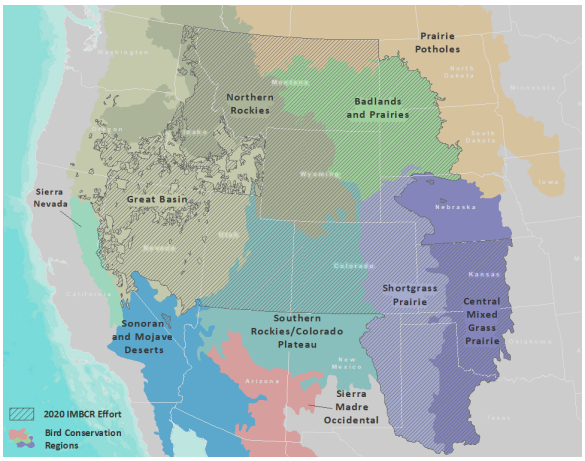
# Integrated Monitoring in Bird Conservation Regions: Funding Costs & Models

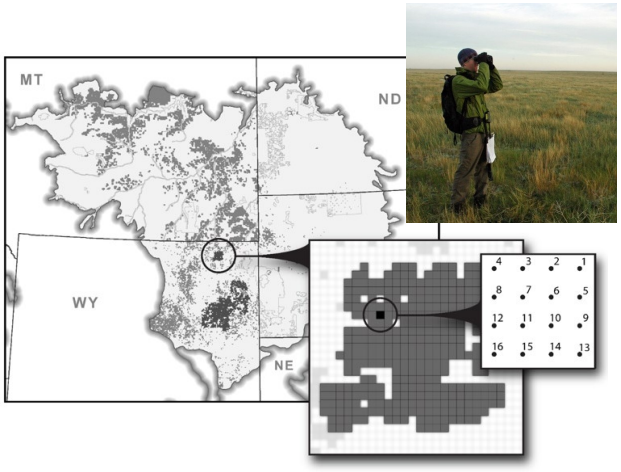
*Green-tailed Towhee, The Cornell Lab*

## PROGRAM OVERVIEW

**The Integrated Monitoring in Bird Conservation Regions** (IMBCR) program was created in 2008 in response to avian population declines and national recommendations for improving avian monitoring. Today, the IMBCR program is the second largest breeding bird monitoring program in North America, spanning the Great Plains to the Great Basin. The strength of the IMBCR program lies in its partnership with multiple state and federal agencies and NGOs with Bird Conservancy of the Rockies leading the effort. We pool monitoring resources among the partners in a spatially balanced, probabilistic framework, which promotes efficiencies and allows us to provide population estimates for almost 300 species including songbirds, gamebirds, common raptors, and some waterfowl and shorebirds.




*Extent of the IMBCR program as of 2020.*




*Example sampling frame for the Badlands and Prairies Bird Conservation Region with 1-km$^2$ transects and example transect containing 16 point count stations.*

**Within a sampling frame**, all lands and vegetation types are available for sampling, so we make inference about bird populations across the whole landscape. We create strata based on fixed attributes, such as state borders and management unit boundaries, and stratification is determined by funding partners. With a hierarchical sampling design, we estimate bird population size within a management unit up to a state or larger region. Spatially balanced sample selection also allows partners to adjust monitoring efforts while maintaining spatial coverage of a stratum.

**Every spring**, trained observers visit up to 16 survey points within a 1-km$^2$ transect per morning and record all birds seen and heard. They also record ocular vegetation estimates at each point, such as over and understory cover and height.

## DATA APPLICATIONS

- *Data products* from IMBCR include bird density, abundance, occupancy, and population trend. These estimates are all corrected for detection probability and are available at multiple scales.
- *State agency* biologists use population estimates to inform State Wildlife Action Plans and Species of Greatest Conservation Need and prioritize conservation actions for these species. Biologists also use density estimates to inform biological assessments and project-level planning.
- *US Forest Service and Bureau of Land Management* biologists use population estimates to determine potential project-level impacts on migratory birds, update management plans, and identify species of concern.
- *Department of Defense* biologists use population estimates to inform status of migratory birds on installations and determine installation impacts on migratory birds.
- *In addition to the baseline monitoring effort,* partners also conduct targeted monitoring in project areas to ask specific questions about landuse impacts on birds (i.e., overlay projects).

## APPROXIMATE IMBCR COSTS

The cost of IMBCR surveys depends on two main variables, land ownership and presence of grizzly bears. Surveys on private land require landowner outreach to gain permission, while surveys in grizzly country require additional training and two observers. Survey costs include field gear, observer salary and training, vehicle expenses, and programmatic fees, like data storage, management, and analysis. A partner may collect the data themselves and only pay programmatic fees, or pay for someone to collect the data and they conduct their own analyses. There is also an initial, one-time project set-up fee to design the study, which varies based on project complexity. Below are IMBCR costs as of 2021 for transects in different stratum classifications.

| Stratum Classification | Description | Cost per Transect |
|---|---|---|
| Grizzly country | Stratum falls within Grizzly Bear Range, and >50% of the surveys in a stratum require 2 observers per transect for safety purposes | $1,209 |
| Backcountry, non-grizzly country | Stratum does not fall within Grizzly Bear Range, and >25% of the transects require overnight backpacking trips with 1-2 observers | $1,159 |
| Front country, public | Stratum has <25% of transects that require backpacking, and averages <1 landowner per transect | $1,034 |
| Front country, public/ private combo | Stratum has <25% of transects that require backpacking, and averages between 1-2 private landowners per transect | $1,134 |
| Front country, private - established/permit | Stratum averages >2 private landowners per transect and has been surveyed for >3 yr. Also includes strata that require a permit or partner coordination on public land | $1,159 |
| Front country, private - new | Stratum averages >2 private landowners per transect and has been surveyed for <3 yr | $1,209 |

*Observer and Pygmy Nuthatch*

## FUNDING AND IMPLEMENTATION MODELS

The IMBCR partnership is made up of two main partner types: those who fund the data collection and those who implement data collection for funders. There are numerous other models that partners use to accomplish the monitoring within their management unit(s) or area of interest. These models are for the baseline monitoring effort, intensified monitoring in a stratum, or special projects (overlays). The models listed below include but are not limited to:

- Fund data collection and programmatic fees
- Implement data collection for funder
- Implement data collection for own organization but pay Bird Conservancy for study design, programmatic fees, and field training
- Design study and store, manage, and analyze data on your own, but pay Bird Conservancy or other field implementer to collect the data
- Coordinate funders within a region and pay a field implementer to collect the data
- Fund Bird Conservancy to conduct an additional analysis of the baseline and/or overlay data

## DEADLINES

If you are interested in intensifying monitoring in a current stratum, developing a new targeted project (overlay), or creating a new stratum within or outside the existing IMBCR footprint, it is best to contact Bird Conservancy no later than January 31 of the proposed field season. This allows time to discuss monitoring objectives, sampling design, survey effort, costs, etc. However, we understand that budgets and funding are not always set by a specific date. Please contact us and we will do our best to work within your time frame to satisfy your bird monitoring objectives.

## ACKNOWLEDGEMENTS

IMBCR efforts are possible with support from numerous partner agencies and organizations. To see a list of current IMBCR partners and other program information, please visit our website: https://www.birdconservancy.org/what-we-do/science/monitoring/imbcr-program/

Bird Conservancy of the Rockies

For more information about IMBCR, please contact Jen Timmer (jennifer.timmer@birdconservancy.org)

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