

# Integrated Monitoring in Bird Conservation Regions (IMBCR): 2010 Annual Report



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**Rocky Mountain Bird Observatory**

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# ROCKY MOUNTAIN BIRD OBSERVATORY

**Mission:** *To conserve birds and their habitats*

**Vision:** *Native bird populations are sustained in healthy ecosystems*

**Core Values:**

1. **Science** provides the foundation for effective bird conservation.
2. **Education** is critical to the success of bird conservation.
3. **Stewardship** of birds and their habitats is a shared responsibility.

**RMBO accomplishes its mission by:**

- **Monitoring** long-term bird population trends to provide a scientific foundation for conservation action.
- **Researching** bird ecology and population response to anthropogenic and natural processes to evaluate and adjust management and conservation strategies using the best available science.
- **Educating** people of all ages through active, experiential programs that create an awareness and appreciation for birds.
- **Fostering** good stewardship on private and public lands through voluntary, cooperative partnerships that create win-win situations for wildlife and people.
- **Partnering** with state and federal natural resource agencies, private citizens, schools, universities and other non-governmental organizations to build synergy and consensus for bird conservation.
- **Sharing** the latest information on bird populations, land management and conservation practices to create informed publics.
- **Delivering** bird conservation at biologically relevant scales by working across political and jurisdictional boundaries in western North America.

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## EXECUTIVE SUMMARY

Rocky Mountain Bird Observatory, in conjunction with its partners, conducted landbird monitoring in all or part of Bird Conservation Regions (BCRs) 9 (Great Basin), 10 (Northern Rockies), 11 (Prairie Potholes), 16 (Southern Rockies/Colorado Plateau), 17 (Badlands and Prairies), 18 (Shortgrass Prairie) and 34 (Sierra Madre Occidental) in 2010. This project used a spatially balanced sampling design and a survey protocol implemented in portions of 13 states in 2010 as part of a program titled "Integrated Monitoring in Bird Conservation Regions" (IMBCR). The IMBCR design allows inferences to avian species occurrence and population sizes from local to BCR scales, facilitating conservation at local and national levels.

In 2010, Rocky Mountain Bird Observatory and its partners surveyed 946 of 1,011 (94%) planned transects throughout the study area, with a total of 10,273 point counts conducted. Surveys were conducted between 1 May and 30 July. In total, Rocky Mountain Bird Observatory and its partners observed 290 species. Rocky Mountain Bird Observatory and its partners obtained sufficient numbers of observations to estimate density of 150 species, including 59 priority species. We calculated precise density estimates ( $CV \leq 50\%$ ) for 145 species in at least one stratum. We estimated the proportion of sample units occupied for 149 species, including 75 priority species and 53 species for which sample sizes were too small to estimate density. We calculated precise occupancy estimates ( $CV \leq 50\%$ ) in at least one stratum for 138 species.

The presence of strata with small sample sizes limited our ability to estimate the proportion of sample units occupied for many species. Analyses estimating the proportion of occupied sites required that some sites were occupied by the species of interest while others were unoccupied. Transects within strata with a low number of samples were frequently occupied by a species either all of the time (common species) or none of the time (rare species). Although unreliable density and occupancy estimates were typical of under-sampled strata, the aggregation of strata for regional estimates increased the effective sample size, resulting in robust estimates at larger scales. Unfortunately, the unreliable results were magnified when strata with a low number of samples comprised a large geographic region because regional occupancy and density were estimated using a weighted mean of stratum-level estimates indexed by stratum area. The weighting scheme was necessary for extending the population estimates to the larger regions of interest while allowing sampling intensity to vary between strata and years.

Several changes to the field collection methods and analytical procedures were implemented between 2009 and 2010. Point count durations were increased from five to six minutes to facilitate the occupancy analyses. This is the first year that all data collected under the IMBCR framework were analyzed together. To account for the increase in spatial extent, we estimated the proportion of occupied sites under an information-theoretic approach in which we evaluated four models with regional structure on detection and availability for each species. Analyzing the comprehensive dataset resulted in more precise estimates of detection probabilities for individual species because of the larger sample sizes. Because accounting for incomplete detection is of fundamental importance, the subsequent occupancy and density estimates utilizing detection probabilities benefited greatly from this approach.

This spatially-balanced sampling design serves as a model for other long-term monitoring efforts because of its ability to address the conservation and management needs of a wide range of stakeholders, landowners and government entities at both local and regional scales. The IMBCR design represents one method for achieving effective collaboration in North American bird monitoring and could be applied to other BCRs and regions across the continent.

## ACKNOWLEDGEMENTS

Stratification and allocation of survey efforts were determined in collaboration with partner agencies and organizations, each of which provided funding or in-kind assistance in 2009 and 2010: U.S. Forest Service; U.S. Bureau of Land Management; Northern Great Plains Joint Venture; South Dakota Game, Fish and Parks Department; Wyoming Game and Fish Department; Montana Fish, Wildlife and Parks; Colorado Division of Wildlife; Wyoming Natural Diversity Database; Montana Natural Heritage Program; USFWS Great Northern Landscape Conservation Cooperative, Wyoming Audubon Society; and the Idaho Bird Observatory. Many individuals helped make the 2010 field season a success. We thank the members of the Integrated Monitoring in Bird Conservation Regions (IMBCR) coordination committee including Andrea Orabona of the Wyoming Game and Fish Department, Robert Skorkowsky of U.S. Forest Service Region 2 office, Beth Hann of U.S. Forest Service Region 1 office, Bill Noble of U.S. Forest Service Region 3 office, Clint McCarthy of U.S. Forest Service Region 4 office, Dennis Saville of the Bureau of Land Management Wyoming, Wes Anderson of the Bureau of Land Management Colorado, Gayle Sitter of the Bureau of Land Management Montana, David Klute of the Colorado Division of Wildlife, Catherine Wightman of the Montana Fish, Wildlife and Parks and Bryce Maxell of the Montana Natural Heritage Program for their help throughout the study. We thank Cecelia Overby from Coconino National Forest, Chirre Keckler and Valerie Stein Foster from Kaibab National Forest and Kim Hartwig from Prescott National Forest for their support and interest. Chandman Sambuu managed and updated the Rocky Mountain Bird Observatory database and produced a new online mapping tool allowing for easier planning of field crew schedules and navigation to survey sites. Rocky Mountain Bird Observatory's landowner liaison, Jenny Berven, contacted county assessors to determine land ownership of survey locations. We thank Gary White, professor emeritus of Colorado State University, who wrote the initial SAS code and implemented the multi-scale occupancy model in program MARK and Paul Lukacs of the Colorado Division of Wildlife who wrote code in program R for generating density estimates from detection probabilities. We thank crew leaders David Kramer and Christian Meny for overseeing the collection of data in Montana and Idaho, respectively. We also thank the 50 field technicians, who collected avian and vegetation point count data and contacted private landowners to obtain access to survey locations and establish working relationships for the future. Without the efforts of the technicians and the cooperation of numerous private landowners Rocky Mountain Bird Observatory would have been unable to conduct avian monitoring on private lands. Finally, this report benefited greatly from review by Rocky Mountain Bird Observatory staff.

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## ACRONYMS

AIC	Akaike's Information Criterion
AICc	Akaike's Information Criterion corrected for small sample size
BBS	Breeding Bird Survey
BCR	Bird Conservation Region
BLM	Bureau of Land Management
CDOW	Colorado Division of Wildlife
DOD	Department of Defense
GPS	Global Positioning System
GRTS	Generalized Random-Tessellation Stratification
GRYN	Greater Yellowstone Network
IMBCR	Integrated Monitoring in Bird Conservation Regions
MTFWP	Montana Fish, Wildlife and Parks
MTNHP	Montana Natural Heritage Program
NABCI	North American Bird Conservation Initiative
NCPN	Northern Colorado Plateau Network
NDGFD	North Dakota Game and Fish Department
NF	National Forest
NG	National Grassland
NGPC	Nebraska Game and Parks Commission
NPS	National Park Service
PIF	Partners In Flight
RMBO	Rocky Mountain Bird Observatory
RMNW	Rocky Mountain Network
SCPN	Southern Colorado Plateau Network
SDGFP	South Dakota Game, Fish and Parks
USFS	U.S. Forest Service
WGFD	Wyoming Game and Fish Department
WYNDD	Wyoming Natural Diversity Database

## INTRODUCTION

Monitoring is an essential component of wildlife management and conservation science (Witmer 2005, Marsh and Trenham 2008). Common goals of population monitoring are to estimate the population status of target species and to detect changes in populations over time (Thompson et al. 1998, Sauer and Knutson 2008). Effective monitoring programs can identify species that are at-risk due to small or declining populations (Dreitz et al. 2006); provide an understanding of how management actions affect populations (Alexander et al. 2008, Lyons et al. 2008); evaluate population responses to landscape alteration and climate change (Baron et al. 2008, Lindenmayer and Likens 2009); as well as provide basic information on species distributions.

While it remains critical to monitor at local scales, it is becoming increasingly necessary to monitor the consequences of environmental change over large spatial and temporal scales and address questions much larger than those that can be answered within individual management units, such as a National Forest (Lindenmayer and Likens 2009). Reconciling disparities between the geographic scale of management actions and the scale of ecological and species-specific responses is a persistent challenge for natural resource management agencies (Ruggiero et al. 1994). Population monitoring of eco-regional landscapes provides an important context for evaluating population change at both local and regional scales, with the potential to identify causal factors and management actions for species recovery (Manley et al. 2005, Sauer and Knutson 2008).

Bird Conservation Regions (BCRs) provide a spatially consistent framework for bird conservation in North America (Figure 1) (US North American Bird Conservation Initiative Monitoring Subcommittee 2007). The BCRs represent distinct ecological regions with similar bird communities, vegetation types and resource management interests (US North American Bird Conservation Initiative Committee 2000). Population monitoring within the IMBCR program can be implemented within a flexible hierarchical framework of nested units, where information on status of bird populations can be partitioned into smaller units for small-scale conservation planning, or aggregated up to support large-scale conservation efforts for a species' geographic range. By focusing on scales relevant to management and conservation, information obtained from monitoring in BCRs can be integrated into research and management at a multitude of scales applicable to land managers (Ruth et al. 2003).

The apparent large-scale declines of avian populations and the loss, fragmentation and degradation of native habitats highlight the need for extensive and rigorous landbird monitoring programs (Rich et al. 2004, US North American Bird Conservation Initiative Monitoring Subcommittee 2007). Population monitoring helps to achieve the intent of legislation such as the Migratory Bird Treaty Act (1918), National Environmental Policy Act (1969), Endangered Species Act (1973), the National Forest Management Act (1976) and various state laws (Manley 1993, Sauer 1993).

Before monitoring can be used by land managers to guide conservation efforts, sound program designs and analytic methods are necessary to produce unbiased population estimates (Sauer and Knutson 2008). At the most fundamental level, reliable knowledge about the status of avian populations requires accounting for spatial variation and incomplete detection of the target species (Pollock et al. 2002, Rosenstock et al. 2002, Thompson 2002). Addressing spatial variation entails the use of probabilistic sampling designs that allow population estimates to be extended over the entire area of interest (Thompson et al. 1998). Adjusting for incomplete detection involves the use of appropriate sampling and analytic methods to address the fact that

few, if any, species are so conspicuous that they are detected with certainty during surveys even when present (Pollock et al. 2002, Thompson 2002). Accounting for these two sources of variation ensures observed trends reflect true population changes rather than artifacts of the sampling and observation processes (Pollock et al. 2002, Thompson 2002).

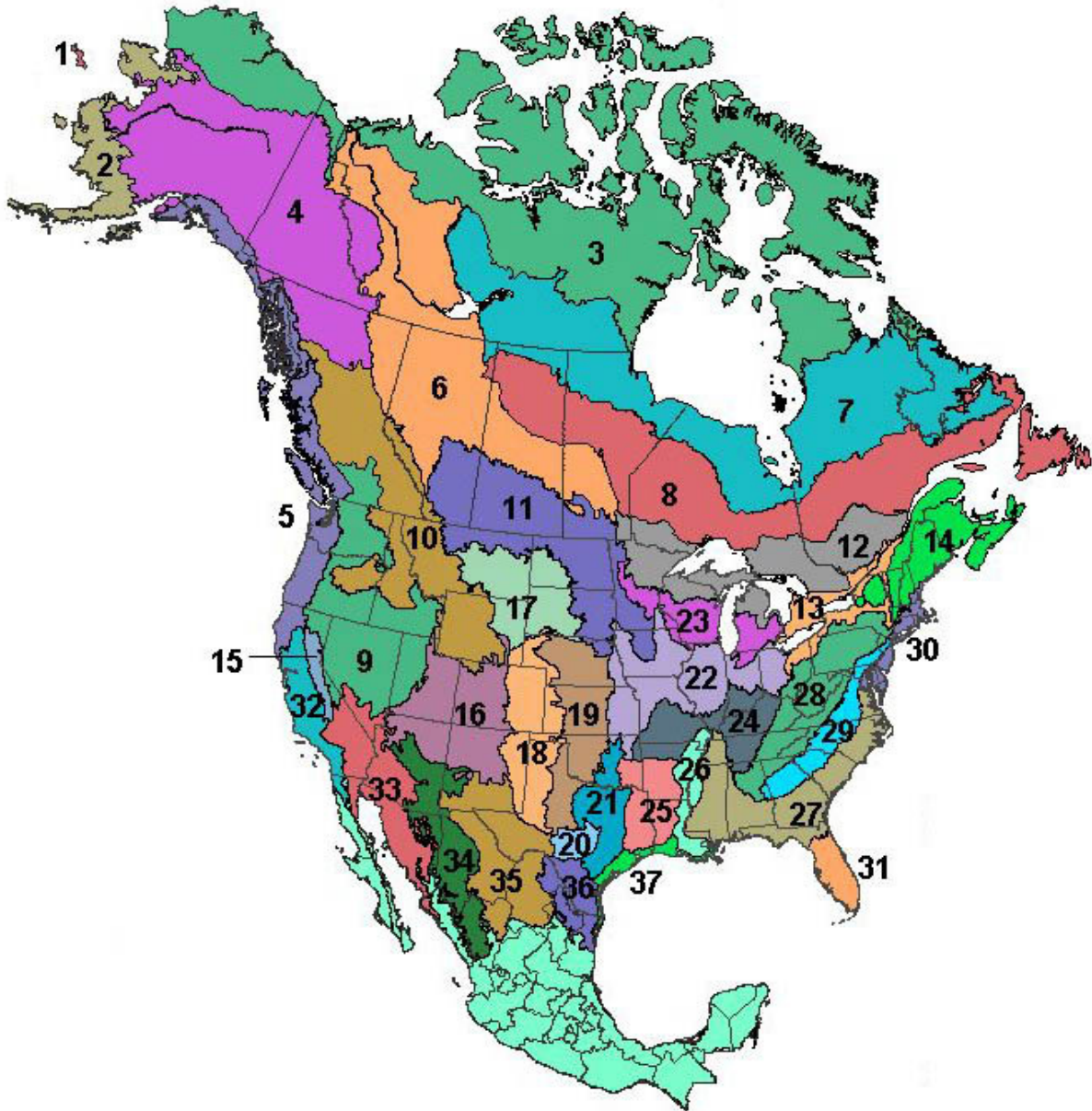


Figure 1. Bird Conservation Regions throughout North America, excluding Hawaii and Mexico (Source: <http://www.nabci-us.org/map.html>).

## Integrated Monitoring in Bird Conservation Regions: 2010 Annual Report

The North American Bird Conservation Initiative's "Opportunities for Improving Avian Monitoring" (US North American Bird Conservation Initiative Monitoring Subcommittee 2007) provided goals and recommendations for avian monitoring programs:

Goal 1: Fully integrate monitoring into bird management and conservation practices and ensure that monitoring is aligned with management and conservation priorities.

Goal 2: Coordinate monitoring programs among organizations and integrate them across spatial scales to solve conservation or management problems effectively.

Goal 3: Increase the value of monitoring information by improving statistical design.

Goal 4: Maintain bird population monitoring data in modern data management systems. Recognizing legal, institutional, proprietary and other constraints provide greater availability of raw data, associated metadata and summary data for bird monitoring programs.

With the US NABCI Monitoring Subcommittee (2007) guidelines in mind, Rocky Mountain Bird Observatory (RMBO) and its partners designed a broad-scale monitoring program titled "Integrated Monitoring in Bird Conservation Regions" (IMBCR) (Blakesley and Hanni 2009). Important properties of the IMBCR design are:

- All areas are available for sampling including all vegetation types.
- Strata are based on fixed attributes; this will allow us to relate changes in bird populations to changes on the landscape through time.
- Each state's portion of a BCR can be stratified differently, depending upon local needs and areas to which one wants to make inferences.
- Aggregation of strata-wide estimates to BCR- or state-wide estimates is built into the design.
- Local population trends can be directly compared to regional trends.
- Coordination among partners can reduce the costs and or increase efficiencies of monitoring per partner.

Using the IMBCR design, RMBO'S landbird monitoring objectives are to:

1. Provide robust density, population and occupancy estimates that account for incomplete detection and are comparable at different geographic extents;
2. Provide long-term status and trend data for all regularly occurring breeding species throughout the study area,
3. Provide a design framework to spatially integrate existing bird monitoring efforts in the region to provide better information on distribution and abundance of breeding landbirds, especially for high priority species;
4. Provide basic habitat association data for most bird species to address habitat management issues;
5. Maintain a high-quality database that is accessible to all of our collaborators as well as to the public over the internet, in the form of raw and summarized data and;
6. Generate decision support tools that help guide conservation efforts and provide a better measure of conservation success.

## **Program History**

In 1995 RMBO, in conjunction with the Colorado Division of Wildlife (CDOW), the United States Forest Service (USFS), the Bureau of Land Management (BLM) and the National Park Service (NPS), began efforts to create and conduct a Colorado-wide program to monitor breeding-bird populations. This was the first attempt in the nation to develop and implement a statewide all-bird monitoring program. In 1999, after a successful pilot year, we implemented the protocol in 13 habitats in Colorado. We continued this methodology for 10 years and expanded our efforts to all or parts of Arizona, New Mexico, South Dakota, Utah and Wyoming.

In 2007, the US North American Bird Conservation Initiative (NABCI) Monitoring Subcommittee suggested ways to improve bird monitoring efforts in North America. In 2008, RMBO and its partners applied the suggestions of the NABCI subcommittee to a new protocol for statewide bird monitoring in Colorado. This protocol used Bird Conservation Regions (BCRs) as the sampling frames, stratified by land ownership inside of the BCRs. We stratified and surveyed the Southern Rockies/Colorado Plateau BCR (BCR 16) and the Shortgrass Prairie BCR (BCR 18) portions of Colorado that year, as well as the BCR 16 portion of Wyoming. In 2009, we expanded the IMBCR program to the Colorado and Wyoming portions of the Northern Rockies BCR (BCR 10), the BCR 9 and 18 portions of Wyoming, the entire Badlands and Prairies BCR (BCR 17) within Montana, Nebraska, North and South Dakota, Wyoming, the National Forests and Grasslands within BCR 18 and Coconino and Prescott National Forests in the Sierra Madre Occidental BCR (BCR 34). In 2010, we expanded to include BCR 10 and the Prairie Potholes BCR (BCR 11) in Montana, three National Forests in the Idaho portion of BCR 10 and Kaibab National Forest in BCR's 16 and 34.

## METHODS

### Study Area

Surveys were conducted across all of BCR 17 and portions of BCR 9, 10, 11, 16, 18 and 34 (Figure 2). A brief description of each BCR and where surveys were conducted is discussed below.

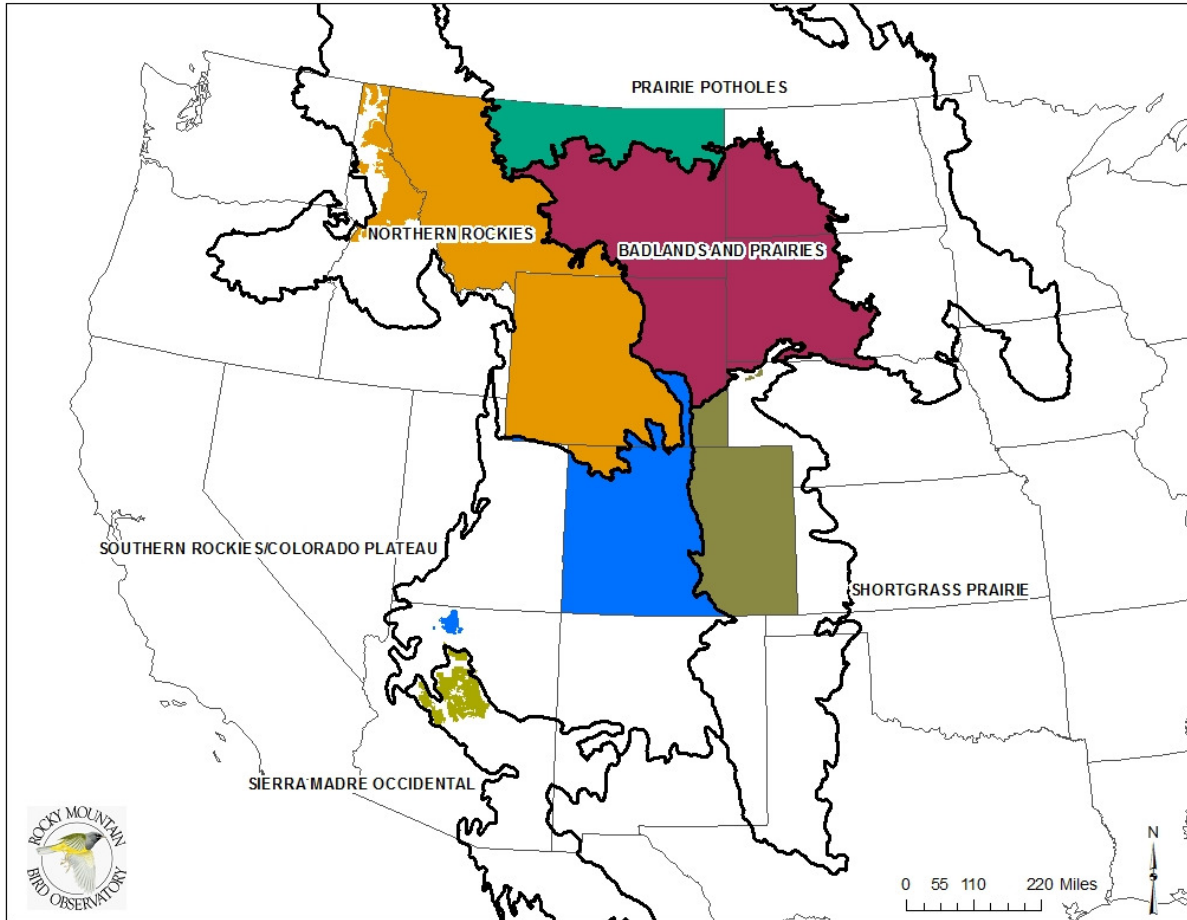


Figure 2. Spatial extent of sampled strata using the IMBCR design, 2010.

#### BCR 9

The Great Basin Bird Conservation Region is characterized by dry flats and lowlands in the rain shadow of the Cascade and Sierra Nevada Mountain Ranges (Partners in Flight 2000). The dry lowland portions of this region are dominated by sagebrush, grasslands and semi-desert shrubs while higher elevations host pinyon-juniper woodlands and Ponderosa Pine and Lodgepole Pine forests. BCR 9 covers portions of British Columbia, Washington, Oregon, California, Nevada, Idaho, Utah and Wyoming.

This was the second year for IMBCR implementation within BCR 9. This program was implemented across the Wyoming portion of BCR 9 located within Targhee National Forest. RMBO conducted surveys within a single strata comprising 119 km<sup>2</sup>.

*BCR 10*

The Northern Rockies Bird Conservation Region (BCR 10) is characterized by high-elevation mountain ranges with mixed conifer forests and intermountain regions dominated by sagebrush steppe and grasslands (Partners in Flight 2000). Higher elevation forests consist mainly of Ponderosa Pine, Douglas fir, Lodgepole Pine, Englemann Spruce and Subalpine Fir. Tundra occurs at the highest elevations. BCR 10 covers portions of Wyoming, Montana, Idaho, British Columbia, Oregon and small portions of Colorado, Washington and Alberta.

This was the second year for IMBCR implementation within BCR 10. RMBO and its partners conducted field work in the Colorado, Montana and Wyoming portions of BCR 10, as well as the National Forests in Idaho BCR 10. Surveys were conducted in 53 strata comprising a total of 358,948 km<sup>2</sup>.

*BCR 11*

The Prairie Potholes Bird Conservation Region is characterized by mixed grass prairie in the west, tall grass prairie in the east and thousands of small wetlands scattered throughout (US North American Bird Conservation Initiative Committee 2000). About 70% of BCR 11's original grasslands have been converted to agriculture, but large tracts of grassland still exist on the larger ranches and on preserved land (Prairie Pothole Joint Venture 2005). BCR 11 covers portions of Montana, North Dakota, South Dakota, Minnesota, Nebraska, Iowa, Alberta, Saskatchewan and Manitoba.

This was the first year for IMBCR implementation within BCR 11. This program was implemented across all lands in the Montana portion of the BCR. MTBCR 11 was divided into 5 strata comprising a total of 83,415 km<sup>2</sup>. This field work was completed by the Montana Natural Heritage Program (MTNHP).

*BCR 16*

The Southern Rockies and Colorado Plateau Bird Conservation Region is a diverse area bounded by the Southern Rocky Mountains in the east and the Wasatch and Uinta mountains in the west, all of which reach elevations of at least 11,500 ft. In the center of the region are the tablelands of the Colorado Plateau. Within this region vegetation types vary by elevation and as elevation increases the vegetation types include: shrubsteppe; pinyon-juniper; montane shrubland; mixed conifer and aspen; and alpine tundra (Parrish et al. 2002). BCR 16 is centered on the Four Corners Region and consists mainly of Colorado, Utah, New Mexico and Arizona, with portions extending into southern Wyoming and Idaho.

This was the third year for IMBCR implementation within BCR 16. RMBO and Wyoming Natural Diversity Database (WYNDD) conducted surveys across the Colorado and Wyoming portions of BCR 16. Surveys were conducted in 17 strata comprising a total of 158,557 km<sup>2</sup>.

*BCR 17*

The Badlands and Prairies Bird Conservation Region is characterized by rolling plains and mixed-grass prairie that contain large, continuous tracts of intact, dry grassland managed predominately as ranchland (US North American Bird Conservation Initiative Monitoring Subcommittee 2007). The western portion of BCR 17 contains pine and spruce forests at higher elevations. BCR 17 covers portions of five states: Montana; North Dakota; South Dakota; Wyoming and Nebraska.



This was the second year for IMBCR implementation within BCR 17. RMBO and WYNDD conducted surveys throughout the entire BCR in 2010. Surveys were conducted in 33 strata comprising a total of 367,776 km<sup>2</sup>.

### *BCR 18*

The Shortgrass Prairie Bird Conservation Region is characterized by unique shortgrass prairie. What was once contiguous prairie is now fragmented by agriculture and the remnant grasslands are now exposed to new grazing regimes (Playa Lakes Joint Venture Landbird Team 2007). Numerous playa lakes dot the region and wetlands occur along major river corridors that drain the Rocky Mountains. Because of a change in the hydrology of these rivers, more shrubs and trees have encroached upon the wetlands (US North American Bird Conservation Initiative Committee 2000). BCR 18 stretches north-south in the rain shadow of the Rocky Mountains and covers portions of Colorado, Wyoming, Nebraska, Kansas, Oklahoma, Texas and New Mexico.

This was the third year for IMBCR implementation within BCR 18. RMBO conducted surveys in the Wyoming and Colorado portions of BCR 18. Surveys were conducted in 15 strata comprising 126,779 km<sup>2</sup>.

### *BCR 34*

The Sierra Madre Occidental Bird Conservation Region is characterized by rugged, high-elevation mountains supporting oak-pine, pine and fir forests and semi-desert shrubland. BCR 34 stretches from the Northwest to the Southeast covering portions of New Mexico, Arizona and Mexico.

This was the second year for IMBCR implementation within BCR 34. RMBO conducted surveys in Kaibab, Coconino and Prescott National Forests within BCR 34. Surveys were conducted in 3 strata comprising 18,659 km<sup>2</sup>.

## **Sampling Design**

RMBO and its partners defined BCRs 9, 10, 11, 16, 17, 18 and 34 as the sampling frame; the broad-scale area selected to make inferences about bird populations (Figure 2). Within these BCRs, RMBO and its partners established strata and super-strata based on smaller-scale areas to which we also wanted to make inferences; e.g., individual land management units (ex. National Forests) or states. The strata within BCRs are based on fixed attributes, most often by land ownership boundaries

Within each stratum, the IMBCR design used generalized random-tessellation stratification (GRTS), a spatially balanced sampling algorithm, to select sample units (Stevens and Olsen 2004). The GRTS design has several appealing properties with respect to long-term monitoring of birds at large spatial scales:

- Spatially-balanced sampling is generally more efficient than simple random sampling of natural resources (Stevens and Olsen 2004). Incorporating information about spatial autocorrelation in the data can increase precision in density estimates;
- All sample units in the sampling frame are ordered, such that any set of consecutively numbered units is a spatially well-balanced sample (Stevens and Olsen 2004). In the case of fluctuating budgets, we can adjust the sampling effort among years within each stratum while still preserving a random, spatially-balanced sampling design.

The IMBCR design defined sampling units as 1-km<sup>2</sup> cells that were used to create a uniform grid over the entire BCR. Within each grid cell we established a 4 x 4 grid of 16 points spaced 250 m apart (Figure 3). All spatial data were compiled using ARCGIS 9.2 (Environmental Systems Research Institute 2006). The hierarchical nature of our data analysis required that a minimum of two transects were sampled within each stratum. The remaining allocation of sampling effort among strata was based on the priorities of the funding partners.

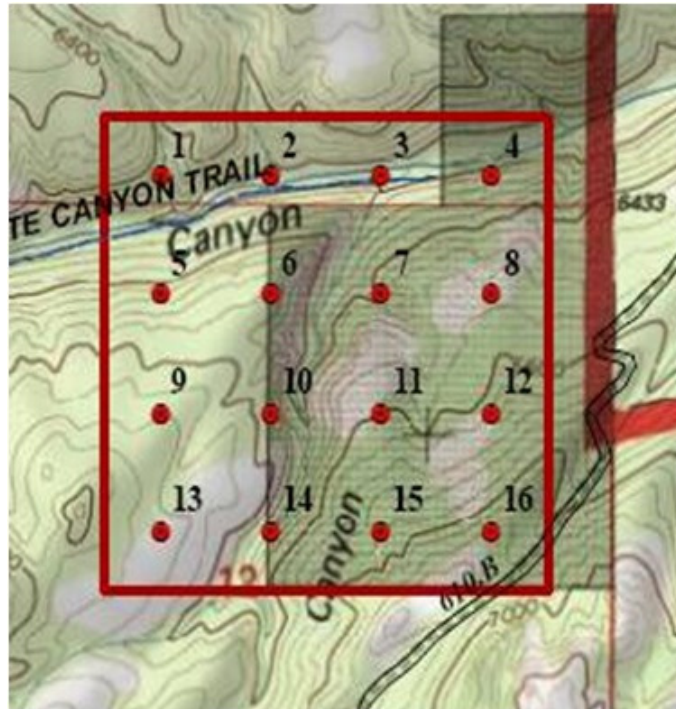


Figure 3. Example grid cell using the IMBCR design.

## Sampling Methods

Within each grid cell we established a 4 x 4 grid of 16 points spaced 250 m apart. We surveyed birds from points using methods that allow for estimating detection probability through the principles of Distance sampling, Removal modeling and Occupancy estimation. Distance sampling theory was developed to take advantage of the decreasing probability of detecting an object of interest (e.g., a bird) with increasing distance from the observer to the object (Buckland et al. 2001). The detection probability is used to adjust the count of birds to account for birds that were present but undetected. Application of distance theory requires that three critical assumptions be met: 1) all birds at and near the sampling location (distance = 0) are detected; 2) distances of birds are measured accurately; and 3) birds do not move in response to the observer's presence (Buckland et al. 2001, Thomas et al. 2010). Removal modeling is based on mark-recapture theory; detection probability is estimated based on the number of birds detected during consecutive sampling intervals (Farnsworth et al. 2002). In this design, sampling intervals consist of 1-2 minutes segments of a complete sampling period. Removal modeling can also incorporate distance data.

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Occupancy estimation is most commonly used to quantify the proportion of sample units (i.e., grid cells) occupied by an organism (MacKenzie et al. 2002). The application of occupancy models requires multiple surveys of the sample unit in space or time to estimate a detection probability (MacKenzie et al. 2006). Occupancy estimation uses a detection probability to adjust the proportion of sites occupied to account for species that were present but undetected (MacKenzie et al. 2002). We used our data to estimate the proportion of grid cells occupied for all species with special designation as determined by our partners (i.e., priority species, management indicator species, species of concern, etc.) and species for which we had insufficient detections to estimate population density. The assumptions of occupancy estimation are 1) the probabilities of detection and occupancy are constant across the sample units, 2) each point is closed to changes in occupancy over the sampling season, 3) the detection of species at each point are independent and 4) the target species are never falsely identified (MacKenzie et al. 2006).

RMBO staff, MTNHP staff, WYNDD staff and biological technicians with excellent aural and visual bird-identification skills conducted field work in 2010. Prior to conducting surveys, technicians completed an intensive five-day training program to ensure full understanding of field protocols and to practice bird identification and distance estimation in a variety of habitats.

Field technicians conducted point counts (Buckland et al. 2001) following protocol established by RMBO (Hanni et al. 2009). Observers surveyed the transects in the morning, beginning ½-hour before sunrise and concluding their survey no later than 11 AM. We extended the survey duration at each point from five to six minutes in 2010 because an even number of minute intervals facilitated the estimation of site occupancy. For every bird detected during the six minute period, we recorded species, sex, horizontal distance from the observer, minute we detected the bird and type of detection (e.g., call, song, visual). Observers measured distances using laser rangefinders. When it was not possible to measure the distance to a bird, observers estimated distance by measuring to some nearby object. Observers recorded birds flying over but not using the immediate surrounding landscape. The "flyover" detections were not included in the estimates of density, population size or occupancy. Observers also recorded the presence of species which are rare or difficult to detect (i.e., woodpeckers, owls, raptors) for which we are not able to estimate density while they traveled between points within a grid cell. We used the opportunistic detections of these rare species for distribution mapping purposes only.

We considered all non-independent detections of birds (i.e., flocks or pairs of conspecific birds together in close proximity) as part of a 'cluster' rather than as independent observations. Observers recorded the number of birds detected within the cluster along with a letter code to keep track of each distinct cluster.

At the start and end of each transect, observers recorded time, ambient temperature, cloud cover, precipitation and wind speed. Technicians navigated to each point using hand-held Global Positioning System (GPS) units. Before beginning each six-minute count, surveyors recorded vegetation data (within a 50 meter radius) and distance from a road (if within 100 m). We recorded vegetation data according to the dominant habitat type and structural stage and the relative abundance, percent cover and mean height of trees, shrubs by species, as well as grass height and groundcover. We recorded vegetation data quietly to allow birds, potentially disturbed by our approach, time to return to their normal habits prior to beginning each count.

For more detailed information about survey methods and vegetation data collection protocols, refer to RMBO's Field Protocol for Spatially Balanced Sampling of Landbird Populations on our Avian Data Center website:

<http://www.rmbo.org/public/monitoring/downloads.aspx>

## Data Analysis

### *Distance Analysis*

Analysis of distance data was accomplished by fitting a detection function to the distribution of recorded distances. The distribution of distances can be a function of characteristics of the object (e.g., for birds, size and color, movement, volume of song or call and frequency of call), the surrounding environment (e.g., density of vegetation) and observer ability. Because detectability varies among species, we analyzed the data separately for each species.

We used the analysis software Distance 6.0 (Thomas et al. 2010) to estimate detection probabilities using our point count data. We estimated densities of species for which we obtained a sufficient number of independent detections ( $n \geq 60$ ) pooled across years within the entire sampling area. We excluded birds flying over but not using the immediate surrounding landscape and birds detected between-points from analyses. We fit the following functions to the distribution of distances for each species: Half normal key function with cosine series expansion and Hazard rate key function with cosine series expansion (Buckland et al. 2001). We combined data across years (2008 – 2010) and strata to estimate global detection functions and compared these models with models that estimated detection probability as a function of year. We modeled year as a covariate using the Multiple Covariate Distance Sampling engine in program Distance. In addition, when sample sizes allowed ( $n \geq 60$  per year) we modeled year as a categorical variable, to allow more flexibility in modeling detection probability. We used Akaike's Information Criterion (AIC) corrected for small sample size (AICc) and model selection theory to select the most parsimonious detection function for each species (Burnham and Anderson 2002).

We used the SPSURVEY package (Kincaid 2008) in Program R (R Development Core Team 2008) to estimate density, population size and its variance for each bird species. We computed estimates for each stratum as well as aggregations of strata by management unit, land owner, state and BCR. Estimates from multiple strata represent a weighted mean indexed by stratum area. These analyses were greatly facilitated by R code written for us by Paul Lukacs of the Colorado Division of Wildlife.

### *Occupancy Analysis*

We used a removal design (MacKenzie et al. 2006) to estimate a detection probability for each species by partitioning the six-minute count into three sequential two-minute sampling intervals. After the target species was detected at a point, we set all subsequent sampling intervals at that

point to missing data (MacKenzie et al. 2006). The 16 grid points served as spatial replicates for estimating the proportion of points occupied within the sampled grid cells. We used a multi-scale occupancy model (Nichols et al. 2008) to estimate 1) the probability of detecting a species given presence ( $p$ ), 2) the proportion of points occupied by a species given presence within sampled grid cells ( $\theta$ ) and 3) the proportion of grid cells occupied by a species ( $\psi$ ).

We expected that regional differences in the behavior, habitat use and local abundance of bird species would correspond to regional variation in detection and the fraction of occupied points. Therefore, we estimated the proportion of grid cells occupied ( $\psi$ ) for each stratum by evaluating four models with different structure for detection ( $p$ ) and the proportion of points occupied ( $\theta$ ). Within these models, the estimates of  $p$  and  $\theta$  were held constant across the BCRs and/or allowed to vary by BCR. The first model constrained  $p$  and  $\theta$  by holding these parameters constant. The second model held  $p$  constant, but allowed  $\theta$  to vary across BCRs. The third model allowed  $p$  to vary across BCRs, but held  $\theta$  constant. The fourth model allowed both  $p$  and  $\theta$  to vary across BCRs. We used model 1 for species with less than 10 detections in the BCRs and models 2 through 4 for species with greater than 10 detections in the BCRs. As with the Distance analyses, we used Akaike's Information Criterion (AIC) corrected for small sample size (AIC<sub>c</sub>) and model selection theory to select the most parsimonious model from which  $p$ ,  $\theta$  and  $\psi$  estimates were derived for each species (Burnham and Anderson 2002). Allowing  $p$  and  $\theta$  to vary by BCR accounted for regional variation in detection and availability, which was important for generating robust estimates of the proportion of grid cells occupied ( $\psi$ ).

Our application of the multi-scale model was analogous to a within-season robust design (Pollock 1982) where the two-minute intervals at each point were the secondary samples for estimating  $p$  and the points were the primary samples for estimating  $\theta$  (Nichols et al. 2008). We considered both  $p$  and  $\theta$  to be nuisance variables that were important for generating unbiased estimates of  $\psi$ .  $\theta$  can be considered an availability parameter or the probability that a species was present and available for sampling at the points (Nichols et al. 2008). As mentioned above, we estimated the probability of detection ( $p$ ) using a removal design with 3 sampling intervals. Using the six 1-minute intervals recorded during sampling, we binned minutes 1 and 2, minutes 3 and 4 and minutes 5 and 6 to meet the assumption of a monotonic decline in the detection rates through time. We truncated the data, using only detections within 125 m of the sample points. Truncating the data at 125 m allowed us to use bird detections over a consistent plot size and ensured that the points were independent (points were spread 250 m apart), which in turn allowed us to estimate  $\theta$  (the proportion of points occupied within each grid cell).

We used program MARK (White and Burnham 1999) to fit the multi-scale occupancy models and estimate the model parameters. We combined stratum-level estimates of  $\psi$  using a weighted mean indexed by stratum area. We estimated the sampling variance and standard error for the combined estimates of  $\psi$  using the delta method (Powell 2007) in program SAS (PROC IML, SAS Institute 2008). We estimated occupancy for species with special designation at some level as determined by our partners (i.e., priority species, management indicator species, species of concern, etc.) and species for which we had insufficient detections to estimate population density, but only if they were detected on a minimum of 10 points after truncating the data to observations within 125 m of each point. Occupancy estimates for species occurring on fewer than 10 points are not reported here because of unreliable model convergence.

## RESULTS

This year, field technicians surveyed 946 of 1,011 planned transects throughout BCRs 9, 10, 11, 16, 17, 18 and 34 using the IMBCR design (Table 1, Figure 2). We summarized reasons why transects were not surveyed in Table 2. Technicians conducted 10,273 point counts within the 946 transects between 10 May and 30 July 2010. We detected 290 species.

We obtained sufficient numbers of observations to estimate density for 150 species, including 59 priority species. We obtained precise density estimates ( $CV \leq 50\%$ ) for 145 species in at least one stratum.

We estimated the proportion of sample units occupied for 149 species, including 75 priority species and 53 species for which sample sizes were too small to estimate density. We achieved precise occupancy estimates ( $CV \leq 50\%$ ) in at least one stratum for 138 species.

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Table 1. Planned and completed surveys, by stratum, 2010.

