



In 2007 the North American Bird Conservation Initiative (NABCI) released the report, “Opportunities for Improving Avian Monitoring” (US North American Bird Conservation Initiative 2007); which outlined goals and recommendations to further improve avian monitoring programs. With these recommendations in mind, bird conservation partners from across much of the western United States collaborated in 2008 to implement a new broad-scale all-lands monitoring program entitled “**Integrated Monitoring in Bird Conservation Regions**” (IMBCR). Today, the IMBCR program represents one of the largest bird monitoring programs in the United States. The strength of the IMBCR program is based in its broad partnership, spanning the Rocky Mountains, Great Plains, Intermountain West and numerous organizations<sup>1</sup> (Fig. 1).

The foundation for an effective monitoring program is rigorous data collection, and the value of the program lies in its ability to inform management and conservation actions at multiple scales. **The NABCI Monitoring subcommittee (US North American Bird Conservation Initiative 2007) identified several conservation objectives, outlined below, designed to achieve:**

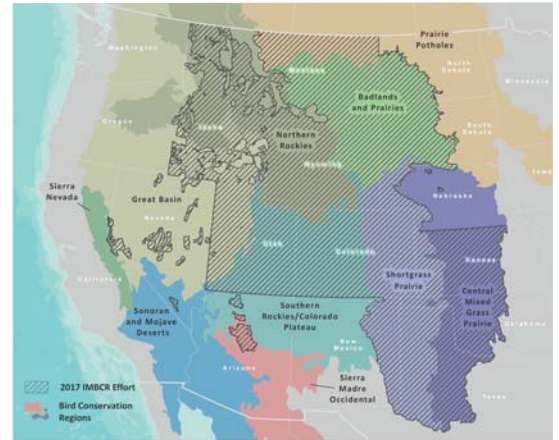


Figure 1. Scope of the IMBCR program in 2017-8

## 1. Determine status and trends

- Under the IMBCR program densities, population sizes and occupancy rates are estimated at local, regional, state and BCR scales for over 250 species. The program is well suited for estimating densities and occupancy rates for landbird species. These estimates satisfy the mandate to monitoring wildlife populations for many public land management agencies.
- IMBCR data will be used to compare estimates across years and estimate trends in population densities and occupancy for these species at multiple spatial scales.

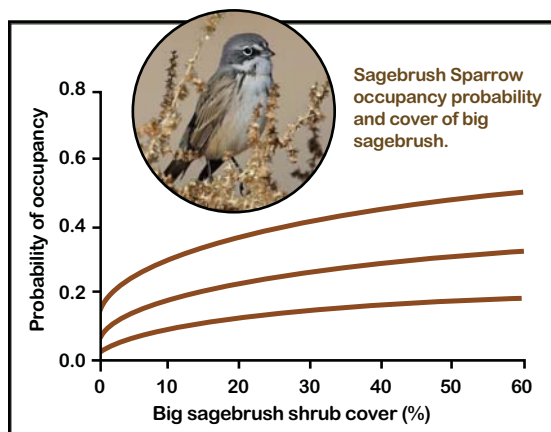


Figure 2. Sagebrush Sparrow occupancy probability

## 2. Inform management and policies to achieve conservation

- Density and occupancy estimates can be compared across space to determine how local estimates vary among strata. This is helpful to determine if local estimates are above or below estimates for the region.
- Population estimates can be used to focus conservation efforts. For example, strata with large populations can be identified as population strongholds and strata with low populations can be prioritized for conservation action.
- Estimates can trigger conservation action when populations reach a predetermined level.
- Habitat models can provide information to guide conservation and management (Fig. 2). IMBCR bird and field-collected vegetation data can be used to determine preferred local habitat conditions to inform managers on “what to do” when managing habitat.
- Landcover and other spatial data can be paired with bird occupancy data to develop models that predict species’ distribution (Fig. 3). These models can aid in landscape planning by identifying areas to conserve and areas for management action.

## Conservation objectives (continued):

### 3. Determine causes of population change

Process variables can be investigated for correlations with changes in bird populations.

