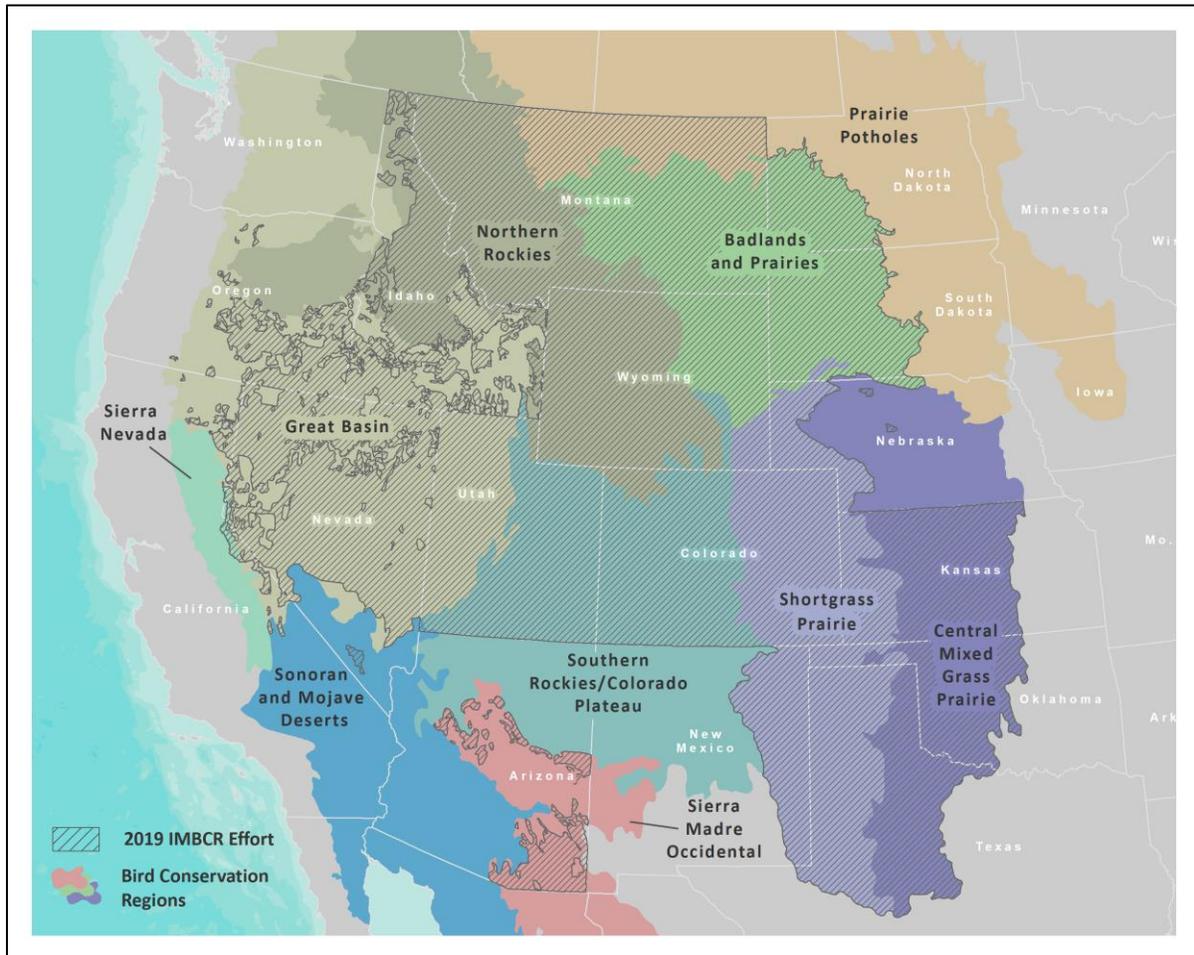


Figure 2. Sampling frame of Integrated Monitoring in Bird Conservation Regions (IMBCR) program in 2019.

Expanding the Program

IMBCR partners evaluate and prioritize expansion that helps partners meet new or existing needs and/or helps engage new partners. Expansion should strengthen the existing IMBCR program by filling in gaps in coverage, expanding inference to areas of interest, or building the partnership. IMBCR partners welcome opportunities to expand the program and are interested in engaging in new partnerships that achieve these goals.