State	BCR	Strata Code	Strata Name	Area (km <sup>2</sup> )	Planned	Completed	% Completed
AZ	34	CF	Coconino National Forest	7,426	50	49	98%
AZ	34	KF	Kaibab National Forest	5,990	45	45	100%
AZ	34	PF	Prescott National Forest	5,243	50	50	100%
<b>Subtotal</b>					<b>145</b>	<b>144</b>	<b>99%</b>
CO	10	AO	All Other Lands	9,348	5	5	100%
CO	16	AO	All Other Lands	51,214	34	29	85%
CO	16	AR	Arapaho-Roosevelt National Forest	9,645	10	9	90%
CO	16	BL	Bureau of Land Management	27,825	33	31	94%
CO	16	GM	Grand Mesa, Uncompahgre and Gunnison National Forests	13,630	10	9	90%
CO	16	MA	Manti-La Sal National Forest	131	3	3	100%
CO	16	NC	National Park Service – Northern Colorado Plateau Network	807	3	3	100%
CO	16	RM	National Park Service – Rocky Mountain Network	1,628	3	2	67%
CO	16	SC	National Park Service – Southern Colorado Plateau Network	214	3	3	100%
CO	16	PS	Pike-San Isabel National Forest	10,968	10	5	50%
CO	16	RI	Rio Grande National Forest	8,170	10	9	90%
CO	16	RO	Routt National Forest	5,123	24	22	92%
CO	16	SA	San Juan National Forest	8,794	10	8	80%
CO	16	WH	White River National Forest	8,814	10	10	100%
<b>Subtotal</b>					<b>163</b>	<b>143</b>	<b>88%</b>
CO	18	IA	Area between I-70 and the Arkansas River	34,755	9	8	89%
CO	18	PI	Area between the Platte River and I-70	30,365	9	9	100%
CO	18	NP	Area North of the Platte River	11,457	8	8	100%
CO	18	SA	Area South of the Arkansas River	24,985	9	8	89%
CO	18	AR	Arkansas River and Tributaries	1,127	8	6	75%
CO	18	CO	Comanche National Grassland	4,836	8	8	100%

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State	BCR	Strata Code	Strata Name	Area (km <sup>2</sup> )	Planned	Completed	% Completed
CO	18	DO	Department of Defense	1,647	3	2	67%
CO	18	PA	Pawnee National Grassland	3,268	10	10	100%
CO	18	PT	Platte River and Tributaries	970	8	7	88%
<b>Subtotal</b>					<b>72</b>	<b>66</b>	<b>92%</b>
ID	10	CL	Clearwater National Forest – Roaded/Managed	1,946	10	10	100%
ID	10	CR	Clearwater National Forest – Roadless/Wilderness	5,036	4	3	75%
ID	10	IP	Idaho Panhandle National Forest – Roaded/Managed	8,660	10	10	100%
ID	10	IR	Idaho Panhandle National Forest – Roadless/Wilderness	3,155	4	4	100%
ID	10	NP	Nez Perce National Forest – Roaded/Managed	2,864	10	10	100%
ID	10	NR	Nez Perce National Forest – Roadless/Wilderness	6,370	4	4	100%
<b>Subtotal</b>					<b>42</b>	<b>41</b>	<b>98%</b>
KS	18	CI	Cimarron National Grassland	690	4	0	0%
MT	10	AO	All Other Lands	53,215	2	3	150%
MT	10	BE	Beaverhead-Deerlodge National Forest – Roaded/Managed	7,697	10	10	100%
MT	10	BR	Beaverhead-Deerlodge National Forest – Roadless/Wilderness	8,236	4	4	100%
MT	10	BI	Bitterroot National Forest – Roaded/Managed	2,324	10	10	100%
MT	10	BW	Bitterroot National Forest – Roadless/Wilderness	2,763	4	4	100%
MT	10	BM	Bureau of Land Management – Missoula/Butte	1,356	2	2	100%
MT	10	BS	Bureau of Land Management – Southwestern Montana	3,447	10	10	100%
MT	10	CU	Custer National Forest – Roaded/Managed	779	2	2	100%
MT	10	CR	Custer National Forest – Roadless/Wilderness	1,783	4	4	100%
MT	10	FW	U.S. Fish and Wildlife Service – All Refuges	359	2	2	100%
MT	10	FL	Flathead National Forest – Roaded/Managed	4,945	10	10	100%
MT	10	FR	Flathead National Forest – Roadless/Wilderness	6,410	4	3	75%
MT	10	GA	Gallatin National Forest – Roaded/Managed	3,479	10	10	100%
MT	10	GR	Gallatin National Forest – Roadless/Wilderness	5,787	4	4	100%



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State	BCR	Strata Code	Strata Name	Area (km <sup>2</sup> )	Planned	Completed	% Completed
MT	10	HE	Helena National Forest – Roded/Managed	3,024	10	10	100%
MT	10	HR	Helena National Forest – Roadless/Wilderness	2,248	4	4	100%
MT	10	KO	Kootenai National Forest – Roded/Managed	7,239	10	10	100%
MT	10	KR	Kootenai National Forest – Roadless/Wilderness	1,887	4	4	100%
MT	10	LC	Lewis and Clark National Forest – Roded/Managed	2,778	5	5	100%
MT	10	LR	Lewis and Clark National Forest – Roadless/Wilderness	5,007	4	4	100%
MT	10	LO	Lolo National Forest – Roded/Managed	7,742	10	10	100%
MT	10	LW	Lolo National Forest – Roadless/Wilderness	3,859	4	4	100%
MT	10	NG	National Park Service – Glacier National Park	3,936	2	2	100%
MT	10	RI	Rivers	3,515	2	2	100%
MT	10	TB	Tribal – Blackfeet, Crow	9,349	2	2	100%
MT	10	TF	Tribal – Flathead	5,043	2	2	100%
<b>Subtotal</b>					<b>137</b>	<b>137</b>	<b>100%</b>
MT	11	AO	All Other Lands	62,631	10	10	100%
MT	11	BN	Bureau of Land Management – North Valley CO	1,588	2	2	100%
MT	11	BO	Bureau of Land Management – Other	6,826	8	6	75%
MT	11	FW	U.S. Fish and Wildlife Service – All Refuges and WPA Lands	541	2	2	100%
MT	11	TR	Tribal – Rocky Boys, Fort Peck, Fort Belknap, Blackfeet	11,829	2	2	100%
<b>Subtotal</b>					<b>24</b>	<b>22</b>	<b>92%</b>
MT	17	AC	All Other Lands – Northern Rocky Mtn Foothills/Central Rocky Mtns	13,130	2	2	100%
MT	17	AB	All Other Lands – Northern Rolling Plains/Brown Glaciated	74,351	5	5	100%
MT	17	AS	All Other Lands – Pierre/Soft shale	8,047	2	2	100%
MT	17	BB	Bureau of Land Management – Brown Glaciated Plains	2,049	2	2	100%
MT	17	BC	Bureau of Land Management – Northern Rocky Mtn Foothills/ Central Rocky Mtns	495	2	2	100%
MT	17	BN	Bureau of Land Management – Northern Rolling Plains	19,171	10	10	100%
MT	17	BS	Bureau of Land Management – Pierre/Soft shale	3,298	2	2	100%
MT	17	CU	Custer National Forest	2,649	8	8	100%

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State	BCR	Strata Code	Strata Name	Area (km <sup>2</sup> )	Planned	Completed	% Completed
MT	17	FW	Fish and Wildlife Service – All Refuges	4,035	2	2	100%
MT	17	LC	Lewis and Clark National Forest	867	5	5	100%
MT	17	RI	Rivers – Yellowstone, Tongue, Musselshell, Missouri	4,575	10	10	100%
MT	17	TR	Tribal – Crow, Northern Cheyenne, Fort Belknap	7,251	2	2	100%
<b>Subtotal</b>					<b>52</b>	<b>52</b>	<b>100%</b>
ND	17	AO	All Other Lands	48,027	10	9	90%
ND	17	BL	Bureau of Land Management	267	5	4	80%
ND	17	CR	Cedar River National Grassland	84	5	5	100%
ND	17	LM	Little Missouri National Grassland	6,567	15	14	93%
ND	17	NP	National Park Service	240	2	2	100%
<b>Subtotal</b>					<b>37</b>	<b>34</b>	<b>92%</b>
NE	17	AO	All Other Lands	4,290	2	2	100%
NE	17	OG	Oglala National Grassland	550	4	2	50%
<b>Subtotal</b>					<b>6</b>	<b>4</b>	<b>67%</b>
NE	18	NE	Nebraska National Forest	360	4	0	0%
NE	18	OG	Oglala National Grassland	61	2	0	0%
<b>Subtotal</b>					<b>6</b>	<b>0</b>	<b>0%</b>
SD	17	AO	All Other Lands	89,931	10	8	80%
SD	17	BH	Black Hills National Forest	5,482	75	68	91%
SD	17	BG	Buffalo Gap National Grassland	3,611	4	3	75%
SD	17	BL	Bureau of Land Management	1,448	10	9	90%
SD	17	CU	Custer National Forest	446	5	2	40%
SD	17	FP	Fort Pierre National Grassland	716	4	4	100%
SD	17	GR	Grand River National Grassland	1,027	5	5	100%
SD	17	NP	National Park Service	1,008	2	2	100%
<b>Subtotal</b>					<b>115</b>	<b>101</b>	<b>88%</b>
WY	9	WY	Wyoming Bird Conservation Region 9	119	2	2	100%

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State	BCR	Strata Code	Strata Name	Area (km <sup>2</sup> )	Planned	Completed	% Completed
WY	10	AO	All Other Lands	52,161	10	10	100%
WY	10	BH	Bighorn Canyon National Recreation Area	57	2	2	100%
WY	10	BI	Bighorn National Forest	4,712	10	10	100%
WY	10	BE	Bridger-Teton National Forest – Roaded/Managed	3,034	8	8	100%
WY	10	BR	Bridger-Teton National Forest – Roadless/Wilderness	11,364	2	2	100%
WY	10	BU	Bureau of Land Management – Buffalo Field Office	547	2	2	100%
WY	10	CA	Bureau of Land Management – Casper Field Office	2,509	2	2	100%
WY	10	CO	Bureau of Land Management – Cody Field Office	4,704	2	2	100%
WY	10	KE	Bureau of Land Management – Kemmerer Field Office	5,733	2	2	100%
WY	10	LA	Bureau of Land Management – Lander Field Office	9,829	2	2	100%
WY	10	PI	Bureau of Land Management – Pinedale Field Office	3,687	8	8	100%
WY	10	RA	Bureau of Land Management – Rawlins Field Office	13,954	8	8	100%
WY	10	RO	Bureau of Land Management – Rock Springs Field Office	15,152	8	8	100%
WY	10	WO	Bureau of Land Management – Worland Field Office	8,467	2	2	100%
WY	10	GR	Grand Teton National Park	856	2	2	100%
WY	10	MB	Medicine Bow National Forest	773	2	2	100%
WY	10	SE	Shoshone National Forest – Roaded/Managed	2,101	18	18	100%
WY	10	SR	Shoshone National Forest – Roadless/Wilderness	8,311	5	5	100%
WY	10	WR	Tribal – Wind River	7,819	2	2	100%
WY	10	YE	Yellowstone National Park	7,592	2	2	100%
				<b>Subtotal</b>	<b>99</b>	<b>99</b>	<b>100%</b>
WY	16	AO	All Other Lands	5,438	10	5	50%
WY	16	BL	Bureau of Land Management	647	2	2	100%
WY	16	MB	Medicine Bow National Forest	5,329	23	23	100%
WY	16	WA	Wasatch National Forest	180	2	2	100%
				<b>Subtotal</b>	<b>37</b>	<b>32</b>	<b>86%</b>

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State	BCR	Strata Code	Strata Name	Area (km <sup>2</sup> )	Planned	Completed	% Completed
WY	17	AO	All Other Lands	52,186	10	10	100%
WY	17	BH	Black Hills National Forest	1,085	15	15	100%
WY	17	BU	Bureau of Land Management – Buffalo Field Office	2,653	2	2	100%
WY	17	CA	Bureau of Land Management – Casper Field Office	2,695	2	2	100%
WY	17	NE	Bureau of Land Management – Newcastle Field Office	1,025	12	12	100%
WY	17	TB	Thunder Basin National Grassland	4,520	10	10	100%
				<b>Subtotal</b>	<b>51</b>	<b>51</b>	<b>100%</b>
WY	18	AO	All Other Lands	12,064	10	9	90%
WY	18	BL	Bureau of Land Management	171	2	2	100%
WY	18	DO	Department of Defense	23	2	2	100%
				<b>Subtotal</b>	<b>14</b>	<b>13</b>	<b>93%</b>
				<b>Grand Total</b>	<b>1011</b>	<b>946</b>	<b>94%</b>

Table 2. Reasons planned surveys were not completed, 2010.

Reason transects not surveyed	Arizona	Colorado	Idaho	Montana	Nebraska	North Dakota	South Dakota	Wyoming
Miscommunication		6		2				
Ran out of time		2					10	2
Unable to contact landowner		9			2	3	3	4
Unsafe to survey	1	9	1	1				

### I. Bird Conservation Region 17

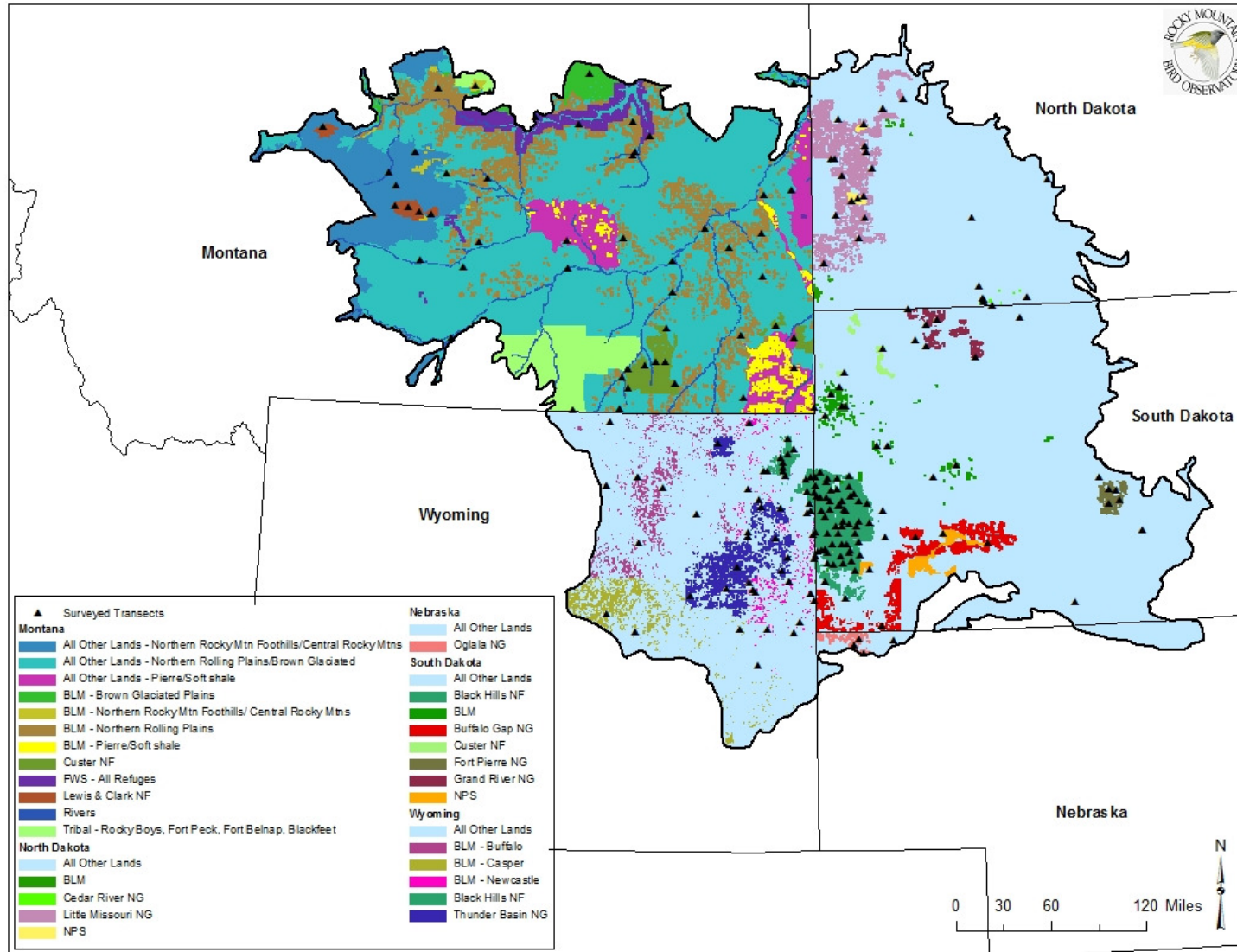


Figure 4. Survey locations in Bird Conservation Region 17, 2010.

**A. BCR 17: Total**

Field technicians surveyed 242 of 261 planned transects throughout BCR 17 in 2010. Technicians conducted 2,399 point counts within the 242 transects between 14 May and 21 July 2010. We detected 176 species, including 30 Partners In Flight (PIF) priority species (Appendix A).

RMBO estimated densities and population sizes for 108 species, 19 of which are priority species in BCR 17 as designated by PIF (Table 3). The data yielded robust density estimates (CV < 50%) for 62 of these species.

We estimated the proportion of transects occupied (Psi) by 79 species, 16 of which are priority species in BCR 17 as designated by PIF (Table 4). The data yielded robust occupancy estimates (CV < 50%) for 39 of these species.

Table 3. Estimated densities per km<sup>2</sup> (D), population sizes (N), percent coefficient of variation of estimates (% CV) and number of independent detections (n) of breeding bird species in Bird Conservation Region 17, 2010. S indicates the number of transects used in analyses. Priority species are bolded.

Species	BCR 17 (S=223)			
	D	N	% CV	n
American Crow	0.32	117,260	26	127
American Goldfinch	5.44	2,001,655	47	79
American Kestrel	0.49	179,876	33	15
American Redstart	2.04	750,105	81	17
American Robin	13.79	5,072,969	33	639
<b>Baird's Sparrow</b>	0.14	52,874	40	54
Barn Swallow	23.71	8,719,750	63	60
<b>Black-billed Magpie</b>	0.92	338,564	49	38
Black-capped Chickadee	11.18	4,110,266	46	477
Black-headed Grosbeak	0.28	101,967	81	9
Blue-gray Gnatcatcher	0.34	124,803	84	2
Bobolink	4.10	1,509,607	47	85
Brewer's Blackbird	2.64	971,280	39	44
<b>Brewer's Sparrow</b>	15.98	5,876,338	49	370
Brown Creeper	0.29	106,096	38	25
Brown-headed Cowbird	62.42	22,956,413	14	615
Bullock's Oriole	2.38	876,524	38	41
Canada Goose	0.19	70,407	39	59
Canyon Wren	0.03	10,992	92	1
Cassin's Finch	0.28	103,910	78	15
<b>Chestnut-collared Longspur</b>	13.02	4,789,372	46	270
Chipping Sparrow	20.32	7,473,132	29	604
Clark's Nutcracker	0.00	1,695	23	4
Clay-colored Sparrow	0.29	105,530	36	31
Cliff Swallow	25.70	9,450,051	54	53

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Species	BCR 17 (S=223)			
	D	N	% CV	n
Common Grackle	2.66	979,361	40	39
Common Nighthawk	0.38	139,969	48	24
Common Raven	0.02	5,751	43	13
Common Yellowthroat	2.72	1,001,573	44	39
Cordilleran Flycatcher	0.04	15,605	24	19
Dark-eyed Junco	2.03	746,263	24	310
Downy Woodpecker	1.74	638,555	77	11
Dusky Flycatcher	1.44	529,488	42	105
Eastern Kingbird	1.50	551,845	37	81
Eurasian Collared-Dove	0.00	1,019	86	2
European Starling	4.63	1,701,333	57	26
Field Sparrow	0.47	172,701	18	110
Golden-crowned Kinglet	0.01	3,668	84	1
<b>Grasshopper Sparrow</b>	31.41	11,550,594	16	965
Gray Jay	0.14	50,688	25	35
Green-tailed Towhee	0.23	86,195	72	12
Hairy Woodpecker	0.20	73,076	15	66
Hammond's Flycatcher	0.00	1,383	88	1
Hermit Thrush	0.06	23,297	45	23
Horned Lark	13.74	5,054,802	23	609
House Finch	0.00	1,191	90	1
House Wren	11.19	4,113,701	50	242
Killdeer	4.48	1,648,492	25	110
<b>Lark Bunting</b>	15.57	5,726,126	29	915
Lark Sparrow	11.36	4,178,154	16	355
Lazuli Bunting	0.88	324,689	47	27
Least Flycatcher	2.87	1,056,836	62	29
<b>Loggerhead Shrike</b>	0.33	119,903	50	14
Long-billed Curlew	0.05	19,067	92	6
MacGillivray's Warbler	0.28	101,501	16	107
Mallard	0.59	215,351	29	34
<b>Mountain Bluebird</b>	4.46	1,641,805	32	155
Mountain Chickadee	0.84	309,696	65	14
Mourning Dove	9.17	3,371,575	21	460
Northern Flicker	1.79	659,900	51	201
<b>Northern Harrier</b>	0.31	115,450	44	9
<b>Northern Rough-winged Swallow</b>	1.71	628,445	50	10
Olive-sided Flycatcher	0.04	14,443	76	5
Ovenbird	1.55	570,807	67	132
Pine Siskin	0.42	154,078	15	90
<b>Pinyon Jay</b>	0.00	1,289	61	6

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Species	BCR 17 (S=223)			
	D	N	% CV	n
Plumbeous Vireo	0.09	34,886	20	57
Pygmy Nuthatch	0.04	16,387	49	7
Red Crossbill	3.49	1,284,084	30	302
Red-breasted Nuthatch	1.46	536,779	32	334
<b>Red-headed Woodpecker</b>	0.17	62,404	82	10
Red-naped Sapsucker	0.36	133,982	18	106
Red-tailed Hawk	0.19	70,032	62	25
Red-winged Blackbird	12.45	4,578,178	30	328
Ring-necked Pheasant	0.95	350,310	24	167
Rock Pigeon	0.86	315,503	81	6
Rock Wren	0.91	334,862	28	163
Ruby-crowned Kinglet	0.20	74,499	17	95
Sage Sparrow	0.00	292	88	1
<b>Sage Thrasher</b>	0.02	8,530	74	5
Sandhill Crane	0.06	20,274	44	20
Savannah Sparrow	11.42	4,198,358	38	85
<b>Say's Phoebe</b>	1.10	406,210	53	63
Song Sparrow	0.11	39,137	59	24
Spotted Sandpiper	0.25	93,418	70	7
Spotted Towhee	7.62	2,802,643	30	345
<b>Sprague's Pipit</b>	0.75	274,273	67	20
<b>Swainson's Hawk</b>	0.07	25,431	64	8
Swainson's Thrush	0.17	62,664	23	69
Townsend's Solitaire	0.35	130,408	56	71
Tree Swallow	0.37	134,748	44	10
Upland Sandpiper	3.16	1,161,568	28	154
<b>Vesper Sparrow</b>	10.29	3,783,442	12	507
Violet-green Swallow	0.68	251,214	54	22
Warbling Vireo	0.91	334,328	59	172
Western Kingbird	3.01	1,106,384	52	65
<b>Western Meadowlark</b>	28.56	10,503,332	8	2900
Western Tanager	0.28	103,710	22	156
Western Wood-Pewee	0.98	358,663	26	248
White-breasted Nuthatch	1.86	682,849	57	67
White-crowned Sparrow	0.01	3,977	87	1
<b>White-throated Swift</b>	0.00	507	86	2
Wild Turkey	0.13	46,672	55	16
Wilson's Snipe	0.29	108,049	75	6
Yellow Warbler	9.74	3,582,104	51	146
Yellow-breasted Chat	0.39	144,204	54	64
Yellow-headed Blackbird	1.77	651,729	85	25



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Species	BCR 17 (S=223)			
	D	N	% CV	n
Yellow-rumped Warbler	4.27	1,569,017	48	296

Table 4. Estimated proportion of sample units occupied (Psi), percent coefficient of variation of Psi (% CV) and number of transects with one or more detections (n Tran) of breeding bird species in Bird Conservation Region 17, 2010. Dashes indicate the data were insufficient for estimating site occupancy. A Psi estimate equal to 1 indicates the species was detected on all transects surveyed. S indicates the number of transects used in analyses. Priority species are bolded.

Species	BCR 17 (S=223)		
	Psi	% CV	n Tran
American Three-toed Woodpecker	0.000	100	1
<b>Baird's Sparrow</b>	0.017	39	12
Bank Swallow	0.055	73	6
Black-and-white Warbler	0.009	35	8
<b>Black-billed Magpie</b>	0.295	27	14
Blue Grosbeak	0.000	96	1
Blue Jay	0.001	49	4
Blue-gray Gnatcatcher	0.015	95	1
Blue-winged Teal	--	--	11
Bobolink	0.109	43	14
<b>Brewer's Sparrow</b>	0.308	17	49
Brown Creeper	--	--	19
Brown Thrasher	0.162	60	7
Brown-headed Cowbird	0.876	5	156
Bullock's Oriole	0.173	39	15
Canada Goose	0.072	69	6
Canyon Wren	0.072	90	1
Cassin's Finch	0.061	83	10
Cassin's Kingbird	0.001	94	1
Cedar Waxwing	0.139	62	14
<b>Chestnut-collared Longspur</b>	0.103	41	19
Clark's Nutcracker	0.001	89	1
Clay-colored Sparrow	0.050	9	13
Common Nighthawk	--	--	18
Common Yellowthroat	--	--	21
Cordilleran Flycatcher	0.005	23	15
Downy Woodpecker	0.130	62	15
Dusky Flycatcher	0.080	52	34
Eastern Kingbird	--	--	42
European Starling	0.174	39	14
Evening Grosbeak	0.001	94	1

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Species	BCR 17 (S=223)		
	Psi	% CV	n Tran
Field Sparrow	0.043	24	19
Gadwall	0.202	31	8
Golden-crowned Kinglet	0.000	99	1
<b>Grasshopper Sparrow</b>	0.544	12	88
Gray Catbird	--	--	10
Gray Jay	0.005	23	14
Green-tailed Towhee	0.007	78	3
Hairy Woodpecker	0.017	16	41
Hammond's Flycatcher	0.001	89	1
Horned Lark	0.429	17	76
<b>Lark Bunting</b>	0.358	18	64
Lark Sparrow	0.531	13	85
Lazuli Bunting	0.089	49	11
Least Flycatcher	0.230	46	15
<b>Lewis's Woodpecker</b>	0.003	51	6
<b>Loggerhead Shrike</b>	--	--	8
Long-billed Curlew	0.009	97	1
MacGillivray's Warbler	0.009	16	27
Marbled Godwit	0.119	50	7
<b>Mountain Bluebird</b>	0.199	31	64
Mountain Plover	0.004	72	1
<b>Northern Harrier</b>	--	--	3
<b>Northern Rough-winged Swallow</b>	--	--	8
Northern Shoveler	--	--	7
Olive-sided Flycatcher	0.020	88	5
Ovenbird	0.062	59	44
Pine Siskin	0.014	14	45
<b>Pinyon Jay</b>	0.001	94	1
Plumbeous Vireo	0.012	15	34
Pygmy Nuthatch	0.002	44	5
Red Crossbill	0.099	45	67
Red-eyed Vireo	0.046	79	6
Red-naped Sapsucker	0.010	13	32
Rock Wren	0.208	30	34
Ruby-crowned Kinglet	0.008	14	28
Sage Sparrow	0.000	96	1
<b>Sage Thrasher</b>	0.017	85	4
Savannah Sparrow	0.190	30	17
<b>Say's Phoebe</b>	--	--	22
Song Sparrow	0.024	75	8
Spotted Towhee	0.246	25	68

Species	BCR 17 (S=223)		
	Psi	% CV	n Tran
<b>Sprague's Pipit</b>	0.071	56	6
<b>Swainson's Hawk</b>	0.143	81	5
Swainson's Thrush	0.018	32	32
Townsend's Solitaire	0.067	70	36
Tree Swallow	0.033	52	12
Upland Sandpiper	0.343	23	33
Veery	0.004	75	4
<b>Vesper Sparrow</b>	0.510	11	74
Warbling Vireo	0.050	67	30
<b>Western Meadowlark</b>	0.844	6	133
<b>White-throated Swift</b>	0.001	70	2
White-winged Crossbill	0.000	100	1
Wild Turkey	0.057	100	7
Willet	0.072	82	2
<b>Willow Flycatcher</b>	0.023	77	5
Wilson's Phalarope	--	--	10
Wilson's Snipe	0.056	84	5
Yellow Warbler	0.182	36	37
Yellow-breasted Chat	0.029	34	16

### B. Montana BCR 17

In this section we present results for the Montana portion of BCR 17. For additional results within Montana, refer to section II: States. For results on All Other Lands, BLM, NPS, Tribal and USFS lands within Montana, refer to section III: Land Ownership.

Field technicians surveyed all 52 planned transects throughout the BCR 17 portion of Montana in 2010. Technicians conducted 519 point counts within the 52 transects between 15 May and 13 July 2010. We detected 141 species, including 22 species designated as priorities by Montana Fish, Wildlife and Parks (MTFWP) (Appendix B).

RMBO estimated densities and population sizes for 92 species, 12 of which are priority species as designated by MTFWP (Table 5). The data yielded robust density estimates (CV < 50%) for 33 of these species.

We estimated the proportion of transects occupied (Psi) by 67 species, 13 of which are priority species as designated by MTFWP (Table 6). The data yielded robust occupancy estimates (CV < 50%) for 23 of these species.

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Table 5. Estimated densities per km<sup>2</sup> (D), population sizes (N), percent coefficient of variation of estimates (% CV) and number of independent detections (n) of breeding bird species in Montana Bird Conservation Region 17, 2010. S indicates the number of transects used in analyses. Priority species are bolded.

Species	MT BCR 17 (S=52)			
	D	N	% CV	n
American Crow	0.21	29,650	52	20
American Goldfinch	0.82	115,019	55	5
American Kestrel	0.44	62,025	55	7
American Redstart	0.03	4,337	84	1
American Robin	16.44	2,299,896	61	69
<b>Baird's Sparrow</b>	0.17	23,208	79	7
Barn Swallow	7.35	1,027,760	62	15
Black-billed Magpie	1.82	255,185	60	22
Black-capped Chickadee	17.41	2,436,311	74	40
Black-headed Grosbeak	0.01	1,782	90	1
Brewer's Blackbird	5.21	728,961	51	14
<b>Brewer's Sparrow</b>	31.03	4,341,939	65	127
<b>Brown Creeper</b>	0.33	45,677	82	1
Brown-headed Cowbird	53.99	7,554,481	20	185
Bullock's Oriole	5.33	746,403	42	32
Canada Goose	0.35	49,582	47	43
<b>Cassin's Finch</b>	0.68	94,588	85	2
<b>Chestnut-collared Longspur</b>	0.39	54,985	100	6
Chipping Sparrow	28.15	3,938,662	47	96
<b>Clark's Nutcracker</b>	0.01	1,695	23	4
Clay-colored Sparrow	0.66	92,180	41	10
Cliff Swallow	8.84	1,236,579	60	8
Common Grackle	0.79	110,481	57	9
Common Nighthawk	0.45	63,202	49	9
Common Raven	0.04	5,273	47	9
Common Yellowthroat	2.05	286,937	91	9
Dark-eyed Junco	2.70	377,868	46	50
Dusky Flycatcher	3.23	452,606	49	20
Eastern Kingbird	2.90	405,663	44	40
European Starling	3.42	478,532	67	19
Field Sparrow	0.55	76,710	29	24
<b>Grasshopper Sparrow</b>	16.35	2,288,033	32	124
Green-tailed Towhee	0.62	86,195	72	12
Hairy Woodpecker	0.08	10,931	55	3
Hammond's Flycatcher	0.01	1,383	88	1
Hermit Thrush	0.16	23,048	46	22
Horned Lark	11.01	1,539,937	29	137

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Species	MT BCR 17 (S=52)			
	D	N	% CV	n
House Wren	21.91	3,066,273	60	172
Killdeer	3.80	531,179	54	35
Lark Bunting	19.67	2,752,195	52	182
Lark Sparrow	19.84	2,776,330	18	157
Lazuli Bunting	1.13	158,268	72	12
Least Flycatcher	1.38	192,704	55	13
<b>Loggerhead Shrike</b>	0.51	71,124	68	5
<b>Long-billed Curlew</b>	0.13	18,587	94	5
MacGillivray's Warbler	0.09	11,954	57	7
Mallard	0.49	68,751	57	8
Mountain Bluebird	2.47	345,112	45	15
Mountain Chickadee	1.23	171,794	89	11
Mourning Dove	8.27	1,157,105	29	93
Northern Flicker	3.30	461,685	69	47
Northern Harrier	0.50	70,450	47	4
Northern Rough-winged Swallow	1.31	183,509	86	1
Ovenbird	0.37	51,409	56	18
Pine Siskin	0.28	39,184	27	20
<b>Pinyon Jay</b>	0.00	572	92	1
Plumbeous Vireo	0.07	10,170	52	3
Pygmy Nuthatch	0.02	3,025	88	1
Red Crossbill	7.07	989,813	38	82
Red-breasted Nuthatch	0.56	77,706	61	15
<b>Red-headed Woodpecker</b>	0.39	54,415	93	6
Red-tailed Hawk	0.01	1,568	65	2
Red-winged Blackbird	10.37	1,450,362	65	99
Ring-necked Pheasant	0.75	105,094	39	46
Rock Pigeon	2.12	297,178	86	2
Rock Wren	1.15	160,734	36	34
Ruby-crowned Kinglet	0.12	17,475	53	17
Sandhill Crane	0.14	20,274	44	20
Savannah Sparrow	9.44	1,321,338	14	47
Say's Phoebe	1.92	268,498	78	18
Song Sparrow	0.02	3,052	83	1
Spotted Sandpiper	0.17	24,474	70	6
Spotted Towhee	9.46	1,323,736	46	73
<b>Sprague's Pipit</b>	0.80	112,225	91	12
Swainson's Hawk	0.17	23,615	69	3
Swainson's Thrush	0.20	27,536	46	14
Townsend's Solitaire	0.68	94,690	76	13
Tree Swallow	0.91	127,600	46	6

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Species	MT BCR 17 (S=52)			
	D	N	% CV	n
Upland Sandpiper	0.76	105,963	50	16
Vesper Sparrow	20.10	2,811,851	13	182
Violet-green Swallow	0.39	55,262	74	7
Warbling Vireo	0.10	13,646	44	6
Western Kingbird	2.27	317,927	40	20
Western Meadowlark	32.41	4,535,181	11	813
Western Tanager	0.23	31,808	66	13
Western Wood-Pewee	1.18	164,801	33	41
White-breasted Nuthatch	3.06	428,332	82	11
White-crowned Sparrow	0.03	3,977	87	1
Wild Turkey	0.20	27,630	77	3
Yellow Warbler	9.34	1,307,184	50	66
Yellow-breasted Chat	0.53	74,480	99	8
Yellow-rumped Warbler	9.39	1,314,446	57	83

Table 6. Estimated proportion of sample units occupied (Psi), percent coefficient of variation of Psi (% CV) and number of transects with one or more detections (n Tran) of breeding bird species in Montana Bird Conservation Region 17, 2010. Dashes indicate the data were insufficient for estimating site occupancy. A Psi estimate equal to 1 indicates the species was detected on all transects surveyed. S indicates the number of transects used in analyses. Priority species are bolded.

Species	MT BCR 17 (S=52)		
	Psi	% CV	n Tran
<b>Baird's Sparrow</b>	0.026	61	2
Bank Swallow	0.023	66	3
Black-and-white Warbler	0.008	71	1
Black-billed Magpie	0.676	29	11
Blue-winged Teal	0.015	68	2
<b>Brewer's Sparrow</b>	0.513	24	20
<b>Brown Creeper</b>	0.022	95	1
Brown Thrasher	0.260	76	4
Brown-headed Cowbird	0.936	3	44
Bullock's Oriole	0.349	44	11
Canada Goose	0.183	71	5
Canyon Wren	0.190	90	1
<b>Cassin's Finch</b>	0.153	87	2
Cassin's Kingbird	0.003	94	1
<b>Chestnut-collared Longspur</b>	0.012	71	1
<b>Clark's Nutcracker</b>	0.001	89	1
Clay-colored Sparrow	0.115	8	6
Common Nighthawk	--	--	8

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Species	MT BCR 17 (S=52)		
	Psi	% CV	n Tran
Common Yellowthroat	--	--	4
Downy Woodpecker	0.005	94	1
Dusky Flycatcher	0.188	58	7
Eastern Kingbird	--	--	18
European Starling	0.139	75	6
Evening Grosbeak	0.004	94	1
Field Sparrow	0.074	34	7
Gadwall	0.008	98	1
<b>Grasshopper Sparrow</b>	0.399	30	15
Gray Catbird	0.072	14	5
Green-tailed Towhee	0.017	78	3
Hairy Woodpecker	0.006	61	2
Hammond's Flycatcher	0.001	89	1
Horned Lark	0.488	24	18
Lark Bunting	0.475	26	16
Lark Sparrow	0.866	14	35
Lazuli Bunting	0.054	53	3
Least Flycatcher	0.231	72	6
<b>Lewis's Woodpecker</b>	0.004	96	1
<b>Loggerhead Shrike</b>	0.365	80	3
<b>Long-billed Curlew</b>	0.023	97	1
MacGillivray's Warbler	0.006	35	4
Marbled Godwit	0.056	71	1
Mountain Bluebird	0.219	53	11
<b>Mountain Plover</b>	0.009	72	1
Northern Harrier	0.286	96	1
Northern Rough-winged Swallow	0.201	89	1
Northern Shoveler	0.020	77	1
Ovenbird	0.024	61	6
Pine Siskin	--	--	5
<b>Pinyon Jay</b>	0.003	94	1
Plumbeous Vireo	0.010	35	4
Pygmy Nuthatch	0.001	89	1
Red Crossbill	0.215	54	13
Rock Wren	0.351	42	10
Ruby-crowned Kinglet	0.004	37	3
Savannah Sparrow	0.249	40	7
Say's Phoebe	0.357	51	7
Song Sparrow	0.005	95	1
Spotted Towhee	0.239	42	18
<b>Sprague's Pipit</b>	0.084	49	3

Species	MT BCR 17 (S=52)		
	Psi	% CV	n Tran
Swainson's Hawk	0.354	87	2
Swainson's Thrush	0.025	57	6
Townsend's Solitaire	0.151	83	6
Tree Swallow	0.039	44	6
Upland Sandpiper	0.105	42	5
Vesper Sparrow	0.822	5	25
Warbling Vireo	0.012	44	4
Western Meadowlark	0.958	2	39
Willet	0.014	75	1
Willow Flycatcher	0.005	96	1
Wilson's Phalarope	--	--	3
Yellow Warbler	0.222	51	15
Yellow-breasted Chat	0.041	60	3

### C. North Dakota BCR 17

In this section we present results for the North Dakota portion of BCR 17. For results on All Other Lands, BLM, NPS and USFS lands within North Dakota, refer to section III: Land Ownership.

Field technicians surveyed 34 of 37 planned transects throughout the North Dakota portion of BCR 17 in 2010. Technicians conducted 309 point counts within the 34 transects between 5 May and 30 June 2010. We detected 107 species, including 22 priority species as designated by North Dakota Game and Fish Department (NDGFD) (Appendix B).

RMBO estimated densities and population sizes for 73 species, 11 of which are priority species as designated by NDGFD (Table 7). The data yielded robust density estimates (CV < 50%) for 14 of these species.

We estimated the proportion of transects occupied (Psi) by 51 species, 13 of which are priority species as designated by NDGFD (Table 8). The data yielded robust occupancy estimates (CV < 50%) for 15 of these species.

Table 7. Estimated densities per km<sup>2</sup> (D), population sizes (N), percent coefficient of variation of estimates (% CV) and number of independent detections (n) of breeding bird species in North Dakota Bird Conservation Region 17, 2010. S indicates the number of transects used in analyses. Priority species are bolded.

Species	ND BCR 17 (S=25)			
	D	N	% CV	n
American Crow	0.56	30,634	58	20
American Goldfinch	17.31	955,319	62	27
American Kestrel	0.90	49,521	83	1
American Redstart	13.44	741,415	82	12
American Robin	17.25	952,034	63	28
<b>Baird's Sparrow</b>	0.32	17,397	48	25



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Species	ND BCR 17 (S=25)			
	D	N	% CV	n
Barn Swallow	129.25	7,132,481	77	25
Black-billed Magpie	0.02	1,343	79	2
Black-capped Chickadee	6.55	361,728	70	14
Black-headed Grosbeak	1.77	97,501	85	2
<b>Bobolink</b>	13.96	770,148	51	29
Brewer's Blackbird	0.42	23,232	88	5
<b>Brewer's Sparrow</b>	0.17	9,178	86	3
Brown-headed Cowbird	86.80	4,789,977	38	110
Canada Goose	0.30	16,323	84	5
<b>Chestnut-collared Longspur</b>	0.07	4,051	38	32
Chipping Sparrow	13.70	756,196	68	35
Clay-colored Sparrow	0.23	12,709	55	20
Cliff Swallow	94.77	5,229,919	93	24
Common Grackle	7.74	427,381	74	7
Common Nighthawk	0.06	3,586	77	3
Common Yellowthroat	9.52	525,357	60	9
Downy Woodpecker	10.26	566,060	87	2
Eastern Kingbird	0.36	19,735	61	14
Eurasian Collared-Dove	0.00	131	92	1
European Starling	19.68	1,086,235	84	4
Field Sparrow	1.31	72,482	29	59
<b>Grasshopper Sparrow</b>	30.84	1,702,108	57	221
Hairy Woodpecker	0.09	5,067	91	1
Horned Lark	4.22	233,021	74	31
House Wren	18.18	1,003,321	85	27
Killdeer	5.40	297,978	51	17
<b>Lark Bunting</b>	0.35	19,085	81	11
Lark Sparrow	3.35	184,862	27	63
Lazuli Bunting	2.55	140,887	70	13
Least Flycatcher	13.96	770,525	83	13
<b>Loggerhead Shrike</b>	0.14	7,695	95	4
<b>Long-billed Curlew</b>	0.01	480	91	1
Mallard	0.19	10,597	49	6
Mountain Bluebird	10.18	561,820	72	26
Mourning Dove	21.87	1,206,791	48	96
Northern Flicker	0.03	1,398	88	1
Northern Harrier	0.79	43,511	87	2
Northern Rough-winged Swallow	0.39	21,347	69	3
Ovenbird	8.42	464,399	83	11
Pine Siskin	0.14	7,722	82	1
Red Crossbill	0.13	7,256	83	1

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Species	ND BCR 17 (S=25)			
	D	N	% CV	n
Red-tailed Hawk	0.06	3,271	86	3
Red-winged Blackbird	17.67	975,126	48	74
Ring-necked Pheasant	2.09	115,441	40	48
Rock Pigeon	0.31	17,285	92	3
Rock Wren	0.27	15,001	37	18
Savannah Sparrow	46.59	2,571,143	61	22
Say's Phoebe	0.24	13,121	30	15
Song Sparrow	0.06	3,391	80	6
Spotted Sandpiper	1.25	68,944	92	1
Spotted Towhee	10.50	579,326	57	89
<b>Sprague's Pipit</b>	0.00	37	88	1
<b>Swainson's Hawk</b>	0.01	716	92	1
Swainson's Thrush	0.06	3,269	88	1
Tree Swallow	0.01	783	89	2
<b>Upland Sandpiper</b>	1.94	107,315	50	32
Vesper Sparrow	3.76	207,268	36	76
Warbling Vireo	4.22	232,658	85	2
Western Kingbird	0.41	22,622	52	13
Western Meadowlark	17.54	967,705	27	294
White-breasted Nuthatch	3.64	200,820	86	1
Wild Turkey	0.04	1,989	83	3
Wilson's Snipe	0.25	14,062	83	3
Yellow Warbler	38.35	2,116,554	80	58
Yellow-breasted Chat	1.20	66,457	36	50
Yellow-headed Blackbird	0.00	136	85	2
Yellow-rumped Warbler	0.08	4,539	83	1

Table 8. Estimated proportion of sample units occupied (Psi), percent coefficient of variation of Psi (% CV) and number of transects with one or more detections (n Tran) of breeding bird species in North Dakota Bird Conservation Region 17, 2010. Dashes indicate the data were insufficient for estimating site occupancy. A Psi estimate equal to 1 indicates the species was detected on all transects surveyed. S indicates the number of transects used in analyses. Priority species are bolded.

Species	ND BCR 17 (S=25)		
	Psi	% CV	n Tran
<b>Baird's Sparrow</b>	0.033	49	6
Bank Swallow	0.303	87	1
Black-and-white Warbler	0.042	42	6
Blue-winged Teal	0.021	96	2
<b>Bobolink</b>	0.502	48	8
<b>Brewer's Sparrow</b>	0.013	78	2

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Species	ND BCR 17 (S=25)		
	Psi	% CV	n Tran
Brown Thrasher	0.019	98	1
Brown-headed Cowbird	0.889	25	21
Canada Goose	0.015	96	1
Cedar Waxwing	0.733	75	9
<b>Chestnut-collared Longspur</b>	0.001	22	4
Clay-colored Sparrow	0.041	44	7
Common Nighthawk	0.024	94	2
Common Yellowthroat	--	--	5
Downy Woodpecker	0.600	86	1
Eastern Kingbird	0.095	26	10
European Starling	0.258	86	1
Field Sparrow	0.072	27	8
Gadwall	--	--	2
<b>Grasshopper Sparrow</b>	0.561	41	18
Gray Catbird	0.057	49	4
Hairy Woodpecker	0.013	96	1
Horned Lark	0.263	76	9
<b>Lark Bunting</b>	0.032	47	4
Lark Sparrow	0.106	14	13
Lazuli Bunting	0.348	76	6
Least Flycatcher	0.584	81	5
<b>Loggerhead Shrike</b>	0.029	98	1
Mountain Bluebird	0.335	75	7
<b>Northern Harrier</b>	--	--	1
Northern Rough-winged Swallow	0.037	66	2
Ovenbird	0.293	82	4
Pine Siskin	0.011	96	1
Red Crossbill	0.012	96	1
Red-eyed Vireo	0.303	80	4
Rock Wren	0.037	50	3
Savannah Sparrow	0.515	50	5
Say's Phoebe	0.063	47	4
Song Sparrow	0.014	93	2
Spotted Towhee	0.331	63	13
<b>Sprague's Pipit</b>	0.000	90	1
<b>Swainson's Hawk</b>	0.032	109	1
Swainson's Thrush	0.013	80	2
Tree Swallow	0.000	89	1
<b>Upland Sandpiper</b>	0.459	81	7
Vesper Sparrow	0.337	61	13
Warbling Vireo	0.256	86	1

Species	ND BCR 17 (S=25)		
	Psi	% CV	n Tran
Western Meadowlark	0.773	24	23
<b>Willet</b>	0.446	89	1
Willow Flycatcher	0.014	97	1
<b>Wilson's Phalarope</b>	0.031	66	2
Wilson's Snipe	0.031	65	2
Yellow Warbler	0.394	64	13
Yellow-breasted Chat	0.080	25	10

#### D. Nebraska BCR 17

In this section we present results for the Nebraska portion of BCR 17. For results on All Other Lands, Oglala National Grassland, refer to section III: Land Ownership.

Field technicians surveyed four of six planned transects throughout the BCR 17 portion of Nebraska in 2010. Technicians conducted 34 point counts within the 4 transects between 2 July and 8 July 2010. We detected 14 species, including 2 priority species as designated by Nebraska Game and Parks Commission (NGPC) (Appendix B).

RMBO estimated densities and population sizes for 12 species, none of which are priority species as designated by NGPC (Table 9). The data yielded robust density estimates (CV < 50%) for five of these species.

We estimated the proportion of transects occupied (Psi) by four species, none of which are priority species as designated by NGPC (Table 10). The data did not yield robust occupancy estimates (CV < 50%) for any of these species.

Table 9. Estimated densities per km<sup>2</sup> (D), population sizes (N), percent coefficient of variation of estimates (% CV) and number of independent detections (n) of breeding bird species in Nebraska Bird Conservation Region 17, 2010. S indicates the number of transects used in analyses. Priority species are bolded

Species	NE BCR 17 (S=4)			
	D	N	% CV	n
Brown-headed Cowbird	5.94	28,758	100	1
Eastern Kingbird	1.71	8,270	100	1
Grasshopper Sparrow	71.62	346,647	32	51
Horned Lark	40.51	196,085	19	28
Killdeer	17.62	85,284	63	7
Lark Bunting	20.81	100,735	93	19
Mallard	1.05	5,096	102	1
Mourning Dove	11.38	55,089	43	8
Red-winged Blackbird	13.18	63,803	45	11
Rock Wren	2.63	12,724	100	4
Upland Sandpiper	5.36	25,928	50	6
Western Meadowlark	52.77	255,416	2	95

Table 10. Estimated proportion of sample units occupied (Psi), percent coefficient of variation of Psi (% CV) and number of transects with one or more detections (n Tran) of breeding bird species in Nebraska Bird Conservation Region 17, 2010. Dashes indicate the data were insufficient for estimating site occupancy. A Psi estimate equal to 1 indicates the species was detected on all transects surveyed. S indicates the number of transects used in analyses. Priority species are bolded.