- IMBCR data have been paired with information on spruce-beetle occurrence to find correlations between beetles and bird populations.
- Bird data have been associated with development features (i.e., roads and wells) to investigate bird response to these changes to the landscape.

### 4. Evaluate conservation efforts

Local density and occupancy estimates for treatment areas can be compared to regional estimates to evaluate effectiveness of management actions.

- IMBCR data have been used to explore the impact of Tamarisk removal on riparian bird communities on BLM lands.
- IMBCR data have shown that management actions to enhance Lesser Prairie-Chicken habitat are also beneficial to grassland songbirds.

### 5. Set population objectives and priorities

- Population estimates can be used to inform population goals and identify species requiring additional management.
- Predictive distribution maps (Fig. 3) can be used to prioritize the location of management efforts.

### 6. Inform conservation design

- IMBCR data provide a source for the development of decision support tools (DST) to help land managers and resource professionals address conservation issues.
- The IMBCR partnership has developed a DST to assist in the management of the sagebrush bird community. The DST combines species distribution maps and bird-habitat relationships to guide management in order to optimize grazing utility, sagebrush-obligate songbird occupancy, and Greater Sage-Grouse habitat.

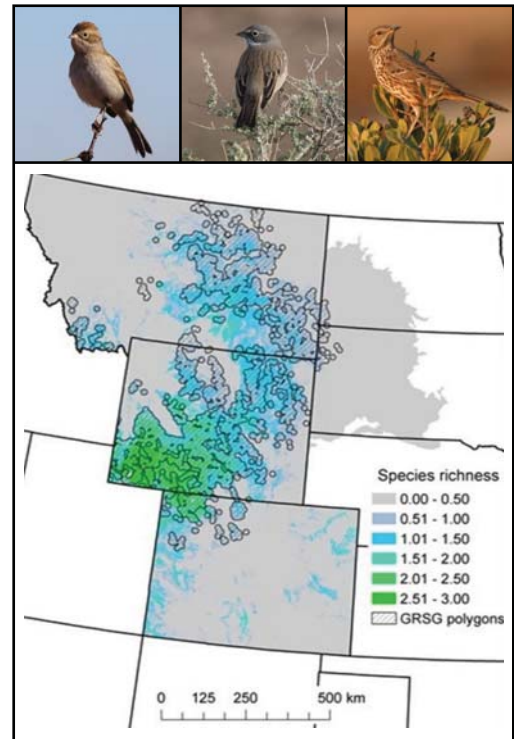


Figure 3. Predictive distribution map showing species richness of Brewer's Sparrow, Sagebrush Sparrow, and Sage Thrasher within areas managed for Greater Sage-Grouse. Areas where all three species are likely to occur are shown in green.

#### Program Summary:

Through a broad partnership, the IMBCR program provides a platform for consistent and accurate data collection. Data are pooled during analyses to provide more precise estimates for a greater number of species than individual monitoring efforts. IMBCR data are applied to meet numerous conservation applications, ensuring that the program is informing conservation and land management at multiple scales while maximizing the impact of each conservation dollar spent at multiple scales.

#### Partners

Arizona Game & Fish Department, Collaborative Forest Landscape Restoration Program Colorado Parks & Wildlife Department, Department of Defense, Farm Service Agency, Great Basin Bird Observatory, Great Plains Landscape Conservation Cooperative (USFWS), Intermountain Bird Observatory, Kansas Department of Wildlife, Parks & Tourism, Montana Fish, Wildlife and Parks, National Fish and Wildlife Foundation, National Park Service, Natural Resources Conservation Service, Nebraska Game & Parks Commission, New Mexico Department of Game & Fish, Oklahoma Department of Wildlife Conservation, Playa Lakes Joint Venture, Texas Parks & Wildlife Department, The Migratory Bird Program (USFWS Southwest Region), US Bureau of Land Management, US Forest Service, Utah Division of Wildlife Resources, Wyoming Natural Diversity Database, Wyoming Game & Fish Department

*Literature Cited: US North American Bird Conservation Initiative (2007). Opportunities for improving avian monitoring. U.S. North American bird conservation initiative report. Arlington, Virginia, USA, Division of Migratory Bird Management, U.S. Fish and Wildlife Service.*

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