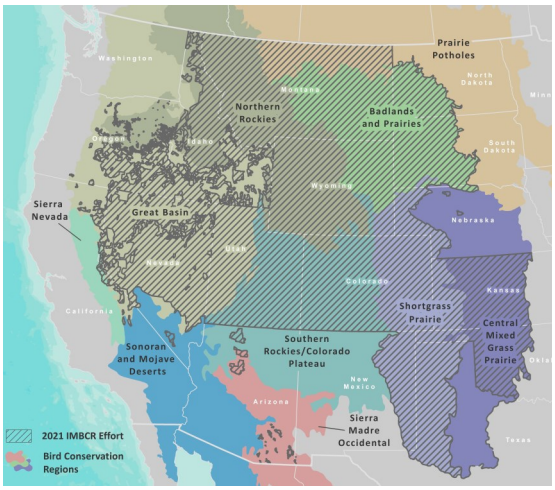
Rangeland Monitoring in Bird Conservation Regions: A Collaborative Approach

A NEED TO MONITOR

The **Federal Land Policy and Management Act** mandates the US Bureau of Land Management (BLM) manage public land resources for a variety of uses, such as energy development, livestock grazing, recreation, and wildlife habitat while protecting ecological, cultural, and historical resources. **Therefore, successful management of public lands requires monitoring and adaptive management to ensure these land use activities are compatible.** Monitoring wildlife provides information on how land use decisions have affected populations, and thus, the diversity of an ecosystem. Federal laws, like the **Migratory Bird Treaty Act** and the **National Environmental Policy Act**, also help ensure that activities occurring on BLM land do not negatively impact bird populations. This information is critical because the BLM manages more habitat than any other federal agency. Finally, the BLM develops Resource Management Plans (RMP) to determine appropriate multiple uses for public lands, provide a strategy to manage and protect resources, and establish systems to monitor and evaluate the health of resources and effectiveness of management practices. Management Actions within RMPs guide future and day-to-day activities to help protect migratory birds even if federal laws are weakened.

A COLLABORATIVE APPROACH

For these reasons, the BLM has funded breeding landbird monitoring as part of the **Integrated Monitoring in Bird Conservation Regions** (IMBCR) program since 2008. IMBCR is a **partnership** in which multiple agencies and organizations pool monitoring resources to **increase efficiencies**, facilitating monitoring over larger spatial and temporal extents than would be possible with individual efforts. Every spring, trained observers collect bird and vegetation data at survey sites on private and public land. Our field protocol allows us to account for imperfect detection, so we can provide **population estimates, like abundance and density, for over 300 species**. Estimates are available statewide for Colorado, Wyoming, Montana, and Utah, and also for BLM lands within the footprint.



Extent of the IMBCR program as of 2021

HOW DO WE DO IT?

- *Within Bird Conservation Regions (BCR),* we create strata based on fixed attributes, such as management unit boundaries.
- *Stratification is determined by IMBCR partners*—for which areas do they wish to know about bird populations?
- *With our hierarchical sampling design,* we estimate population sizes across various spatial extents (e.g., field offices, BLM land within a region, states, Bird Conservation Regions).
- *Partners can adjust sampling effort* with changing funding or objectives while still maintaining spatial coverage.
- *Partners ask specific management questions* through targeted monitoring projects which use the same IMBCR field methods and sampling design. This places project populations within local and regional contexts.

BLM APPLICATIONS

- The BLM benefits from annual IMBCR monitoring to track **the status of avian sensitive species** statewide and inform updates to their state lists. IMBCR expanded in 2019 in the Great Basin on BLM lands in Nevada, California, and Oregon. This expansion provides near-complete coverage of the sagebrush ecosystem and allows for inference about songbird populations in this imperiled system .
- BLM biologists must consider **migratory birds of concern when implementing NEPA projects and developing RMPs**. IMBCR occurrence data and density estimates allow biologists to determine species that could be impacted by a project and assess potential population impacts. For example, we can estimate the number of gray vireos that may be impacted by a pinyon-juniper removal project.

Gray vireo, a sensitive species for the Utah BLM

- BLM biologists also ask specific questions about **landuse impacts on birds** through overlay projects, which use the same IMBCR field methods and sampling design, but occur in specific project areas. We can then compare population estimates in project areas to local and regional estimates for context.

Examples to Inform Management

Sagebrush sparrow

Rawlins Field Office, Wyoming: We monitored birds inside and outside a natural gas development area to determine the impact on sagebrush-obligate species. A working group set management triggers to determine when a threshold was met for sagebrush songbird occupancy and mitigation or adaptive measures were needed to reduce the negative impacts.

Bruneau & Owyhee Field Offices, Idaho: BLM biologists are interested in monitoring avian response to early phase juniper removal efforts meant to improve habitat for sage-grouse. They are interested in the pre- and post-treatment response of sagebrush-obligates and also edge species, such as the green-tailed towhee.

Colorado River Valley Field Office, Colorado: To support multiple uses on public land, the BLM and Colorado Parks and Wildlife biologists are interested in the effects of recreation on birds. We are surveying areas that intersect popular recreation trails on BLM land and in surrounding national forests to compare bird densities within high-recreation areas to the surrounding region.

Black-throated gray warbler

Grand Staircase Escalante National Monument, Utah: A biologist used density estimates for his field office to determine the potential population impacts from a pinyon-juniper thinning project. He multiplied PJ-specific densities for species of concern by the amount of PJ habitat estimated within the project area to determine potential project-level impacts for the NEPA analysis. He then compared this number to the estimated number of individuals within the whole field office for context.

ACKNOWLEDGEMENTS

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For more information about IMBCR or the Rocky Mountain Avian Data Center, please contact Jen Timmer (jennifer.timmer@birdconservancy.org)

Integrated Monitoring in Bird Conservation Regions