Species	NE BCR 17 (S=4)		
	Psi	% CV	n Tran
Brown-headed Cowbird	0.449	71	1
Eastern Kingbird	0.673	71	1
Grasshopper Sparrow	1	--	4
Horned Lark	1	--	4
Lark Bunting	0.501	63	2
Rock Wren	0.517	71	1
Upland Sandpiper	--	--	2
Western Meadowlark	1	--	4

### E. South Dakota BCR 17

In this section we present results for the South Dakota portion of BCR 17. For results on All Other Lands, BLM, NPS and USFS lands within South Dakota, refer to section III: Land Ownership.

Field technicians surveyed 101 of 115 planned transects throughout BCR 17 portion of South Dakota in 2010. Technicians conducted 995 point counts within the 101 transects between 16 May and 21 July 2010. We detected 137 species, including 15 priority species as designated by South Dakota Game, Fish and Parks (SDGFP) (Appendix B).

RMBO estimated densities and population sizes for 93 species, 3 of which are priority species as designated by SDGFP (Table 11). The data yielded robust density estimates (CV < 50%) for 47 of these species.

We estimated the proportion of transects occupied (Psi) by 63 species, 8 of which are priority species as designated by SDGFP (Table 12). The data yielded robust occupancy estimates (CV < 50%) for 26 of these species.

Table 11. Estimated densities per km<sup>2</sup> (D), population sizes (N), percent coefficient of variation of estimates (% CV) and number of independent detections (n) of breeding bird species in South Dakota Bird Conservation Region 17, 2010. S indicates the number of transects used in analyses. Priority species are bolded.

Species	SD BCR 17 (S=91)			
	D	N	% CV	n
American Crow	0.17	18,045	49	73
American Goldfinch	8.77	909,632	80	45
American Kestrel	0.24	24,743	84	2
American Redstart	0.04	4,353	49	4

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Species	SD BCR 17 (S=91)			
	D	N	% CV	n
American Robin	3.64	377,496	21	359
<b>Baird's Sparrow</b>	0.12	12,269	51	22
Barn Swallow	4.82	499,383	75	5
Black-billed Magpie	0.00	222	87	1
Black-capped Chickadee	4.71	488,603	10	287
Black-headed Grosbeak	0.03	2,684	48	6
Bobolink	7.13	739,460	79	56
Brewer's Blackbird	0.13	13,455	20	5
Brewer's Sparrow	0.02	2,143	100	1
Brown Creeper	0.29	29,842	31	13
Brown-headed Cowbird	87.72	9,093,893	22	242
Bullock's Oriole	1.21	124,980	86	7
Canada Goose	0.04	4,476	75	10
Canyon Wren	0.11	10,992	92	1
Cassin's Finch	0.04	3,863	55	6
<b>Chestnut-collared Longspur</b>	45.63	4,730,337	46	232
Chipping Sparrow	5.28	546,875	9	345
Clay-colored Sparrow	0.01	640	85	1
Cliff Swallow	26.05	2,700,928	57	19
Common Grackle	2.33	242,044	63	16
Common Nighthawk	0.71	73,181	81	12
Common Yellowthroat	1.55	161,205	96	13
Cordilleran Flycatcher	0.15	15,605	24	19
Dark-eyed Junco	2.39	247,842	12	184
Downy Woodpecker	0.10	10,447	38	8
Dusky Flycatcher	0.60	62,536	20	70
Eastern Kingbird	1.06	110,100	85	22
Eurasian Collared-Dove	0.01	888	98	1
European Starling	1.31	135,683	85	2
Field Sparrow	0.18	18,746	13	22
Golden-crowned Kinglet	0.04	3,668	84	1
Grasshopper Sparrow	65.43	6,782,767	20	498
Gray Jay	0.49	50,688	25	35
Hairy Woodpecker	0.53	54,863	15	60
Hermit Thrush	0.00	249	87	1
Horned Lark	19.32	2,002,620	48	167
House Finch	0.01	1,191	90	1
House Wren	0.41	42,485	24	41
Killdeer	5.17	535,786	42	25
<b>Lark Bunting</b>	3.24	335,759	34	122
Lark Sparrow	6.70	694,118	60	66

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Species	SD BCR 17 (S=91)			
	D	N	% CV	n
Least Flycatcher	0.90	93,606	84	3
Loggerhead Shrike	0.36	37,246	94	1
MacGillivray's Warbler	0.78	81,017	18	92
Mallard	0.83	86,173	48	14
Mountain Bluebird	0.76	79,261	18	71
Mourning Dove	6.72	696,851	27	146
Northern Flicker	1.36	140,838	69	133
Northern Rough-winged Swallow	4.09	423,589	63	6
Ovenbird	0.39	40,570	17	78
Pine Siskin	0.54	55,735	16	40
Pinyon Jay	0.01	718	83	5
Plumbeous Vireo	0.23	24,179	19	53
Pygmy Nuthatch	0.10	10,757	67	5
Red Crossbill	2.75	285,430	13	218
Red-breasted Nuthatch	2.07	214,554	11	261
Red-headed Woodpecker	0.08	7,989	122	4
Red-naped Sapsucker	1.17	121,223	18	101
Red-tailed Hawk	0.43	44,925	92	12
Red-winged Blackbird	15.50	1,607,155	52	100
Ring-necked Pheasant	1.25	129,775	44	73
Rock Pigeon	0.01	1,040	93	1
Rock Wren	0.08	8,042	32	47
Ruby-crowned Kinglet	0.55	57,023	15	78
Savannah Sparrow	0.04	3,647	61	3
Say's Phoebe	0.03	3,008	29	7
Song Sparrow	0.03	3,239	55	6
Spotted Towhee	1.91	197,957	37	133
<b>Sprague's Pipit</b>	1.56	162,012	94	7
Swainson's Hawk	0.01	1,100	64	4
Swainson's Thrush	0.31	31,859	18	54
Townsend's Solitaire	0.21	21,815	19	38
Tree Swallow	0.06	6,364	60	2
Upland Sandpiper	8.88	920,708	34	89
Vesper Sparrow	1.79	185,334	56	68
Violet-green Swallow	0.12	12,201	39	8
Warbling Vireo	0.85	88,024	14	164
Western Kingbird	6.94	719,896	79	23
Western Meadowlark	23.29	2,414,450	25	568
Western Tanager	0.69	71,190	12	141
Western Wood-Pewee	0.64	66,186	14	171
White-breasted Nuthatch	0.37	37,989	23	41

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Species	SD BCR 17 (S=91)			
	D	N	% CV	n
White-throated Swift	0.00	507	86	2
Wild Turkey	0.01	968	51	6
Wilson's Snipe	0.91	93,987	86	3
Yellow Warbler	1.48	153,109	68	18
Yellow-breasted Chat	0.03	3,268	77	6
Yellow-headed Blackbird	6.29	651,592	85	23
Yellow-rumped Warbler	1.53	158,907	15	204

Table 12. Estimated proportion of sample units occupied (Psi), percent coefficient of variation of Psi (% CV) and number of transects with one or more detections (n Tran) of breeding bird species in South Dakota Bird Conservation Region 17, 2010. Dashes indicate the data were insufficient for estimating site occupancy. A Psi estimate equal to 1 indicates the species was detected on all transects surveyed. S indicates the number of transects used in analyses. Priority species are bolded.

Species	SD BCR 17 (S=91)		
	Psi	% CV	n Tran
<b>American Three-toed Woodpecker</b>	0.002	100	1
<b>Baird's Sparrow</b>	0.008	41	4
Bank Swallow	0.002	70	2
Black-and-white Warbler	0.001	99	1
Black-billed Magpie	0.002	94	1
Blue Jay	0.002	70	2
Blue-winged Teal	--	--	7
Bobolink	0.119	88	6
Brewer's Sparrow	0.002	71	1
Brown Creeper	0.016	28	11
Brown Thrasher	0.215	94	2
Brown-headed Cowbird	--	--	68
Bullock's Oriole	0.137	93	2
Cassin's Finch	0.004	56	3
Cedar Waxwing	0.004	72	2
<b>Chestnut-collared Longspur</b>	0.348	43	14
Common Nighthawk	0.264	88	8
Common Yellowthroat	--	--	9
Cordilleran Flycatcher	0.019	23	15
Downy Woodpecker	0.016	32	9
Dusky Flycatcher	0.025	15	25
Eastern Kingbird	0.197	78	10
European Starling	0.230	61	3
Field Sparrow	--	--	2
Gadwall	0.244	90	5



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Species	SD BCR 17 (S=91)		
	Psi	% CV	n Tran
Golden-crowned Kinglet	0.001	99	1
Grasshopper Sparrow	0.902	12	36
Gray Jay	0.017	23	14
Hairy Woodpecker	0.043	10	36
Horned Lark	0.403	38	22
<b>Lark Bunting</b>	0.265	51	17
Lark Sparrow	0.372	43	18
Least Flycatcher	0.192	93	3
<b>Lewis's Woodpecker</b>	0.007	47	5
Loggerhead Shrike	0.332	95	1
MacGillivray's Warbler	0.019	19	19
<b>Marbled Godwit</b>	0.349	60	6
Mountain Bluebird	0.032	13	29
Northern Rough-winged Swallow	--	--	5
Northern Shoveler	0.546	68	4
Ovenbird	0.026	15	26
Pine Siskin	0.030	12	31
Plumbeous Vireo	0.027	14	29
Pygmy Nuthatch	0.003	56	3
Red Crossbill	--	--	52
Red-eyed Vireo	0.002	70	2
Red-naped Sapsucker	0.033	13	29
Rock Wren	0.010	32	8
Ruby-crowned Kinglet	0.024	15	25
Savannah Sparrow	0.004	63	2
Say's Phoebe	--	--	3
Song Sparrow	0.004	56	3
Spotted Towhee	0.139	75	27
<b>Sprague's Pipit</b>	0.139	93	2
Swainson's Hawk	0.013	65	2
Swainson's Thrush	0.022	16	24
Townsend's Solitaire	0.029	16	24
Tree Swallow	0.006	48	4
Upland Sandpiper	0.787	22	16
Veery	0.014	75	4
Vesper Sparrow	0.241	58	13
Warbling Vireo	0.024	15	25
Western Meadowlark	0.734	18	34
White-throated Swift	0.002	70	2
White-winged Crossbill	0.001	100	1
Wild Turkey	0.018	71	5

Species	SD BCR 17 (S=91)		
	Psi	% CV	n Tran
<b>Wilson's Phalarope</b>	0.182	89	5
Wilson's Snipe	0.181	91	3
Yellow Warbler	0.133	87	7
Yellow-breasted Chat	0.005	51	3

### F. Wyoming BCR 17

In this section we present results for the Wyoming portion of BCR 17. For additional results within Wyoming, refer to section II: States. For results on All Other Lands, BLM, NPS, Tribal and USFS lands within Wyoming, refer to section III: Land Ownership.

Field technicians surveyed all 51 planned transects throughout the BCR 17 portion of Wyoming in 2010. Technicians conducted 542 point counts within the 51 transects between 14 May and 20 July 2010. We detected 92 species, including 14 priority species as designated by Wyoming Game and Fish (WGFD) (Appendix B).

RMBO estimated densities and population sizes for 71 species, 7 of which are priority species as designated by WGFD (Table 13). The data yielded robust density estimates (CV < 50%) for 25 of these species.

We estimated the proportion of transects occupied (Psi) by 49 species, 8 of which are priority species as designated by WGFD (Table 14). The data yielded robust occupancy estimates (CV < 50%) for 17 of these species.

Table 13. Estimated densities per km<sup>2</sup> (D), population sizes (N), percent coefficient of variation of estimates (% CV) and number of independent detections (n) of breeding bird species in Wyoming Bird Conservation Region 17, 2010. S indicates the number of transects used in analyses. Priority species are bolded.

Species	WY BCR 17 (S=51)			
	D	N	% CV	n
American Crow	0.61	38,931	42	14
American Goldfinch	0.34	21,684	111	2
American Kestrel	0.68	43,586	41	5
American Robin	22.50	1,443,544	47	183
Barn Swallow	0.94	60,126	56	15
Black-billed Magpie	1.28	81,814	74	13
Black-capped Chickadee	12.84	823,624	61	136
Blue-gray Gnatcatcher	1.95	124,803	84	2
Brewer's Blackbird	3.20	205,632	39	20
<b>Brewer's Sparrow</b>	23.74	1,523,077	38	239
Brown Creeper	0.48	30,577	32	11
Brown-headed Cowbird	23.21	1,489,304	40	77
Bullock's Oriole	0.08	5,141	67	2
Canada Goose	0.00	26	86	1
Cassin's Finch	0.09	5,458	32	7

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Species	WY BCR 17 (S=51)			
	D	N	% CV	n
Chipping Sparrow	34.78	2,231,399	45	128
Cliff Swallow	4.40	282,624	87	2
Common Grackle	3.11	199,456	73	7
Common Raven	0.01	479	52	4
Common Yellowthroat	0.44	28,074	73	8
Dark-eyed Junco	1.88	120,552	21	76
Downy Woodpecker	0.97	62,047	90	1
Dusky Flycatcher	0.22	14,346	60	15
Eastern Kingbird	0.13	8,076	72	4
European Starling	0.01	883	85	1
Field Sparrow	0.07	4,762	58	5
<b>Grasshopper Sparrow</b>	6.72	431,039	53	71
Hairy Woodpecker	0.03	2,215	61	2
Horned Lark	16.88	1,083,139	44	246
House Wren	0.03	1,623	64	2
Killdeer	3.09	198,265	59	26
<b>Lark Bunting</b>	39.25	2,518,352	35	581
Lark Sparrow	8.15	522,844	41	69
Lazuli Bunting	0.40	25,534	82	2
Loggerhead Shrike	0.06	3,837	50	4
MacGillivray's Warbler	0.13	8,531	36	8
Mallard	0.70	44,733	54	5
Mountain Bluebird	10.22	655,612	44	43
Mountain Chickadee	2.15	137,902	96	3
Mourning Dove	3.99	255,740	37	117
Northern Flicker	0.87	55,978	56	20
Northern Harrier	0.02	1,488	60	3
Olive-sided Flycatcher	0.23	14,443	76	5
Ovenbird	0.22	14,429	35	25
Pine Siskin	0.80	51,437	33	29
Plumbeous Vireo	0.01	537	91	1
<b>Pygmy Nuthatch</b>	0.04	2,605	91	1
Red Crossbill	0.02	1,585	83	1
Red-breasted Nuthatch	3.81	244,519	67	58
Red-naped Sapsucker	0.20	12,759	67	5
Red-tailed Hawk	0.32	20,268	66	8
Red-winged Blackbird	7.51	481,731	41	44
Rock Wren	2.16	138,360	53	60
<b>Sage Sparrow</b>	0.00	292	88	1
<b>Sage Thrasher</b>	0.13	8,530	74	5
Savannah Sparrow	4.71	302,230	84	13

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Species	WY BCR 17 (S=51)			
	D	N	% CV	n
Say's Phoebe	1.89	121,583	39	23
Song Sparrow	0.46	29,455	78	11
Spotted Towhee	10.93	701,624	69	50
Townsend's Solitaire	0.22	13,903	41	20
<b>Upland Sandpiper</b>	0.03	1,655	46	11
Vesper Sparrow	9.02	578,990	36	181
Violet-green Swallow	2.86	183,752	71	7
Western Kingbird	0.72	45,939	60	9
Western Meadowlark	36.32	2,330,579	14	1130
Western Tanager	0.01	711	100	2
Western Wood-Pewee	1.99	127,676	59	36
White-breasted Nuthatch	0.24	15,708	24	14
Wild Turkey	0.25	16,084	87	4
Yellow Warbler	0.08	5,257	77	4
Yellow-rumped Warbler	1.42	91,125	72	8

Table 14. Estimated proportion of sample units occupied (Psi), percent coefficient of variation of Psi (% CV) and number of transects with one or more detections (n Tran) of breeding bird species in Wyoming Bird Conservation Region 17, 2010. Dashes indicate the data were insufficient for estimating site occupancy. A Psi estimate equal to 1 indicates the species was detected on all transects surveyed. S indicates the number of transects used in analyses. Priority species are bolded.

Species	WY BCR 17 (S=51)		
	Psi	% CV	n Tran
Black-billed Magpie	0.212	63	2
Blue Grosbeak	0.001	96	1
Blue Jay	0.003	66	2
Blue-gray Gnatcatcher	0.087	95	1
<b>Brewer's Sparrow</b>	0.630	22	26
Brown Creeper	--	--	7
Brown-headed Cowbird	0.613	22	22
Bullock's Oriole	0.010	80	2
Cassin's Finch	0.010	37	5
Cedar Waxwing	0.158	93	3
Common Yellowthroat	0.148	87	3
Downy Woodpecker	0.195	73	4
Dusky Flycatcher	0.009	81	2
Eastern Kingbird	0.038	56	3
European Starling	0.100	86	4
Field Sparrow	0.015	63	2
<b>Grasshopper Sparrow</b>	0.232	46	15

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Species	WY BCR 17 (S=51)		
	Psi	% CV	n Tran
Gray Catbird	0.143	96	1
Hairy Woodpecker	0.004	66	2
Horned Lark	0.440	30	23
<b>Lark Bunting</b>	0.523	26	25
Lark Sparrow	0.464	30	19
Lazuli Bunting	0.097	93	2
Least Flycatcher	0.002	97	1
Loggerhead Shrike	0.037	61	3
MacGillivray's Warbler	0.006	43	4
Mountain Bluebird	0.322	40	17
Northern Harrier	0.018	101	1
Northern Shoveler	--	--	2
Olive-sided Flycatcher	0.115	88	5
Ovenbird	0.010	30	8
Pine Siskin	0.009	27	8
Plumbeous Vireo	0.001	97	1
<b>Pygmy Nuthatch</b>	0.001	97	1
Red Crossbill	0.001	97	1
Red-naped Sapsucker	0.005	52	3
Rock Wren	0.340	41	12
<b>Sage Sparrow</b>	0.001	96	1
<b>Sage Thrasher</b>	0.095	85	4
Savannah Sparrow	0.095	87	3
Say's Phoebe	0.470	42	8
Song Sparrow	0.107	93	2
Spotted Towhee	0.378	35	10
Townsend's Solitaire	0.011	32	6
Tree Swallow	0.096	95	1
<b>Upland Sandpiper</b>	0.005	50	3
Vesper Sparrow	0.450	31	23
Western Meadowlark	0.820	13	33
Wild Turkey	0.297	107	2
<b>Willow Flycatcher</b>	0.110	92	3
Yellow Warbler	0.003	66	2

## II. States

### A. Colorado

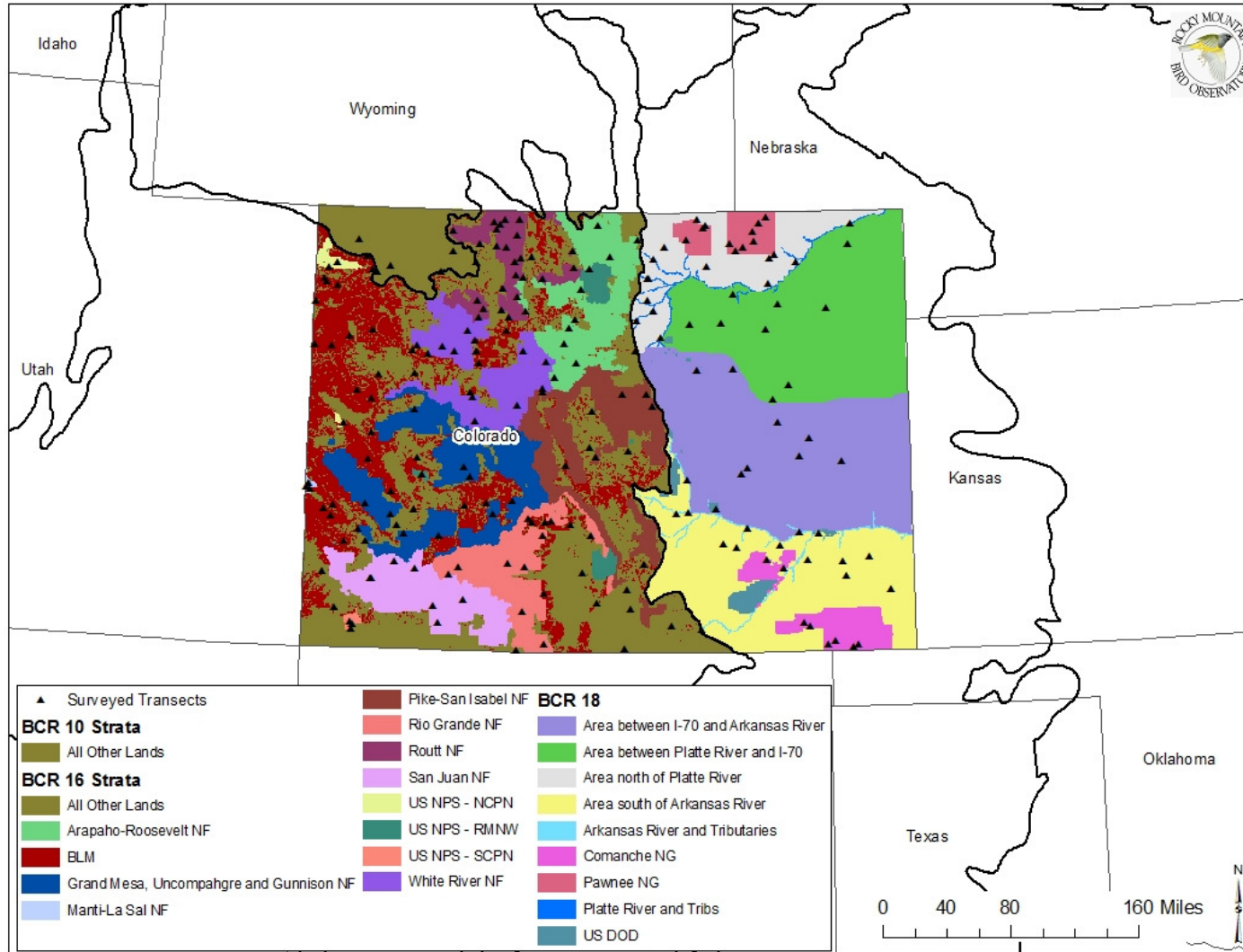


Figure 5. Survey locations in Colorado, 2010.

**1. Colorado Statewide**

Field technicians surveyed 214 of 240 planned transects throughout Colorado in 2010. Technicians conducted 2,372 point counts within the 214 transects between 10 May and 30 July 2010. We detected 204 species, including 61 priority species as designated by the Colorado Division of Wildlife (CDOW) (Appendix B).

RMBO estimated densities and population sizes for 124 species, 30 of which are priority species according to CDOW (Table 15). The data yielded robust density estimates (CV < 50%) for 98 of these species.

We estimated the proportion of transects occupied (Psi) by 105 species, 37 of which are priority species according to CDOW (Table 16). The data yielded robust occupancy estimates (CV < 50%) for 72 of these species.

Table 15. Estimated densities per km<sup>2</sup> (D), population sizes (N), percent coefficient of variation of estimates (% CV) and number of independent detections (n) of breeding bird species in Colorado, 2010. S indicates the number of transects used in analyses. Priority species are bolded.

Species	Colorado (S=214)			
	D	N	% CV	n
American Crow	0.29	77,293	24	77
American Goldfinch	1.75	471,784	49	30
American Kestrel	0.05	12,261	36	9
American Pipit	0.33	89,807	49	21
American Robin	25.00	6,742,205	8	1026
<b>American Three-toed Woodpecker</b>	0.30	82,264	35	16
Ash-throated Flycatcher	1.04	281,014	19	86
Barn Swallow	10.82	2,917,752	50	48
Bewick's Wren	1.09	294,007	52	47
Black-billed Magpie	0.82	221,131	17	131
Black-capped Chickadee	0.57	154,876	30	33
Black-headed Grosbeak	1.53	412,660	24	86
<b>Black-throated Gray Warbler</b>	3.06	824,233	16	198
Blue-gray Gnatcatcher	10.04	2,707,018	15	225
Brewer's Blackbird	6.99	1,885,313	20	140
<b>Brewer's Sparrow</b>	11.46	3,091,759	15	341
<b>Broad-tailed Hummingbird</b>	12.93	3,487,138	19	141
Brown Creeper	1.24	334,694	30	17
Brown-headed Cowbird	8.30	2,238,324	15	144
Bullock's Oriole	1.02	274,339	50	27
Bushtit	1.03	276,578	46	16
Canada Goose	0.04	10,464	50	38
Canyon Wren	0.08	20,888	36	19
<b>Cassin's Finch</b>	0.55	149,102	27	35
<b>Cassin's Sparrow</b>	5.47	1,476,141	19	403

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Species	Colorado (S=214)			
	D	N	% CV	n
Chipping Sparrow	20.08	5,414,739	19	367
Clark's Nutcracker	1.35	363,697	22	109
Clay-colored Sparrow	0.11	28,891	85	5
Cliff Swallow	9.63	2,597,353	33	52
Common Grackle	6.33	1,708,575	36	182
Common Nighthawk	0.52	140,208	39	17
Common Raven	0.96	259,957	12	268
Common Yellowthroat	0.06	16,504	50	13
<b>Cordilleran Flycatcher</b>	1.30	351,081	25	52
Dark-eyed Junco	26.40	7,119,755	10	615
Downy Woodpecker	0.88	237,057	26	25
<b>Dusky Flycatcher</b>	5.10	1,375,556	22	142
Eastern Kingbird	0.06	17,405	64	8
Eurasian Collared-Dove	0.93	251,332	63	46
European Starling	4.33	1,167,684	31	134
<b>Evening Grosbeak</b>	0.16	44,120	38	10
Field Sparrow	0.00	434	82	1
Golden-crowned Kinglet	2.65	715,236	48	22
Grasshopper Sparrow	6.24	1,682,910	30	137
<b>Gray Flycatcher</b>	3.46	934,383	25	107
Gray Jay	3.14	846,686	25	89
<b>Gray Vireo</b>	0.14	37,348	47	16
Green-tailed Towhee	15.16	4,089,010	15	582
Hairy Woodpecker	2.34	632,075	17	86
Hammond's Flycatcher	0.99	266,883	29	30
Hermit Thrush	5.49	1,481,251	13	731
Horned Lark	52.94	14,279,422	9	1397
House Finch	6.31	1,702,051	36	189
House Sparrow	8.75	2,361,116	62	122
House Wren	10.04	2,707,801	19	345
<b>Juniper Titmouse</b>	3.26	879,152	27	45
Killdeer	1.76	474,205	22	47
<b>Lark Bunting</b>	11.59	3,126,609	24	504
Lark Sparrow	5.56	1,500,945	26	156
<b>Lazuli Bunting</b>	1.05	283,420	57	45
Lincoln's Sparrow	2.71	732,030	19	121
<b>Loggerhead Shrike</b>	0.23	61,754	49	13
<b>Long-billed Curlew</b>	0.02	4,179	68	3
MacGillivray's Warbler	2.45	659,723	33	77
Mallard	0.20	53,466	40	31
<b>McCown's Longspur</b>	0.61	165,462	28	38



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Species	Colorado (S=214)			
	D	N	% CV	n
Mountain Bluebird	8.97	2,419,341	13	215
Mountain Chickadee	16.35	4,410,187	11	484
Mourning Dove	6.77	1,826,588	11	494
Northern Flicker	2.24	605,197	14	256
<b>Northern Harrier</b>	0.01	3,075	72	2
Northern Mockingbird	0.41	111,911	29	83
Northern Rough-winged Swallow	0.21	55,887	49	7
<b>Olive-sided Flycatcher</b>	0.27	73,547	26	44
Orange-crowned Warbler	3.41	920,908	27	64
Pine Grosbeak	1.03	279,129	23	41
Pine Siskin	13.22	3,564,866	15	382
<b>Pinyon Jay</b>	0.79	214,043	21	158
Plumbeous Vireo	2.73	736,620	16	177
<b>Pygmy Nuthatch</b>	2.84	766,018	55	24
<b>Red Crossbill</b>	2.29	618,009	23	60
Red-breasted Nuthatch	3.58	966,460	19	150
Red-headed Woodpecker	0.03	7,314	97	2
<b>Red-naped Sapsucker</b>	1.18	319,046	33	30
Red-tailed Hawk	0.40	109,231	23	35
Red-winged Blackbird	4.74	1,277,439	20	285
Ring-necked Pheasant	0.08	20,955	31	29
Rock Pigeon	0.54	144,681	33	22
Rock Wren	0.54	144,736	20	113
Ruby-crowned Kinglet	9.27	2,501,516	11	529
<b>Sage Sparrow</b>	0.33	88,979	36	17
Sage Thrasher	0.39	105,852	32	47
<b>Sandhill Crane</b>	0.00	54	92	1
Savannah Sparrow	3.07	828,360	68	58
Say's Phoebe	0.38	102,287	28	39
Song Sparrow	1.72	464,899	32	83
Spotted Sandpiper	0.09	25,311	61	12
Spotted Towhee	9.14	2,464,234	24	393
Steller's Jay	1.00	270,587	21	75
<b>Swainson's Hawk</b>	0.10	26,249	35	12
Swainson's Thrush	0.35	93,709	44	15
Townsend's Solitaire	2.58	694,891	23	121
Tree Swallow	8.76	2,361,573	20	109
<b>Upland Sandpiper</b>	0.01	1,913	62	2
<b>Vesper Sparrow</b>	6.18	1,667,129	17	320
Violet-green Swallow	5.73	1,546,805	18	108
<b>Virginia's Warbler</b>	3.68	993,193	60	100

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Species	Colorado (S=214)			
	D	N	% CV	n
Warbling Vireo	6.33	1,706,860	19	304
Western Bluebird	0.35	95,535	40	18
Western Kingbird	5.87	1,583,016	19	125
Western Meadowlark	14.98	4,041,064	8	1307
Western Scrub-Jay	0.26	71,190	52	24
Western Tanager	4.08	1,100,587	16	250
Western Wood-Pewee	3.63	980,279	20	248
White-breasted Nuthatch	1.29	348,060	19	48
White-crowned Sparrow	4.12	1,111,812	20	242
<b>White-throated Swift</b>	0.16	42,686	59	26
Wild Turkey	0.02	5,533	92	2
Wilson's Snipe	0.55	148,987	65	12
Wilson's Warbler	1.71	461,197	43	26
Yellow Warbler	2.80	755,488	27	87
Yellow-breasted Chat	0.05	14,746	82	5
Yellow-headed Blackbird	0.12	33,336	54	6
Yellow-rumped Warbler	14.00	3,775,989	9	641

Table 16. Estimated proportion of sample units occupied (Psi), percent coefficient of variation of Psi (% CV) and number of transects with one or more detections (n Tran) of breeding bird species in Colorado, 2010. Dashes indicate the data were insufficient for estimating site occupancy. A Psi estimate equal to 1 indicates the species was detected on all transects surveyed. S indicates the number of transects used in analyses. Priority species are bolded.

Species	Colorado (S=214)		
	Psi	% CV	n Tran
American Pipit	0.016	53	5
<b>American Three-toed Woodpecker</b>	0.035	33	12
Ash-throated Flycatcher	0.092	19	27
Bank Swallow	0.001	93	1
Bewick's Wren	0.035	32	13
Black-billed Magpie	0.173	16	37
<b>Black-chinned Hummingbird</b>	0.093	21	21
<b>Black-throated Gray Warbler</b>	0.072	16	25
Black-throated Sparrow	0.007	98	1
Blue Grosbeak	0.007	51	3
Blue Jay	0.010	57	7
Blue-gray Gnatcatcher	0.169	14	43
Blue-winged Teal	0.001	95	1
<b>Brewer's Sparrow</b>	0.271	14	47
<b>Broad-tailed Hummingbird</b>	0.279	10	68
Brown Creeper	0.082	25	16

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Species	Colorado (S=214)		
	Psi	% CV	n Tran
Brown Thrasher	0.007	14	2
Brown-headed Cowbird	0.426	12	71
Bullock's Oriole	0.065	33	14
Bushtit	0.087	37	11
Canada Goose	0.027	53	6
Canyon Towhee	0.005	83	2
Canyon Wren	0.031	42	6
<b>Cassin's Finch</b>	0.080	18	21
Cassin's Kingbird	0.001	41	2
<b>Cassin's Sparrow</b>	0.153	20	22
Cedar Waxwing	0.025	70	2
Clark's Nutcracker	0.150	17	33
Clay-colored Sparrow	0.006	93	1
Common Nighthawk	--	--	12
Common Yellowthroat	0.009	18	5
<b>Cordilleran Flycatcher</b>	0.135	17	30
<b>Curve-billed Thrasher</b>	--	--	1
Downy Woodpecker	0.118	22	24
<b>Dusky Flycatcher</b>	0.140	17	35
<b>Dusky Grouse</b>	0.103	54	7
Eastern Kingbird	0.015	52	5
European Starling	0.125	25	25
<b>Evening Grosbeak</b>	0.050	39	10
Field Sparrow	0.001	93	1
Gadwall	0.014	101	1
Gambel's Quail	0.024	49	4
Golden-crowned Kinglet	0.053	30	13
<b>Grace's Warbler</b>	0.000	58	1
Grasshopper Sparrow	0.143	23	24
Gray Catbird	0.011	62	3
<b>Gray Flycatcher</b>	0.094	14	31
Gray Jay	0.100	18	35
<b>Gray Vireo</b>	0.018	54	5
Green-tailed Towhee	0.244	10	56
Hairy Woodpecker	0.173	13	42
Hammond's Flycatcher	0.061	27	14
Horned Lark	0.479	5	64
<b>Juniper Titmouse</b>	0.072	23	21
<b>Lark Bunting</b>	0.275	12	38
Lark Sparrow	0.208	16	40
<b>Lazuli Bunting</b>	0.040	37	12

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Species	Colorado (S=214)		
	Psi	% CV	n Tran
Lesser Goldfinch	0.013	63	5
<b>Lewis's Woodpecker</b>	0.010	68	2
Lincoln's Sparrow	0.128	17	38
<b>Loggerhead Shrike</b>	--	--	8
<b>Long-billed Curlew</b>	0.004	95	1
MacGillivray's Warbler	0.107	18	24
Marsh Wren	0.001	93	1
<b>McCown's Longspur</b>	0.066	37	10
Mountain Bluebird	0.267	10	68
<b>Mountain Plover</b>	0.026	71	3
Northern Rough-winged Swallow	--	--	7
<b>Olive-sided Flycatcher</b>	0.072	23	22
Orange-crowned Warbler	0.095	21	20
Pine Grosbeak	0.070	20	20
Pine Siskin	0.205	11	59
<b>Pinyon Jay</b>	0.081	17	20
Plumbeous Vireo	0.135	15	36
<b>Purple Martin</b>	0.004	95	1
<b>Pygmy Nuthatch</b>	0.050	28	9
<b>Red Crossbill</b>	0.099	19	27
Red-eyed Vireo	0.004	98	1
<b>Red-naped Sapsucker</b>	0.090	23	21
Rock Wren	0.111	17	30
Ruby-crowned Kinglet	0.216	10	66
<b>Rufous Hummingbird</b>	0.041	48	6
Rufous-crowned Sparrow	0.002	94	1
<b>Sage Sparrow</b>	0.031	41	6
Sage Thrasher	0.049	28	9
Savannah Sparrow	0.021	55	3
Say's Phoebe	0.153	24	19
Song Sparrow	0.086	25	19
Spotted Towhee	0.158	14	43
<b>Swainson's Hawk</b>	0.090	59	5
Swainson's Thrush	0.039	33	10
Townsend's Solitaire	0.141	16	33
Tree Swallow	0.195	14	49
<b>Upland Sandpiper</b>	0.007	93	1
<b>Vesper Sparrow</b>	0.209	14	39
<b>Virginia's Warbler</b>	0.042	33	16
Warbling Vireo	0.198	11	50
Western Bluebird	0.022	48	8

Species	Colorado (S=214)		
	Psi	% CV	n Tran
Western Meadowlark	0.503	6	83
Western Scrub-Jay	0.032	40	9
<b>White-throated Swift</b>	0.033	42	9
White-winged Crossbill	0.020	56	2
<b>Williamson's Sapsucker</b>	0.045	40	8
<b>Willow Flycatcher</b>	0.002	69	2
<b>Wilson's Phalarope</b>	0.010	99	1
Wilson's Snipe	0.036	50	6
Wilson's Warbler	0.039	31	12
Yellow Warbler	0.148	21	35
Yellow-breasted Chat	0.011	68	3

## 2. BCR 10

Field technicians surveyed all five planned transects throughout the BCR 10 portion of Colorado in 2010. Technicians conducted 58 point counts within the 5 transects between 27 May and 16 June 2010. We detected 43 species, including 8 priority species as designated by the CDOW (Appendix B).

RMBO estimated densities and population sizes for 36 species, 6 of which are priority species as designated by the CDOW (Table 17). The data yielded robust density estimates (CV < 50%) for 10 of these species.

We estimated the proportion of transects occupied (Psi) by 24 species, 6 of which are priority species as designated by the CDOW (Table 18). The data yielded robust occupancy estimates (CV < 50%) for 6 of these species.

Table 17. Estimated densities per km<sup>2</sup> (D), population sizes (N), percent coefficient of variation of estimates (% CV) and number of independent detections (n) of breeding bird species in Colorado Bird Conservation Region 10, 2010. S indicates the number of transects used in analyses. Priority species are bolded.

Species	CO BCR 10 (S=5)			
	D	N	% CV	n
American Robin	18.82	175,901	82	13
Bewick's Wren	18.09	169,141	86	14
Black-billed Magpie	3.04	28,386	52	14
<b>Black-throated Gray Warbler</b>	8.50	79,441	88	7
Blue-gray Gnatcatcher	49.36	461,376	59	21
Brewer's Blackbird	10.50	98,184	49	7
<b>Brewer's Sparrow</b>	85.76	801,676	36	69
Brown-headed Cowbird	25.43	237,690	35	10
Chipping Sparrow	36.10	337,482	58	12
Cliff Swallow	41.96	392,210	80	4
Common Raven	0.53	4,958	54	3

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Species	CO BCR 10 (S=5)			
	D	N	% CV	n
Dark-eyed Junco	7.23	67,599	96	3
<b>Gray Flycatcher</b>	25.76	240,849	86	15
Green-tailed Towhee	34.40	319,919	29	31
Horned Lark	27.10	253,288	67	33
House Wren	1.52	14,175	82	1
<b>Juniper Titmouse</b>	4.36	40,740	84	1
Killdeer	2.15	20,140	88	2
Lark Sparrow	4.23	39,546	68	4
Mountain Bluebird	11.99	112,052	68	6
Mourning Dove	7.31	68,299	42	12
Orange-crowned Warbler	9.40	87,881	82	4
<b>Pinyon Jay</b>	0.51	4,801	84	2
Plumbeous Vireo	1.59	14,848	84	2
Red-tailed Hawk	0.70	6,583	66	2
Red-winged Blackbird	5.50	51,447	49	7
Rock Wren	1.69	15,775	45	6
Ruby-crowned Kinglet	1.31	12,230	82	1
Sage Thrasher	10.50	98,109	39	32
Song Sparrow	0.97	9,031	82	1
Spotted Towhee	14.03	131,187	87	11
<b>Vesper Sparrow</b>	19.56	182,877	39	30
Violet-green Swallow	13.65	127,564	68	5
Western Meadowlark	13.45	125,728	40	42
Western Wood-Pewee	4.85	45,325	86	7
Yellow Warbler	7.77	72,623	93	4

Table 18. Estimated proportion of sample units occupied (Psi), percent coefficient of variation of Psi (% CV) and number of transects with one or more detections (n Tran) of breeding bird species in Colorado Bird Conservation Region 10, 2010. Dashes indicate the data were insufficient for estimating site occupancy. A Psi estimate equal to 1 indicates the species was detected on all transects surveyed. S indicates the number of transects used in analyses. Priority species are bolded.

Species	CO BCR 10 (S=5)		
	Psi	% CV	n Tran
Bewick's Wren	0.224	89	1
Black-billed Magpie	0.489	53	2
<b>Black-throated Gray Warbler</b>	0.204	89	1
Blue-gray Gnatcatcher	0.445	54	2
<b>Brewer's Sparrow</b>	0.800	22	4
Brown-headed Cowbird	0.821	22	4
<b>Gray Flycatcher</b>	0.208	89	1

Species	CO BCR 10 (S=5)		
	Psi	% CV	n Tran
Green-tailed Towhee	0.801	22	4
Horned Lark	0.404	55	2
<b>Juniper Titmouse</b>	0.216	89	1
Lark Sparrow	0.447	54	2
Mountain Bluebird	0.486	54	2
Orange-crowned Warbler	0.242	89	1
Pine Siskin	0.216	89	1
<b>Pinyon Jay</b>	0.234	89	1
Plumbeous Vireo	0.214	89	1
Rock Wren	0.237	89	1
Ruby-crowned Kinglet	0.209	89	1
Sage Thrasher	0.602	37	3
Song Sparrow	0.258	89	1
Spotted Towhee	0.207	89	1
<b>Vesper Sparrow</b>	0.800	22	4
Western Meadowlark	0.600	37	3
Yellow Warbler	0.228	89	1

### 3. Colorado BCR 16

In this section we present results for the BCR 16 portion of Colorado. For results on All Other Lands, BLM, NPS and USFS lands within Colorado BCR 16, refer to section III: Land Ownership.

Field technicians surveyed 143 of 163 planned transects throughout the BCR 16 portion of Colorado in 2010. Technicians conducted 1,616 point counts within the 143 transects between 19 May and 30 July 2010. We detected 168 species, including 46 priority species as designated by CDOW (Appendix B).

RMBO estimated densities and population sizes for 111 species, 27 of which are priority species as designated by CDOW (Table 19). The data yielded robust density estimates (CV < 50%) for 84 of these species.

We estimated the proportion of transects occupied (Psi) by 91 species, 33 of which are priority species as designated by CDOW (Table 20). The data yielded robust occupancy estimates (CV < 50%) for 66 of these species.

Table 19. Estimated densities per km<sup>2</sup> (D), population sizes (N), percent coefficient of variation of estimates (% CV) and number of independent detections (n) of breeding bird species in Colorado Bird Conservation Region 16, 2010. S indicates the number of transects used in analyses. Priority species are bolded.

Species	CO BCR 16 (S=143)			
	D	N	% CV	n
American Crow	0.43	62,783	28	47
American Goldfinch	1.09	160,890	45	10

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Species	CO BCR 16 (S=143)			
	D	N	% CV	n
American Kestrel	0.07	9,992	41	4
American Pipit	0.61	89,807	49	21
American Robin	40.96	6,020,182	8	853
<b>American Three-toed Woodpecker</b>	0.56	82,264	35	16
Ash-throated Flycatcher	1.91	281,014	19	86
Barn Swallow	1.39	204,487	57	3
Bewick's Wren	0.62	90,748	39	25
<b>Black-billed Magpie</b>	1.24	181,617	19	104
Black-capped Chickadee	0.71	104,410	36	22
Black-headed Grosbeak	2.70	396,128	25	80
<b>Black-throated Gray Warbler</b>	5.07	744,792	15	191
Blue-gray Gnatcatcher	15.05	2,211,451	14	200
Brewer's Blackbird	8.75	1,285,265	25	107
<b>Brewer's Sparrow</b>	11.78	1,731,716	19	217
<b>Broad-tailed Hummingbird</b>	23.73	3,487,138	19	141
Brown Creeper	2.28	334,694	30	17
Brown-headed Cowbird	8.83	1,297,222	20	76
Bullock's Oriole	0.51	75,667	89	4
Bushtit	1.82	266,834	48	15
Canada Goose	0.05	7,595	66	14
Canyon Wren	0.14	20,888	36	19
<b>Cassin's Finch</b>	1.01	149,102	27	35
Chipping Sparrow	25.21	3,705,232	12	316
Clark's Nutcracker	2.47	363,697	22	109
Cliff Swallow	2.43	356,839	66	5
Common Grackle	0.59	86,099	89	3
Common Nighthawk	0.26	38,520	43	5
Common Raven	1.65	242,775	13	257
<b>Cordilleran Flycatcher</b>	2.38	349,789	25	51
Dark-eyed Junco	47.74	7,015,957	11	609
Downy Woodpecker	1.29	190,202	28	20
<b>Dusky Flycatcher</b>	9.36	1,375,556	22	142
European Starling	0.73	107,010	63	11
<b>Evening Grosbeak</b>	0.29	43,001	39	9
Golden-crowned Kinglet	4.87	715,236	48	22
<b>Gray Flycatcher</b>	4.72	693,535	15	92
Gray Jay	5.76	846,686	25	89
<b>Gray Vireo</b>	0.25	37,348	47	16
Green-tailed Towhee	25.64	3,767,480	16	551
Hairy Woodpecker	4.30	632,075	17	86
Hammond's Flycatcher	1.82	266,883	29	30



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Species	CO BCR 16 (S=143)			
	D	N	% CV	n
Hermit Thrush	10.08	1,481,251	13	731
Horned Lark	8.29	1,218,469	25	143
House Finch	5.34	784,323	46	64
House Wren	18.07	2,655,797	19	320
<b>Juniper Titmouse</b>	5.70	838,411	28	44
Killdeer	0.18	26,344	54	3
<b>Lark Bunting</b>	0.02	3,372	84	1
Lark Sparrow	4.68	687,275	46	75
<b>Lazuli Bunting</b>	1.92	282,587	57	44
Lincoln's Sparrow	4.97	730,057	19	120
<b>Loggerhead Shrike</b>	0.24	35,716	76	6
MacGillivray's Warbler	4.44	653,177	33	76
Mallard	0.11	16,440	44	11
<b>Mountain Bluebird</b>	15.69	2,305,533	14	208
Mountain Chickadee	30.01	4,410,187	11	484
Mourning Dove	6.05	889,543	16	264
Northern Flicker	3.97	583,055	14	222
Northern Mockingbird	0.13	18,857	71	20
Northern Rough-winged Swallow	0.15	22,019	90	1
<b>Olive-sided Flycatcher</b>	0.50	73,547	26	44
Orange-crowned Warbler	5.51	810,215	30	56
Pine Grosbeak	1.90	279,129	23	41
Pine Siskin	24.15	3,549,522	15	375
<b>Pinyon Jay</b>	1.42	209,242	21	156
Plumbeous Vireo	4.91	721,773	17	175
<b>Pygmy Nuthatch</b>	5.21	766,018	55	24
<b>Red Crossbill</b>	4.21	618,009	23	60
Red-breasted Nuthatch	6.58	966,460	19	150
<b>Red-naped Sapsucker</b>	2.17	319,046	33	30
Red-tailed Hawk	0.28	41,799	27	19
Red-winged Blackbird	2.89	424,234	40	61
Ring-necked Pheasant	0.02	3,618	59	5
Rock Pigeon	0.12	17,829	92	1
Rock Wren	0.85	125,369	23	102
Ruby-crowned Kinglet	16.93	2,488,136	11	527
<b>Sage Sparrow</b>	0.61	88,979	36	17
Sage Thrasher	0.16	24,051	48	15
<b>Sandhill Crane</b>	0.00	54	92	1
Savannah Sparrow	5.64	828,360	68	58
Say's Phoebe	0.34	50,581	32	23
Song Sparrow	3.04	446,525	33	71

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Species	CO BCR 16 (S=143)			
	D	N	% CV	n
Spotted Sandpiper	0.17	25,311	61	12
Spotted Towhee	15.84	2,327,715	25	380
Steller's Jay	1.84	270,587	21	75
<b>Swainson's Hawk</b>	0.06	9,398	67	6
Swainson's Thrush	0.52	76,925	49	11
Townsend's Solitaire	4.73	694,891	23	121
Tree Swallow	16.00	2,351,872	20	107
<b>Vesper Sparrow</b>	9.30	1,367,102	19	278
Violet-green Swallow	8.34	1,225,253	20	95
<b>Virginia's Warbler</b>	6.76	993,193	60	100
Warbling Vireo	11.61	1,706,860	19	304
Western Bluebird	0.65	95,535	40	18
Western Kingbird	0.90	132,276	52	14
Western Meadowlark	4.70	690,275	22	251
Western Scrub-Jay	0.47	69,447	53	23
Western Tanager	7.47	1,097,684	16	247
Western Wood-Pewee	6.34	931,111	20	236
White-breasted Nuthatch	2.36	346,603	19	47
White-crowned Sparrow	6.85	1,007,070	19	229
<b>White-throated Swift</b>	0.29	42,686	59	26
Wild Turkey	0.04	5,533	92	2
Wilson's Snipe	1.01	148,987	65	12
Wilson's Warbler	3.14	461,197	43	26
Yellow Warbler	3.39	498,142	34	43
Yellow-breasted Chat	0.07	11,017	107	2
Yellow-headed Blackbird	0.22	31,646	57	4
Yellow-rumped Warbler	25.01	3,675,104	9	611

Table 20. Estimated proportion of sample units occupied (Psi), percent coefficient of variation of Psi (% CV) and number of transects with one or more detections (n Tran) of breeding bird species in Colorado Bird Conservation Region 16, 2010. Dashes indicate the data were insufficient for estimating site occupancy. A Psi estimate equal to 1 indicates the species was detected on all transects surveyed. S indicates the number of transects used in analyses. Priority species are bolded.

Species	CO BCR 16 (S=143)		
	Psi	% CV	n Tran
American Pipit	0.030	53	5
<b>American Three-toed Woodpecker</b>	0.064	33	12
Ash-throated Flycatcher	0.169	19	27
Bewick's Wren	0.045	34	11
Black-billed Magpie	0.267	17	29

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Species	CO BCR 16 (S=143)		
	Psi	% CV	n Tran
<b>Black-chinned Hummingbird</b>	0.172	21	21
<b>Black-throated Gray Warbler</b>	0.120	14	24
Black-throated Sparrow	0.012	98	1
Blue-gray Gnatcatcher	0.266	14	38
<b>Brewer's Sparrow</b>	0.250	16	28
<b>Broad-tailed Hummingbird</b>	0.513	10	68
Brown Creeper	0.151	25	16
Brown-headed Cowbird	0.436	13	39
Bullock's Oriole	0.045	55	3
Bushtit	0.149	39	9
Canada Goose	0.044	59	3
Canyon Towhee	0.008	98	1
Canyon Wren	0.057	42	6
<b>Cassin's Finch</b>	0.147	18	21
Cassin's Kingbird	0.001	41	2
Cedar Waxwing	0.047	70	2
Clark's Nutcracker	0.275	17	33
Common Nighthawk	0.098	47	5
<b>Cordilleran Flycatcher</b>	0.246	17	29
Downy Woodpecker	0.188	24	20
<b>Dusky Flycatcher</b>	0.256	17	35
<b>Dusky Grouse</b>	0.190	54	7
European Starling	0.052	46	4
<b>Evening Grosbeak</b>	0.091	39	9
Gadwall	0.026	101	1
Gambel's Quail	0.045	49	4
Golden-crowned Kinglet	0.097	30	13
<b>Grace's Warbler</b>	0.000	58	1
Gray Catbird	0.012	100	1
<b>Gray Flycatcher</b>	0.159	13	30
Gray Jay	0.183	18	35
<b>Gray Vireo</b>	0.033	54	5
Green-tailed Towhee	0.396	11	52
Hairy Woodpecker	0.317	13	42
Hammond's Flycatcher	0.113	27	14
Horned Lark	0.141	23	14
<b>Juniper Titmouse</b>	0.119	23	20
<b>Lark Bunting</b>	0.007	94	1
Lark Sparrow	0.152	23	18
<b>Lazuli Bunting</b>	0.072	38	11
Lesser Goldfinch	0.023	66	4

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Species	CO BCR 16 (S=143)		
	Psi	% CV	n Tran
<b>Lewis's Woodpecker</b>	0.018	68	2
Lincoln's Sparrow	0.233	17	36
<b>Loggerhead Shrike</b>	0.074	71	2
MacGillivray's Warbler	0.190	18	23
Mountain Bluebird	0.459	10	65
Northern Rough-winged Swallow	0.023	99	1
<b>Olive-sided Flycatcher</b>	0.133	23	22
Orange-crowned Warbler	0.143	23	15
Pine Grosbeak	0.129	20	20
Pine Siskin	0.349	11	54
<b>Pinyon Jay</b>	0.133	16	19
Plumbeous Vireo	0.234	15	35
<b>Purple Martin</b>	0.007	95	1
<b>Pygmy Nuthatch</b>	0.091	28	9
<b>Red Crossbill</b>	0.181	19	27
Red-eyed Vireo	0.007	98	1
<b>Red-naped Sapsucker</b>	0.154	24	20
Rock Wren	0.176	18	25
Ruby-crowned Kinglet	0.383	10	64
<b>Rufous Hummingbird</b>	0.075	48	6
<b>Sage Sparrow</b>	0.056	41	6
Sage Thrasher	0.052	41	6
Savannah Sparrow	0.038	55	3
Say's Phoebe	0.188	27	13
Song Sparrow	0.138	27	15
Spotted Towhee	0.272	14	40
<b>Swainson's Hawk</b>	0.046	102	2
Swainson's Thrush	0.060	37	7
Townsend's Solitaire	0.259	16	33
Tree Swallow	0.356	14	47
<b>Vesper Sparrow</b>	0.290	14	33
<b>Virginia's Warbler</b>	0.076	33	16
Warbling Vireo	0.363	11	49
Western Bluebird	0.041	48	8
Western Meadowlark	0.205	18	21
Western Scrub-Jay	0.054	42	8
<b>White-throated Swift</b>	0.060	42	9
White-winged Crossbill	0.037	56	2
<b>Williamson's Sapsucker</b>	0.082	40	8
<b>Willow Flycatcher</b>	0.005	69	2
<b>Wilson's Phalarope</b>	0.019	99	1

Species	CO BCR 16 (S=143)		
	Psi	% CV	n Tran
Wilson's Snipe	0.066	50	6
Wilson's Warbler	0.072	31	12
Yellow Warbler	0.175	22	22
Yellow-breasted Chat	0.014	98	1

**4. BCR 18**

In this section we present results for the BCR 18 portion of Colorado. For results on All Other Lands, DOD and USFS lands within Colorado BCR 18, refer to section III: Land Ownership.

**a) Colorado BCR 18: Total**

Field technicians surveyed 66 of 72 planned transects throughout the BCR 18 portion of Colorado in 2010. Technicians conducted 698 point counts within the 66 transects between 10 May and 18 June 2010. We detected 128 species, including 27 priority species as designated by CDOW (Appendix B).

RMBO estimated densities and population sizes for 78 species, 11 of which are priority species as designated by CDOW (Table 21). The data yielded robust density estimates (CV < 50%) for 30 of these species.

We estimated the proportion of transects occupied (Psi) by 52 species, 11 of which are priority species as designated by CDOW (Table 22). The data yielded robust occupancy estimates (CV < 50%) for 17 of these species.

Table 21. Estimated densities per km<sup>2</sup> (D), population sizes (N), percent coefficient of variation of estimates (% CV) and number of independent detections (n) of breeding bird species in Colorado Bird Conservation Region 18, 2010. S indicates the number of transects used in analyses. Priority species are bolded.

Species	CO BCR 18 (S=66)			
	D	N	%CV	n
American Crow	0.13	14,510	51	30
American Goldfinch	2.74	310,894	70	20
American Kestrel	0.02	2,269	70	5
American Robin	4.82	546,122	36	160
Barn Swallow	23.92	2,713,265	54	45
Bewick's Wren	0.30	34,118	95	8
Black-billed Magpie	0.10	11,128	54	13
Black-capped Chickadee	0.44	50,466	53	11
Black-headed Grosbeak	0.15	16,531	75	6
Blue-gray Gnatcatcher	0.30	34,192	56	4
Brewer's Blackbird	4.43	501,863	36	26
<b>Brewer's Sparrow</b>	4.92	558,368	33	55
Brown-headed Cowbird	6.20	703,412	26	58
Bullock's Oriole	1.75	198,673	61	23

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Species	CO BCR 18 (S=66)			
	D	N	%CV	n
Bushtit	0.09	9,745	99	1
Canada Goose	0.03	2,868	47	24
<b>Cassin's Sparrow</b>	13.02	1,476,141	19	403
Chipping Sparrow	12.10	1,372,025	65	39
Clay-colored Sparrow	0.25	28,891	85	5
Cliff Swallow	16.30	1,848,305	41	43
Common Grackle	14.31	1,622,476	38	179
Common Nighthawk	0.90	101,688	52	12
Common Raven	0.11	12,224	43	8
Common Yellowthroat	0.15	16,504	50	13
Dark-eyed Junco	0.32	36,199	96	3
Downy Woodpecker	0.41	46,855	63	5
Eastern Kingbird	0.15	17,405	64	8
Eurasian Collared-Dove	2.22	251,332	63	46
European Starling	9.35	1,060,674	34	123
Field Sparrow	0.00	434	82	1
Grasshopper Sparrow	14.84	1,682,910	30	137
Horned Lark	112.93	12,807,665	9	1221
House Finch	8.09	917,728	55	125
House Sparrow	20.82	2,361,116	62	122
House Wren	0.33	37,829	33	24
Killdeer	3.77	427,721	24	42
<b>Lark Bunting</b>	27.54	3,123,237	24	503
Lark Sparrow	6.83	774,124	28	77
<b>Lazuli Bunting</b>	0.01	833	84	1
Lincoln's Sparrow	0.02	1,973	84	1
<b>Loggerhead Shrike</b>	0.23	26,038	51	7
<b>Long-billed Curlew</b>	0.04	4,179	68	3
MacGillivray's Warbler	0.06	6,545	100	1
Mallard	0.33	37,026	55	20
<b>McCown's Longspur</b>	1.46	165,462	28	38
Mountain Bluebird	0.02	1,756	91	1
Mourning Dove	7.66	868,745	15	218
Northern Flicker	0.20	22,142	37	34
<b>Northern Harrier</b>	0.03	3,075	72	2
Northern Mockingbird	0.82	93,055	31	63
Northern Rough-winged Swallow	0.30	33,869	55	6
Pine Siskin	0.14	15,344	47	7
Red-headed Woodpecker	0.06	7,314	97	2
Red-tailed Hawk	0.54	60,849	37	14
Red-winged Blackbird	7.07	801,758	24	217

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Species	CO BCR 18 (S=66)			
	D	N	%CV	n
Ring-necked Pheasant	0.15	17,337	36	24
Rock Pigeon	1.12	126,852	36	21
Rock Wren	0.03	3,593	67	5
Ruby-crowned Kinglet	0.01	1,150	84	1
Say's Phoebe	0.46	51,706	46	16
Song Sparrow	0.08	9,342	56	11
Spotted Towhee	0.05	5,331	73	2
<b>Swainson's Hawk</b>	0.15	16,851	39	6
Tree Swallow	0.09	9,702	64	2
<b>Upland Sandpiper</b>	0.02	1,913	62	2
<b>Vesper Sparrow</b>	1.03	117,150	72	12
Violet-green Swallow	1.71	193,988	62	8
Western Kingbird	12.79	1,450,740	21	111
Western Meadowlark	28.44	3,225,061	8	1014
Western Scrub-Jay	0.02	1,743	92	1
Western Tanager	0.03	2,904	65	3
Western Wood-Pewee	0.03	3,843	64	5
White-breasted Nuthatch	0.01	1,458	85	1
White-crowned Sparrow	0.92	104,742	93	13
Yellow Warbler	1.63	184,724	49	40
Yellow-breasted Chat	0.03	3,730	74	3
Yellow-headed Blackbird	0.01	1,690	64	2
Yellow-rumped Warbler	0.89	100,885	61	30

Table 22. Estimated proportion of sample units occupied (Psi), percent coefficient of variation of Psi (% CV) and number of transects with one or more detections (n Tran) of breeding bird species in Colorado Bird Conservation Region 18, 2010. Dashes indicate the data were insufficient for estimating site occupancy. A Psi estimate equal to 1 indicates the species was detected on all transects surveyed. S indicates the number of transects used in analyses. Priority species are bolded.

Species	CO BCR 18 (S=66)		
	Psi	% CV	n Tran
Bank Swallow	0.001	93	1
Bewick's Wren	0.006	94	1
Black-billed Magpie	0.025	59	6
Blue Grosbeak	0.016	51	3
Blue Jay	0.024	57	7
Blue-gray Gnatcatcher	0.021	67	3
Blue-winged Teal	0.003	95	1
<b>Brewer's Sparrow</b>	0.253	28	15
Brown Thrasher	0.017	14	2

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Species	CO BCR 18 (S=66)		
	Psi	% CV	n Tran
Brown-headed Cowbird	0.379	24	28
Bullock's Oriole	0.097	42	11
Bushtit	0.015	75	2
Canada Goose	0.006	53	3
Canyon Towhee	0.002	91	1
<b>Cassin's Sparrow</b>	0.364	20	22
Clay-colored Sparrow	0.015	93	1
Common Nighthawk	--	--	7
Common Yellowthroat	0.022	18	5
<b>Curve-billed Thrasher</b>	--	--	1
Downy Woodpecker	0.037	59	4
Eastern Kingbird	0.035	52	5
European Starling	0.230	29	21
Field Sparrow	0.001	93	1
Grasshopper Sparrow	0.341	23	24
Gray Catbird	0.012	60	2
Horned Lark	0.924	3	48
<b>Lark Bunting</b>	0.644	13	37
Lark Sparrow	0.262	23	20
<b>Lazuli Bunting</b>	0.001	92	1
Lesser Goldfinch	0.001	92	1
Lincoln's Sparrow	0.003	59	2
<b>Loggerhead Shrike</b>	--	--	6
<b>Long-billed Curlew</b>	0.009	95	1
MacGillivray's Warbler	0.007	71	1
Marsh Wren	0.001	93	1
<b>McCown's Longspur</b>	0.156	37	10
Mountain Bluebird	0.002	92	1
<b>Mountain Plover</b>	0.061	71	3
Northern Rough-winged Swallow	--	--	6
Pine Siskin	0.018	72	4
<b>Red-naped Sapsucker</b>	0.016	93	1
Rock Wren	0.017	47	4
Ruby-crowned Kinglet	0.001	93	1
Rufous-crowned Sparrow	0.006	94	1
Say's Phoebe	0.120	48	6
Song Sparrow	0.005	43	3
Spotted Towhee	0.007	78	2
<b>Swainson's Hawk</b>	0.154	85	3
Tree Swallow	0.004	65	2
<b>Upland Sandpiper</b>	0.016	93	1



Species	CO BCR 18 (S=66)		
	Psi	% CV	n Tran
<b>Vesper Sparrow</b>	0.055	74	2
Warbling Vireo	0.001	93	1
Western Meadowlark	0.881	6	59
Western Scrub-Jay	0.006	94	1
Yellow Warbler	0.107	48	12
Yellow-breasted Chat	0.009	59	2

**b) Rivers**

Field technicians surveyed 13 of 16 planned transects throughout Rivers in the BCR 18 portion of Colorado in 2010. Technicians conducted 120 point counts within the 13 transects between 13 May and 31 May 2010. We detected 104 species, including 16 priority species as designated by CDOW (Appendix B).

RMBO estimated densities and population sizes for 61 species, 3 of which are priority species as designated by CDOW (Table 23). The data yielded robust density estimates (CV < 50%) for 24 of these species.

We estimated the proportion of transects occupied (Psi) by 38 species, 3 of which are priority species as designated by CDOW (Table 24). The data yielded robust occupancy estimates (CV < 50%) for 10 of these species.

Table 23. Estimated densities per km<sup>2</sup> (D), population sizes (N), percent coefficient of variation of estimates (% CV) and number of independent detections (n) of breeding bird species on Rivers in Colorado Bird Conservation Region 18, 2010. S indicates the number of transects used in analyses. Priority species are bolded.

Species	Rivers (S=13)			
	D	N	%CV	n
American Crow	1.42	2,969	51	18
American Goldfinch	34.49	72,327	48	14
American Kestrel	1.08	2,269	70	5
American Robin	79.62	166,956	18	124
Barn Swallow	62.56	131,189	40	18
Black-billed Magpie	1.06	2,216	50	9
Black-capped Chickadee	15.80	33,133	68	10
Blue-gray Gnatcatcher	0.99	2,066	90	1
Brewer's Blackbird	3.98	8,346	60	6
<b>Brewer's Sparrow</b>	1.56	3,278	99	3
Brown-headed Cowbird	37.60	78,853	32	32
Bullock's Oriole	11.57	24,268	37	13
Canada Goose	0.65	1,366	35	23
Chipping Sparrow	11.49	24,100	44	11
Cliff Swallow	312.62	655,562	50	29
Common Grackle	180.25	377,976	20	137

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Species	Rivers (S=13)			
	D	N	%CV	n
Common Raven	0.47	981	43	5
Common Yellowthroat	4.45	9,338	64	11
Dark-eyed Junco	1.01	2,119	89	1
Downy Woodpecker	1.96	4,109	60	2
Eastern Kingbird	1.33	2,782	70	4
Eurasian Collared-Dove	22.17	46,486	44	30
European Starling	83.52	175,131	23	80
Field Sparrow	0.21	434	82	1
House Finch	69.39	145,512	29	76
House Sparrow	129.27	271,079	28	67
House Wren	15.04	31,532	34	23
Killdeer	5.40	11,332	38	10
Lark Sparrow	0.44	930	87	1
<b>Lazuli Bunting</b>	0.40	833	84	1
Lincoln's Sparrow	0.94	1,973	84	1
<b>Loggerhead Shrike</b>	0.35	725	92	1
Mallard	2.83	5,935	48	14
Mountain Bluebird	0.84	1,756	91	1
Mourning Dove	22.51	47,195	21	79
Northern Flicker	5.99	12,565	21	31
Northern Mockingbird	2.00	4,192	76	11
Northern Rough-winged Swallow	3.85	8,080	70	4
Pine Siskin	7.32	15,344	47	7
Red-headed Woodpecker	3.49	7,314	97	2
Red-tailed Hawk	0.44	929	62	3
Red-winged Blackbird	56.59	118,670	32	154
Ring-necked Pheasant	0.32	662	67	8
Rock Pigeon	19.44	40,765	57	15
Rock Wren	0.16	328	88	1
Ruby-crowned Kinglet	0.55	1,150	84	1
Say's Phoebe	0.33	684	60	2
Song Sparrow	4.45	9,342	56	11
Spotted Towhee	0.54	1,122	89	1
Tree Swallow	4.63	9,702	64	2
Violet-green Swallow	6.47	13,569	53	5
Western Kingbird	12.33	25,865	29	20
Western Meadowlark	11.87	24,892	25	74
Western Tanager	1.38	2,904	65	3
Western Wood-Pewee	1.83	3,843	64	5
White-breasted Nuthatch	0.70	1,458	85	1
White-crowned Sparrow	2.11	4,426	72	4

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Species	Rivers (S=13)			
	D	N	%CV	n
Yellow Warbler	31.45	65,941	29	36
Yellow-breasted Chat	0.64	1,342	102	2
Yellow-headed Blackbird	0.81	1,690	64	2
Yellow-rumped Warbler	13.52	28,348	49	22

Table 24. Estimated proportion of sample units occupied (Psi), percent coefficient of variation of Psi (% CV) and number of transects with one or more detections (n Tran) of breeding bird species on Rivers in Colorado Bird Conservation Region 18, 2010. Dashes indicate the data were insufficient for estimating site occupancy. A Psi estimate equal to 1 indicates the species was detected on all transects surveyed. S indicates the number of transects used in analyses. Priority species are bolded.

Species	Rivers (S=13)		
	Psi	% CV	n Tran
Bank Swallow	0.075	93	1
Black-billed Magpie	0.517	28	5
Blue Grosbeak	0.110	91	1
Blue Jay	0.533	30	6
Blue-gray Gnatcatcher	0.073	93	1
Blue-winged Teal	0.146	95	1
<b>Brewer's Sparrow</b>	0.078	92	1
Brown Thrasher	0.131	95	1
Brown-headed Cowbird	0.809	19	9
Bullock's Oriole	0.553	30	6
Bushtit	0.204	92	1
Canada Goose	0.347	53	3
Canyon Towhee	0.120	91	1
Common Yellowthroat	0.420	51	3
Downy Woodpecker	0.266	59	2
Eastern Kingbird	0.249	66	2
European Starling	0.964	10	11
Field Sparrow	0.073	93	1
Gray Catbird	0.123	94	1
Lark Sparrow	0.170	66	2
<b>Lazuli Bunting</b>	0.081	92	1
Lesser Goldfinch	0.079	92	1
Lincoln's Sparrow	0.171	59	2
<b>Loggerhead Shrike</b>	0.284	93	1
Marsh Wren	0.066	93	1
Mountain Bluebird	0.081	92	1
Northern Rough-winged Swallow	0.601	41	4
Pine Siskin	0.222	43	3

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Species	Rivers (S=13)		
	Psi	% CV	n Tran
Rock Wren	0.108	91	1
Ruby-crowned Kinglet	0.069	93	1
Say's Phoebe	0.291	66	2
Song Sparrow	0.291	43	3
Spotted Towhee	0.069	93	1
Tree Swallow	0.199	65	2
Warbling Vireo	0.072	93	1
Western Meadowlark	0.844	12	11
Yellow Warbler	0.665	17	8
Yellow-breasted Chat	0.105	91	1

**B. Montana**

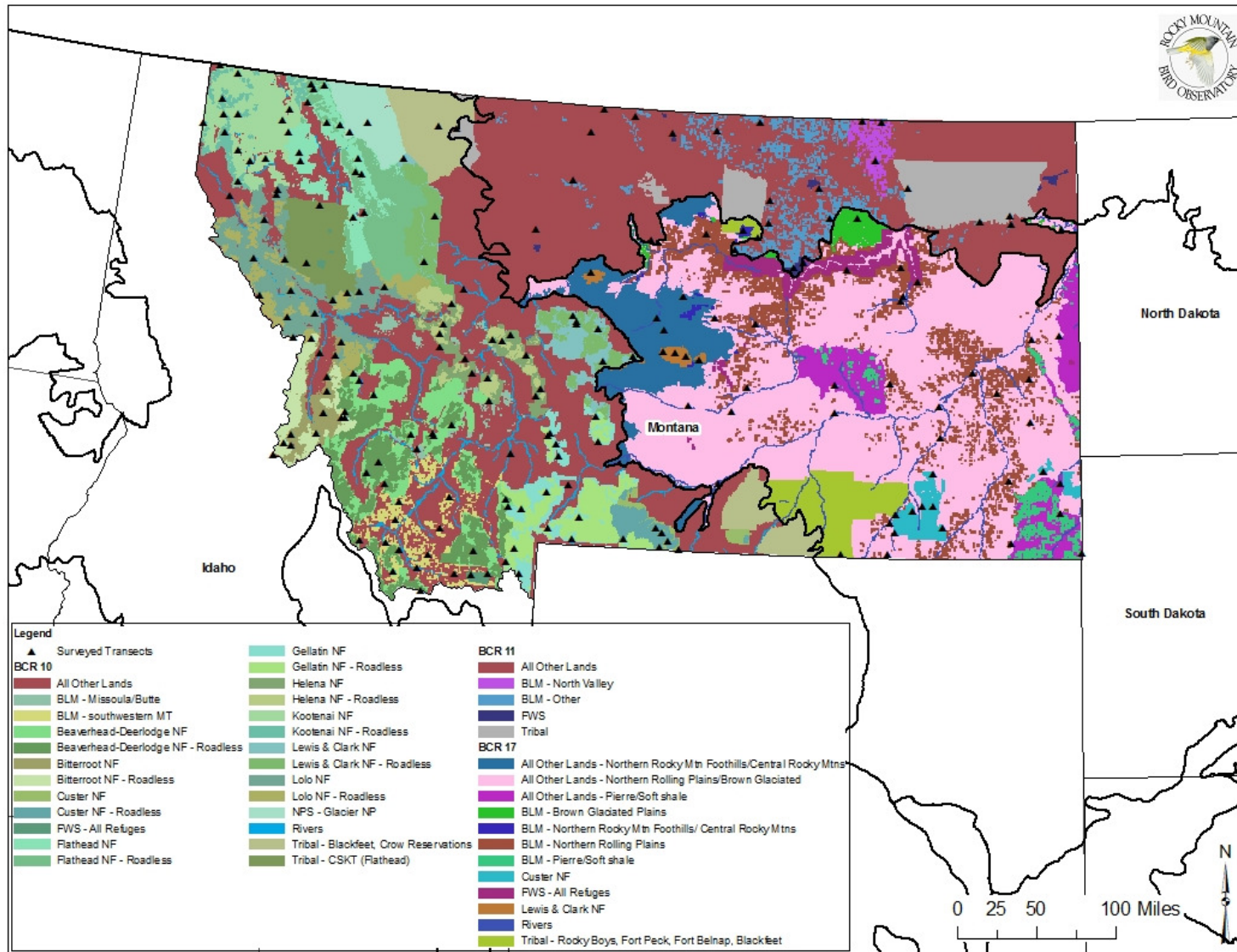


Figure 6. Survey locations in Montana, 2010.

**1. Montana Statewide**

Field technicians surveyed 211 of 213 planned transects throughout Montana in 2010. Technicians conducted 2,066 point counts within the 211 transects between 17 May and 25 July 2010. We detected 202 species, including 35 priority species as designated by MTFWP (Appendix B).

RMBO estimated densities and population sizes for 119 species, 13 of which are priority species as designated by MTFWP (Table 25). The data yielded robust density estimates (CV < 50%) for 85 of these species.

We estimated the proportion of transects occupied (Psi) by 81 species, 14 of which are priority species as designated by MTFWP (Table 26). The data yielded robust occupancy estimates (CV < 50%) for 54 of these species.

Table 25. Estimated densities per km<sup>2</sup> (D), population sizes (N), percent coefficient of variation of estimates (% CV) and number of independent detections (n) of breeding bird species in Montana, 2010. S indicates the number of transects used in analyses. Priority species are bolded.

Species	Montana (S=211)			
	D	N	% CV	n
American Crow	0.11	43,739	39	33
American Goldfinch	1.07	409,228	39	14
American Kestrel	0.19	72,413	47	14
American Pipit	0.61	231,688	42	44
American Redstart	0.06	23,262	61	4
American Robin	19.22	7,333,599	23	449
American Three-toed Woodpecker	0.70	268,276	27	21
<b>Baird's Sparrow</b>	1.37	522,399	36	61
Barn Swallow	11.49	4,385,697	75	20
Black-billed Magpie	2.03	775,653	43	57
Black-capped Chickadee	10.95	4,177,966	44	187
Black-headed Grosbeak	0.22	84,315	30	26
Brewer's Blackbird	3.30	1,258,094	36	28
<b>Brewer's Sparrow</b>	15.68	5,982,215	48	365
Broad-tailed Hummingbird	0.05	19,353	83	1
<b>Brown Creeper</b>	0.70	265,777	41	7
Brown-headed Cowbird	29.39	11,213,593	16	320
Bullock's Oriole	2.38	908,384	37	38
Canada Goose	0.13	51,455	45	51
Canyon Wren	0.02	6,435	101	3
<b>Cassin's Finch</b>	1.05	402,301	37	49
Cassin's Vireo	0.87	333,070	27	62
<b>Chestnut-collared Longspur</b>	8.26	3,153,057	38	193
Chipping Sparrow	31.73	12,104,973	32	479
<b>Clark's Nutcracker</b>	0.77	293,976	31	85

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Species	Montana (S=211)			
	D	N	% CV	n
Clay-colored Sparrow	0.56	212,521	38	21
Cliff Swallow	3.57	1,363,877	55	10
Common Grackle	0.68	260,553	55	11
Common Nighthawk	0.24	91,801	37	14
Common Raven	0.50	189,572	29	122
Common Yellowthroat	1.77	676,585	60	34
Cordilleran Flycatcher	0.22	82,034	49	9
Dark-eyed Junco	18.29	6,977,155	8	674
Downy Woodpecker	0.17	66,617	52	8
Dusky Flycatcher	4.10	1,563,845	20	167
Eastern Kingbird	1.63	622,060	35	50
European Starling	9.35	3,569,281	79	47
Evening Grosbeak	0.72	274,867	35	47
Field Sparrow	0.21	78,748	28	25
Fox Sparrow	0.14	51,751	59	7
Golden-crowned Kinglet	7.58	2,891,656	25	51
<b>Grasshopper Sparrow</b>	11.78	4,494,627	22	231
Gray Jay	0.89	340,873	22	31
Green-tailed Towhee	0.67	255,130	68	15
Hairy Woodpecker	1.90	725,286	17	82
Hammond's Flycatcher	2.29	875,070	26	76
Hermit Thrush	1.57	597,836	17	228
Horned Lark	29.15	11,120,885	15	745
House Finch	0.04	14,192	66	4
House Sparrow	11.70	4,464,338	100	10
House Wren	9.10	3,473,582	54	219
Killdeer	2.06	785,939	38	54
Lark Bunting	8.59	3,277,804	45	243
Lark Sparrow	7.80	2,976,574	17	175
Lazuli Bunting	0.92	350,368	44	44
Least Flycatcher	0.61	233,846	48	15
Lincoln's Sparrow	0.55	209,865	29	26
<b>Loggerhead Shrike</b>	0.20	75,870	64	8
<b>Long-billed Curlew</b>	0.67	254,378	57	50
MacGillivray's Warbler	3.00	1,142,909	14	157
Mallard	0.20	77,371	53	17
<b>McCown's Longspur</b>	1.13	432,860	35	81
Mountain Bluebird	4.73	1,806,268	50	77
Mountain Chickadee	6.77	2,582,274	12	278
Mourning Dove	3.64	1,387,455	25	120
Northern Flicker	2.61	995,965	35	217

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Species	Montana (S=211)			
	D	N	% CV	n
Northern Harrier	0.27	104,294	37	15
Northern Rough-winged Swallow	0.62	237,279	70	3
Olive-sided Flycatcher	0.44	167,958	16	68
Orange-crowned Warbler	1.78	679,610	17	62
Ovenbird	0.22	84,175	40	29
Pine Grosbeak	0.99	378,780	36	30
Pine Siskin	13.43	5,125,457	10	387
Pinyon Jay	0.00	1,055	68	2
Plumbeous Vireo	0.03	12,335	46	4
Pygmy Nuthatch	0.09	34,556	85	4
Red Crossbill	4.80	1,832,161	22	165
Red-breasted Nuthatch	6.15	2,346,734	22	271
<b>Red-headed Woodpecker</b>	0.14	54,415	93	6
Red-naped Sapsucker	1.31	498,737	31	39
Red-tailed Hawk	0.09	34,045	33	20
Red-winged Blackbird	6.68	2,548,089	45	153
Ring-necked Pheasant	0.33	124,065	34	63
Rock Pigeon	0.84	319,759	80	4
Rock Wren	0.58	220,194	32	49
Ruby-crowned Kinglet	6.36	2,424,740	12	381
<b>Sage Thrasher</b>	0.02	7,075	53	11
Sandhill Crane	0.06	23,697	40	32
Savannah Sparrow	9.49	3,619,353	19	155
Say's Phoebe	0.74	280,784	75	20
Song Sparrow	0.33	124,624	38	25
Spotted Sandpiper	0.07	27,429	63	10
Spotted Towhee	4.12	1,570,533	40	98
<b>Sprague's Pipit</b>	0.39	150,694	69	37
Steller's Jay	0.09	33,108	36	13
Swainson's Hawk	0.07	25,900	63	6
Swainson's Thrush	4.49	1,714,821	14	320
Townsend's Solitaire	1.93	736,678	27	106
Townsend's Warbler	6.95	2,652,916	21	208
Tree Swallow	1.51	575,632	43	21
Upland Sandpiper	0.31	119,070	46	17
Varied Thrush	1.02	390,594	22	78
Vesper Sparrow	17.84	6,808,036	11	573
Violet-green Swallow	1.03	394,080	32	41
Warbling Vireo	2.93	1,117,080	12	251
Western Bluebird	0.20	77,104	99	4
Western Kingbird	1.03	392,887	34	23



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Species	Montana (S=211)			
	D	N	% CV	n
Western Meadowlark	18.10	6,905,358	12	1201
Western Tanager	4.31	1,644,245	14	383
Western Wood-Pewee	1.10	419,625	28	89
White-breasted Nuthatch	1.16	442,511	79	14
White-crowned Sparrow	2.00	763,985	26	133
Wild Turkey	0.08	30,351	70	6
Wilson's Snipe	2.55	971,521	95	7
Wilson's Warbler	2.30	877,425	49	28
Yellow Warbler	5.92	2,260,194	35	94
Yellow-breasted Chat	0.22	85,481	87	13
Yellow-headed Blackbird	0.16	62,837	89	4
Yellow-rumped Warbler	19.37	7,392,206	12	919

Table 26. Estimated proportion of sample units occupied (Psi), percent coefficient of variation of Psi (% CV) and number of transects with one or more detections (n Tran) of breeding bird species in Montana, 2010. Dashes indicate the data were insufficient for estimating site occupancy. A Psi estimate equal to 1 indicates the species was detected on all transects surveyed. S indicates the number of transects used in analyses. Priority species are bolded.

Species	Montana (S=211)		
	Psi	% CV	n Tran
American Pipit	0.016	40	6
American Three-toed Woodpecker	0.083	21	22
<b>Baird's Sparrow</b>	0.116	26	11
Bank Swallow	0.064	70	5
<b>Black Rosy-Finch</b>	0.002	87	1
Black-and-white Warbler	0.003	71	1
Black-billed Magpie	0.361	24	15
Blue-winged Teal	0.039	74	5
<b>Brewer's Sparrow</b>	0.360	18	47
Broad-tailed Hummingbird	0.002	86	1
<b>Brown Creeper</b>	--	--	14
Brown Thrasher	0.100	73	5
Brown-headed Cowbird	0.584	11	87
Bullock's Oriole	0.157	37	14
Calliope Hummingbird	--	--	6
Canada Goose	0.073	66	7
Canyon Wren	0.078	81	2
<b>Cassin's Finch</b>	--	--	26
Cassin's Kingbird	0.001	94	1
Cassin's Vireo	0.063	16	27
Cedar Waxwing	--	--	4

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Species	Montana (S=211)		
	Psi	% CV	n Tran
Chestnut-backed Chickadee	0.020	25	8
<b>Chestnut-collared Longspur</b>	0.096	25	11
<b>Clark's Nutcracker</b>	--	--	39
Clay-colored Sparrow	0.087	27	12
Common Nighthawk	--	--	13
Common Yellowthroat	--	--	13
Cordilleran Flycatcher	0.024	40	5
Downy Woodpecker	0.032	41	6
Dusky Flycatcher	0.162	26	53
Dusky Grouse	--	--	6
Eastern Kingbird	--	--	26
European Starling	0.190	32	15
Evening Grosbeak	--	--	23
Field Sparrow	0.030	32	8
Gadwall	0.039	78	5
Golden-crowned Kinglet	--	--	35
<b>Grasshopper Sparrow</b>	0.405	16	37
Gray Catbird	--	--	13
Gray Jay	--	--	26
Green-tailed Towhee	0.060	69	6
Hairy Woodpecker	--	--	51
Hammond's Flycatcher	0.125	14	41
Horned Lark	0.511	12	51
Lark Bunting	0.227	22	21
Lark Sparrow	0.352	13	41
Lazuli Bunting	0.115	49	15
Least Flycatcher	0.122	53	9
<b>Lewis's Woodpecker</b>	0.001	96	1
Lincoln's Sparrow	--	--	15
<b>Loggerhead Shrike</b>	--	--	4
<b>Long-billed Curlew</b>	--	--	7
MacGillivray's Warbler	0.122	10	58
Marbled Godwit	0.079	40	9
Marsh Wren	0.000	71	1
<b>McCown's Longspur</b>	0.057	39	7
Mountain Bluebird	0.261	26	37
<b>Mountain Plover</b>	0.003	72	1
Nashville Warbler	--	--	10
Northern Harrier	--	--	7
Northern Rough-winged Swallow	--	--	3
Northern Shoveler	0.013	64	3

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Species	Montana (S=211)		
	Psi	% CV	n Tran
Northern Waterthrush	0.008	49	4
Olive-sided Flycatcher	--	--	27
Orange-crowned Warbler	--	--	30
Ovenbird	0.013	45	9
<b>Pileated Woodpecker</b>	0.034	29	9
Pine Grosbeak	0.048	26	16
Pine Siskin	0.196	5	98
<b>Pinyon Jay</b>	0.002	58	2
Plumbeous Vireo	0.005	34	5
Pygmy Nuthatch	0.002	58	3
Red Crossbill	0.172	26	59
Red-eyed Vireo	0.008	45	5
Red-naped Sapsucker	0.077	19	27
Rock Wren	0.197	37	15
Ruby-crowned Kinglet	0.213	21	85
Ruffed Grouse	--	--	6
Rufous Hummingbird	--	--	13
<b>Sage Thrasher</b>	0.004	39	4
Savannah Sparrow	0.307	20	28
Say's Phoebe	--	--	9
Song Sparrow	0.062	35	16
Sora	0.001	68	2
Spotted Towhee	0.176	32	33
<b>Sprague's Pipit</b>	0.038	41	6
Swainson's Hawk	0.137	81	3
Swainson's Thrush	0.136	8	69
Townsend's Solitaire	--	--	52
Townsend's Warbler	0.085	11	42
Tree Swallow	0.120	52	16
Upland Sandpiper	0.038	42	5
<b>Veery</b>	0.011	91	2
Vesper Sparrow	0.707	3	69
Warbling Vireo	0.144	11	64
Western Bluebird	0.002	95	1
Western Meadowlark	0.680	4	68
White-winged Crossbill	0.047	28	12
Wild Turkey	0.007	110	1
Willet	0.039	58	5
Williamson's Sapsucker	0.019	44	7
Willow Flycatcher	0.014	50	4
Wilson's Phalarope	--	--	5

Species	Montana (S=211)		
	Psi	% CV	n Tran
Wilson's Snipe	0.140	70	3
Wilson's Warbler	0.046	28	13
<b>Winter Wren</b>	0.038	12	11
Yellow Warbler	0.197	33	29
Yellow-breasted Chat	0.020	49	5

**2. BCR 10**

In this section we present results for the BCR 10 portion of Montana. For results on All Other Lands, BLM, NPS, Tribal and USFS lands within Montana BCR 10, refer to section III: Land Ownership.

**a) Montana BCR 10: Total**

Field technicians surveyed all 137 planned transects throughout the BCR 10 portion of Montana in 2010. Technicians conducted 1,235 point counts within the 137 transects between 17 May and 25 July 2010. We detected 170 species, including 25 priority species as designated by MTFWP (Appendix B).

RMBO estimated densities and population sizes for 109 species, 10 of which are priority species as designated by MTFWP (Table 27). The data yielded robust density estimates (CV < 50%) for 55 of these species.

We estimated the proportion of transects occupied (Psi) by 72 species, 10 of which are priority species as designated by MTFWP (Table 28). The data yielded robust occupancy estimates (CV < 50%) for 39 of these species.

Table 27. Estimated densities per km<sup>2</sup> (D), population sizes (N), percent coefficient of variation of estimates (% CV) and number of independent detections (n) of breeding bird species in Montana Bird Conservation Region 10, 2010. S indicates the number of transects used in analyses. Priority species are bolded.

Species	MT BCR 10 (S=137)			
	D	N	% CV	n
American Crow	0.09	14,089	55	13
American Goldfinch	1.86	294,208	50	9
American Kestrel	0.07	10,387	35	7
American Pipit	1.46	231,688	42	44
American Redstart	0.12	18,925	72	3
American Robin	31.59	4,997,441	17	379
American Three-toed Woodpecker	1.70	268,276	27	21
Barn Swallow	20.10	3,179,725	101	4
Black-billed Magpie	3.29	520,468	56	35
Black-capped Chickadee	11.01	1,741,655	26	147
Black-headed Grosbeak	0.52	82,533	30	25
Brewer's Blackbird	1.60	253,427	88	4
<b>Brewer's Sparrow</b>	4.15	655,921	35	125

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Species	MT BCR 10 (S=137)			
	D	N	% CV	n
Broad-tailed Hummingbird	0.12	19,353	83	1
<b>Brown Creeper</b>	1.39	220,099	47	6
Brown-headed Cowbird	14.84	2,348,213	40	97
Bullock's Oriole	0.60	94,259	100	5
Canada Goose	0.01	1,061	68	5
Canyon Wren	0.04	6,435	101	3
<b>Cassin's Finch</b>	1.94	307,712	41	47
Cassin's Vireo	2.11	333,070	27	62
Chipping Sparrow	51.62	8,166,312	41	383
<b>Clark's Nutcracker</b>	1.85	292,281	32	81
Clay-colored Sparrow	0.02	3,120	90	1
Cliff Swallow	0.80	127,297	108	2
Common Nighthawk	0.16	25,435	57	4
Common Raven	1.16	184,299	30	113
Common Yellowthroat	1.92	303,187	101	21
Cordilleran Flycatcher	0.52	82,034	49	9
Dark-eyed Junco	41.71	6,599,286	8	624
Downy Woodpecker	0.42	66,617	52	8
Dusky Flycatcher	7.02	1,111,240	19	147
Eastern Kingbird	0.80	126,578	86	5
European Starling	19.18	3,034,576	92	27
Evening Grosbeak	1.74	274,867	35	47
Fox Sparrow	0.33	51,751	59	7
Golden-crowned Kinglet	18.28	2,891,656	25	51
<b>Grasshopper Sparrow</b>	6.26	989,988	54	30
Gray Jay	2.15	340,873	22	31
Green-tailed Towhee	1.07	168,935	97	3
Hairy Woodpecker	4.52	714,355	17	79
Hammond's Flycatcher	5.52	873,687	26	75
Hermit Thrush	3.63	574,788	18	206
Horned Lark	18.75	2,966,310	44	103
House Finch	0.09	14,192	66	4
House Sparrow	28.22	4,464,338	100	10
House Wren	0.87	137,299	28	41
Killdeer	0.39	62,001	62	8
Lark Sparrow	0.79	124,704	96	11
Lazuli Bunting	1.21	192,100	54	32
Least Flycatcher	0.02	2,743	92	1
Lincoln's Sparrow	1.33	209,865	29	26
<b>Loggerhead Shrike</b>	0.01	1,170	104	1
<b>Long-billed Curlew</b>	0.97	152,776	92	12

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Species	MT BCR 10 (S=137)			
	D	N	% CV	n
MacGillivray's Warbler	7.15	1,130,955	14	150
Mallard	0.03	4,005	48	6
<b>McCown's Longspur</b>	0.31	48,330	101	1
Mountain Bluebird	9.24	1,461,156	61	62
Mountain Chickadee	15.24	2,410,479	11	267
Mourning Dove	0.11	17,611	51	9
Northern Flicker	2.91	461,008	31	165
Northern Harrier	0.13	21,170	85	7
Northern Rough-winged Swallow	0.34	53,770	103	2
Olive-sided Flycatcher	1.06	167,958	16	68
Orange-crowned Warbler	4.30	679,610	17	62
Ovenbird	0.21	32,766	55	11
Pine Grosbeak	2.39	378,780	36	30
Pine Siskin	32.15	5,086,273	11	367
<b>Pinyon Jay</b>	0.00	483	101	1
Plumbeous Vireo	0.01	2,166	88	1
Pygmy Nuthatch	0.20	31,531	93	3
Red Crossbill	5.32	842,347	19	83
Red-breasted Nuthatch	14.34	2,269,027	23	256
Red-naped Sapsucker	3.15	498,737	31	39
Red-tailed Hawk	0.21	32,477	35	18
Red-winged Blackbird	4.06	641,704	91	25
Ring-necked Pheasant	0.02	2,901	68	6
Rock Pigeon	0.14	22,581	90	2
Rock Wren	0.32	50,094	83	12
Ruby-crowned Kinglet	15.22	2,407,265	12	364
<b>Sage Thrasher</b>	0.04	7,075	53	11
Sandhill Crane	0.02	3,423	84	12
Savannah Sparrow	4.70	743,733	41	59
Say's Phoebe	0.02	3,911	100	1
Song Sparrow	0.77	121,572	39	24
Spotted Sandpiper	0.02	2,955	71	4
Spotted Towhee	1.53	241,536	64	24
Steller's Jay	0.21	33,108	36	13
Swainson's Thrush	10.67	1,687,285	14	306
Townsend's Solitaire	4.06	641,989	28	93
Townsend's Warbler	16.77	2,652,916	21	208
Tree Swallow	2.83	448,032	54	15
Varied Thrush	2.47	390,594	22	78
Vesper Sparrow	14.15	2,238,004	25	180
Violet-green Swallow	2.14	338,818	35	34

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Species	MT BCR 10 (S=137)			
	D	N	% CV	n
Warbling Vireo	6.56	1,037,535	11	243
Western Bluebird	0.49	77,104	99	4
Western Meadowlark	8.84	1,398,654	44	128
Western Tanager	10.19	1,612,437	14	370
Western Wood-Pewee	1.35	213,711	47	46
White-breasted Nuthatch	0.09	14,179	56	3
White-crowned Sparrow	4.80	760,008	26	132
Wild Turkey	0.02	2,721	76	3
Wilson's Snipe	5.66	895,677	103	5
Wilson's Warbler	5.55	877,425	49	28
Yellow Warbler	2.93	463,142	67	17
Yellow-breasted Chat	0.01	1,518	82	1
Yellow-headed Blackbird	0.00	781	103	1
Yellow-rumped Warbler	38.42	6,077,759	9	836

Table 28. Estimated proportion of sample units occupied (Psi), percent coefficient of variation of Psi (% CV) and number of transects with one or more detections (n Tran) of breeding bird species in Montana Bird Conservation Region 10, 2010. Dashes indicate the data were insufficient for estimating site occupancy. A Psi estimate equal to 1 indicates the species was detected on all transects surveyed. S indicates the number of transects used in analyses. Priority species are bolded.

Species	MT BCR 10 (S=137)		
	Psi	% CV	n Tran
American Pipit	0.038	40	6
American Three-toed Woodpecker	0.201	21	22
Bank Swallow	0.134	80	2
<b>Black Rosy-Finch</b>	0.006	87	1
Black-billed Magpie	0.273	40	4
Blue-winged Teal	0.002	75	1
<b>Brewer's Sparrow</b>	0.172	55	15
Broad-tailed Hummingbird	0.005	86	1
<b>Brown Creeper</b>	--	--	13
Brown-headed Cowbird	0.333	39	31
Bullock's Oriole	0.021	66	2
Calliope Hummingbird	--	--	6
Canada Goose	0.007	96	1
Canyon Wren	0.021	72	1
<b>Cassin's Finch</b>	--	--	24
Cassin's Vireo	0.151	16	27
Cedar Waxwing	--	--	3
Chestnut-backed Chickadee	0.047	25	8

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Species	MT BCR 10 (S=137)		
	Psi	% CV	n Tran
<b>Clark's Nutcracker</b>	--	--	38
Clay-colored Sparrow	0.005	95	1
Common Nighthawk	0.053	48	4
Common Yellowthroat	0.278	65	8
Cordilleran Flycatcher	0.058	40	5
Downy Woodpecker	0.073	43	5
Dusky Flycatcher	0.224	13	46
Dusky Grouse	--	--	6
Eastern Kingbird	0.335	62	5
European Starling	0.295	37	8
Evening Grosbeak	--	--	22
Gadwall	0.002	74	1
Golden-crowned Kinglet	--	--	35
<b>Grasshopper Sparrow</b>	0.275	35	8
Gray Catbird	0.068	42	7
Gray Jay	--	--	26
Green-tailed Towhee	0.131	77	3
Hairy Woodpecker	--	--	49
Hammond's Flycatcher	0.300	14	40
Horned Lark	0.321	29	13
Lark Sparrow	0.034	5	3
Lazuli Bunting	0.231	58	12
Least Flycatcher	0.032	66	2
Lincoln's Sparrow	--	--	15
<b>Long-billed Curlew</b>	0.298	86	1
MacGillivray's Warbler	0.289	11	54
Marsh Wren	0.001	71	1
<b>McCown's Longspur</b>	0.034	71	1
Mountain Bluebird	0.436	29	26
Nashville Warbler	--	--	10
Northern Harrier	--	--	4
Northern Rough-winged Swallow	--	--	2
Northern Waterthrush	0.018	49	4
Olive-sided Flycatcher	--	--	27
Orange-crowned Warbler	--	--	30
Ovenbird	0.010	54	3
<b>Pileated Woodpecker</b>	0.081	29	9
Pine Grosbeak	0.116	26	16
Pine Siskin	0.468	5	93
<b>Pinyon Jay</b>	0.003	71	1
Plumbeous Vireo	0.002	95	1



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Species	MT BCR 10 (S=137)		
	Psi	% CV	n Tran
Pygmy Nuthatch	0.005	68	2
Red Crossbill	0.225	14	46
Red-eyed Vireo	0.019	45	5
Red-naped Sapsucker	0.186	19	27
Rock Wren	0.164	72	5
Ruby-crowned Kinglet	0.510	21	82
Ruffed Grouse	--	--	6
Rufous Hummingbird	--	--	13
<b>Sage Thrasher</b>	0.009	39	4
Savannah Sparrow	0.215	48	10
Say's Phoebe	0.030	71	1
Song Sparrow	0.099	28	14
Sora	0.004	68	2
Spotted Towhee	0.206	49	14
Swainson's Thrush	0.305	7	63
Townsend's Solitaire	--	--	46
Townsend's Warbler	0.206	11	42
Tree Swallow	0.255	59	10
<b>Veery</b>	0.027	91	2
Vesper Sparrow	0.488	3	23
Warbling Vireo	0.297	9	59
Western Bluebird	0.006	95	1
Western Meadowlark	0.424	6	13
White-winged Crossbill	0.114	28	12
Wild Turkey	0.017	110	1
Williamson's Sapsucker	0.046	44	7
Willow Flycatcher	0.030	56	3
Wilson's Snipe	0.283	81	2
Wilson's Warbler	0.110	28	13
<b>Winter Wren</b>	0.093	12	11
Yellow Warbler	0.188	57	11
Yellow-breasted Chat	0.004	89	1

**b) Rivers**

Field technicians surveyed two planned transects throughout Rivers in the BCR 10 portion of Montana in 2010. Technicians conducted 18 point counts within the 2 transects between 25 May and 20 June 2010. We detected 51 species, including 2 priority species as designated by MTFWP (Appendix B).

We do not present density or occupancy results for this section, because results from strata with only two samples are not informative. However, this data is incorporated into larger scale estimates.

**c) US Fish and Wildlife Service**

Field technicians surveyed two planned transects throughout USFWS lands in the BCR 10 portion of Montana in 2010. Technicians conducted 22 point counts within the 2 transects between 22 May and 5 July 2010. We detected 71 species, including 10 priority species as designated by MTFWP (Appendix B).

We do not present density or occupancy results for this section, because results from strata with only two samples are not informative. However, this data is incorporated into larger scale estimates.

**3. BCR 11**

In this section we present results for the BCR 11 portion of Montana. For results on All Other Lands, BLM and Tribal lands within Montana BCR 11, refer to section III: Land Ownership.

**a) Montana BCR 11: Total**

Field technicians surveyed 22 of 24 planned transects throughout the BCR 11 portion of Montana in 2010. Technicians conducted 312 point counts within the 24 transects between 27 May and 8 July 2010. We detected 3,641 birds of 87 species in BCR 10. Technicians recorded 11 priority species as designated by MTFWP (Appendix B). The most common species detected were Horned Lark (673 birds), Western Meadowlark (572 birds) and Chestnut-collared Longspur (321 birds).

RMBO estimated densities and population sizes for 48 species, 9 of which are priority species as designated by MTFWP (Table 29). The data yielded robust density estimates (CV < 50%) for 16 of these species.

We estimated the proportion of transects occupied (Psi) by 40 species, 6 of which are priority species as designated by MTFWP (Table 30). The data yielded robust occupancy estimates (CV < 50%) for 13 of these species.

Table 29. Estimated densities per km<sup>2</sup> (D), population sizes (N), percent coefficient of variation of estimates (% CV) and number of independent detections (n) of breeding bird species in Montana Bird Conservation Region 11, 2010. S indicates the number of transects used in analyses. Priority species are bolded.

Species	MT BCR 11 (S=22)			
	D	N	% CV	n
American Robin	0.43	36,262	86	1
<b>Baird's Sparrow</b>	5.98	499,191	37	54
Barn Swallow	2.14	178,213	85	1
Brewer's Blackbird	3.31	275,706	39	10
<b>Brewer's Sparrow</b>	11.80	984,355	33	113
Brown-headed Cowbird	15.72	1,310,898	31	38
Bullock's Oriole	0.81	67,723	102	1
Canada Goose	0.01	813	91	3
<b>Chestnut-collared Longspur</b>	37.14	3,098,072	39	187
Clay-colored Sparrow	1.41	117,221	60	10

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Species	MT BCR 11 (S=22)			
	D	N	% CV	n
Common Grackle	1.80	150,072	86	2
Common Nighthawk	0.04	3,164	101	1
Common Yellowthroat	1.04	86,460	80	4
Eastern Kingbird	1.08	89,818	47	5
European Starling	0.67	56,173	86	1
Field Sparrow	0.02	2,038	82	1
<b>Grasshopper Sparrow</b>	14.58	1,216,606	30	77
Horned Lark	79.30	6,614,638	13	505
House Wren	3.24	270,011	76	6
Killdeer	2.31	192,759	32	11
Lark Bunting	6.30	525,610	56	61
Lark Sparrow	0.91	75,541	78	7
Least Flycatcher	0.46	38,399	87	1
<b>Loggerhead Shrike</b>	0.04	3,576	104	2
<b>Long-billed Curlew</b>	1.00	83,015	41	33
Mallard	0.06	4,614	224	3
<b>McCown's Longspur</b>	4.61	384,531	37	80
Mourning Dove	2.55	212,739	47	18
Northern Flicker	0.88	73,272	86	5
Northern Harrier	0.15	12,674	65	4
Red-winged Blackbird	5.47	456,023	67	29
Ring-necked Pheasant	0.19	16,070	73	11
Rock Wren	0.11	9,366	65	3
Savannah Sparrow	18.63	1,554,282	38	49
Say's Phoebe	0.10	8,375	88	1
Spotted Towhee	0.06	5,261	81	1
<b>Sprague's Pipit</b>	0.46	38,470	46	25
Swainson's Hawk	0.03	2,285	71	3
<b>Upland Sandpiper</b>	0.16	13,107	101	1
Vesper Sparrow	21.08	1,758,182	17	211
Warbling Vireo	0.79	65,899	100	2
Western Kingbird	0.90	74,959	65	3
Western Meadowlark	11.65	971,522	19	260
Western Wood-Pewee	0.49	41,114	68	2
Wilson's Snipe	0.91	75,843	90	2
Yellow Warbler	5.87	489,868	71	11
Yellow-breasted Chat	0.11	9,483	92	4
Yellow-headed Blackbird	0.74	62,055	90	3

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Table 30. Estimated proportion of sample units occupied (Psi), percent coefficient of variation of Psi (% CV) and number of transects with one or more detections (n Tran) of breeding bird species in Montana Bird Conservation Region 11, 2010. Dashes indicate the data were insufficient for estimating site occupancy. A Psi estimate equal to 1 indicates the species was detected on all transects surveyed. S indicates the number of transects used in analyses. Priority species are bolded.

Species	MT BCR 11 (S=22)		
	Psi	% CV	n Tran
<b>Baird's Sparrow</b>	0.486	27	9
Blue-winged Teal	0.152	86	2
<b>Brewer's Sparrow</b>	0.459	26	12
Brown Thrasher	0.019	93	1
Brown-headed Cowbird	0.468	29	12
Bullock's Oriole	0.092	71	1
Canada Goose	0.016	92	1
Cedar Waxwing	0.121	96	1
<b>Chestnut-collared Longspur</b>	0.418	26	10
Clay-colored Sparrow	0.192	55	5
Common Nighthawk	0.016	72	1
Common Yellowthroat	0.109	95	1
Eastern Kingbird	0.230	54	3
European Starling	0.077	95	1
Field Sparrow	0.014	91	1
Gadwall	0.159	86	3
<b>Grasshopper Sparrow</b>	0.661	18	14
Gray Catbird	0.114	96	1
Horned Lark	0.911	8	20
Lark Bunting	0.242	45	5
Lark Sparrow	0.094	79	3
Least Flycatcher	0.110	96	1
<b>Loggerhead Shrike</b>	--	--	1
<b>Long-billed Curlew</b>	--	--	5
Marbled Godwit	0.270	47	8
<b>McCown's Longspur</b>	0.196	46	6
Northern Harrier	0.213	90	2
Northern Shoveler	0.024	96	2
Savannah Sparrow	0.577	19	11
Say's Phoebe	0.117	95	1
Song Sparrow	0.087	95	1
Spotted Towhee	0.014	91	1
<b>Sprague's Pipit</b>	0.033	38	3
Swainson's Hawk	0.032	104	1
Vesper Sparrow	0.929	8	21

Species	MT BCR 11 (S=22)		
	Psi	% CV	n Tran
Warbling Vireo	0.074	71	1
Western Meadowlark	0.700	17	16
Willet	0.154	66	4
Wilson's Phalarope	0.017	92	2
Wilson's Snipe	0.103	95	1
Yellow Warbler	0.174	55	3
Yellow-breasted Chat	0.014	91	1

**b) US Fish and Wildlife Service**

Field technicians surveyed two planned transects throughout USFWS lands in the BCR 11 portion of Montana in 2010. Technicians conducted 19 point counts within the 2 transects between 27 June and 29 June 2010. We detected 23 species, including 8 priority species as designated by MTFWP (Appendix B).

We do not present density or occupancy results for this section, because results from strata with only two samples are not informative. However, this data is incorporated into larger scale estimates.

**4. BCR 17**

In this section we present results for the BCR 17 portion of Montana. For the BCR 17-wide results within Montana, refer to section I: BCR 17. For results on All Other Lands, BLM, Tribal and USFS lands within Montana BCR 17, refer to section III: Land Ownership.

**a) Montana BCR 17: Total**

For results on the Montana portion of BCR 17, refer to Section I. For results on All Other Lands, BLM, Tribal and USFS lands within Montana BCR 17, refer to section III: Land Ownership.

**b) Rivers**

Field technicians surveyed all 10 planned transects throughout Rivers in the BCR 17 portion of Montana in 2010. Technicians conducted 84 point counts within the 10 transects between 15 May and 13 June 2010. We detected 87 species, including 9 priority species as designated by MTFWP (Appendix B).

RMBO estimated densities and population sizes for 59 species, 4 of which are priority species as designated by MTFWP (Table 31). The data yielded robust density estimates (CV < 50%) for 16 of these species.

We estimated the proportion of transects occupied (Psi) by 37 species, 3 of which are priority species as designated by MTFWP (Table 32). The data yielded robust occupancy estimates (CV < 50%) for 14 of these species.

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Table 31. Estimated densities per km<sup>2</sup> (D), population sizes (N), percent coefficient of variation of estimates (% CV) and number of independent detections (n) of breeding bird species within the Rivers stratum in Montana Bird Conservation Region 17, 2010. S indicates the number of transects used in analyses. Priority species are bolded.

Species	Rivers (S=10)			
	D	N	% CV	n
American Crow	1.33	6,078	84	11
American Goldfinch	7.77	35,535	89	2
American Kestrel	0.28	1,292	92	1
American Robin	19.99	91,449	28	20
Barn Swallow	29.47	134,828	75	6
Black-billed Magpie	0.60	2,741	81	4
Brown-headed Cowbird	54.43	248,997	32	31
Brewer's Blackbird	2.07	9,480	60	2
<b>Brewer's Sparrow</b>	18.88	86,376	55	22
Bullock's Oriole	13.63	62,363	56	10
Canada Goose	1.27	5,810	28	28
Clay-colored Sparrow	1.13	5,164	84	2
Chipping Sparrow	8.60	39,366	75	5
Cliff Swallow	36.21	165,672	57	5
Common Grackle	12.41	56,769	57	6
Common Nighthawk	1.52	6,946	54	2
Common Yellowthroat	1.79	8,177	99	3
Eastern Kingbird	6.06	27,718	36	12
European Starling	26.32	120,411	55	17
Field Sparrow	3.07	14,048	61	9
<b>Grasshopper Sparrow</b>	1.90	8,695	87	3
Hermit Thrush	1.23	5,632	61	4
Horned Lark	13.04	59,655	71	23
House Wren	21.70	99,300	36	19
Killdeer	6.69	30,626	53	9
Lark Bunting	13.32	60,931	58	32
Lark Sparrow	41.58	190,248	41	44
Lazuli Bunting	3.93	17,962	90	6
Least Flycatcher	11.64	53,260	46	11
<b>Loggerhead Shrike</b>	0.43	1,962	92	1
Mallard	0.93	4,270	49	3
Mountain Bluebird	4.14	18,933	87	3
Mourning Dove	9.67	44,236	25	23
Northern Flicker	1.25	5,706	69	4
Northern Harrier	0.24	1,107	95	1
<b>Red-headed Woodpecker</b>	4.94	22,581	139	2
Ring-necked Pheasant	0.89	4,055	22	17

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Species	Rivers (S=10)			
	D	N	% CV	n
Rock Wren	0.78	3,554	65	4
Red-winged Blackbird	17.91	81,959	38	33
Sandhill Crane	0.17	786	57	6
Say's Phoebe	0.69	3,168	57	3
Savannah Sparrow	6.03	27,608	88	7
Song Sparrow	0.67	3,052	83	1
Spotted Sandpiper	1.97	8,991	57	5
Spotted Towhee	2.47	11,315	71	7
Swainson's Thrush	1.46	6,670	81	2
Tree Swallow	16.37	74,884	53	5
Upland Sandpiper	1.32	6,035	48	5
Vesper Sparrow	13.96	63,859	74	31
Violet-green Swallow	9.42	43,107	92	5
Warbling Vireo	2.65	12,137	48	4
White-breasted Nuthatch	1.14	5,238	88	1
White-crowned Sparrow	0.87	3,977	87	1
Western Kingbird	6.38	29,201	38	8
Western Meadowlark	26.09	119,368	17	118
Western Wood-Pewee	1.43	6,564	93	3
Yellow-breasted Chat	1.59	7,264	99	4
Yellow-rumped Warbler	2.02	9,261	57	2
Yellow Warbler	53.64	245,411	30	40

Table 32. Estimated proportion of sample units occupied (Psi), percent coefficient of variation of Psi (% CV) and number of transects with one or more detections (n Tran) of breeding bird species within the Rivers stratum in Montana Bird Conservation Region 17, 2010. Dashes indicate the data were insufficient for estimating site occupancy. A Psi estimate equal to 1 indicates the species was detected on all transects surveyed. S indicates the number of transects used in analyses. Priority species are bolded.

Species	Rivers (S=10)		
	Psi	% CV	n Tran
Bank Swallow	0.242	64	2
Black-billed Magpie	0.272	63	2
Blue-winged Teal	0.444	68	2
<b>Brewer's Sparrow</b>	0.313	48	3
Brown-headed Cowbird	0.821	16	8
Bullock's Oriole	0.529	38	4
Canada Goose	0.497	50	3
Clay-colored Sparrow	0.261	63	2
Common Nighthawk	0.501	64	2
Common Yellowthroat	0.193	95	1

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Species	Rivers (S=10)		
	Psi	% CV	n Tran
Eastern Kingbird	0.905	20	7
European Starling	0.443	39	4
Field Sparrow	0.226	63	2
Gadwall	0.242	98	1
<b>Grasshopper Sparrow</b>	0.102	95	1
Gray Catbird	0.405	65	2
Horned Lark	0.208	63	2
Lark Bunting	0.408	39	4
Lark Sparrow	0.685	25	6
Lazuli Bunting	0.124	95	1
Least Flycatcher	0.734	40	4
<b>Loggerhead Shrike</b>	0.348	97	1
Mountain Bluebird	0.124	95	1
Rock Wren	0.254	63	2
Savannah Sparrow	0.107	95	1
Say's Phoebe	0.216	95	1
Song Sparrow	0.142	95	1
Spotted Towhee	0.315	48	3
Swainson's Thrush	0.211	63	2
Tree Swallow	0.681	31	5
Upland Sandpiper	0.151	95	1
Vesper Sparrow	0.318	48	3
Warbling Vireo	0.329	48	3
Western Meadowlark	0.900	11	9
Willow Flycatcher	0.156	96	1
Yellow Warbler	0.799	20	7
Yellow-breasted Chat	0.123	95	1

**c) US Fish and Wildlife Service**

Field technicians surveyed two planned transects throughout USFWS lands in the BCR 17 portion Montana in 2010. Technicians conducted 23 point counts within the 2 transects between 26 May and 1 June 2010. We detected 32 species, including 6 priority species as designated by MTFWP (Appendix B).

We do not present density or occupancy results for this section, because results from strata with only two samples are not informative. However, this data is incorporated into larger scale estimates.



C. Wyoming

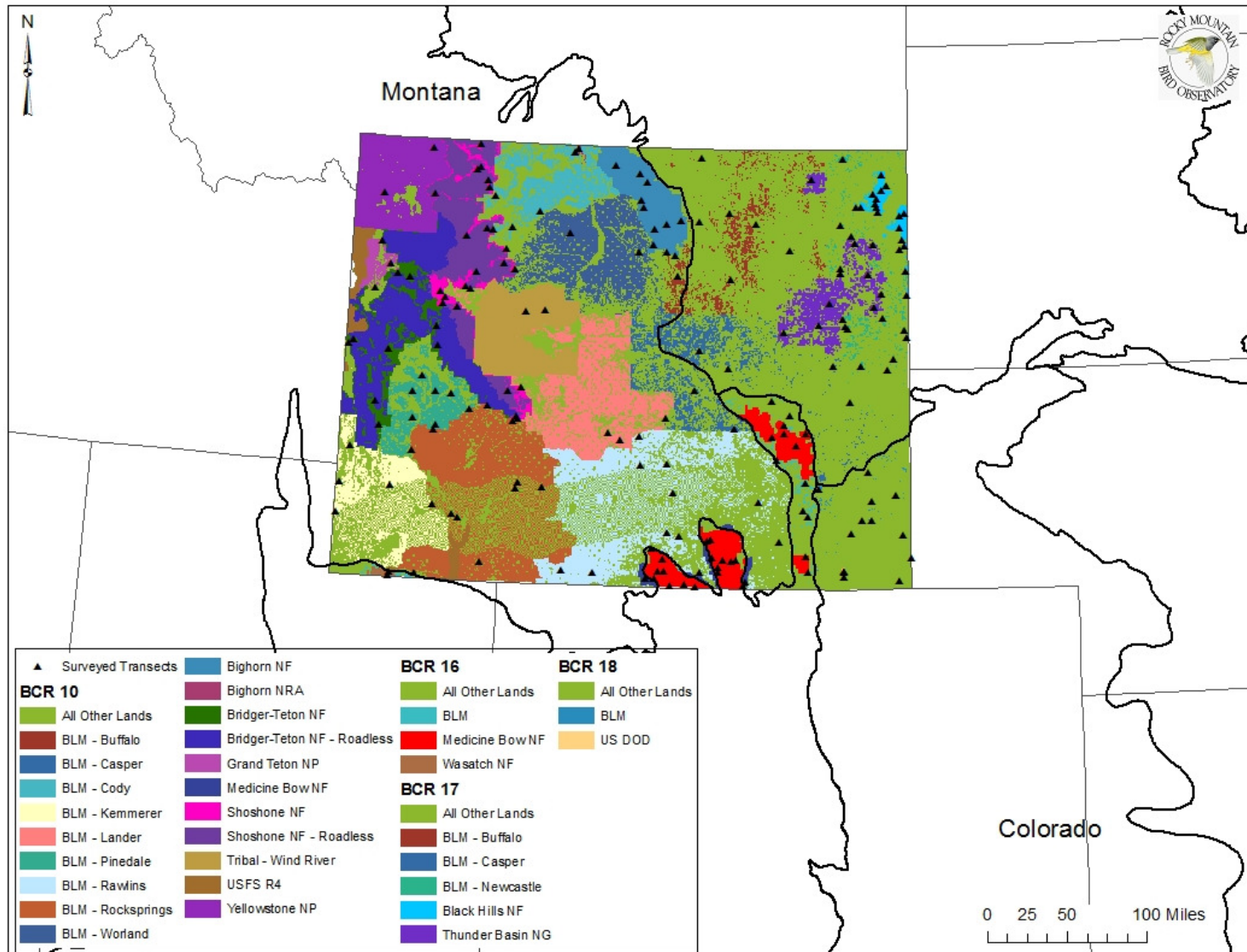


Figure 7. Survey locations in Wyoming, 2010.

**1. Wyoming Statewide**

Field technicians surveyed 197 of 203 planned transects throughout Wyoming in 2010. Technicians conducted 2,308 point counts within the 197 transects between 14 May and 21 July 2010. We detected 158 species, including 27 priority species as designated by WGFD (Appendix B).

RMBO estimated densities and population sizes for 114 species, 12 of which are priority species as designated by WGFD (Table 33). The data yielded robust density estimates (CV < 50%) for 65 of these species.

We estimated the proportion of transects occupied (Psi) by 84 species, 12 of which are priority species as designated by WGFD (Table 34). The data yielded robust occupancy estimates (CV < 50%) for 44 of these species.

Table 33. Estimated densities per km<sup>2</sup> (D), population sizes (N), percent coefficient of variation of estimates (% CV) and number of independent detections (n) of breeding bird species in Wyoming, 2010. S indicates the number of transects used in analyses. Priority species are bolded.

Species	Wyoming (S=197)			
	D	N	% CV	n
American Crow	0.42	105,937	32	49
American Goldfinch	1.18	296,832	55	15
American Kestrel	0.46	115,554	27	15
American Pipit	0.65	162,325	67	49
American Robin	14.62	3,677,342	24	503
<b>American Three-toed Woodpecker</b>	0.46	115,320	36	28
Barn Swallow	1.30	326,792	62	17
Bewick's Wren	0.16	39,495	85	1
Black-billed Magpie	1.09	274,761	36	60
Black-capped Chickadee	7.45	1,873,587	38	234
Black-headed Grosbeak	0.30	74,899	45	16
Black-throated Gray Warbler	0.01	1,627	100	1
Blue-gray Gnatcatcher	0.99	250,041	53	12
Brewer's Blackbird	1.52	381,214	26	52
<b>Brewer's Sparrow</b>	28.70	7,218,186	14	806
Broad-tailed Hummingbird	2.03	511,272	59	18
Brown Creeper	1.44	362,672	28	52
Brown-headed Cowbird	7.84	1,972,520	31	104
Bullock's Oriole	0.36	89,795	61	6
Canada Goose	0.00	172	78	5
Canyon Wren	0.08	19,540	100	9
Cassin's Finch	0.62	157,157	8	33
Cassin's Sparrow	0.11	28,811	49	10
<b>Chestnut-collared Longspur</b>	0.43	107,128	54	6
Chipping Sparrow	19.52	4,908,520	22	311

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Species	Wyoming (S=197)			
	D	N	% CV	n
Clark's Nutcracker	2.31	580,066	41	89
Cliff Swallow	3.78	951,258	51	18
Common Grackle	1.32	333,083	50	16
Common Nighthawk	0.43	107,380	57	11
Common Raven	0.33	83,376	40	54
Common Yellowthroat	0.48	121,791	59	17
Cordilleran Flycatcher	0.37	92,645	88	9
Dark-eyed Junco	7.14	1,795,513	27	406
Downy Woodpecker	0.64	162,014	40	29
Dusky Flycatcher	2.19	551,304	35	112
Eastern Kingbird	0.09	23,619	58	8
Eurasian Collared-Dove	0.00	606	107	8
European Starling	0.11	27,815	55	45
Evening Grosbeak	0.06	14,196	33	11
Field Sparrow	0.02	4,762	58	5
Fox Sparrow	0.01	2,049	47	3
Golden-crowned Kinglet	0.21	53,600	66	6
<b>Grasshopper Sparrow</b>	3.27	821,896	31	130
Gray Flycatcher	0.31	77,896	111	3
Gray Jay	0.94	236,294	56	30
Green-tailed Towhee	6.91	1,738,618	32	197
Hairy Woodpecker	0.70	176,613	25	64
Hammond's Flycatcher	0.41	103,132	94	5
Hermit Thrush	0.98	245,328	38	194
Horned Lark	29.24	7,353,996	16	1206
House Finch	0.00	305	46	3
House Sparrow	0.00	206	100	1
House Wren	1.41	354,814	40	97
Killdeer	2.26	567,272	35	65
<b>Lark Bunting</b>	14.01	3,524,112	26	828
Lark Sparrow	4.30	1,082,671	26	159
Lazuli Bunting	0.32	79,755	42	24
Lincoln's Sparrow	3.60	906,071	66	79
Loggerhead Shrike	0.08	19,867	49	8
MacGillivray's Warbler	1.29	325,199	80	29
Mallard	0.43	106,968	36	13
<b>McCown's Longspur</b>	1.56	391,224	51	36
Mountain Bluebird	7.63	1,918,529	26	92
Mountain Chickadee	6.98	1,754,699	29	258
Mourning Dove	1.60	401,625	27	173
Northern Flicker	0.68	171,379	29	102

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Species	Wyoming (S=197)			
	D	N	% CV	n
Northern Harrier	0.09	22,969	42	9
Northern Rough-winged Swallow	0.06	15,920	91	1
Olive-sided Flycatcher	0.10	25,145	47	19
Orange-crowned Warbler	0.13	33,806	55	5
Ovenbird	0.06	15,002	33	26
Pine Grosbeak	0.14	34,197	34	15
Pine Siskin	3.34	838,991	31	183
Plumbeous Vireo	0.03	6,922	56	9
<b>Pygmy Nuthatch</b>	0.05	12,001	81	2
Red Crossbill	1.25	313,544	40	47
Red-breasted Nuthatch	3.07	772,893	38	159
Red-naped Sapsucker	0.27	68,569	38	22
Red-tailed Hawk	0.19	48,596	51	22
Red-winged Blackbird	5.98	1,503,700	26	127
Ring-necked Pheasant	0.04	8,987	84	8
Rock Pigeon	0.16	40,083	94	6
Rock Wren	2.53	636,113	15	267
Ruby-crowned Kinglet	4.61	1,159,683	16	297
<b>Sage Sparrow</b>	5.14	1,293,024	23	262
<b>Sage Thrasher</b>	1.55	390,118	20	201
<b>Sandhill Crane</b>	0.00	750	62	9
Savannah Sparrow	9.99	2,512,361	39	90
Say's Phoebe	0.93	232,925	27	48
Song Sparrow	1.51	380,493	47	49
Spotted Sandpiper	0.75	188,011	94	17
Spotted Towhee	3.16	794,060	62	62
Steller's Jay	0.44	109,965	54	9
<b>Swainson's Hawk</b>	0.04	10,558	65	5
Swainson's Thrush	1.92	482,436	65	77
Townsend's Solitaire	1.29	323,600	37	65
Tree Swallow	2.35	591,927	48	21
<b>Upland Sandpiper</b>	0.17	41,977	75	16
Vesper Sparrow	13.73	3,454,241	15	659
Violet-green Swallow	3.51	884,010	31	37
Warbling Vireo	1.91	480,079	55	182
Western Kingbird	0.27	67,082	45	18
Western Meadowlark	16.78	4,219,106	11	1981
Western Tanager	0.72	181,666	27	114
Western Wood-Pewee	0.91	229,370	38	103
White-breasted Nuthatch	1.23	310,179	89	27
White-crowned Sparrow	1.25	313,270	34	84

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Species	Wyoming (S=197)			
	D	N	% CV	n
White-throated Swift	0.02	4,393	110	3
Wild Turkey	0.06	16,084	87	4
Wilson's Snipe	0.08	19,892	53	12
Wilson's Warbler	2.74	690,035	105	8
Yellow Warbler	3.95	992,254	35	66
Yellow-breasted Chat	0.03	8,690	100	1
Yellow-rumped Warbler	6.59	1,658,481	12	409

Table 34. Estimated proportion of sample units occupied (Psi), percent coefficient of variation of Psi (% CV) and number of transects with one or more detections (n Tran) of breeding bird species in Wyoming, 2010. Dashes indicate the data were insufficient for estimating site occupancy. A Psi estimate equal to 1 indicates the species was detected on all transects surveyed. S indicates the number of transects used in analyses. Priority species are bolded.

Species	Wyoming (S=197)		
	Psi	% CV	n Tran
American Pipit	0.011	59	4
<b>American Three-toed Woodpecker</b>	0.034	34	12
Ash-throated Flycatcher	0.000	71	1
Bewick's Wren	0.024	95	1
<b>Black Rosy-Finch</b>	--	--	5
Black-billed Magpie	0.199	28	11
Black-throated Gray Warbler	0.001	71	1
Blue Grosbeak	0.000	96	1
Blue Jay	0.001	66	2
Blue-gray Gnatcatcher	0.036	63	4
Blue-winged Teal	0.044	97	1
<b>Brewer's Sparrow</b>	0.541	9	80
Broad-tailed Hummingbird	0.100	40	16
Brown Creeper	--	--	32
Brown-headed Cowbird	0.282	18	40
Bullock's Oriole	0.041	65	6
Calliope Hummingbird	0.002	108	1
Canada Goose	0.000	71	1
Canyon Wren	0.021	69	3
Cassin's Finch	0.061	6	19
Cassin's Sparrow	0.011	62	2
Cedar Waxwing	0.045	84	5
<b>Chestnut-collared Longspur</b>	0.033	64	3
Clark's Nutcracker	0.138	19	24
Common Nighthawk	0.108	51	7
Common Yellowthroat	0.080	63	7

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Species	Wyoming (S=197)		
	Psi	% CV	n Tran
Cordilleran Flycatcher	0.048	62	7
Downy Woodpecker	--	--	23
Dusky Flycatcher	0.116	25	43
Dusky Grouse	0.017	40	5
Eastern Kingbird	0.024	44	5
European Starling	0.078	47	9
Evening Grosbeak	0.007	36	6
Field Sparrow	0.004	63	2
Golden-crowned Kinglet	0.007	40	6
<b>Grasshopper Sparrow</b>	0.128	28	27
Gray Catbird	0.039	90	2
Gray Flycatcher	0.016	71	1
Gray Jay	--	--	17
Green-tailed Towhee	0.221	16	41
Hairy Woodpecker	0.050	20	32
Hammond's Flycatcher	0.042	59	8
Horned Lark	0.446	11	78
<b>Lark Bunting</b>	0.199	18	37
Lark Sparrow	0.228	21	36
Lazuli Bunting	0.060	55	13
Least Flycatcher	0.001	65	2
Lincoln's Sparrow	0.090	36	21
Loggerhead Shrike	--	--	6
MacGillivray's Warbler	0.052	41	19
McCown's Longspur	0.045	52	5
Mountain Bluebird	0.314	18	49
<b>Mountain Plover</b>	0.000	71	1
Northern Harrier	--	--	3
Northern Rough-winged Swallow	0.011	88	2
Northern Shoveler	--	--	2
Olive-sided Flycatcher	0.043	61	14
Orange-crowned Warbler	0.007	45	4
Ovenbird	0.003	29	10
Pine Grosbeak	0.009	33	8
Pine Siskin	0.108	23	55
Plumbeous Vireo	0.003	43	5
<b>Pygmy Nuthatch</b>	0.001	59	2
Red Crossbill	0.070	27	29
Red-naped Sapsucker	0.017	43	12
Rock Wren	0.331	13	47
Ruby-crowned Kinglet	0.144	14	60

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Species	Wyoming (S=197)		
	Psi	% CV	n Tran
Ruffed Grouse	0.002	71	1
<b>Sage Sparrow</b>	0.191	20	24
<b>Sage Thrasher</b>	0.252	18	34
Savannah Sparrow	0.159	28	14
Say's Phoebe	--	--	18
Song Sparrow	0.129	37	20
Sora	0.001	98	1
Spotted Towhee	0.136	30	16
<b>Swainson's Hawk</b>	0.017	101	2
Swainson's Thrush	0.047	37	16
Townsend's Solitaire	0.093	11	32
Tree Swallow	0.096	42	14
<b>Upland Sandpiper</b>	0.038	77	5
Veery	0.003	112	1
Vesper Sparrow	0.514	10	78
Warbling Vireo	0.089	23	38
Western Meadowlark	0.489	10	71
White-throated Swift	0.001	71	1
Wild Turkey	0.076	107	2
Willet	0.035	90	2
Williamson's Sapsucker	0.002	68	2
<b>Willow Flycatcher</b>	0.060	67	4
Wilson's Snipe	0.006	43	4
Wilson's Warbler	0.046	58	7
Yellow Warbler	0.139	27	26

**2. BCR 9**

The entire BCR 9 portion of Wyoming falls within Caribou-Targhee National Forest. For results on the two surveys conducted within Wyoming BCR 9, refer to section III, Region 4: Caribou-Targhee National Forest.

**3. BCR 10**

In this section we present results for the BCR 10 portion of Wyoming. For results on All Other Lands, BLM, NPS, Tribal and USFS lands within Wyoming BCR 10, refer to section III: Land Ownership.

Field technicians surveyed all 99 planned transects throughout the BCR 10 portion of Wyoming in 2010. Technicians conducted 1,162 point counts within the 99 transects between 16 May and 21 July 2010. We detected 134 species, including 21 priority species as designated by WGFD (Appendix B).

RMBO estimated densities and population sizes for 101 species, 12 of which are priority species as designated by WGFD (Table 35). The data yielded robust density estimates (CV < 50%) for 43 of these species.

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We estimated the proportion of transects occupied (Psi) by 69 species, 12 of which are priority species as designated by WGFD (Table 36). The data yielded robust occupancy estimates (CV < 50%) for 35 of these species.

Table 35. Estimated densities per km<sup>2</sup> (D), population sizes (N), percent coefficient of variation of estimates (% CV) and number of independent detections (n) of breeding bird species in Wyoming Bird Conservation Region 10, 2010. S indicates the number of transects used in analyses. Priority species are bolded.

Species	WY BCR 10 (S=99)			
	D	N	% CV	n
American Crow	0.40	65,197	45	30
American Goldfinch	1.27	207,704	70	4
American Kestrel	0.44	71,821	36	8
American Pipit	0.99	162,325	67	49
American Robin	12.65	2,067,190	27	190
<b>American Three-toed Woodpecker</b>	0.36	58,784	55	5
Barn Swallow	1.33	217,384	90	1
Bewick's Wren	0.24	39,495	85	1
Black-billed Magpie	1.18	192,207	41	43
Black-capped Chickadee	6.41	1,046,400	49	94
Black-headed Grosbeak	0.34	55,870	54	9
Blue-gray Gnatcatcher	0.21	34,140	83	2
Brewer's Blackbird	0.53	86,716	45	15
<b>Brewer's Sparrow</b>	33.36	5,448,950	15	529
Broad-tailed Hummingbird	2.70	441,026	68	4
Brown Creeper	1.41	230,843	43	16
Brown-headed Cowbird	1.86	303,798	41	10
Bullock's Oriole	0.37	60,329	87	1
Canada Goose	0.00	140	94	2
Canyon Wren	0.12	19,540	100	9
Cassin's Finch	0.82	134,007	8	7
<b>Chestnut-collared Longspur</b>	0.66	107,128	54	6
Chipping Sparrow	15.92	2,600,423	13	159
Clark's Nutcracker	3.47	567,576	42	66
Cliff Swallow	3.06	500,543	78	7
Common Grackle	0.69	112,449	69	5
Common Nighthawk	0.57	93,079	65	4
Common Raven	0.48	78,756	42	37
Common Yellowthroat	0.48	79,098	86	3
Cordilleran Flycatcher	0.49	80,730	100	1
Dark-eyed Junco	7.49	1,223,539	39	134
Downy Woodpecker	0.42	68,957	44	13
Dusky Flycatcher	2.93	478,053	40	60



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Species	WY BCR 10 (S=99)			
	D	N	% CV	n
European Starling	0.01	2,043	71	3
Fox Sparrow	0.00	477	82	1
Golden-crowned Kinglet	0.21	33,644	95	3
<b>Grasshopper Sparrow</b>	0.50	81,245	65	6
Gray Flycatcher	0.48	77,896	111	3
Gray Jay	1.25	204,777	64	18
Green-tailed Towhee	9.23	1,507,634	36	107
Hairy Woodpecker	0.68	111,442	37	22
Hammond's Flycatcher	0.60	97,780	99	2
Hermit Thrush	1.20	196,090	47	77
Horned Lark	31.52	5,148,502	21	659
House Wren	1.62	264,370	53	34
Killdeer	1.95	319,035	50	19
<b>Lark Bunting</b>	0.89	145,133	36	38
Lark Sparrow	1.93	315,694	48	52
Lazuli Bunting	0.25	40,776	62	8
Lincoln's Sparrow	5.19	847,580	70	52
Loggerhead Shrike	0.08	12,708	71	3
MacGillivray's Warbler	1.87	305,489	85	14
Mallard	0.34	55,079	55	4
<b>McCown's Longspur</b>	2.03	331,645	59	27
Mountain Bluebird	7.66	1,251,344	33	42
Mountain Chickadee	8.61	1,407,058	35	126
Mourning Dove	0.54	88,005	50	9
Northern Flicker	0.61	99,691	39	40
Northern Harrier	0.11	17,180	54	4
Olive-sided Flycatcher	0.05	8,201	50	9
Orange-crowned Warbler	0.21	33,806	55	5
Ovenbird	0.00	573	85	1
Pine Grosbeak	0.09	14,488	46	5
Pine Siskin	3.27	533,944	48	50
Plumbeous Vireo	0.00	489	83	1
<b>Pygmy Nuthatch</b>	0.06	9,396	100	1
Red Crossbill	1.59	259,961	48	20
Red-breasted Nuthatch	2.81	458,647	53	46
Red-naped Sapsucker	0.25	41,574	57	9
Red-tailed Hawk	0.17	27,615	76	12
Red-winged Blackbird	5.90	963,727	35	42
Ring-necked Pheasant	0.05	7,417	100	5
Rock Pigeon	0.24	39,729	95	2
Rock Wren	2.72	444,331	13	150

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Species	WY BCR 10 (S=99)			
	D	N	% CV	n
Ruby-crowned Kinglet	6.19	1,010,636	18	169
<b>Sage Sparrow</b>	7.91	1,292,732	23	261
<b>Sage Thrasher</b>	2.32	379,604	21	194
<b>Sandhill Crane</b>	0.00	528	81	8
Savannah Sparrow	13.36	2,183,046	43	72
Say's Phoebe	0.67	109,555	37	24
Song Sparrow	2.01	328,364	54	21
Spotted Sandpiper	1.15	188,011	94	17
Spotted Towhee	0.26	42,657	78	2
Steller's Jay	0.66	107,323	55	5
<b>Swainson's Hawk</b>	0.05	7,353	86	3
Swainson's Thrush	2.93	478,156	66	73
Townsend's Solitaire	1.76	287,162	41	23
Tree Swallow	3.36	548,324	52	10
<b>Upland Sandpiper</b>	0.21	35,028	89	3
Vesper Sparrow	16.15	2,638,654	17	368
Violet-green Swallow	3.57	583,538	41	19
Warbling Vireo	2.21	360,552	73	52
Western Meadowlark	6.77	1,106,738	28	240
Western Tanager	0.75	122,246	39	45
Western Wood-Pewee	0.41	66,196	66	16
White-breasted Nuthatch	1.77	289,430	95	10
White-crowned Sparrow	1.86	303,137	35	69
Wilson's Warbler	4.19	684,295	105	7
Yellow Warbler	5.37	876,787	39	44
Yellow-breasted Chat	0.05	8,690	100	1
Yellow-rumped Warbler	7.34	1,198,874	15	135

Table 36. Estimated proportion of sample units occupied (Psi), percent coefficient of variation of Psi (% CV) and number of transects with one or more detections (n Tran) of breeding bird species in Wyoming Bird Conservation Region 10, 2010. Dashes indicate the data were insufficient for estimating site occupancy. A Psi estimate equal to 1 indicates the species was detected on all transects surveyed. S indicates the number of transects used in analyses. Priority species are bolded.

Species	WY BCR 10 (S=99)		
	Psi	% CV	n Tran
American Pipit	0.017	59	4
<b>American Three-toed Woodpecker</b>	0.035	48	4
Bewick's Wren	0.038	95	1
<b>Black Rosy-Finch</b>	--	--	5
Black-billed Magpie	0.221	31	8

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Species	WY BCR 10 (S=99)		
	Psi	% CV	n Tran
Blue-gray Gnatcatcher	0.012	94	1
Blue-winged Teal	0.067	97	1
<b>Brewer's Sparrow</b>	0.536	10	47
Broad-tailed Hummingbird	0.131	46	6
Brown Creeper	--	--	13
Brown-headed Cowbird	0.140	39	8
Bullock's Oriole	0.042	95	1
Calliope Hummingbird	0.003	108	1
Canada Goose	0.000	71	1
Canyon Wren	0.033	69	3
Cassin's Finch	0.077	5	6
Cedar Waxwing	0.007	81	2
<b>Chestnut-collared Longspur</b>	0.051	64	3
Clark's Nutcracker	0.203	20	18
Common Nighthawk	0.141	60	3
Common Yellowthroat	0.060	95	1
Cordilleran Flycatcher	0.066	70	2
Downy Woodpecker	0.025	35	8
Dusky Flycatcher	0.157	28	28
Dusky Grouse	0.017	41	3
European Starling	0.070	63	2
Golden-crowned Kinglet	0.004	75	2
<b>Grasshopper Sparrow</b>	0.047	69	3
Gray Catbird	0.003	72	1
Gray Flycatcher	0.024	71	1
Gray Jay	--	--	9
Green-tailed Towhee	0.297	19	28
Hairy Woodpecker	0.051	29	14
Hammond's Flycatcher	0.058	66	4
Horned Lark	0.424	13	39
<b>Lark Bunting</b>	0.041	44	3
Lark Sparrow	0.126	36	11
Lazuli Bunting	0.046	78	5
Lincoln's Sparrow	0.128	39	13
Loggerhead Shrike	--	--	2
MacGillivray's Warbler	0.071	46	10
<b>McCown's Longspur</b>	0.045	75	2
Mountain Bluebird	0.350	20	27
Northern Harrier	--	--	1
Northern Rough-winged Swallow	0.001	98	1
Olive-sided Flycatcher	0.014	42	5

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Species	WY BCR 10 (S=99)		
	Psi	% CV	n Tran
Orange-crowned Warbler	0.011	45	4
Ovenbird	0.002	67	2
Pine Grosbeak	0.006	54	3
Pine Siskin	0.131	29	23
Plumbeous Vireo	0.001	97	1
<b>Pygmy Nuthatch</b>	0.002	71	1
Red Crossbill	0.091	32	16
Red-naped Sapsucker	0.018	62	4
Rock Wren	0.345	9	26
Ruby-crowned Kinglet	0.196	15	39
Ruffed Grouse	0.003	71	1
<b>Sage Sparrow</b>	0.294	20	23
<b>Sage Thrasher</b>	0.342	19	28
Savannah Sparrow	0.194	31	8
Say's Phoebe	--	--	9
Song Sparrow	0.133	45	9
Spotted Towhee	0.036	88	2
<b>Swainson's Hawk</b>	0.002	111	1
Swainson's Thrush	0.069	39	13
Townsend's Solitaire	0.118	12	13
Tree Swallow	0.103	49	8
<b>Upland Sandpiper</b>	0.047	95	1
Vesper Sparrow	0.563	10	42
Warbling Vireo	0.112	28	19
Western Meadowlark	0.332	18	19
Willet	0.054	90	2
<b>Willow Flycatcher</b>	0.049	96	1
Wilson's Warbler	0.068	61	5
Yellow Warbler	0.174	32	16

#### 4. BCR 16

In this section we present results for the BCR 16 portion of Wyoming. For results on All Other Lands, BLM and USFS lands within Wyoming BCR 16, refer to section III: Land Ownership.

Field technicians surveyed 32 of 37 planned transects throughout the BCR 16 portion of Wyoming in 2010. Technicians conducted 424 point counts within the 32 transects between 25 May and 18 July 2010. We detected 102 species, including 12 priority species as designated by WGFD (Appendix B).

RMBO estimated densities and population sizes for 84 species, 6 of which are priority species as designated by WGFD (Table 37). The data yielded robust density estimates (CV < 50%) for 38 of these species.

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We estimated the proportion of transects occupied (Psi) by 60 species, 5 of which are priority species as designated by WGFD (Table 38). The data yielded robust occupancy estimates (CV < 50%) for 35 of these species.

Table 37. Estimated densities per km<sup>2</sup> (D), population sizes (N), percent coefficient of variation of estimates (% CV) and number of independent detections (n) of breeding bird species in Wyoming Bird Conservation Region 16, 2010. S indicates the number of transects used in analyses. Priority species are bolded.

Species	WY BCR 16 (S=32)			
	D	N	% CV	n
American Crow	0.05	589	55	3
American Goldfinch	5.68	65,836	101	3
American Robin	13.86	160,661	21	110
<b>American Three-toed Woodpecker</b>	4.88	56,536	46	23
Black-billed Magpie	0.06	730	76	3
Black-headed Grosbeak	1.62	18,739	80	6
Black-throated Gray Warbler	0.14	1,627	100	1
Blue-gray Gnatcatcher	7.86	91,099	84	8
Brewer's Blackbird	6.73	78,006	52	15
<b>Brewer's Sparrow</b>	17.52	203,106	50	33
Broad-tailed Hummingbird	6.06	70,247	41	14
Brown Creeper	8.73	101,251	23	25
Brown-headed Cowbird	9.32	108,033	77	12
Bullock's Oriole	0.91	10,554	89	1
Cassin's Finch	1.31	15,181	44	13
Chipping Sparrow	4.81	55,810	50	19
Clark's Nutcracker	1.08	12,490	42	23
Common Nighthawk	0.58	6,685	64	6
Common Raven	0.36	4,141	46	13
Common Yellowthroat	0.23	2,623	85	3
Cordilleran Flycatcher	1.03	11,916	45	8
Dark-eyed Junco	38.26	443,541	13	187
Downy Woodpecker	2.66	30,787	34	13
Dusky Flycatcher	5.03	58,325	30	36
European Starling	0.39	4,544	88	2
Evening Grosbeak	1.22	14,196	33	11
Fox Sparrow	0.14	1,572	56	2
Golden-crowned Kinglet	1.72	19,956	78	3
<b>Grasshopper Sparrow</b>	0.93	10,739	77	3
Gray Jay	2.72	31,516	30	12
Green-tailed Towhee	19.92	230,984	26	90
Hairy Woodpecker	5.43	62,957	19	40
Hammond's Flycatcher	0.46	5,352	52	3

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Species	WY BCR 16 (S=32)			
	D	N	% CV	n
Hermit Thrush	4.19	48,590	16	113
Horned Lark	13.59	157,617	42	64
House Wren	7.28	84,414	29	53
Killdeer	1.59	18,400	69	10
Lark Sparrow	0.98	11,308	105	2
Lazuli Bunting	1.16	13,445	46	14
Lincoln's Sparrow	4.90	56,860	33	25
Loggerhead Shrike	0.29	3,321	92	1
MacGillivray's Warbler	0.96	11,179	55	7
Mallard	0.08	913	63	2
<b>McCown's Longspur</b>	0.45	5,241	90	1
Mountain Bluebird	0.87	10,123	37	5
Mountain Chickadee	17.44	202,208	16	120
Mourning Dove	1.70	19,744	35	32
Northern Flicker	1.33	15,395	23	34
Northern Harrier	0.16	1,873	92	1
Olive-sided Flycatcher	0.22	2,501	67	5
Pine Grosbeak	1.70	19,709	48	10
Pine Siskin	21.64	250,892	15	101
Plumbeous Vireo	0.48	5,607	68	6
Red Crossbill	4.48	51,997	29	26
Red-breasted Nuthatch	5.76	66,729	30	49
Red-naped Sapsucker	1.10	12,716	64	6
Red-tailed Hawk	0.06	714	78	2
Red-winged Blackbird	2.67	30,969	52	35
Rock Wren	1.75	20,298	22	40
Ruby-crowned Kinglet	12.08	140,017	17	109
<b>Sage Thrasher</b>	0.01	89	100	1
<b>Sandhill Crane</b>	0.02	222	83	1
Savannah Sparrow	2.30	26,698	57	4
Say's Phoebe	0.15	1,787	89	1
Song Sparrow	1.38	15,981	30	16
Spotted Towhee	3.53	40,940	63	9
Steller's Jay	0.23	2,642	67	4
Swainson's Thrush	0.37	4,280	73	4
Townsend's Solitaire	1.94	22,534	36	22
Tree Swallow	3.32	38,436	58	8
Vesper Sparrow	19.45	225,510	21	97
Violet-green Swallow	3.47	40,243	65	6
Warbling Vireo	10.10	117,084	23	123
Western Kingbird	1.09	12,625	88	2

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Species	WY BCR 16 (S=32)			
	D	N	% CV	n
Western Meadowlark	17.27	200,243	28	183
Western Tanager	4.89	56,739	21	61
Western Wood-Pewee	2.74	31,724	41	36
White-breasted Nuthatch	0.43	5,041	50	3
White-crowned Sparrow	0.44	5,103	83	4
White-throated Swift	0.38	4,393	110	3
Wilson's Snipe	1.72	19,892	53	12
Wilson's Warbler	0.50	5,740	107	1
Yellow Warbler	1.36	15,746	71	8
Yellow-rumped Warbler	31.32	363,158	13	255

Table 38. Estimated proportion of sample units occupied (Psi), percent coefficient of variation of Psi (% CV) and number of transects with one or more detections (n Tran) of breeding bird species in Wyoming Bird Conservation Region 16, 2010. Dashes indicate the data were insufficient for estimating site occupancy. A Psi estimate equal to 1 indicates the species was detected on all transects surveyed. S indicates the number of transects used in analyses. Priority species are bolded.

Species	WY BCR 16 (S=32)		
	Psi	% CV	n Tran
<b>American Three-toed Woodpecker</b>	<b>0.242</b>	<b>30</b>	<b>8</b>
Black-billed Magpie	0.032	71	1
Black-throated Gray Warbler	0.028	71	1
Blue-gray Gnatcatcher	0.127	71	2
<b>Brewer's Sparrow</b>	<b>0.310</b>	<b>35</b>	<b>4</b>
Broad-tailed Hummingbird	0.308	35	10
Brown Creeper	0.316	22	12
Brown-headed Cowbird	0.187	60	4
Bullock's Oriole	0.112	89	1
Cassin's Finch	0.164	32	7
Clark's Nutcracker	0.133	35	6
Common Nighthawk	0.108	56	3
Common Yellowthroat	0.058	68	2
Cordilleran Flycatcher	0.125	40	5
Downy Woodpecker	0.283	27	9
Dusky Flycatcher	0.247	20	12
Dusky Grouse	0.121	76	2
European Starling	0.020	98	1
Evening Grosbeak	0.160	36	6
Golden-crowned Kinglet	0.100	46	4
<b>Grasshopper Sparrow</b>	<b>0.114</b>	<b>76</b>	<b>2</b>
Gray Jay	0.182	29	8

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Species	WY BCR 16 (S=32)		
	Psi	% CV	n Tran
Green-tailed Towhee	0.596	17	13
Hairy Woodpecker	0.348	16	16
Hammond's Flycatcher	0.097	43	4
Horned Lark	0.329	32	5
Lark Sparrow	0.098	89	1
Lazuli Bunting	0.126	35	6
Lincoln's Sparrow	0.155	32	7
Loggerhead Shrike	0.271	91	1
MacGillivray's Warbler	0.104	40	5
<b>McCown's Longspur</b>	0.096	89	1
Mountain Bluebird	0.084	45	4
Northern Harrier	0.249	96	1
Olive-sided Flycatcher	0.099	46	4
Pine Grosbeak	0.114	40	5
Pine Siskin	0.448	9	23
Plumbeous Vireo	0.048	58	2
Red Crossbill	0.235	23	12
Red-naped Sapsucker	0.090	45	4
Rock Wren	0.157	31	7
Ruby-crowned Kinglet	0.356	12	19
<b>Sage Thrasher</b>	0.008	71	1
Savannah Sparrow	0.189	55	2
Say's Phoebe	0.149	89	1
Song Sparrow	0.192	29	8
Sora	0.020	98	1
Spotted Towhee	0.219	49	3
Swainson's Thrush	0.060	54	3
Townsend's Solitaire	0.285	20	13
Tree Swallow	0.088	45	4
Veery	0.057	112	1
Vesper Sparrow	0.578	7	10
Warbling Vireo	0.332	14	17
Western Meadowlark	0.443	20	7
White-throated Swift	0.030	71	1
Williamson's Sapsucker	0.050	68	2
Wilson's Snipe	0.121	43	4
Wilson's Warbler	0.046	68	2
Yellow Warbler	0.166	59	4



**5. BCR 17**

In this section we present results for the BCR 17 portion of Wyoming. For the BCR 17-wide results within Wyoming, refer to section I: BCR 17. For results on All Other Lands, BLM and USFS lands within Wyoming BCR 17, refer to section III: Land Ownership.

**6. BCR 18**

In this section we present results for the BCR 18 portion of Wyoming. For results on All Other Lands, BLM and DOD lands within Wyoming BCR 18, refer to section III: Land Ownership.

Field technicians surveyed 13 of 14 planned transects throughout the BCR 18 portion of Wyoming in 2010. Technicians conducted 161 point counts within the 13 transects between 18 May and 15 June 2010. We detected 61 species, including 8 priority species as designated by WGFD (Appendix B).

RMBO estimated densities and population sizes for 49 species, 7 of which are priority species as designated by WGFD (Table 39). The data yielded robust density estimates (CV < 50%) for nine of these species.

We estimated the proportion of transects occupied (Psi) by 26 species, 7 of which are priority species as designated by WGFD (Table 40). The data yielded robust occupancy estimates (CV < 50%) for 8 of these species.

Table 39. Estimated densities per km<sup>2</sup> (D), population sizes (N), percent coefficient of variation of estimates (% CV) and number of independent detections (n) of breeding bird species in Wyoming Bird Conservation Region 9, 2010. S indicates the number of transects used in analyses. Priority species are bolded.

Species	WY BCR 18 (S=13)			
	D	N	% CV	n
American Crow	0.10	1,220	87	2
American Goldfinch	0.13	1,608	107	6
American Kestrel	0.01	146	88	2
American Robin	0.06	690	69	10
Barn Swallow	4.02	49,282	85	1
Black-billed Magpie	0.00	10	103	1
Brewer's Blackbird	0.89	10,860	81	2
<b>Brewer's Sparrow</b>	3.51	43,053	70	5
Brown-headed Cowbird	5.75	70,461	43	4
Bullock's Oriole	1.12	13,771	84	2
Canada Goose	0.00	6	105	2
Cassin's Sparrow	2.35	28,811	49	10
Chipping Sparrow	1.41	17,267	91	1
Cliff Swallow	13.71	168,091	79	9
Common Grackle	1.73	21,178	88	4
Common Nighthawk	0.62	7,616	83	1
Common Yellowthroat	0.98	11,996	113	3

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Species	WY BCR 18 (S=13)			
	D	N	% CV	n
Downy Woodpecker	0.02	223	102	2
Eastern Kingbird	1.27	15,543	79	4
Eurasian Collared-Dove	0.05	606	107	8
European Starling	1.66	20,344	72	39
<b>Grasshopper Sparrow</b>	24.38	298,873	34	50
Horned Lark	78.70	964,739	24	237
House Finch	0.02	305	46	3
House Sparrow	0.02	206	100	1
Killdeer	2.58	31,572	53	10
<b>Lark Bunting</b>	70.21	860,628	27	209
Lark Sparrow	18.99	232,826	43	36
Mallard	0.51	6,243	62	2
<b>McCown's Longspur</b>	4.43	54,338	70	8
Mourning Dove	3.11	38,136	45	15
Northern Flicker	0.01	151	100	7
Northern Harrier	0.20	2,427	86	1
Northern Rough-winged Swallow	1.30	15,920	91	1
Red-winged Blackbird	2.22	27,271	65	6
Ring-necked Pheasant	0.13	1,570	84	3
Rock Pigeon	0.03	355	102	4
Rock Wren	2.70	33,124	62	17
<b>Sage Thrasher</b>	0.15	1,894	91	1
Savannah Sparrow	0.03	387	101	1
Song Sparrow	0.55	6,693	89	1
Spotted Towhee	0.72	8,839	88	1
<b>Swainson's Hawk</b>	0.26	3,205	87	2
<b>Upland Sandpiper</b>	0.43	5,294	83	2
Vesper Sparrow	0.90	11,088	73	13
Violet-green Swallow	6.24	76,477	67	5
Western Kingbird	0.69	8,518	80	7
Western Meadowlark	47.44	581,546	9	428
Yellow Warbler	7.71	94,464	54	10

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Table 40. Estimated proportion of sample units occupied (Psi), percent coefficient of variation of Psi (% CV) and number of transects with one or more detections (n Tran) of breeding bird species in Wyoming Bird Conservation Region 18, 2010. Dashes indicate the data were insufficient for estimating site occupancy. A Psi estimate equal to 1 indicates the species was detected on all transects surveyed. S indicates the number of transects used in analyses. Priority species are bolded.

Species	WY BCR 18 (S=13)		
	Psi	% CV	n Tran
<b>Brewer's Sparrow</b>	0.373	47	3
Brown-headed Cowbird	0.519	37	5
Bullock's Oriole	0.132	93	2
Cassin's Sparrow	0.220	62	2
Common Nighthawk	0.226	95	1
Common Yellowthroat	0.001	71	1
Downy Woodpecker	0.001	71	1
Eastern Kingbird	0.301	62	2
European Starling	0.119	93	2
<b>Grasshopper Sparrow</b>	0.675	23	7
Horned Lark	0.890	12	11
<b>Lark Bunting</b>	0.797	18	9
Lark Sparrow	0.482	36	5
<b>McCown's Longspur</b>	0.228	62	2
Mountain Plover	0.007	71	1
Northern Rough-winged Swallow	0.203	95	1
Rock Wren	0.256	62	2
<b>Sage Thrasher</b>	0.115	94	1
Savannah Sparrow	0.007	71	1
Song Sparrow	0.141	94	1
Spotted Towhee	0.112	94	1
<b>Swainson's Hawk</b>	0.318	107	1
<b>Upland Sandpiper</b>	0.139	94	1
Vesper Sparrow	0.142	89	3
Western Meadowlark	0.898	12	12
Yellow Warbler	0.366	47	4

### III. Land Ownership

#### A. All Other Lands

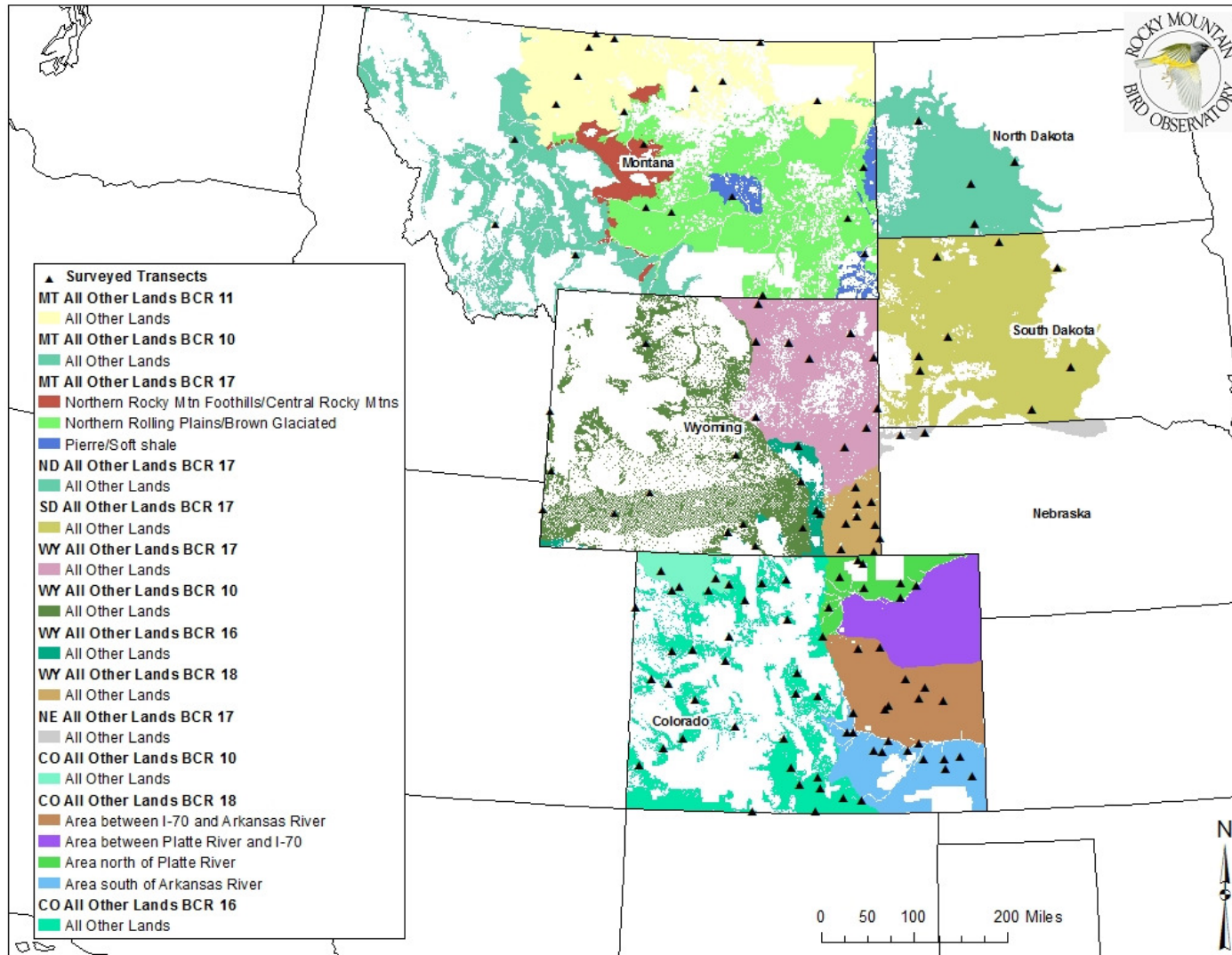


Figure 8. Survey locations on All Other Lands, 2010.

**1. Colorado**

**a) All Other Lands in Colorado BCR 16**

Field technicians surveyed 29 of 34 planned transects throughout All Other Lands in the BCR 16 portion of Colorado in 2010. Technicians conducted 310 point counts within the 29 transects between 21 May and 17 July 2010. We detected 138 species, including 34 priority species as designated by CDOW (Appendix B).

RMBO estimated densities and population sizes for 100 species, 20 of which are priority species as designated by CDOW (Table 41). The data yielded robust density estimates (CV < 50%) for 40 of these species.

We estimated the proportion of transects occupied (Psi) by 71 species, 24 of which are priority species as designated by CDOW (Table 42). The data yielded robust occupancy estimates (CV < 50%) for 29 of these species.

Table 41. Estimated densities per km<sup>2</sup> (D), population sizes (N), percent coefficient of variation of estimates (% CV) and number of independent detections (n) of breeding bird species on All Other Lands in Colorado Bird Conservation Region 16, 2010. S indicates the number of transects used in analyses. Priority species are bolded.

Species	All Other Lands (S=29)			
	D	N	% CV	n
American Crow	0.69	35,194	39	21
American Goldfinch	1.05	53,894	83	1
American Kestrel	0.08	3,918	92	1
American Pipit	0.24	12,330	82	1
American Robin	30.06	1,539,519	20	111
Ash-throated Flycatcher	1.42	72,550	44	11
Barn Swallow	3.99	204,487	57	3
Black-billed Magpie	2.04	104,469	29	42
Black-capped Chickadee	0.46	23,493	83	1
Black-headed Grosbeak	2.40	122,718	42	16
Blue-gray Gnatcatcher	13.19	675,605	26	30
Brewer's Blackbird	19.09	977,664	31	68
<b>Brewer's Sparrow</b>	13.25	678,829	30	57
<b>Broad-tailed Hummingbird</b>	19.45	996,319	39	21
Brown-headed Cowbird	16.17	828,374	28	34
Bullock's Oriole	1.48	75,667	89	4
Bushtit	3.32	169,775	65	6
Canada Goose	0.12	6,294	78	10
Canyon Wren	0.17	8,783	74	5
Chipping Sparrow	13.44	688,078	42	23
Clark's Nutcracker	2.97	152,126	41	28
Cliff Swallow	3.92	201,013	90	2
Common Grackle	1.68	86,099	89	3

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Species	All Other Lands (S=29)			
	D	N	% CV	n
Common Nighthawk	0.41	21,068	69	2
Common Raven	1.59	81,672	26	48
<b>Cordilleran Flycatcher</b>	0.82	42,250	60	3
Dark-eyed Junco	26.61	1,362,729	39	59
<b>Dusky Flycatcher</b>	8.08	413,614	46	27
European Starling	2.09	107,010	63	11
<b>Evening Grosbeak</b>	0.24	12,203	84	1
<b>Gray Flycatcher</b>	0.32	16,458	83	1
Gray Jay	2.42	124,167	84	5
<b>Gray Vireo</b>	0.47	23,984	65	4
Green-tailed Towhee	31.19	1,597,319	27	151
Hairy Woodpecker	0.31	15,679	84	1
Hammond's Flycatcher	0.33	16,869	88	1
Hermit Thrush	4.17	213,545	34	50
Horned Lark	22.89	1,172,153	26	133
House Finch	6.78	347,297	83	17
House Wren	19.86	1,017,055	32	70
<b>Juniper Titmouse</b>	2.45	125,280	88	3
Killdeer	0.40	20,644	65	2
Lark Sparrow	11.77	602,987	52	59
<b>Lazuli Bunting</b>	4.61	236,092	68	26
Lincoln's Sparrow	2.52	129,032	58	6
<b>Loggerhead Shrike</b>	0.70	35,716	76	6
MacGillivray's Warbler	1.77	90,602	62	6
Mallard	0.17	8,635	65	2
Mountain Bluebird	19.81	1,014,563	24	53
Mountain Chickadee	11.01	564,033	38	34
Mourning Dove	7.97	408,381	31	70
Northern Flicker	5.91	302,871	22	70
Northern Mockingbird	0.31	15,643	84	5
Northern Rough-winged Swallow	0.43	22,019	90	1
<b>Olive-sided Flycatcher</b>	0.09	4,730	86	1
Orange-crowned Warbler	3.08	157,640	65	7
Pine Siskin	9.80	501,753	50	21
<b>Pinyon Jay</b>	0.05	2,461	90	1
Plumbeous Vireo	1.49	76,096	44	10
<b>Pygmy Nuthatch</b>	8.64	442,679	91	12
<b>Red Crossbill</b>	1.75	89,806	67	4
Red-breasted Nuthatch	3.60	184,502	47	14
<b>Red-naped Sapsucker</b>	1.96	100,199	61	5
Red-tailed Hawk	0.20	10,121	64	3

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Species	All Other Lands (S=29)			
	D	N	% CV	n
Red-winged Blackbird	7.50	384,210	44	51
Ring-necked Pheasant	0.07	3,618	59	5
Rock Pigeon	0.35	17,829	92	1
Rock Wren	0.42	21,559	54	8
Ruby-crowned Kinglet	2.69	137,896	48	11
<b>Sage Sparrow</b>	0.97	49,740	51	7
Sage Thrasher	0.12	6,285	68	2
Savannah Sparrow	16.17	828,360	68	58
Say's Phoebe	0.56	28,830	49	9
Song Sparrow	5.24	268,467	45	29
Spotted Sandpiper	0.32	16,364	90	3
Spotted Towhee	10.74	550,108	41	45
Steller's Jay	1.59	81,194	56	13
<b>Swainson's Hawk</b>	0.13	6,649	91	3
Swainson's Thrush	0.40	20,234	100	2
Townsend's Solitaire	2.31	118,128	45	12
Tree Swallow	16.85	863,148	30	19
<b>Vesper Sparrow</b>	19.52	999,754	24	160
Violet-green Swallow	9.70	496,877	36	19
<b>Virginia's Warbler</b>	1.43	73,317	93	4
Warbling Vireo	7.19	368,144	39	40
Western Bluebird	0.59	30,438	88	1
Western Kingbird	2.21	113,146	59	10
Western Meadowlark	11.62	595,281	25	194
Western Scrub-Jay	0.89	45,540	76	9
Western Tanager	8.11	415,568	32	48
Western Wood-Pewee	6.22	318,577	33	48
White-breasted Nuthatch	0.93	47,665	45	3
<b>White-throated Swift</b>	0.51	26,057	92	6
Wild Turkey	0.11	5,533	92	2
Wilson's Snipe	2.83	145,042	66	10
Wilson's Warbler	2.12	108,552	101	2
Yellow Warbler	3.27	167,491	82	9
Yellow-breasted Chat	0.22	11,017	107	2
Yellow-headed Blackbird	0.62	31,646	57	4
Yellow-rumped Warbler	6.31	323,050	28	23

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Table 42. Estimated proportion of sample units occupied (Psi), percent coefficient of variation of Psi (% CV) and number of transects with one or more detections (n Tran) of breeding bird species on All Other Lands in Colorado Bird Conservation Region 16, 2010. Dashes indicate the data were insufficient for estimating site occupancy. A Psi estimate equal to 1 indicates the species was detected on all transects surveyed. S indicates the number of transects used in analyses. Priority species are bolded.

Species	All Other Lands (S=29)		
	Psi	% CV	n Tran
American Pipit	0.037	98	1
Ash-throated Flycatcher	0.145	46	4
Black-billed Magpie	0.306	33	7
<b>Black-chinned Hummingbird</b>	0.171	47	4
Black-throated Sparrow	0.035	98	1
Blue-gray Gnatcatcher	0.290	30	8
<b>Brewer's Sparrow</b>	0.391	24	11
<b>Broad-tailed Hummingbird</b>	0.423	25	10
Brown-headed Cowbird	0.682	18	15
Bullock's Oriole	0.129	55	3
Bushtit	0.303	50	4
Canada Goose	0.100	69	2
Cedar Waxwing	0.134	70	2
Clark's Nutcracker	0.307	33	7
Common Nighthawk	0.154	70	2
<b>Cordilleran Flycatcher</b>	0.098	68	2
<b>Dusky Flycatcher</b>	0.268	33	7
<b>Dusky Grouse</b>	0.258	77	2
European Starling	0.148	46	4
<b>Evening Grosbeak</b>	0.107	69	2
Gadwall	0.074	101	1
Gambel's Quail	0.110	55	3
<b>Gray Flycatcher</b>	0.036	98	1
Gray Jay	0.045	98	1
<b>Gray Vireo</b>	0.071	68	2
Green-tailed Towhee	0.506	19	14
Hairy Woodpecker	0.045	98	1
Hammond's Flycatcher	0.044	98	1
Horned Lark	0.313	28	9
<b>Juniper Titmouse</b>	0.110	55	3
Lark Sparrow	0.260	33	7
<b>Lazuli Bunting</b>	0.120	55	3
Lesser Goldfinch	0.039	98	1
Lincoln's Sparrow	0.214	41	5
<b>Loggerhead Shrike</b>	0.212	71	2



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Species	All Other Lands (S=29)		
	Psi	% CV	n Tran
MacGillivray's Warbler	0.155	46	4
Mountain Bluebird	0.445	24	11
Northern Rough-winged Swallow	0.066	99	1
<b>Olive-sided Flycatcher</b>	0.049	98	1
Orange-crowned Warbler	0.124	55	3
Pine Siskin	0.185	41	5
Plumbeous Vireo	0.147	46	4
<b>Pygmy Nuthatch</b>	0.037	98	1
<b>Red Crossbill</b>	0.080	68	2
<b>Red-naped Sapsucker</b>	0.174	46	4
Rock Wren	0.120	55	3
Ruby-crowned Kinglet	0.179	41	5
<b>Rufous Hummingbird</b>	0.066	100	1
<b>Sage Sparrow</b>	0.107	55	3
Sage Thrasher	0.072	68	2
Savannah Sparrow	0.109	55	3
Say's Phoebe	0.299	41	5
Song Sparrow	0.269	36	6
Spotted Towhee	0.354	26	10
<b>Swainson's Hawk</b>	0.116	112	1
Swainson's Thrush	0.036	98	1
Townsend's Solitaire	0.176	46	4
Tree Swallow	0.526	22	12
<b>Vesper Sparrow</b>	0.508	19	14
<b>Virginia's Warbler</b>	0.074	68	2
Warbling Vireo	0.295	30	8
Western Bluebird	0.040	98	1
Western Meadowlark	0.459	21	13
Western Scrub-Jay	0.075	68	2
<b>White-throated Swift</b>	0.089	69	2
<b>Williamson's Sapsucker</b>	0.100	69	2
<b>Wilson's Phalarope</b>	0.054	99	1
Wilson's Snipe	0.166	56	3
Wilson's Warbler	0.046	98	1
Yellow Warbler	0.155	46	5
Yellow-breasted Chat	0.040	98	1

**b) All Other Lands in Colorado BCR 18**

Field technicians surveyed 33 of 35 planned transects throughout All Other Lands in the BCR 18 portion of Colorado in 2010. Technicians conducted 359 point counts within the 33 transects between 10 May and 18 June 2010. We detected 71 species, including 16 priority species as designated by CDOW (Appendix B).

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RMBO estimated densities and population sizes for 53 species, 9 of which are priority species as designated by CDOW (Table 43). The data yielded robust density estimates (CV < 50%) for 22 of these species.

We estimated the proportion of transects occupied (Psi) by 28 species, 10 of which are priority species as designated by CDOW (Table 44). The data yielded robust occupancy estimates (CV < 50%) for 10 of these species.

Table 43. Estimated densities per km<sup>2</sup> (D), population sizes (N), percent coefficient of variation of estimates (% CV) and number of independent detections (n) of breeding bird species on All Other Lands in Colorado Bird Conservation Region 18, 2010. S indicates the number of transects used in analyses. Priority species are bolded.

Species	All Other Lands (S=33)			
	D	N	%CV	n
American Crow	0.09	8,655	83	7
American Goldfinch	2.35	238,568	90	6
American Robin	3.61	367,142	52	34
Barn Swallow	24.07	2,444,853	59	20
Black-billed Magpie	0.09	8,911	66	4
Black-capped Chickadee	0.17	17,332	82	1
Blue-gray Gnatcatcher	0.16	16,615	84	1
Brewer's Blackbird	4.83	490,955	36	19
<b>Brewer's Sparrow</b>	5.06	513,790	36	40
Brown-headed Cowbird	5.54	562,775	32	16
Bullock's Oriole	1.27	128,578	89	4
Canada Goose	0.01	1,502	83	1
<b>Cassin's Sparrow</b>	11.41	1,159,007	23	164
Chipping Sparrow	12.48	1,267,372	70	25
Clay-colored Sparrow	0.28	28,891	85	5
Cliff Swallow	10.18	1,033,961	66	7
Common Grackle	12.20	1,239,385	49	41
Common Nighthawk	0.71	71,602	70	4
Common Raven	0.11	11,243	47	3
Dark-eyed Junco	0.34	34,080	102	2
Downy Woodpecker	0.33	33,041	84	2
Eastern Kingbird	0.10	10,338	102	2
Eurasian Collared-Dove	2.02	204,846	76	16
European Starling	8.72	885,543	40	43
Grasshopper Sparrow	15.54	1,577,961	31	84
Horned Lark	120.03	12,190,813	10	863
House Finch	7.60	772,216	65	49
House Sparrow	20.58	2,090,037	70	55
Killdeer	3.94	400,208	25	27

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Species	All Other Lands (S=33)			
	D	N	%CV	n
<b>Lark Bunting</b>	27.98	2,841,270	26	252
Lark Sparrow	5.44	552,702	37	26
<b>Loggerhead Shrike</b>	0.17	17,041	70	2
<b>Long-billed Curlew</b>	0.03	3,156	86	1
Mallard	0.31	31,091	65	6
<b>McCown's Longspur</b>	1.18	120,259	32	11
Mourning Dove	6.82	692,717	18	74
Northern Flicker	0.09	9,576	82	3
<b>Northern Harrier</b>	0.02	2,476	87	1
Northern Mockingbird	0.34	34,562	51	6
Northern Rough-winged Swallow	0.16	16,245	90	1
Red-tailed Hawk	0.59	59,921	37	11
Red-winged Blackbird	6.32	641,889	29	49
Ring-necked Pheasant	0.16	16,362	38	15
Rock Pigeon	0.82	82,909	47	5
Say's Phoebe	0.47	47,920	49	10
<b>Swainson's Hawk</b>	0.16	16,456	40	5
<b>Vesper Sparrow</b>	1.15	117,150	72	12
Violet-green Swallow	1.78	180,419	66	3
Western Kingbird	13.39	1,360,374	22	71
Western Meadowlark	28.85	2,930,327	9	605
White-crowned Sparrow	0.99	100,315	97	9
Yellow Warbler	1.09	110,716	79	3
Yellow-rumped Warbler	0.71	72,536	82	8

Table 44. Estimated proportion of sample units occupied (Psi), percent coefficient of variation of Psi (% CV) and number of transects with one or more detections (n Tran) of breeding bird species on All Other Lands in Colorado Bird Conservation Region 18, 2010. Dashes indicate the data were insufficient for estimating site occupancy. A Psi estimate equal to 1 indicates the species was detected on all transects surveyed. S indicates the number of transects used in analyses. Priority species are bolded.

Species	All Other Lands (S=33)		
	Psi	% CV	n Tran
Black-billed Magpie	0.018	93	1
Blue Jay	0.016	93	1
Blue-gray Gnatcatcher	0.015	93	1
<b>Brewer's Sparrow</b>	0.260	30	10
Brown-headed Cowbird	0.352	29	10
Bullock's Oriole	0.071	61	2
<b>Cassin's Sparrow</b>	0.347	23	11
Clay-colored Sparrow	0.017	93	1

Species	All Other Lands (S=33)		
	Psi	% CV	n Tran
Common Nighthawk	0.216	52	3
Downy Woodpecker	0.025	93	1
Eastern Kingbird	0.020	93	1
European Starling	0.225	33	8
Grasshopper Sparrow	0.324	27	10
Horned Lark	0.956	3	31
<b>Lark Bunting</b>	0.648	14	21
Lark Sparrow	0.238	28	9
<b>Loggerhead Shrike</b>	0.155	76	2
<b>McCown's Longspur</b>	0.161	40	6
<b>Mountain Plover</b>	0.064	75	2
Northern Rough-winged Swallow	0.025	94	1
Pine Siskin	0.015	93	1
<b>Red-naped Sapsucker</b>	0.017	93	1
Say's Phoebe	0.123	52	3
<b>Swainson's Hawk</b>	0.161	88	2
<b>Upland Sandpiper</b>	0.018	93	1
<b>Vesper Sparrow</b>	0.061	74	2
Western Meadowlark	0.885	7	30
Yellow Warbler	0.097	58	3

## 2. Montana

### a) All Other Lands in Montana BCR 10

Field technicians surveyed two planned transects, plus one additional transect, throughout All Other Lands in the BCR 10 portion of Montana in 2010. Technicians conducted 21 point counts within the 3 transects between 21 June and 24 June. We detected 46 species, including 4 priority species as designated by MTFWP (Appendix B).

RMBO estimated densities and population sizes for 31 species, 4 of which are priority species as designated by MTFWP (Table 45). The data yielded robust density estimates (CV < 50%) for two of these species.

We estimated the proportion of transects occupied (Psi) by 20 species, 4 of which are priority species as designated by MTFWP (Table 46). The data yielded robust occupancy estimates (CV < 50%) for five of these species.

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Table 45. Estimated densities per km<sup>2</sup> (D), population sizes (N), percent coefficient of variation of estimates (% CV) and number of independent detections (n) of breeding bird species on All Other Lands in Montana Bird Conservation Region 10, 2010. S indicates the number of transects used in analyses. Priority species are bolded.

Species	All Other Lands (S=3)			
	D	N	% CV	n
American Robin	43.98	2,340,144	35	11
Barn Swallow	58.94	3,136,559	102	3
Black-billed Magpie	9.60	511,067	57	14
Black-capped Chickadee	6.77	360,355	100	1
Brewer's Blackbird	4.14	220,531	100	1
<b>Brewer's Sparrow</b>	3.43	182,673	100	1
Brown-headed Cowbird	14.05	747,421	100	2
Chipping Sparrow	59.80	3,182,075	103	6
<b>Clark's Nutcracker</b>	1.49	79,262	101	1
Common Raven	1.95	103,938	50	4
Common Yellowthroat	4.77	253,618	120	2
Eastern Kingbird	2.02	107,468	100	1
European Starling	55.74	2,965,948	94	9
<b>Grasshopper Sparrow</b>	15.20	809,086	64	6
Green-tailed Towhee	3.05	162,257	100	1
Hermit Thrush	1.23	65,510	100	1
Horned Lark	27.21	1,448,125	90	12
House Sparrow	83.66	4,452,051	100	7
<b>Long-billed Curlew</b>	2.57	136,690	103	6
Mountain Bluebird	16.55	880,871	100	3
Northern Flicker	2.49	132,732	100	2
Red-breasted Nuthatch	7.60	404,289	115	2
Red-winged Blackbird	10.86	577,771	100	5
Rock Wren	0.78	41,336	100	1
Ruby-crowned Kinglet	3.61	192,286	100	1
Townsend's Solitaire	2.84	150,994	101	1
Vesper Sparrow	28.82	1,533,489	35	16
Western Meadowlark	21.23	1,129,586	53	24
Wilson's Snipe	16.72	889,900	104	4
Yellow Warbler	5.36	285,455	100	1
Yellow-rumped Warbler	4.05	215,441	100	1

Table 46. Estimated proportion of sample units occupied (Psi), percent coefficient of variation of Psi (% CV) and number of transects with one or more detections (n Tran) of breeding bird species on All Other Lands in Montana Bird Conservation Region 10, 2010. Dashes indicate the data were insufficient for estimating site occupancy. A Psi estimate equal to 1 indicates the species was detected on all transects surveyed. S indicates the number of transects used in analyses. Priority species are bolded.

Species	All Other Lands (S=3)		
	Psi	% CV	n Tran
Bank Swallow	0.391	82	1
Black-billed Magpie	0.788	41	2
<b>Brewer's Sparrow</b>	0.337	82	1
Brown-headed Cowbird	0.459	81	1
<b>Clark's Nutcracker</b>	0.563	81	1
Common Yellowthroat	0.669	80	1
Eastern Kingbird	0.740	82	1
European Starling	0.781	41	2
<b>Grasshopper Sparrow</b>	0.680	41	2
Green-tailed Towhee	0.367	81	1
Horned Lark	0.671	41	2
Lazuli Bunting	0.486	81	1
<b>Long-billed Curlew</b>	0.886	86	1
Mountain Bluebird	0.894	41	2
Northern Rough-winged Swallow	--	--	1
Rock Wren	0.438	80	1
Ruby-crowned Kinglet	0.373	82	1
Savannah Sparrow	0.374	81	1
Spotted Towhee	0.365	82	1
Townsend's Solitaire	0.481	80	1
Tree Swallow	0.542	81	1
Vesper Sparrow	1	--	3
Western Meadowlark	1	--	3
Wilson's Snipe	0.821	83	1
Yellow Warbler	0.384	81	1

**b) All Other Lands in Montana BCR 11**

Field technicians surveyed all 10 planned transects throughout All Other Lands in the BCR 11 portion of Montana in 2010. Technicians conducted 145 point counts within the 10 transects between 5 June and 30 June 2010. We detected 66 species, including 9 priority species as designated by MTFWP (Appendix B).

RMBO estimated densities and population sizes for 36 species, 6 of which are priority species as designated by MTFWP (Table 47). The data yielded robust density estimates (CV < 50%) for 10 of these species.

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We estimated the proportion of transects occupied (Psi) by 29 species, 6 of which are priority species as designated by MTFWP (Table 48). The data yielded robust occupancy estimates (CV < 50%) for 10 of these species.

Table 47. Estimated densities per km<sup>2</sup> (D), population sizes (N), percent coefficient of variation of estimates (% CV) and number of independent detections (n) of breeding bird species on All Other Lands in Montana Bird Conservation Region 11, 2010. S indicates the number of transects used in analyses. Priority species are bolded.

Species	All Other Lands (S=10)			
	D	N	% CV	n
American Robin	0.58	36,262	86	1
<b>Baird's Sparrow</b>	6.92	433,114	42	35
Barn Swallow	2.85	178,213	85	1
Brewer's Blackbird	4.14	259,011	42	7
<b>Brewer's Sparrow</b>	8.95	560,470	50	18
Brown-headed Cowbird	16.27	1,019,206	38	16
<b>Chestnut-collared Longspur</b>	33.73	2,112,386	55	55
Clay-colored Sparrow	1.63	102,387	69	5
Common Grackle	2.40	150,072	86	2
Common Yellowthroat	1.38	86,460	80	4
Eastern Kingbird	0.58	36,637	78	2
European Starling	0.90	56,173	86	1
<b>Grasshopper Sparrow</b>	11.38	712,544	30	31
Horned Lark	86.05	5,389,302	15	262
House Wren	1.82	113,962	98	3
Killdeer	2.15	134,935	36	5
Lark Bunting	7.23	453,020	64	30
Lark Sparrow	0.85	52,991	104	2
Least Flycatcher	0.61	38,399	87	1
<b>Long-billed Curlew</b>	1.12	69,898	48	18
<b>McCown's Longspur</b>	1.96	122,810	85	5
Mourning Dove	2.19	137,279	56	9
Northern Flicker	0.18	11,312	86	1
Northern Harrier	0.14	8,776	91	1
Red-winged Blackbird	6.92	433,326	71	22
Ring-necked Pheasant	0.24	15,135	77	8
Rock Wren	0.11	7,046	83	1
Savannah Sparrow	24.54	1,536,772	39	45
Say's Phoebe	0.13	8,375	88	1
Vesper Sparrow	20.08	1,257,935	23	77
Western Kingbird	0.47	29,583	88	1
Western Meadowlark	9.48	593,672	21	74
Western Wood-Pewee	0.28	17,353	85	1

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Species	All Other Lands (S=10)			
	D	N	% CV	n
Wilson's Snipe	1.21	75,843	90	2
Yellow Warbler	5.44	340,598	92	7
Yellow-headed Blackbird	0.99	62,055	90	3

Table 48. Estimated proportion of sample units occupied (Psi), percent coefficient of variation of Psi (% CV) and number of transects with one or more detections (n Tran) of breeding bird species on All Other Lands in Montana Bird Conservation Region 11, 2010. Dashes indicate the data were insufficient for estimating site occupancy. A Psi estimate equal to 1 indicates the species was detected on all transects surveyed. S indicates the number of transects used in analyses. Priority species are bolded.

Species	All Other Lands (S=10)		
	Psi	% CV	n Tran
<b>Baird's Sparrow</b>	0.515	32	6
Blue-winged Teal	0.174	97	1
<b>Brewer's Sparrow</b>	0.504	32	5
Brown-headed Cowbird	0.423	39	4
Cedar Waxwing	0.162	96	1
<b>Chestnut-collared Longspur</b>	0.300	48	4
Clay-colored Sparrow	0.218	63	2
Common Yellowthroat	0.145	95	1
Eastern Kingbird	0.132	95	1
European Starling	0.103	95	1
Gadwall	0.184	97	2
<b>Grasshopper Sparrow</b>	0.600	26	6
Gray Catbird	0.152	96	1
Horned Lark	0.900	11	9
Lark Bunting	0.300	48	3
Lark Sparrow	0.102	95	1
Least Flycatcher	0.146	96	1
<b>Long-billed Curlew</b>	0.457	51	3
Marbled Godwit	0.264	64	2
<b>McCown's Longspur</b>	0.101	95	1
Northern Harrier	0.244	101	1
Savannah Sparrow	0.706	21	7
Say's Phoebe	0.156	95	1
Song Sparrow	0.116	95	1
Vesper Sparrow	0.907	11	9
Western Meadowlark	0.703	21	7
Willet	0.138	96	1
Wilson's Snipe	0.137	95	1
Yellow Warbler	0.106	95	1



**c) All Other Lands in Montana BCR 17**

Field technicians surveyed all nine planned transects throughout All Other Lands in the BCR 17 portion of Montana in 2010. Technicians conducted 105 point counts within the 9 transects between 17 May and 19 June 2010. We detected 76 species, including 8 priority species as designated by MTFWP (Appendix B).

RMBO estimated densities and population sizes for 55 species, 5 of which are priority species as designated by MTFWP (Table 49). The data yielded robust density estimates (CV < 50%) for 11 of these species.

We estimated the proportion of transects occupied (Psi) by 33 species, 5 of which are priority species as designated by MTFWP (Table 50). The data yielded robust occupancy estimates (CV < 50%) for nine of these species.

Table 49. Estimated densities per km<sup>2</sup> (D), population sizes (N), percent coefficient of variation of estimates (% CV) and number of independent detections (n) of breeding bird species on All Other Lands in Montana Bird Conservation Region 17, 2010. S indicates the number of transects used in analyses. Priority species are bolded.

Species	All Other Lands (S=9)			
	D	N	% CV	n
American Kestrel	0.34	32,653	89	1
American Robin	21.39	2,043,801	69	19
Barn Swallow	6.08	580,424	102	3
Black-billed Magpie	2.14	204,229	75	7
Black-capped Chickadee	20.50	1,957,983	91	10
Brewer's Blackbird	7.36	702,797	53	11
<b>Brewer's Sparrow</b>	38.20	3,648,839	77	39
Brown-headed Cowbird	60.10	5,741,640	26	39
Bullock's Oriole	4.95	472,968	60	3
Canada Goose	0.42	40,293	57	9
<b>Cassin's Finch</b>	0.96	92,022	87	1
Chipping Sparrow	21.59	2,062,458	77	13
Clay-colored Sparrow	0.70	66,693	48	3
Cliff Swallow	8.77	837,646	83	1
Common Yellowthroat	2.89	275,606	95	4
Dark-eyed Junco	2.02	192,497	87	1
Dusky Flycatcher	1.34	127,673	87	1
Eastern Kingbird	2.45	233,570	73	4
European Starling	3.75	358,121	88	2
<b>Grasshopper Sparrow</b>	17.18	1,641,368	43	50
Horned Lark	11.21	1,070,840	39	41
House Wren	21.55	2,058,549	89	17
Killdeer	4.06	387,858	74	14
Lark Bunting	22.79	2,177,107	65	67

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Species	All Other Lands (S=9)			
	D	N	% CV	n
Lark Sparrow	19.36	1,849,204	25	29
Least Flycatcher	1.28	122,402	84	1
<b>Loggerhead Shrike</b>	0.52	49,612	93	1
<b>Long-billed Curlew</b>	0.18	16,863	103	4
Mallard	0.63	60,494	65	3
Mountain Bluebird	1.67	159,540	88	1
Mourning Dove	8.96	855,491	38	19
Northern Flicker	3.77	360,600	88	10
Northern Harrier	0.59	55,950	54	2
Northern Rough-winged Swallow	1.92	183,509	86	1
Red Crossbill	3.92	374,231	88	2
Red-winged Blackbird	12.59	1,203,030	78	33
Ring-necked Pheasant	0.93	89,063	44	24
Rock Pigeon	3.11	297,178	86	2
Rock Wren	0.94	89,840	54	4
Sandhill Crane	0.20	19,027	47	13
Savannah Sparrow	12.77	1,220,314	14	34
Say's Phoebe	2.59	247,059	85	10
Spotted Sandpiper	0.16	15,483	106	1
Spotted Towhee	6.40	611,298	94	6
Sprague's Pipit	1.02	97,716	104	8
Swainson's Hawk	0.19	18,471	86	1
Townsend's Solitaire	0.86	82,042	88	1
Upland Sandpiper	0.75	71,417	72	3
Vesper Sparrow	23.60	2,254,540	14	65
Western Kingbird	2.23	212,560	55	3
Western Meadowlark	30.64	2,927,220	16	187
White-breasted Nuthatch	4.16	397,249	88	3
Wild Turkey	0.24	23,058	91	1
Yellow Warbler	6.49	620,405	93	4
Yellow-rumped Warbler	8.58	819,418	87	7

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Table 50. Estimated proportion of sample units occupied (Psi), percent coefficient of variation of Psi (% CV) and number of transects with one or more detections (n Tran) of breeding bird species on All Other Lands in Montana Bird Conservation Region 17, 2010. Dashes indicate the data were insufficient for estimating site occupancy. A Psi estimate equal to 1 indicates the species was detected on all transects surveyed. S indicates the number of transects used in analyses. Priority species are bolded.

Species	All Other Lands (S=9)		
	Psi	% CV	n Tran
Black-billed Magpie	0.846	34	4
Brown-headed Cowbird	0.958	3	8
<b>Brewer's Sparrow</b>	0.520	34	4
Brown Thrasher	0.311	92	1
Bullock's Oriole	0.409	54	2
<b>Cassin's Finch</b>	0.219	89	1
Canada Goose	0.210	90	1
Canyon Wren	0.278	90	1
Clay-colored Sparrow	--	--	2
Common Yellowthroat	0.266	89	1
Dusky Flycatcher	0.173	89	1
Eastern Kingbird	0.486	53	2
European Starling	0.171	89	1
<b>Grasshopper Sparrow</b>	0.396	43	4
Horned Lark	0.533	32	6
Lark Bunting	0.509	34	4
Lark Sparrow	0.913	18	7
Least Flycatcher	0.269	90	1
<b>Loggerhead Shrike</b>	0.475	90	1
Marbled Godwit	0.082	71	1
Mountain Bluebird	0.186	89	1
Northern Harrier	0.419	96	1
Northern Rough-winged Swallow	0.295	89	1
Red Crossbill	0.182	89	1
Rock Wren	0.394	54	2
Say's Phoebe	--	--	2
Savannah Sparrow	0.298	48	3
<b>Sprague's Pipit</b>	0.078	71	1
Spotted Towhee	0.161	89	1
Swainson's Hawk	0.452	102	1
Townsend's Solitaire	0.205	89	1
Upland Sandpiper	0.075	71	1
Vesper Sparrow	0.963	3	8
Western Meadowlark	1	--	9
Wilson's Phalarope	0.084	72	1
Yellow Warbler	0.179	89	1

**3. All other Lands in North Dakota BCR 17**

Field technicians surveyed 9 of 10 planned transects throughout All Other Lands in the BCR 17 portion of North Dakota in 2010. Technicians conducted 65 point counts within the 9 transects between 7 June and 30 June 2010. We detected 63 species, including 10 priority species as designated by NDGFD (Appendix B).

RMBO estimated densities and population sizes for 38 species, 4 of which are priority species as designated by NDGFD (Table 51). The data yielded robust density estimates (CV < 50%) for 3 of these species.

We estimated the proportion of transects occupied (Psi) by 21 species, 4 of which are priority species as designated by NDGFD (Table 52). The data yielded robust occupancy estimates (CV < 50%) for 2 of these species.

Table 51. Estimated densities per km<sup>2</sup> (D), population sizes (N), percent coefficient of variation of estimates (% CV) and number of independent detections (n) of breeding bird species on All Other Lands in North Dakota Bird Conservation Region 17, 2010. S indicates the number of transects used in analyses. Priority species are bolded.

Species	All Other Lands (S=4)			
	D	N	% CV	n
American Crow	0.44	21,183	84	1
American Goldfinch	14.18	681,201	85	1
American Kestrel	1.03	49,521	83	1
American Redstart	14.73	707,621	86	3
American Robin	18.25	876,522	68	5
Barn Swallow	143.51	6,892,314	79	8
Black-capped Chickadee	6.18	296,943	85	1
Black-headed Grosbeak	2.02	96,944	85	1
<b>Bobolink</b>	15.80	758,724	52	6
Brown-headed Cowbird	89.77	4,311,282	42	14
Canada Goose	0.33	15,911	86	2
Chipping Sparrow	12.57	603,703	85	2
Cliff Swallow	105.80	5,081,421	95	4
Common Grackle	7.55	362,749	87	1
Common Yellowthroat	10.88	522,472	60	5
Downy Woodpecker	11.79	566,060	87	2
European Starling	22.62	1,086,235	84	4
<b>Grasshopper Sparrow</b>	30.08	1,444,540	67	13
Horned Lark	4.14	198,883	86	2
House Wren	19.12	918,220	93	5
Killdeer	5.43	260,928	58	2
Lazuli Bunting	2.39	114,773	86	1
Least Flycatcher	15.46	742,527	86	4
Mountain Bluebird	10.08	483,909	83	2
Mourning Dove	23.03	1,106,088	52	15

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Species	All Other Lands (S=4)			
	D	N	% CV	n
<b>Northern Harrier</b>	0.88	42,426	90	1
Ovenbird	9.39	450,926	85	4
Red-winged Blackbird	17.84	856,981	54	9
Ring-necked Pheasant	2.29	109,753	42	12
Savannah Sparrow	53.52	2,570,628	61	17
Spotted Sandpiper	1.44	68,944	92	1
Spotted Towhee	6.43	309,027	104	2
<b>Upland Sandpiper</b>	1.93	92,549	57	2
Vesper Sparrow	1.64	78,978	86	1
Warbling Vireo	4.84	232,658	85	2
Western Meadowlark	16.15	775,677	33	20
White-breasted Nuthatch	4.18	200,820	86	1
Yellow Warbler	39.18	1,881,784	90	8

Table 52. Estimated proportion of sample units occupied (Psi), percent coefficient of variation of Psi (% CV) and number of transects with one or more detections (n Tran) of breeding bird species on All Other Lands in North Dakota Bird Conservation Region 17, 2010. Dashes indicate the data were insufficient for estimating site occupancy. A Psi estimate equal to 1 indicates the species was detected on all transects surveyed. S indicates the number of transects used in analyses. Priority species are bolded.

Species	All Other Lands (S=4)		
	Psi	% CV	n Tran
Bank Swallow	0.348	87	1
<b>Bobolink</b>	0.552	50	2
Brown-headed Cowbird	0.881	29	3
Cedar Waxwing	0.720	87	1
Common Yellowthroat	--	--	2
Downy Woodpecker	0.689	86	1
European Starling	0.296	86	1
Gadwall	1	--	2
<b>Grasshopper Sparrow</b>	0.524	50	2
Horned Lark	0.265	87	1
Lazuli Bunting	0.354	86	1
Least Flycatcher	0.626	87	1
Mountain Bluebird	0.336	86	1
<b>Northern Harrier</b>	--	--	1
Ovenbird	0.319	86	1
Red-eyed Vireo	0.320	87	1
Savannah Sparrow	0.590	50	2
Spotted Towhee	0.274	87	1
<b>Upland Sandpiper</b>	0.493	87	1

Species	All Other Lands (S=4)		
	Psi	% CV	n Tran
Vesper Sparrow	0.272	87	1
Warbling Vireo	0.295	86	1
Western Meadowlark	0.750	29	3
<b>Willet</b>	0.513	89	1
Yellow Warbler	0.339	86	1

#### 4. All Other Lands in South Dakota BCR 17

Field technicians surveyed 8 of 10 planned transects throughout All Other Lands in the BCR 17 portion of South Dakota in 2010. Technicians conducted 87 point counts within the 8 transects between 17 May and 2 July 2010. We detected 63 species, including 6 priority species as designated by SDGFP (Appendix B).

RMBO estimated densities and population sizes for 40 species, 3 of which are priority species as designated by SDGFP (Table 53). The data yielded robust density estimates (CV < 50%) for 8 of these species.

We estimated the proportion of transects occupied (Psi) by 27 species, 5 of which are priority species as designated by SDGFP (Table 54). The data yielded robust occupancy estimates (CV < 50%) for seven of these species.

Table 53. Estimated densities per km<sup>2</sup> (D), population sizes (N), percent coefficient of variation of estimates (% CV) and number of independent detections (n) of breeding bird species on All Other Lands in South Dakota Bird Conservation Region 17, 2010. S indicates the number of transects used in analyses. Priority species are bolded

Species	All Other Lands (S=8)			
	D	N	% CV	n
American Crow	0.12	10,486	83	1
American Goldfinch	7.50	674,431	107	2
American Kestrel	0.27	24,515	84	1
American Robin	0.96	86,781	89	1
Barn Swallow	4.74	426,489	87	1
Bobolink	7.66	688,585	85	11
Brown-headed Cowbird	96.62	8,689,320	23	57
Bullock's Oriole	1.32	118,361	91	1
Canada Goose	0.04	3,938	85	1
Canyon Wren	0.12	10,992	92	1
<b>Chestnut-collared Longspur</b>	49.06	4,411,849	49	48
Cliff Swallow	27.97	2,515,462	61	4
Common Grackle	2.00	179,572	84	1
Common Nighthawk	0.73	65,912	90	1
Common Yellowthroat	1.73	155,184	99	3
Eastern Kingbird	0.97	87,677	106	2
European Starling	1.49	134,430	85	1

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Species	All Other Lands (S=8)			
	D	N	% CV	n
Grasshopper Sparrow	66.67	5,995,772	22	109
Horned Lark	20.02	1,800,749	53	37
Killdeer	5.75	516,671	44	8
<b>Lark Bunting</b>	1.21	108,414	52	3
Lark Sparrow	7.10	638,220	65	7
Least Flycatcher	1.02	91,893	85	1
Loggerhead Shrike	0.41	37,246	94	1
Mallard	0.90	81,045	51	3
Mourning Dove	6.90	620,555	31	17
Northern Flicker	1.20	108,289	89	4
Northern Rough-winged Swallow	4.60	413,309	65	3
Red-tailed Hawk	0.47	42,219	98	2
Red-winged Blackbird	17.30	1,555,519	54	33
Ring-necked Pheasant	1.41	126,773	45	28
Spotted Towhee	0.85	76,489	91	1
<b>Sprague's Pipit</b>	1.80	161,552	94	6
Upland Sandpiper	9.93	893,388	35	39
Vesper Sparrow	1.74	156,385	66	4
Western Kingbird	7.87	707,952	80	10
Western Meadowlark	23.91	2,150,312	28	112
Wilson's Snipe	1.01	90,752	89	1
Yellow Warbler	1.29	116,443	89	1
Yellow-headed Blackbird	7.16	643,533	86	13

Table 54. Estimated proportion of sample units occupied (Psi), percent coefficient of variation of Psi (% CV) and number of transects with one or more detections (n Tran) of breeding bird species on All Other Lands in South Dakota Bird Conservation Region 17, 2010. Dashes indicate the data were insufficient for estimating site occupancy. A Psi estimate equal to 1 indicates the species was detected on all transects surveyed. S indicates the number of transects used in analyses. Priority species are bolded.

Species	All Other Lands (S=8)		
	Psi	% CV	n Tran
Blue-winged Teal	0.258	96	1
Bobolink	0.129	94	2
Brown Thrasher	0.242	96	1
Brown-headed Cowbird	1	--	8
Bullock's Oriole	0.157	93	1
<b>Chestnut-collared Longspur</b>	0.378	46	3
Common Nighthawk	0.285	94	1
Common Yellowthroat	0.212	93	1
Eastern Kingbird	0.188	93	1

Species	All Other Lands (S=8)		
	Psi	% CV	n Tran
European Starling	0.264	61	2
Gadwall	0.264	96	1
Grasshopper Sparrow	0.945	13	7
Horned Lark	0.388	46	3
<b>Lark Bunting</b>	0.253	61	2
Lark Sparrow	0.408	45	3
Least Flycatcher	0.218	94	1
Loggerhead Shrike	0.382	95	1
<b>Marbled Godwit</b>	0.390	62	2
Northern Rough-winged Swallow	0.724	46	3
Northern Shoveler	0.619	68	2
Spotted Towhee	0.129	94	1
<b>Sprague's Pipit</b>	0.158	94	1
Upland Sandpiper	0.844	24	5
Vesper Sparrow	0.262	61	2
Western Meadowlark	0.751	20	6
<b>Wilson's Phalarope</b>	0.197	94	1
Wilson's Snipe	0.202	94	1
Yellow Warbler	0.143	93	1

## 5. Wyoming

### a) All Other Lands in Wyoming BCR 10

Field technicians surveyed all 10 planned transects throughout All Other Lands in the BCR 10 portion of Wyoming in 2010. Technicians conducted 99 point counts within the 10 transects between 24 May and 27 June 2010. We detected 71 species, including 11 priority species as designated by WGFD (Appendix B).

RMBO estimated densities and population sizes for 51 species, 8 of which are priority species as designated by WGFD (Table 55). The data yielded robust density estimates (CV < 50%) for 11 of these species.

We estimated the proportion of transects occupied (Psi) by 32 species, 9 of which are priority species as designated by WGFD (Table 56). The data yielded robust occupancy estimates (CV < 50%) for 10 of these species.



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Table 55. Estimated densities per km<sup>2</sup> (D), population sizes (N), percent coefficient of variation of estimates (% CV) and number of independent detections (n) of breeding bird species on All Other Lands in Wyoming Bird Conservation Region 10, 2010. S indicates the number of transects used in analyses. Priority species are bolded.

Species	All Other Lands (S=10)			
	D	N	% CV	n
American Crow	0.61	32,069	59	6
American Goldfinch	3.30	171,881	83	1
American Kestrel	0.72	37,486	53	3
American Robin	12.99	677,401	57	16
Barn Swallow	4.17	217,384	90	1
Bewick's Wren	0.76	39,495	85	1
Black-billed Magpie	2.97	155,155	49	22
Black-headed Grosbeak	0.94	48,922	61	2
<b>Brewer's Sparrow</b>	50.97	2,658,689	28	70
Broad-tailed Hummingbird	2.90	151,308	84	1
Brown-headed Cowbird	4.47	233,106	49	3
Bullock's Oriole	1.16	60,329	87	1
<b>Chestnut-collared Longspur</b>	0.90	46,849	83	1
Chipping Sparrow	1.46	76,163	85	1
Cliff Swallow	0.36	18,809	113	3
Common Grackle	1.75	91,529	84	1
Common Nighthawk	1.29	67,191	85	2
Common Raven	0.10	5,403	86	1
Common Yellowthroat	1.52	79,098	86	3
Dusky Flycatcher	3.75	195,423	85	4
European Starling	0.04	2,043	71	3
<b>Grasshopper Sparrow</b>	1.08	56,075	83	2
Green-tailed Towhee	8.41	438,573	84	13
Horned Lark	31.75	1,656,016	38	66
House Wren	3.55	185,349	73	4
Killdeer	5.68	296,269	54	9
Lark Sparrow	0.62	32,319	83	1
Lazuli Bunting	0.56	28,960	83	1
Lincoln's Sparrow	1.31	68,585	85	1
Mallard	1.06	55,079	55	4
<b>McCown's Longspur</b>	2.87	149,804	83	5
Mountain Bluebird	11.70	610,502	47	10
Mourning Dove	0.71	37,212	59	2
Northern Flicker	0.79	41,397	85	3
Red-tailed Hawk	0.41	21,520	97	2
Red-winged Blackbird	18.42	961,041	35	40
<b>Sage Sparrow</b>	6.08	317,264	67	14

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Species	All Other Lands (S=10)			
	D	N	% CV	n
<b>Sage Thrasher</b>	3.07	160,361	49	16
Savannah Sparrow	29.32	1,529,384	47	39
Song Sparrow	3.40	177,144	61	6
Spotted Sandpiper	0.33	17,396	89	1
Spotted Towhee	0.75	38,987	85	1
<b>Swainson's Hawk</b>	0.14	7,068	89	1
Tree Swallow	8.33	434,647	62	3
<b>Upland Sandpiper</b>	0.67	35,028	89	3
Vesper Sparrow	18.72	976,456	27	49
Violet-green Swallow	6.40	333,610	68	4
Western Meadowlark	12.76	665,446	29	68
Western Tanager	0.53	27,611	84	1
Western Wood-Pewee	0.81	42,334	100	2
Yellow Warbler	14.79	771,571	44	13

Table 56. Estimated proportion of sample units occupied (Psi), percent coefficient of variation of Psi (% CV) and number of transects with one or more detections (n Tran) of breeding bird species on All Other Lands in Wyoming Bird Conservation Region 10, 2010. Dashes indicate the data were insufficient for estimating site occupancy. A Psi estimate equal to 1 indicates the species was detected on all transects surveyed. S indicates the number of transects used in analyses. Priority species are bolded.

Species	All Other Lands (S=10)		
	Psi	% CV	n Tran
Bewick's Wren	0.117	95	1
Black-billed Magpie	0.522	38	4
Blue-winged Teal	0.211	97	1
<b>Brewer's Sparrow</b>	0.711	21	7
Broad-tailed Hummingbird	0.243	63	2
Brown-headed Cowbird	0.228	63	3
Bullock's Oriole	0.130	95	1
<b>Chestnut-collared Longspur</b>	0.101	95	1
Common Nighthawk	0.252	95	1
Common Yellowthroat	0.189	95	1
Dusky Flycatcher	0.118	95	1
European Starling	0.220	63	2
<b>Grasshopper Sparrow</b>	0.102	95	1
Green-tailed Towhee	0.108	95	1
Horned Lark	0.404	39	4
Lark Sparrow	0.110	95	1
<b>Lazuli Bunting</b>	0.118	95	1
Lincoln's Sparrow	0.128	95	1

Species	All Other Lands (S=10)		
	Psi	% CV	n Tran
<b>McCown's Longspur</b>	0.106	95	1
Mountain Bluebird	0.474	38	4
<b>Sage Sparrow</b>	0.319	48	3
<b>Sage Thrasher</b>	0.462	39	4
Savannah Sparrow	0.430	39	4
Song Sparrow	0.260	63	2
Spotted Towhee	0.105	95	1
Tree Swallow	0.246	63	2
<b>Upland Sandpiper</b>	0.146	95	1
Vesper Sparrow	0.835	15	8
Western Meadowlark	0.612	26	6
Willet	0.159	96	1
<b>Willow Flycatcher</b>	0.153	96	1
Yellow Warbler	0.446	38	4

**b) All Other Lands in Wyoming BCR 16**

Field technicians surveyed 5 of 10 planned transects throughout All Other Lands in the BCR 16 portion of Wyoming in 2010. Technicians conducted 59 point counts within the 5 transects between 26 May and 28 June 2010. We detected 39 species, including 5 priority species as designated by WGFD (Appendix B).

RMBO estimated densities and population sizes for 27 species, 4 of which are priority species as designated by WGFD (Table 57). The data yielded robust density estimates (CV < 50%) for five of these species.

We estimated the proportion of transects occupied (Psi) by 18 species, 3 of which are priority species as designated by WGFD (Table 58). The data yielded robust occupancy estimates (CV < 50%) for six of these species.

Table 57. Estimated densities per km<sup>2</sup> (D), population sizes (N), percent coefficient of variation of estimates (% CV) and number of independent detections (n) of breeding bird species on All Other Lands in Wyoming Bird Conservation Region 16, 2010. S indicates the number of transects used in analyses. Priority species are bolded.

Species	All Other Lands (S=5)			
	D	N	% CV	n
American Goldfinch	11.06	60,136	110	2
American Robin	1.42	7,738	89	1
Black-headed Grosbeak	3.15	17,116	87	4
Blue-gray Gnatcatcher	16.17	87,949	87	7
Brewer's Blackbird	13.50	73,426	55	10
<b>Brewer's Sparrow</b>	36.65	199,328	51	30
Brown-headed Cowbird	17.50	95,149	87	7
Bullock's Oriole	1.94	10,554	89	1

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Species	All Other Lands (S=5)			
	D	N	% CV	n
Common Raven	0.52	2,835	58	3
<b>Grasshopper Sparrow</b>	1.80	9,809	83	2
Green-tailed Towhee	29.30	159,345	34	27
Horned Lark	21.79	118,512	48	27
Killdeer	1.06	5,759	85	1
Lark Sparrow	2.08	11,308	105	2
Loggerhead Shrike	0.61	3,321	92	1
<b>McCown's Longspur</b>	0.96	5,241	90	1
Northern Harrier	0.34	1,873	92	1
Rock Wren	1.94	10,525	24	7
<b>Sandhill Crane</b>	0.04	222	83	1
Savannah Sparrow	4.91	26,698	57	4
Say's Phoebe	0.33	1,787	89	1
Spotted Towhee	6.27	34,101	72	5
Vesper Sparrow	35.90	195,219	23	56
Violet-green Swallow	5.37	29,180	88	2
Western Kingbird	2.32	12,625	88	2
Western Meadowlark	30.54	166,055	30	97
Western Wood-Pewee	1.36	7,406	104	2

Table 58. Estimated proportion of sample units occupied (Psi), percent coefficient of variation of Psi (% CV) and number of transects with one or more detections (n Tran) of breeding bird species on All Other Lands in Wyoming Bird Conservation Region 16, 2010. Dashes indicate the data were insufficient for estimating site occupancy. A Psi estimate equal to 1 indicates the species was detected on all transects surveyed. S indicates the number of transects used in analyses. Priority species are bolded.

Species	All Other Lands (S=5)		
	Psi	% CV	n Tran
Blue-gray Gnatcatcher	0.210	89	1
<b>Brewer's Sparrow</b>	0.619	36	3
Broad-tailed Hummingbird	0.227	89	1
Brown-headed Cowbird	0.251	89	1
Bullock's Oriole	0.239	89	1
<b>Grasshopper Sparrow</b>	0.200	89	1
Green-tailed Towhee	0.867	22	4
Horned Lark	0.600	37	3
Lark Sparrow	0.209	89	1
Loggerhead Shrike	0.577	91	1
<b>McCown's Longspur</b>	0.205	89	1
Northern Harrier	0.530	96	1
Savannah Sparrow	0.403	55	2

Species	All Other Lands (S=5)		
	Psi	% CV	n Tran
Say's Phoebe	0.319	89	1
Spotted Towhee	0.407	55	2
Vesper Sparrow	1	--	5
Western Meadowlark	0.800	22	4
Yellow Warbler	0.219	89	1

**c) All Other Lands in Wyoming BCR 18**

Field technicians surveyed 9 of 10 planned transects throughout All Other Lands in the BCR 18 portion of Wyoming in 2010. Technicians conducted 101 point counts within the 9 transects between 22 May and 10 June 2010. We detected 51 species, including 7 priority species as designated by WGFD (Appendix B).

RMBO estimated densities and population sizes for 37 species, 7 of which are priority species as designated by WGFD (Table 59). The data yielded robust density estimates (CV < 50%) for eight of these species.

We estimated the proportion of transects occupied (Psi) by 22 species, 7 of which are priority species as designated by WGFD (Table 60). The data yielded robust occupancy estimates (CV < 50%) for 8 of these species.

Table 59. Estimated densities per km<sup>2</sup> (D), population sizes (N), percent coefficient of variation of estimates (% CV) and number of independent detections (n) of breeding bird species on All Other Lands in Wyoming Bird Conservation Region 18, 2010. S indicates the number of transects used in analyses. Priority species are bolded.

Species	All Other Lands (S=9)			
	D	N	% CV	n
American Crow	0.10	1,212	88	1
Barn Swallow	4.09	49,282	85	1
Brewer's Blackbird	0.86	10,395	85	1
<b>Brewer's Sparrow</b>	3.57	43,053	70	5
Brown-headed Cowbird	5.84	70,461	43	4
Bullock's Oriole	1.13	13,677	84	1
Cassin's Sparrow	2.39	28,811	49	10
Chipping Sparrow	1.43	17,267	91	1
Cliff Swallow	12.05	145,334	90	2
Common Grackle	1.72	20,750	89	1
Common Nighthawk	0.63	7,616	83	1
Common Yellowthroat	0.99	11,955	113	2
Eastern Kingbird	1.29	15,543	79	4
European Starling	1.29	15,534	89	1
<b>Grasshopper Sparrow</b>	24.76	298,742	34	47
Horned Lark	78.74	949,940	24	167
Killdeer	2.47	29,851	55	4

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Species	All Other Lands (S=9)			
	D	N	% CV	n
<b>Lark Bunting</b>	71.31	860,226	27	206
Lark Sparrow	19.05	229,876	43	27
Mallard	0.52	6,243	62	2
<b>McCown's Longspur</b>	4.50	54,338	70	8
Mourning Dove	3.15	37,962	45	9
Northern Harrier	0.20	2,427	86	1
Northern Rough-winged Swallow	1.32	15,920	91	1
Red-winged Blackbird	2.26	27,234	66	5
Ring-necked Pheasant	0.13	1,570	84	3
Rock Wren	2.75	33,124	62	17
<b>Sage Thrasher</b>	0.19	2,272	91	1
Song Sparrow	0.55	6,693	89	1
Spotted Towhee	0.73	8,839	88	1
<b>Swainson's Hawk</b>	0.27	3,205	87	2
<b>Upland Sandpiper</b>	0.44	5,294	83	2
Vesper Sparrow	0.75	9,035	87	2
Violet-green Swallow	6.27	75,631	68	4
Western Kingbird	0.68	8,181	83	1
Western Meadowlark	47.26	570,160	10	257
Yellow Warbler	7.81	94,187	54	7

Table 60. Estimated proportion of sample units occupied (Psi), percent coefficient of variation of Psi (% CV) and number of transects with one or more detections (n Tran) of breeding bird species on All Other Lands in Wyoming Bird Conservation Region 18, 2010. Dashes indicate the data were insufficient for estimating site occupancy. A Psi estimate equal to 1 indicates the species was detected on all transects surveyed. S indicates the number of transects used in analyses. Priority species are bolded.

Species	All Other Lands (S=9)		
	Psi	% CV	n Tran
<b>Brewer's Sparrow</b>	0.379	47	3
Brown-headed Cowbird	0.520	37	4
Bullock's Oriole	0.133	94	1
Cassin's Sparrow	0.224	62	2
Common Nighthawk	0.230	95	1
Eastern Kingbird	0.305	62	2
European Starling	0.120	94	1
<b>Grasshopper Sparrow</b>	0.685	24	6
Horned Lark	0.889	12	8
<b>Lark Bunting</b>	0.801	18	7
Lark Sparrow	0.482	37	4
<b>McCown's Longspur</b>	0.232	62	2

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Species	All Other Lands (S=9)		
	Psi	% CV	n Tran
Northern Rough-winged Swallow	0.206	95	1
Rock Wren	0.260	62	2
<b>Sage Thrasher</b>	0.117	94	1
Song Sparrow	0.143	94	1
Spotted Towhee	0.114	94	1
<b>Swainson's Hawk</b>	0.323	107	1
<b>Upland Sandpiper</b>	0.141	94	1
Vesper Sparrow	0.136	95	1
Western Meadowlark	0.896	12	8
Yellow Warbler	0.371	47	3

**B. Bureau of Land Management**

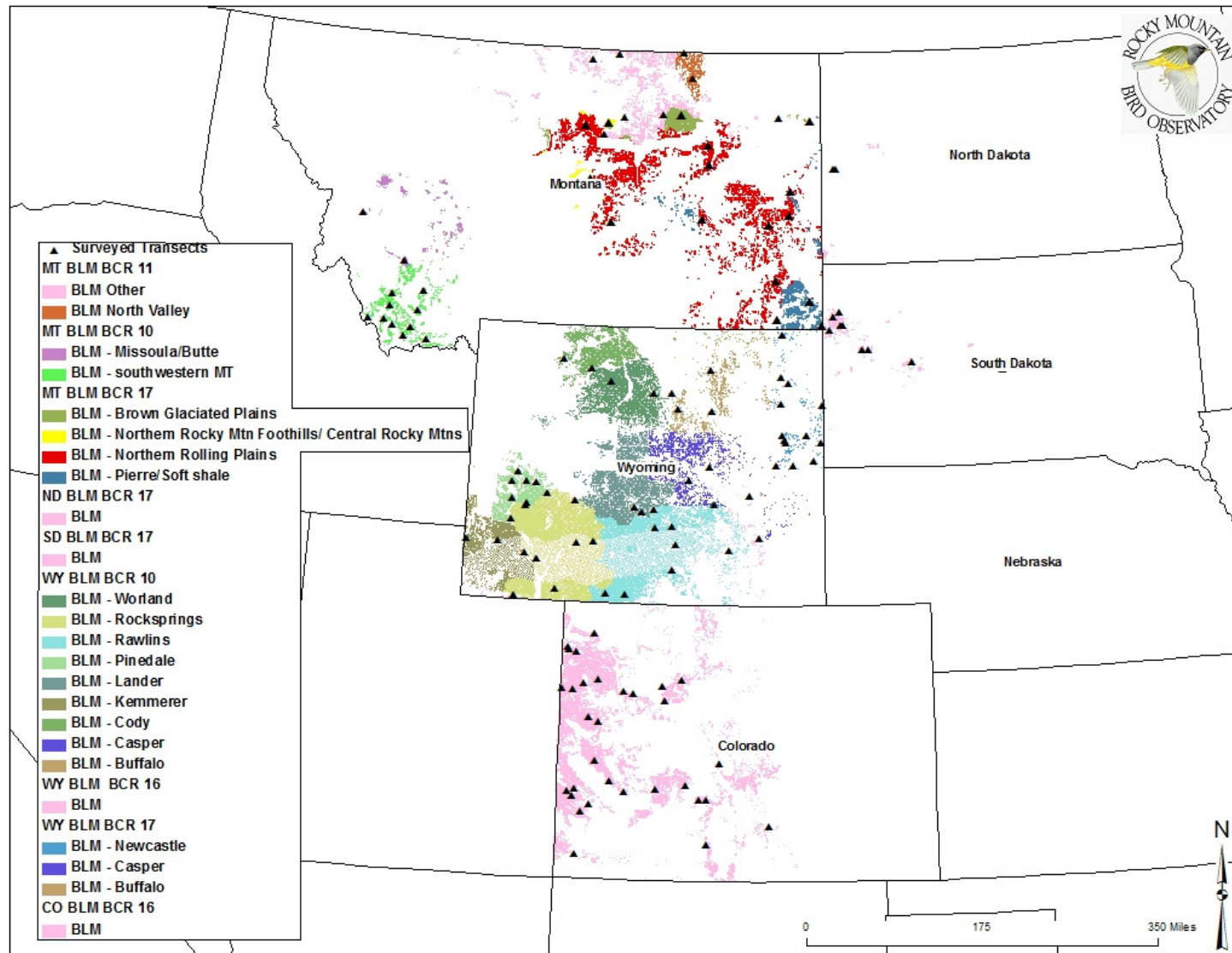


Figure 9. Survey locations on Bureau of Land Management Lands, 2010.



**1. BLM in Colorado BCR 16**

Field technicians surveyed 31 of 33 planned transects throughout BLM lands in Colorado in 2010. Technicians conducted 305 point counts within the 31 transects between 19 May and 18 July 2010. We detected 96 species, including 4 priority species as designated by BLM-Colorado.

RMBO estimated densities and population sizes for 76 species, none of which are priority species as designated by BLM Colorado (Table 61). The data yielded robust density estimates (CV < 50%) for 42 of these species.

We estimated the proportion of transects occupied (Psi) by 52 species, none of which are priority species as designated by BLM Colorado (Table 62). The data yielded robust occupancy estimates (CV < 50%) for nine of these species.

Table 61. Estimated densities per km<sup>2</sup> (D), population sizes (N), percent coefficient of variation of estimates (% CV) and number of independent detections (n) of breeding bird species on Bureau of Land Management Lands in Colorado Bird Conservation Region 16, 2010. S indicates the number of transects used in analyses. Priority species are bolded.

Species	BLM CO BCR 16 (S=31)			
	D	N	% CV	n
American Crow	0.20	5,553	58	6
American Goldfinch	2.46	68,508	76	3
American Robin	34.41	957,371	16	125
Ash-throated Flycatcher	6.62	184,226	23	49
Bewick's Wren	2.70	75,224	43	11
Black-billed Magpie	2.38	66,140	23	48
Black-capped Chickadee	0.47	12,973	84	1
Black-headed Grosbeak	0.46	12,706	57	3
Black-throated Gray Warbler	23.55	655,229	16	102
Blue-gray Gnatcatcher	44.25	1,231,162	16	99
Brewer's Blackbird	9.99	277,880	33	35
Brewer's Sparrow	37.34	1,039,085	24	158
Broad-tailed Hummingbird	16.95	471,585	35	18
Brown-headed Cowbird	12.09	336,354	30	25
Bushtit	2.25	62,502	94	4
Canyon Wren	0.42	11,641	34	12
Cassin's Finch	1.10	30,486	88	5
Chipping Sparrow	58.79	1,635,926	15	108
Clark's Nutcracker	1.58	44,039	65	7
Common Nighthawk	0.63	17,451	47	3
Common Raven	3.43	95,419	14	102
Dark-eyed Junco	0.46	12,755	86	1
Downy Woodpecker	2.22	61,827	45	5
Dusky Flycatcher	3.95	109,972	34	13
Gray Flycatcher	22.73	632,360	16	66

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Species	BLM CO BCR 16 (S=31)			
	D	N	% CV	n
Gray Vireo	0.24	6,622	85	2
Green-tailed Towhee	42.62	1,185,921	25	202
Hairy Woodpecker	1.87	51,950	36	6
Hermit Thrush	1.70	47,169	38	20
Horned Lark	1.33	37,130	47	8
House Finch	6.49	180,501	70	16
House Wren	8.07	224,653	31	28
Juniper Titmouse	24.80	689,989	32	26
Killdeer	0.20	5,700	84	1
Lark Sparrow	3.02	83,942	40	15
Lazuli Bunting	0.72	20,057	75	4
MacGillivray's Warbler	1.50	41,693	69	5
Mallard	0.17	4,768	87	2
Mountain Bluebird	28.11	782,246	15	74
Mountain Chickadee	11.19	311,351	29	32
Mourning Dove	13.31	370,488	17	115
Northern Flicker	1.97	54,954	22	23
Northern Mockingbird	0.06	1,728	85	1
Olive-sided Flycatcher	0.19	5,224	89	2
Pine Siskin	1.42	39,582	83	3
Pinyon Jay	7.42	206,541	22	152
Plumbeous Vireo	20.37	566,823	19	133
Red Crossbill	0.45	12,398	83	1
Red-breasted Nuthatch	2.35	65,498	48	9
Red-tailed Hawk	0.40	11,178	53	6
Rock Wren	3.10	86,314	28	58
Ruby-crowned Kinglet	0.50	13,845	83	2
Sage Sparrow	1.41	39,239	48	10
Sage Thrasher	0.68	18,810	58	13
Say's Phoebe	0.76	21,227	36	12
Song Sparrow	0.18	5,112	83	1
Spotted Sandpiper	0.11	3,012	90	1
Spotted Towhee	37.36	1,039,597	21	154
Steller's Jay	0.25	6,898	82	2
Swainson's Hawk	0.09	2,448	67	2
Townsend's Solitaire	0.59	16,308	63	3
Tree Swallow	9.02	250,865	47	10
Vesper Sparrow	12.03	334,698	24	97
Violet-green Swallow	5.19	144,412	41	10
Virginia's Warbler	4.54	126,208	62	10
Warbling Vireo	0.18	5,082	83	1

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Species	BLM CO BCR 16 (S=31)			
	D	N	% CV	n
Western Kingbird	0.67	18,744	89	3
Western Meadowlark	3.41	94,889	34	56
Western Scrub-Jay	0.60	16,765	73	6
Western Tanager	0.34	9,562	88	2
Western Wood-Pewee	1.45	40,316	48	11
White-breasted Nuthatch	1.89	52,642	51	6
White-crowned Sparrow	0.24	6,661	90	1
White-throated Swift	0.34	9,593	62	4
Yellow Warbler	6.65	184,982	38	18
Yellow-rumped Warbler	3.62	100,831	49	13

Table 62. Estimated proportion of sample units occupied (Psi), percent coefficient of variation of Psi (% CV) and number of transects with one or more detections (n Tran) of breeding bird species on Bureau of Land Management Lands in Colorado Bird Conservation Region 16, 2010. Dashes indicate the data were insufficient for estimating site occupancy. A Psi estimate equal to 1 indicates the species was detected on all transects surveyed. S indicates the number of transects used in analyses. Priority species are bolded.

Species	BLM CO (S=31)		
	Psi	% CV	n Tran
Ash-throated Flycatcher	0.529	18	15
Bewick's Wren	0.220	37	6
Black-billed Magpie	0.563	20	14
Black-chinned Hummingbird	0.563	22	13
Black-throated Gray Warbler	0.596	15	18
Blue-gray Gnatcatcher	0.727	13	20
Brewer's Sparrow	0.514	19	15
Broad-tailed Hummingbird	0.350	28	9
Brown-headed Cowbird	0.472	26	10
Bushtit	0.074	100	1
Canyon Towhee	0.044	98	1
Canyon Wren	0.287	45	5
Cassin's Finch	0.046	98	1
Clark's Nutcracker	0.084	68	2
Common Nighthawk	0.235	57	3
Downy Woodpecker	0.419	34	7
Dusky Flycatcher	0.219	37	6
Gambel's Quail	0.035	98	1
Gray Catbird	0.062	100	1
Gray Flycatcher	0.721	12	21
Gray Vireo	0.034	98	1
Green-tailed Towhee	0.508	18	15

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Species	BLM CO (S=31)		
	Psi	% CV	n Tran
Hairy Woodpecker	0.217	41	5
Horned Lark	0.131	47	4
Juniper Titmouse	0.390	24	11
Lark Sparrow	0.317	28	9
Lazuli Bunting	0.077	68	2
Lesser Goldfinch	0.038	98	1
MacGillivray's Warbler	0.074	68	2
Mountain Bluebird	0.958	6	26
Olive-sided Flycatcher	0.047	98	1
Pine Siskin	0.035	98	1
Pinyon Jay	0.658	16	17
Plumbeous Vireo	0.689	14	19
Red Crossbill	0.038	98	1
Red-eyed Vireo	0.036	98	1
Rock Wren	0.611	17	16
Ruby-crowned Kinglet	0.034	98	1
Rufous Hummingbird	0.131	70	2
Sage Sparrow	0.101	55	3
Sage Thrasher	0.139	47	4
Say's Phoebe	0.368	37	6
Spotted Towhee	0.648	14	19
Townsend's Solitaire	0.086	68	2
Tree Swallow	0.364	28	9
Vesper Sparrow	0.406	23	12
Virginia's Warbler	0.105	55	3
Warbling Vireo	0.069	68	2
Western Meadowlark	0.198	37	6
Western Scrub-Jay	0.072	68	2
White-throated Swift	0.127	55	3
Yellow Warbler	0.294	30	8

**2. Montana**

**a) BLM Montana: Total**

Field technicians surveyed 36 of 38 planned transects throughout BLM lands in Montana in 2010. Technicians conducted 397 point counts within the 36 transects between 16 May and 17 July 2010. We detected 131 species, including 13 priority species as designated by BLM Montana (Appendix C).

RMBO estimated densities and population sizes for 87 species, 10 of which are priority species as designated by BLM Montana (Table 63). The data yielded robust density estimates (CV < 50%) for 33 of these species.

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We estimated the proportion of transects occupied (Psi) by 65 species, 11 of which are priority species as designated by BLM Montana (Table 64). The data yielded robust occupancy estimates (CV < 50%) for 25 of these species.

Table 63. Estimated densities per km<sup>2</sup> (D), population sizes (N), percent coefficient of variation of estimates (% CV) and number of independent detections (n) of breeding bird species on Bureau of Land Management Lands in Montana, 2010. S indicates the number of transects used in analyses. Priority species are bolded.

Species	BLM MT (S=36)			
	D	N	% CV	n
American Crow	0.22	8,281	58	5
American Goldfinch	1.64	62,541	86	1
American Kestrel	0.30	11,537	69	3
American Pipit	0.24	9,080	100	3
American Robin	4.15	158,800	45	15
<b>American Three-toed Woodpecker</b>	0.39	14,790	72	2
<b>Baird's Sparrow</b>	1.41	53,764	57	22
Barn Swallow	6.28	240,125	74	5
Black-billed Magpie	0.86	32,704	49	11
Black-capped Chickadee	11.98	457,864	51	22
Brewer's Blackbird	0.87	33,379	49	4
<b>Brewer's Sparrow</b>	32.27	1,233,869	22	225
Brown Creeper	1.19	45,677	82	1
Brown-headed Cowbird	33.65	1,286,419	24	71
Bullock's Oriole	4.37	167,111	74	9
Canada Goose	0.07	2,596	48	8
Cassin's Finch	0.11	4,316	100	1
Cassin's Vireo	0.10	3,632	101	1
<b>Chestnut-collared Longspur</b>	20.34	777,719	40	133
Chipping Sparrow	18.15	694,037	35	28
Clark's Nutcracker	0.32	12,308	116	6
Clay-colored Sparrow	0.84	31,987	65	8
Cliff Swallow	6.10	233,261	104	2
Common Grackle	1.40	53,712	101	3
Common Nighthawk	1.55	59,420	52	8
Common Raven	0.13	5,101	50	4
Common Yellowthroat	0.06	2,477	100	1
Cordilleran Flycatcher	0.18	6,914	83	2
Dark-eyed Junco	2.61	99,637	49	12
Dusky Flycatcher	5.90	225,666	66	18
Eastern Kingbird	2.98	113,903	42	18
Evening Grosbeak	0.12	4,769	101	1
Field Sparrow	1.14	43,489	45	11

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Species	BLM MT (S=36)			
	D	N	% CV	n
Golden-crowned Kinglet	0.40	15,439	83	1
Grasshopper Sparrow	17.18	656,629	24	91
Green-tailed Towhee	2.19	83,579	75	9
Hairy Woodpecker	0.42	16,105	79	3
Hermit Thrush	0.56	21,446	51	14
Horned Lark	27.57	1,053,937	18	307
House Wren	13.34	510,161	36	31
Killdeer	3.49	133,565	30	17
Lark Bunting	14.67	560,714	40	110
Lark Sparrow	14.51	554,618	25	53
Lazuli Bunting	0.94	36,070	77	5
Least Flycatcher	0.45	17,043	87	1
Lincoln's Sparrow	0.14	5,279	88	1
<b>Loggerhead Shrike</b>	0.27	10,484	71	3
<b>Long-billed Curlew</b>	0.24	9,120	41	13
MacGillivray's Warbler	0.12	4,524	100	1
Mallard	0.23	8,602	125	5
<b>McCown's Longspur</b>	6.85	261,721	38	75
Mountain Bluebird	3.30	126,032	39	7
Mountain Chickadee	1.95	74,590	53	12
Mourning Dove	4.91	187,692	26	37
Northern Flicker	1.77	67,752	43	19
Northern Harrier	0.12	4,722	46	4
Ovenbird	0.81	31,049	86	3
Pine Grosbeak	0.12	4,575	84	1
Pine Siskin	1.53	58,423	82	7
Red Crossbill	4.77	182,372	82	7
Red-breasted Nuthatch	2.55	97,388	50	13
Red-winged Blackbird	4.92	188,070	29	40
Ring-necked Pheasant	0.04	1,362	64	4
Rock Wren	1.35	51,718	46	24
Ruby-crowned Kinglet	0.56	21,540	83	7
<b>Sage Thrasher</b>	0.19	7,075	53	11
Sandhill Crane	0.01	559	71	2
Savannah Sparrow	2.46	93,988	47	26
Say's Phoebe	0.39	14,869	72	4
Spotted Sandpiper	0.04	1,339	89	1
Spotted Towhee	2.74	104,816	57	9
<b>Sprague's Pipit</b>	1.15	43,839	43	27
<b>Swainson's Hawk</b>	0.19	7,429	48	5
Swainson's Thrush	0.31	11,740	87	1

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Species	BLM MT (S=36)			
	D	N	% CV	n
Townsend's Solitaire	0.47	17,807	26	5
Tree Swallow	1.38	52,717	83	1
Upland Sandpiper	0.64	24,623	51	7
Vesper Sparrow	19.26	736,395	18	257
Western Kingbird	1.84	70,519	60	6
Western Meadowlark	36.44	1,392,957	11	575
Western Tanager	1.37	52,281	45	13
Western Wood-Pewee	1.01	38,509	88	5
White-crowned Sparrow	0.23	8,883	90	3
Wild Turkey	0.04	1,634	103	1
Yellow Warbler	5.06	193,353	71	11
Yellow-breasted Chat	0.25	9,483	92	4
Yellow-rumped Warbler	7.01	267,981	32	39

Table 64. Estimated proportion of sample units occupied (Psi), percent coefficient of variation of Psi (% CV) and number of transects with one or more detections (n Tran) of breeding bird species on Bureau of Land Management Lands in Montana, 2010. Dashes indicate the data were insufficient for estimating site occupancy. A Psi estimate equal to 1 indicates the species was detected on all transects surveyed. S indicates the number of transects used in analyses. Priority species are bolded.

Species	BLM MT (S=36)		
	Psi	% CV	n Tran
American Pipit	0.009	95	1
<b>American Three-toed Woodpecker</b>	0.053	57	2
<b>Baird's Sparrow</b>	0.156	44	4
Bank Swallow	0.067	81	2
Black-and-white Warbler	0.028	71	1
Black-billed Magpie	0.128	63	2
Blue-winged Teal	0.046	94	1
<b>Brewer's Sparrow</b>	0.731	12	25
Brown Creeper	0.081	95	1
Brown Thrasher	0.199	55	3
Brown-headed Cowbird	0.819	5	22
Bullock's Oriole	0.168	50	3
Canada Goose	0.035	92	1
Cassin's Finch	0.021	71	1
Cassin's Vireo	0.020	71	1
<b>Chestnut-collared Longspur</b>	0.153	32	5
Clark's Nutcracker	0.048	24	3
Clay-colored Sparrow	0.099	45	3
Common Nighthawk	--	--	4

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Species	BLM MT (S=36)		
	Psi	% CV	n Tran
Common Yellowthroat	--	--	1
Cordilleran Flycatcher	0.014	95	1
Dusky Flycatcher	0.142	47	4
Eastern Kingbird	--	--	8
European Starling	0.027	71	1
Evening Grosbeak	0.030	71	1
Field Sparrow	0.217	39	5
Gadwall	0.047	94	1
Golden-crowned Kinglet	0.042	57	2
Grasshopper Sparrow	0.555	15	14
Gray Catbird	0.027	72	1
Green-tailed Towhee	0.058	84	2
Hairy Woodpecker	0.038	57	2
Horned Lark	0.611	14	21
Lark Bunting	0.352	26	8
Lark Sparrow	0.555	14	13
Lazuli Bunting	0.056	95	1
Least Flycatcher	0.084	96	1
Lincoln's Sparrow	0.012	95	1
<b>Loggerhead Shrike</b>	--	--	1
<b>Long-billed Curlew</b>	0.123	72	2
MacGillivray's Warbler	0.008	71	1
<b>Marbled Godwit</b>	0.143	30	4
<b>McCown's Longspur</b>	0.101	34	4
Mountain Bluebird	0.255	35	6
Mountain Plover	0.034	72	1
Northern Harrier	0.065	98	1
Northern Shoveler	0.127	64	2
Ovenbird	0.053	95	1
Pine Grosbeak	0.013	95	1
Pine Siskin	0.029	57	2
Red Crossbill	0.088	64	3
Rock Wren	0.226	39	6
Ruby-crowned Kinglet	0.010	95	1
<b>Sage Thrasher</b>	0.039	39	4
Savannah Sparrow	0.160	31	7
Say's Phoebe	0.272	49	3
Sora	0.010	95	1
Spotted Towhee	0.209	39	5
<b>Sprague's Pipit</b>	0.117	36	4
<b>Swainson's Hawk</b>	0.237	89	2



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Species	BLM MT (S=36)		
	Psi	% CV	n Tran
Swainson's Thrush	0.051	95	1
Townsend's Solitaire	0.048	25	3
Tree Swallow	0.061	95	1
Upland Sandpiper	0.178	50	3
Vesper Sparrow	0.695	13	26
Western Meadowlark	0.809	7	23
Willet	0.161	36	4
Wilson's Phalarope	--	--	3
Yellow Warbler	0.152	50	4
Yellow-breasted Chat	0.030	91	1

**b) BLM in Montana BCR 10**

Field technicians surveyed all 12 planned transects throughout BLM lands in the BCR 10 portion of Montana in 2010. Technicians conducted 106 point counts within the 12 transects between 25 June and 17 July 2010. We detected 72 species, including 4 priority species as designated by BLM Montana (Appendix C).

RMBO estimated densities and population sizes for 46 species, 4 of which are priority species as designated by BLM Montana (Table 65). The data yielded robust density estimates (CV < 50%) for 10 of these species.

We estimated the proportion of transects occupied (Psi) by 29 species, 3 of which are priority species as designated by BLM Montana (Table 66). The data yielded robust occupancy estimates (CV < 50%) for six of these species.

Table 65. Estimated densities per km<sup>2</sup> (D), population sizes (N), percent coefficient of variation of estimates (% CV) and number of independent detections (n) of breeding bird species on Bureau of Land Management Lands in Montana Bird Conservation Region 10, 2010. Priority species are bolded.

Species	BLM MT BCR 10 (S=12)			
	D	N	% CV	n
American Pipit	1.89	9,080	100	3
American Robin	7.90	37,947	61	7
<b>American Three-toed Woodpecker</b>	3.08	14,790	72	2
Black-billed Magpie	0.42	2,041	71	4
Black-capped Chickadee	19.12	91,824	104	10
<b>Brewer's Sparrow</b>	58.41	280,529	30	93
Brown-headed Cowbird	3.23	15,503	70	2
Canada Goose	0.06	309	83	2
Cassin's Finch	0.90	4,316	100	1
Cassin's Vireo	0.76	3,632	101	1
Chipping Sparrow	9.72	46,671	42	5
Clark's Nutcracker	2.56	12,308	116	6

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Species	BLM MT BCR 10 (S=12)			
	D	N	% CV	n
Common Raven	0.14	662	100	1
Cordilleran Flycatcher	1.44	6,914	83	2
Dark-eyed Junco	10.84	52,073	71	8
Dusky Flycatcher	9.97	47,900	24	8
Evening Grosbeak	0.99	4,769	101	1
Golden-crowned Kinglet	3.21	15,439	83	1
Grasshopper Sparrow	0.45	2,158	87	1
Hairy Woodpecker	3.35	16,105	79	3
Hermit Thrush	1.57	7,532	64	6
Horned Lark	19.70	94,630	38	49
Lazuli Bunting	0.93	4,458	83	2
Lincoln's Sparrow	1.10	5,279	88	1
<b>Long-billed Curlew</b>	0.08	365	95	1
Mountain Bluebird	3.12	14,964	100	2
Mountain Chickadee	10.49	50,369	70	10
Mourning Dove	0.30	1,432	88	1
Northern Flicker	1.06	5,073	14	3
Northern Harrier	0.17	824	86	1
Pine Grosbeak	0.95	4,575	84	1
Pine Siskin	12.16	58,423	82	7
Red-breasted Nuthatch	10.72	51,510	35	10
Rock Wren	0.83	3,969	41	6
Ruby-crowned Kinglet	4.48	21,540	83	7
<b>Sage Thrasher</b>	1.47	7,075	53	11
Sandhill Crane	0.02	98	83	1
Savannah Sparrow	11.01	52,860	75	18
Spotted Sandpiper	0.28	1,339	89	1
Townsend's Solitaire	3.71	17,807	26	5
Vesper Sparrow	29.50	141,676	24	90
Western Meadowlark	0.78	3,766	57	5
Western Tanager	6.70	32,188	37	11
White-crowned Sparrow	1.85	8,883	90	3
Yellow Warbler	0.95	4,568	88	1
Yellow-rumped Warbler	23.50	112,873	51	28

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Table 66. Estimated proportion of sample units occupied (Psi), percent coefficient of variation of Psi (% CV) and number of transects with one or more detections (n Tran) of breeding bird species on Bureau of Land Management Lands in Montana Bird Conservation Region 10, 2010. Dashes indicate the data were insufficient for estimating site occupancy. A Psi estimate equal to 1 indicates the species was detected on all transects surveyed. S indicates the number of transects used in analyses. Priority species are bolded.

Species	BLM MT BCR 10 (S=12)		
	Psi	% CV	n Tran
American Pipit	0.074	95	1
<b>American Three-toed Woodpecker</b>	0.424	57	2
Bank Swallow	0.087	95	1
<b>Brewer's Sparrow</b>	0.716	19	9
Brown-headed Cowbird	0.230	57	2
Cassin's Finch	0.167	71	1
Cassin's Vireo	0.157	71	1
Clark's Nutcracker	0.380	24	3
Cordilleran Flycatcher	0.114	95	1
Dusky Flycatcher	--	--	2
Evening Grosbeak	0.238	71	1
Golden-crowned Kinglet	0.331	57	2
Grasshopper Sparrow	0.074	95	1
Gray Catbird	0.213	72	1
Hairy Woodpecker	0.299	57	2
Horned Lark	0.364	32	5
Lincoln's Sparrow	0.092	95	1
Mountain Bluebird	0.239	57	2
Pine Grosbeak	0.102	95	1
Pine Siskin	0.230	57	2
Red Crossbill	0.253	57	2
Rock Wren	0.181	63	2
Ruby-crowned Kinglet	0.077	95	1
<b>Sage Thrasher</b>	0.309	39	4
Savannah Sparrow	0.154	63	2
Sora	0.080	95	1
Townsend's Solitaire	0.383	25	3
Vesper Sparrow	0.730	19	9
Western Meadowlark	0.146	63	2
Yellow Warbler	0.084	95	1

**c) BLM in Montana BCR 11**

Field technicians surveyed 8 of 10 planned transects throughout BLM lands in the BCR 11 portion of Montana in 2010. Technicians conducted 128 point counts within the 10 transects between 27 May and 8 July 2010. We detected 64 species, including 10 priority species as designated by BLM Montana (Appendix C).

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RMBO estimated densities and population sizes for 33 species, 8 of which are priority species as designated by BLM Montana (Table 67). The data yielded robust density estimates (CV < 50%) for 11 of these species.

We estimated the proportion of transects occupied (Psi) by 29 species, 5 of which are priority species as designated by BLM Montana (Table 68). The data yielded robust occupancy estimates (CV < 50%) for 10 of these species.

Table 67. Estimated densities per km<sup>2</sup> (D), population sizes (N), percent coefficient of variation of estimates (% CV) and number of independent detections (n) of breeding bird species on Bureau of Land Management Lands in Montana Bird Conservation Region 11, 2010. Priority species are bolded.

Species	BLM MT BCR 11 (S=8)			
	D	N	% CV	n
<b>Baird's Sparrow</b>	3.63	30,556	80	15
Brewer's Blackbird	1.98	16,695	50	3
<b>Brewer's Sparrow</b>	45.99	386,938	39	77
Brown-headed Cowbird	23.30	196,069	56	19
Canada Goose	0.10	813	91	3
<b>Chestnut-collared Longspur</b>	85.90	722,734	42	127
Clay-colored Sparrow	1.60	13,484	65	4
Common Nighthawk	0.38	3,164	101	1
Eastern Kingbird	0.36	3,015	88	1
Field Sparrow	0.24	2,038	82	1
Grasshopper Sparrow	14.84	124,864	33	33
Horned Lark	66.34	558,220	17	186
Killdeer	2.48	20,871	43	5
Lark Bunting	8.27	69,603	88	28
Lark Sparrow	2.47	20,803	96	4
<b>Loggerhead Shrike</b>	0.43	3,576	104	2
<b>Long-billed Curlew</b>	0.84	7,032	48	11
Mallard	0.55	4,614	224	3
<b>McCown's Longspur</b>	31.11	261,721	38	75
Mourning Dove	1.40	11,796	52	5
Northern Harrier	0.46	3,898	53	3
Red-winged Blackbird	2.70	22,697	45	7
Ring-necked Pheasant	0.11	934	82	3
Rock Wren	0.28	2,320	81	2
Savannah Sparrow	1.84	15,447	63	3
Spotted Towhee	0.63	5,261	81	1
<b>Sprague's Pipit</b>	4.57	38,470	46	25
<b>Swainson's Hawk</b>	0.27	2,285	71	3
Vesper Sparrow	34.25	288,149	25	115

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Species	BLM MT BCR 11 (S=8)			
	D	N	% CV	n
Western Kingbird	0.58	4,870	89	1
Western Meadowlark	25.26	212,543	11	170
Yellow Warbler	1.90	16,019	102	2
Yellow-breasted Chat	1.13	9,483	92	4

Table 68. Estimated proportion of sample units occupied (Psi), percent coefficient of variation of Psi (% CV) and number of transects with one or more detections (n Tran) of breeding bird species on Bureau of Land Management Lands in Montana Bird Conservation Region 11, 2010. Dashes indicate the data were insufficient for estimating site occupancy. A Psi estimate equal to 1 indicates the species was detected on all transects surveyed. S indicates the number of transects used in analyses. Priority species are bolded.

Species	MT BCR11 BLM (S=8)		
	Psi	% CV	n Tran
Baird's Sparrow	0.272	58	2
Blue-winged Teal	0.209	94	1
Brewer's Sparrow	0.771	18	6
Brown Thrasher	0.193	93	1
Brown-headed Cowbird	0.642	27	5
Canada Goose	0.158	92	1
<b>Chestnut-collared Longspur</b>	0.500	36	4
Clay-colored Sparrow	0.284	58	2
Common Nighthawk	0.154	72	1
Eastern Kingbird	0.159	91	1
Field Sparrow	0.136	91	1
Gadwall	0.213	94	1
Grasshopper Sparrow	0.676	18	5
Horned Lark	0.865	14	7
Lark Bunting	0.135	91	1
Lark Sparrow	0.136	91	1
<b>Loggerhead Shrike</b>	--	--	1
Long-billed Curlew	0.175	93	1
<b>Marbled Godwit</b>	0.649	30	4
<b>McCown's Longspur</b>	0.459	34	4
Northern Harrier	0.295	98	1
Northern Shoveler	0.237	96	1
Savannah Sparrow	0.407	41	3
Spotted Towhee	0.135	91	1
<b>Sprague's Pipit</b>	0.324	38	3
<b>Swainson's Hawk</b>	0.317	104	1
Vesper Sparrow	1	--	8

Species	MT BCR11 BLM (S=8)		
	Psi	% CV	n Tran
Western Meadowlark	1	--	8
Willet	0.500	43	3
Wilson's Phalarope	0.167	92	1
Yellow Warbler	0.137	91	1
Yellow-breasted Chat	0.138	91	1

**d) BLM in Montana BCR 17**

Field technicians surveyed all 16 planned transects throughout BLM lands in the BCR 17 portion of Montana. Technicians conducted 163 point counts within the 16 transects between 16 May and 21 June 2010. We detected 88 species, including 9 priority species as designated by BLM Montana (Appendix C).

RMBO estimated densities and population sizes for 67 species, 6 of which are priority species as designated by BLM Montana (Table 69). The data yielded robust density estimates (CV < 50%) for 18 of these species.

We estimated the proportion of transects occupied (Psi) by 43 species, 7 of which are priority species as designated by BLM Montana (Table 70). The data yielded robust occupancy estimates (CV < 50%) for 13 of these species.

Table 69. Estimated densities per km<sup>2</sup> (D), population sizes (N), percent coefficient of variation of estimates (% CV) and number of independent detections (n) of breeding bird species on Bureau of Land Management Lands in Montana Bird Conservation Region 17, 2010. S indicates the number of transects used in analyses. Priority species are bolded.

Species	BLM MT BCR 17 (S=16)			
	D	N	% CV	n
American Crow	0.33	8,281	58	5
American Goldfinch	2.50	62,541	86	1
American Kestrel	0.46	11,537	69	3
American Robin	4.83	120,853	56	8
<b>Baird's Sparrow</b>	0.93	23,208	79	7
Barn Swallow	9.60	240,125	74	5
Black-billed Magpie	1.23	30,664	52	7
Black-capped Chickadee	14.63	366,040	58	12
Brewer's Blackbird	0.67	16,684	83	1
Brewer's Sparrow	22.64	566,402	37	55
Brown Creeper	1.83	45,677	82	1
Brown-headed Cowbird	42.97	1,074,847	27	50
Bullock's Oriole	6.68	167,111	74	9
Canada Goose	0.06	1,474	67	3
<b>Chestnut-collared Longspur</b>	2.20	54,985	100	6
Chipping Sparrow	25.88	647,366	38	23
Clay-colored Sparrow	0.74	18,503	101	4

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Species	BLM MT BCR 17 (S=16)			
	D	N	% CV	n
Cliff Swallow	9.33	233,261	104	2
Common Grackle	2.15	53,712	101	3
Common Nighthawk	2.25	56,256	54	7
Common Raven	0.18	4,439	55	3
Common Yellowthroat	0.10	2,477	100	1
Dark-eyed Junco	1.90	47,564	68	4
Dusky Flycatcher	7.11	177,766	83	10
Eastern Kingbird	4.43	110,887	43	17
Field Sparrow	1.66	41,452	47	10
Grasshopper Sparrow	21.17	529,607	28	57
Green-tailed Towhee	3.34	83,579	75	9
Hermit Thrush	0.56	13,914	71	8
Horned Lark	16.04	401,087	41	72
House Wren	20.40	510,161	36	31
Killdeer	4.51	112,695	34	12
Lark Bunting	19.63	491,111	44	82
Lark Sparrow	21.34	533,815	25	49
Lazuli Bunting	1.26	31,612	87	3
Least Flycatcher	0.68	17,043	87	1
<b>Loggerhead Shrike</b>	0.28	6,908	93	1
<b>Long-billed Curlew</b>	0.07	1,724	95	1
MacGillivray's Warbler	0.18	4,524	100	1
Mallard	0.16	3,987	76	2
Mountain Bluebird	4.44	111,068	42	5
Mountain Chickadee	0.97	24,221	69	2
Mourning Dove	6.97	174,464	27	31
Northern Flicker	2.51	62,679	46	16
Ovenbird	1.24	31,049	86	3
Red Crossbill	7.29	182,372	82	7
Red-breasted Nuthatch	1.83	45,879	98	3
Red-winged Blackbird	6.61	165,374	32	33
Ring-necked Pheasant	0.02	427	100	1
Rock Wren	1.82	45,429	53	16
Sandhill Crane	0.02	461	84	1
Savannah Sparrow	1.03	25,680	72	5
Say's Phoebe	0.59	14,869	72	4
Spotted Towhee	3.98	99,555	59	8
<b>Sprague's Pipit</b>	0.21	5,369	114	2
<b>Swainson's Hawk</b>	0.21	5,144	63	2
Swainson's Thrush	0.47	11,740	87	1
Tree Swallow	2.11	52,717	83	1

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Species	BLM MT BCR 17 (S=16)			
	D	N	% CV	n
Upland Sandpiper	0.98	24,623	51	7
Vesper Sparrow	12.26	306,571	34	52
Western Kingbird	2.62	65,649	64	5
Western Meadowlark	47.04	1,176,648	13	400
Western Tanager	0.80	20,093	101	2
Western Wood-Pewee	1.54	38,509	88	5
Wild Turkey	0.07	1,634	103	1
Yellow Warbler	6.91	172,765	78	8
Yellow-rumped Warbler	6.20	155,107	41	11

Table 70. Estimated proportion of sample units occupied (Psi), percent coefficient of variation of Psi (% CV) and number of transects with one or more detections (n Tran) of breeding bird species on Bureau of Land Management Lands in Montana Bird Conservation Region 17, 2010. Dashes indicate the data were insufficient for estimating site occupancy. A Psi estimate equal to 1 indicates the species was detected on all transects surveyed. S indicates the number of transects used in analyses. Priority species are bolded.

Species	BLM MT BCR 17 (S=16)		
	Psi	% CV	n Tran
<b>Baird's Sparrow</b>	0.147	61	2
Bank Swallow	0.085	95	1
Black-and-white Warbler	0.042	71	1
Black-billed Magpie	0.196	63	2
<b>Brewer's Sparrow</b>	0.720	16	10
Brown Creeper	0.124	95	1
Brown Thrasher	0.239	64	2
Brown-headed Cowbird	--	--	15
Bullock's Oriole	0.257	50	3
<b>Chestnut-collared Longspur</b>	0.066	71	1
Clay-colored Sparrow	0.056	71	1
Common Nighthawk	0.370	51	3
Common Yellowthroat	--	--	1
Dusky Flycatcher	0.164	63	2
Eastern Kingbird	0.686	29	7
European Starling	0.041	71	1
Field Sparrow	0.286	43	4
Grasshopper Sparrow	0.606	20	8
Green-tailed Towhee	0.089	84	2
Horned Lark	0.574	22	9
Lark Bunting	0.492	27	7
Lark Sparrow	0.803	14	12
Lazuli Bunting	0.086	95	1



Species	BLM MT BCR 17 (S=16)		
	Psi	% CV	n Tran
Least Flycatcher	0.129	96	1
<b>Long-billed Curlew</b>	0.129	97	1
MacGillivray's Warbler	0.012	71	1
Mountain Bluebird	0.343	39	4
<b>Mountain Plover</b>	0.052	72	1
Northern Shoveler	0.115	77	1
Ovenbird	0.081	95	1
Red Crossbill	0.087	95	1
Rock Wren	0.311	43	4
Savannah Sparrow	0.079	60	2
Say's Phoebe	0.415	49	3
Spotted Towhee	0.273	42	4
<b>Sprague's Pipit</b>	0.070	71	1
<b>Swainson's Hawk</b>	0.255	109	1
Swainson's Thrush	0.078	95	1
Tree Swallow	0.093	95	1
Upland Sandpiper	0.271	50	3
Vesper Sparrow	0.585	23	9
Western Meadowlark	0.873	9	13
Willet	0.078	75	1
Wilson's Phalarope	0.140	83	2
Yellow Warbler	0.170	63	2

### 3. BLM in North Dakota BCR 17

Field technicians surveyed four of five planned transects throughout BLM lands in North Dakota BCR 17 in 2010. Technicians conducted 29 point counts within the 4 transects between 24 June and 29 June 2010. We detected 19 species, including 1 priority species as designated by BLM North Dakota (Appendix C).

Unfortunately, we were only able to use data from two of the four samples on BLM lands in North Dakota. We do not present density or occupancy results for this section, because results from strata with only two samples are not informative. However, this data is incorporated into larger scale estimates.

### 4. BLM in South Dakota BCR 17

Field technicians surveyed 9 of 10 planned transects throughout BLM lands in South Dakota BCR 17 in 2010. Technicians conducted 82 point counts within the 9 transects between 25 May and 3 July 2010. We detected 49 species, including 6 priority species as designated by BLM South Dakota (Appendix C).

RMBO estimated densities and population sizes for 27 species, 5 of which are priority species as designated by BLM South Dakota (Table 71). The data yielded robust density estimates (CV < 50%) for nine of these species.

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We estimated the proportion of transects occupied (Psi) by 20 species, 5 of which are priority species as designated by BLM South Dakota (Table 72). The data yielded robust occupancy estimates (CV < 50%) for seven of these species.

Table 71. Estimated densities per km<sup>2</sup> (D), population sizes (N), percent coefficient of variation of estimates (% CV) and number of independent detections (n) of breeding bird species on Bureau of Land Management Lands in South Dakota Bird Conservation Region 17, 2010. S indicates the number of transects used in analyses. Priority species are bolded.

Species	BLM SD BCR 17 (S=9)			
	D	N	% CV	n
American Crow	0.37	537	60	3
<b>Baird's Sparrow</b>	5.24	7,589	71	15
Black-billed Magpie	0.15	222	87	1
Brown-headed Cowbird	39.57	57,293	29	22
<b>Bobolink</b>	27.33	39,567	89	37
<b>Chestnut-collared Longspur</b>	132.29	191,560	39	122
Common Nighthawk	0.78	1,126	88	1
Eastern Kingbird	2.59	3,744	60	5
Grasshopper Sparrow	61.65	89,270	19	95
Horned Lark	40.65	58,866	39	70
Killdeer	3.81	5,516	32	5
Lark Bunting	29.42	42,597	27	69
Lark Sparrow	2.99	4,333	73	4
Mallard	0.64	923	63	2
Mourning Dove	3.01	4,365	71	7
Northern Rough-winged Swallow	1.63	2,354	90	1
Ring-necked Pheasant	0.11	155	82	2
Red-tailed Hawk	0.50	721	92	2
Red-winged Blackbird	2.78	4,026	36	5
<b>Sprague's Pipit</b>	0.32	460	83	1
Spotted Towhee	0.90	1,307	87	1
<b>Swainson's Hawk</b>	0.33	474	87	2
Upland Sandpiper	2.97	4,305	45	11
Vesper Sparrow	4.61	6,679	52	10
Western Kingbird	0.84	1,209	88	1
Western Meadowlark	31.94	46,245	15	141
Yellow-headed Blackbird	4.67	6,765	85	8

Table 72. Estimated proportion of sample units occupied (Psi), percent coefficient of variation of Psi (% CV) and number of transects with one or more detections (n Tran) of breeding bird species on Bureau of Land Management Lands in South Dakota Bird Conservation Region 17, 2010. Dashes indicate the data were insufficient for estimating site occupancy. A Psi estimate equal to 1 indicates the species was detected on all transects surveyed. S indicates the number of transects used in analyses. Priority species are bolded.

Species	BLM SD BCR 17 (S=9)		
	Psi	% CV	n Tran
<b>Baird's Sparrow</b>	0.244	62	2
Black-billed Magpie	0.152	94	1
Blue-winged Teal	0.525	67	2
<b>Bobolink</b>	0.231	62	2
Brown-headed Cowbird	0.685	24	6
<b>Chestnut-collared Longspur</b>	0.562	30	5
Common Nighthawk	0.285	95	1
Eastern Kingbird	0.532	47	3
Gadwall	0.279	97	1
Grasshopper Sparrow	0.788	18	7
Horned Lark	0.794	18	7
Lark Bunting	1	--	9
Lark Sparrow	0.245	62	2
Northern Rough-winged Swallow	0.236	95	1
Spotted Towhee	0.115	94	1
<b>Sprague's Pipit</b>	0.143	95	1
<b>Swainson's Hawk</b>	0.398	108	1
Tree Swallow	0.144	94	1
Upland Sandpiper	0.476	47	3
Vesper Sparrow	0.351	47	3
Western Meadowlark	1	--	9
Wilson's Phalarope	0.199	96	1

## 5. Wyoming

### a) BLM Wyoming: Total

Field technicians surveyed all 56 planned transects throughout BLM lands in Wyoming in 2010. Technicians conducted 737 point counts within the 56 transects between 15 May and 7 July 2010. We detected 109 species, including 5 priority species as designated by BLM Wyoming (Appendix C).

RMBO estimated densities and population sizes for 79 species, 4 of which are priority species as designated by BLM Wyoming (Table 73). The data yielded robust density estimates (CV < 50%) for 20 of these species.

We estimated the proportion of transects occupied (Psi) by 51 species, 3 of which are priority species as designated by BLM Wyoming (Table 74). The data yielded robust occupancy estimates (CV < 50%) for 14 of these species.

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Table 73. Estimated densities per km<sup>2</sup> (D), population sizes (N), percent coefficient of variation of estimates (% CV) and number of independent detections (n) of breeding bird species on Bureau of Land Management Lands in Wyoming, 2010. S indicates the number of transects used in analyses. Priority species are bolded.

Species	BLM WY (S=56)			
	D	N	% CV	n
American Crow	0.45	32,526	70	10
American Kestrel	0.27	19,275	82	4
American Robin	3.49	250,204	57	14
Barn Swallow	0.23	16,804	67	6
Black-billed Magpie	0.34	24,746	45	13
Black-capped Chickadee	8.22	590,276	86	22
Black-throated Gray Warbler	0.02	1,627	100	1
Blue-gray Gnatcatcher	0.52	37,290	76	3
Brewer's Blackbird	0.97	69,444	54	8
<b>Brewer's Sparrow</b>	38.37	2,754,106	12	483
Brown Creeper	0.14	10,025	100	1
Brown-headed Cowbird	1.10	79,022	53	26
Canada Goose	0.00	26	86	1
Chestnut-collared Longspur	0.84	60,279	72	5
Chipping Sparrow	5.45	391,041	41	26
Clark's Nutcracker	3.14	225,171	80	10
Cliff Swallow	2.67	191,498	55	10
Common Grackle	0.56	40,408	92	5
Common Nighthawk	0.13	9,268	92	1
Common Raven	0.96	68,796	48	25
Dark-eyed Junco	0.07	4,745	90	5
Downy Woodpecker	0.24	17,110	19	3
Dusky Flycatcher	0.60	43,111	36	18
Eastern Kingbird	0.07	5,257	95	2
European Starling	0.01	883	85	1
Grasshopper Sparrow	0.57	41,150	64	31
Gray Jay	0.35	25,300	101	4
Green-tailed Towhee	6.34	454,916	21	33
Horned Lark	51.88	3,723,758	24	740
House Wren	0.18	12,790	101	7
Killdeer	0.43	30,952	40	25
Lark Bunting	5.73	411,132	40	330
Lark Sparrow	3.95	283,325	53	55
Lazuli Bunting	0.01	373	87	1
Lincoln's Sparrow	0.68	48,902	98	3
<b>Loggerhead Shrike</b>	0.18	12,860	70	3

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Species	BLM WY (S=56)			
	D	N	% CV	n
MacGillivray's Warbler	0.16	11,538	100	3
McCown's Longspur	2.53	181,841	83	22
Mountain Bluebird	4.19	300,446	56	15
Mountain Chickadee	10.39	745,894	62	10
Mourning Dove	0.64	46,113	22	33
Northern Flicker	0.18	12,728	46	7
Northern Harrier	0.24	17,318	54	5
Olive-sided Flycatcher	0.02	1,205	101	1
Ovenbird	0.03	1,832	82	5
Pine Siskin	0.30	21,452	72	2
Plumbeous Vireo	0.04	3,193	101	3
Pygmy Nuthatch	0.13	9,396	100	1
Red Crossbill	0.09	6,280	101	2
Red-breasted Nuthatch	3.24	232,731	97	11
Red-tailed Hawk	0.01	416	65	3
Red-winged Blackbird	0.21	15,430	83	21
Ring-necked Pheasant	0.10	7,417	100	5
Rock Pigeon	0.51	36,550	103	1
Rock Wren	2.04	146,668	30	84
Ruby-crowned Kinglet	0.53	38,161	66	8
<b>Sage Sparrow</b>	13.60	975,760	21	248
<b>Sage Thrasher</b>	3.21	230,662	18	151
Sandhill Crane	0.00	345	113	3
Savannah Sparrow	0.37	26,387	94	5
Say's Phoebe	1.02	73,019	36	22
Song Sparrow	0.07	5,099	66	11
Spotted Towhee	0.41	29,576	70	20
Steller's Jay	1.04	74,318	68	3
Townsend's Solitaire	0.02	1,377	101	1
Tree Swallow	1.20	86,234	101	2
Upland Sandpiper	0.02	1,655	46	11
Vesper Sparrow	21.95	1,575,121	22	346
Violet-green Swallow	2.67	191,423	63	11
Warbling Vireo	0.10	6,976	84	1
Western Kingbird	0.01	930	52	2
Western Meadowlark	10.37	744,103	33	787
Western Tanager	0.15	10,907	62	6
Western Wood-Pewee	0.35	25,393	98	7
White-crowned Sparrow	0.38	27,429	98	3
White-throated Swift	0.06	4,393	110	3
Wilson's Snipe	0.08	6,086	104	3

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Species	BLM WY (S=56)			
	D	N	% CV	n
Yellow Warbler	0.20	14,106	84	1
Yellow-rumped Warbler	9.42	676,377	21	16

Table 74. Estimated proportion of sample units occupied (Psi), percent coefficient of variation of Psi (% CV) and number of transects with one or more detections (n Tran) of breeding bird species on Bureau of Land Management Lands in Wyoming, 2010. Dashes indicate the data were insufficient for estimating site occupancy. A Psi estimate equal to 1 indicates the species was detected on all transects surveyed. S indicates the number of transects used in analyses. Priority species are bolded.

Species	BLM WY (S=56)		
	Psi	% CV	n Tran
Black Rosy-Finch	--	--	1
Black-billed Magpie	0.128	53	4
Black-throated Gray Warbler	0.005	71	1
Blue Grosbeak	0.001	96	1
Blue-gray Gnatcatcher	0.031	81	2
<b>Brewer's Sparrow</b>	0.664	8	40
Broad-tailed Hummingbird	0.005	71	1
Brown Creeper	--	--	1
Brown-headed Cowbird	0.115	46	8
Cedar Waxwing	0.002	97	1
Chestnut-collared Longspur	0.042	62	2
Clark's Nutcracker	0.142	2	3
Common Nighthawk	0.049	94	1
Downy Woodpecker	0.040	55	4
Dusky Flycatcher	0.063	53	5
Eastern Kingbird	0.026	67	2
European Starling	0.002	65	2
Grasshopper Sparrow	0.060	45	9
Gray Jay	--	--	1
Green-tailed Towhee	0.358	16	12
Hammond's Flycatcher	0.005	71	1
Horned Lark	0.720	7	45
Lark Bunting	0.146	31	17
Lark Sparrow	0.181	33	10
Lazuli Bunting	0.001	96	1
Least Flycatcher	0.002	97	1
Lincoln's Sparrow	0.028	94	1
<b>Loggerhead Shrike</b>	--	--	2
MacGillivray's Warbler	0.006	71	1
McCown's Longspur	0.025	94	1

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Species	BLM WY (S=56)		
	Psi	% CV	n Tran
Mountain Bluebird	0.268	17	11
Mountain Plover	0.001	71	1
Northern Harrier	--	--	1
Northern Shoveler	--	--	2
Olive-sided Flycatcher	0.005	71	1
Ovenbird	0.001	96	1
Pine Siskin	0.031	81	2
Plumbeous Vireo	0.005	71	1
Pygmy Nuthatch	0.004	71	1
Red Crossbill	0.005	71	1
Rock Wren	0.484	14	20
Ruby-crowned Kinglet	0.031	81	2
<b>Sage Sparrow</b>	0.438	16	21
<b>Sage Thrasher</b>	0.383	14	22
Savannah Sparrow	0.063	68	3
Say's Phoebe	--	--	9
Song Sparrow	0.006	59	2
Spotted Towhee	0.024	56	3
Townsend's Solitaire	0.005	71	1
Tree Swallow	0.034	71	1
Upland Sandpiper	0.004	50	3
Vesper Sparrow	0.630	12	33
Warbling Vireo	0.026	94	1
Western Meadowlark	0.341	20	26
White-throated Swift	0.005	71	1
Willet	0.008	95	1
Wilson's Snipe	0.006	72	1
Yellow Warbler	0.027	94	1

**b) Buffalo BLM field office**

Field technicians surveyed all four planned transects throughout the Buffalo Field Office in 2010. Technicians conducted 38 point counts within the 4 transects between 18 May and 22 June 2010. We detected 38 species, including 2 priority species as designated by BLM Wyoming (Appendix C).

RMBO estimated densities and population sizes for 27 species, 1 of which is a priority species as designated by BLM Wyoming (Table 75). The data yielded robust density estimates (CV < 50%) for eight of these species.

We estimated the proportion of transects occupied (Psi) by 13 species, none of which are priority species as designated by BLM Wyoming (Table 76). The data did not yield robust occupancy estimates (CV < 50%) for any of these species.

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Table 75. Estimated densities per km<sup>2</sup> (D), population sizes (N), percent coefficient of variation of estimates (% CV) and number of independent detections (n) of breeding bird species in the Bureau of Land Management Buffalo Field Office, Wyoming, 2010. S indicates the number of transects used in analyses. Priority species are bolded.

Species	Buffalo Field Office (S=4)			
	D	N	% CV	n
American Crow	0.27	854	40	2
American Robin	2.21	7,065	100	2
Black-capped Chickadee	16.83	53,852	36	9
<b>Brewer's Sparrow</b>	43.03	137,698	23	18
Brown Creeper	3.13	10,025	100	1
Chipping Sparrow	27.60	88,330	19	13
Clark's Nutcracker	0.41	1,316	101	1
Common Grackle	11.52	36,870	101	2
Downy Woodpecker	5.35	17,110	19	3
Dusky Flycatcher	3.66	11,705	8	3
Gray Jay	7.91	25,300	101	4
Horned Lark	20.53	65,698	100	13
Lark Bunting	23.19	74,200	100	20
Lark Sparrow	12.21	39,057	105	6
MacGillivray's Warbler	3.61	11,538	100	3
Mountain Bluebird	1.52	4,876	100	1
Mourning Dove	7.03	22,485	25	6
Northern Flicker	0.34	1,102	100	1
Olive-sided Flycatcher	0.38	1,205	101	1
Pygmy Nuthatch	2.94	9,396	100	1
Red-breasted Nuthatch	3.15	10,070	79	3
Rock Wren	4.00	12,804	95	8
Ruby-crowned Kinglet	5.99	19,157	100	6
Say's Phoebe	1.29	4,115	100	2
Spotted Towhee	4.91	15,705	116	2
Vesper Sparrow	20.07	64,219	100	16
Western Meadowlark	47.43	151,768	13	77



Table 76. Estimated proportion of sample units occupied (Psi), percent coefficient of variation of Psi (% CV) and number of transects with one or more detections (n Tran) of breeding bird species in the Bureau of Land Management Buffalo Field Office, Wyoming, 2010. Dashes indicate the data were insufficient for estimating site occupancy. A Psi estimate equal to 1 indicates the species was detected on all transects surveyed. S indicates the number of transects used in analyses. Priority species are bolded.

Species	Buffalo Field Office (S=4)		
	Psi	% CV	n Tran
Black Rosy-Finch	--	--	1
<b>Brewer's Sparrow</b>	--	--	2
Brown Creeper	--	--	1
Clark's Nutcracker	0.106	71	1
Downy Woodpecker	--	--	2
Dusky Flycatcher	--	--	2
Gray Jay	--	--	1
Horned Lark	0.415	71	1
Lark Bunting	0.415	71	1
Lark Sparrow	0.431	71	1
MacGillivray's Warbler	0.129	71	1
Mountain Bluebird	0.143	71	1
Northern Shoveler	--	--	1
Olive-sided Flycatcher	0.123	71	1
Pygmy Nuthatch	0.088	71	1
Rock Wren	0.615	56	2
Ruby-crowned Kinglet	0.101	71	1
Say's Phoebe	0.728	71	1
Spotted Towhee	0.417	71	1
Vesper Sparrow	0.415	71	1
Western Meadowlark	--	--	2

**c) Casper BLM field office**

Field technicians surveyed all four planned transects throughout the Casper Field Office in 2010. Technicians conducted 49 point counts within the 4 transects between 17 May and 30 May 2010. We detected 25 species, including 2 priority species as designated by BLM (Appendix C).

RMBO estimated densities and population sizes for 21 species, 2 of which are priority species as designated by BLM Wyoming (Table 77). The data yielded robust density estimates (CV < 50%) for four of these species.

We estimated the proportion of transects occupied (Psi) by 12 species, 1 of which is a priority species as designated by BLM Wyoming (Table 78). The data yielded robust occupancy estimates (CV < 50%) for four of these species.

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Table 77. Estimated densities per km<sup>2</sup> (D), population sizes (N), percent coefficient of variation of estimates (% CV) and number of independent detections (n) of breeding bird species in the Bureau of Land Management Casper Field Office, Wyoming, 2010. S indicates the number of transects used in analyses. Priority species are bolded.

Species	Casper Field Office (S=4)			
	D	N	% CV	n
American Crow	0.23	1,189	101	1
American Robin	3.78	19,674	100	2
Black-capped Chickadee	12.81	66,651	109	4
<b>Brewer's Blackbird</b>	1.61	8,398	100	1
Brewer's Sparrow	57.48	299,126	37	43
Brown-headed Cowbird	6.64	34,561	100	2
Chestnut-collared Longspur	1.65	8,581	100	1
Eastern Kingbird	0.95	4,969	100	1
Grasshopper Sparrow	1.20	6,235	100	1
Horned Lark	44.22	230,101	49	46
Killdeer	2.32	12,058	28	2
Lark Bunting	49.31	256,634	56	69
Lark Sparrow	4.79	24,946	84	4
Mountain Bluebird	5.22	27,154	100	2
Mourning Dove	0.80	4,138	101	1
Red-breasted Nuthatch	1.80	9,347	100	1
<b>Sage Thrasher</b>	4.71	24,489	100	16
Vesper Sparrow	31.01	161,375	58	44
Violet-green Swallow	21.39	111,289	101	6
Western Meadowlark	25.83	134,422	25	66
Western Wood-Pewee	4.52	23,537	105	5

Table 78. Estimated proportion of sample units occupied (Psi), percent coefficient of variation of Psi (% CV) and number of transects with one or more detections (n Tran) of breeding bird species in the Bureau of Land Management Casper Field Office, Wyoming, 2010. Dashes indicate the data were insufficient for estimating site occupancy. A Psi estimate equal to 1 indicates the species was detected on all transects surveyed. S indicates the number of transects used in analyses. Priority species are bolded.

Species	Casper Field Office (S=4)		
	Psi	% CV	n Tran
<b>Brewer's Sparrow</b>	--	--	2
Brown-headed Cowbird	0.260	71	1
Chestnut-collared Longspur	0.241	71	1
Downy Woodpecker	0.423	71	1
Eastern Kingbird	0.340	71	1
Grasshopper Sparrow	0.259	71	1
Horned Lark	0.742	25	3

Species	Casper Field Office (S=4)		
	Psi	% CV	n Tran
Lark Bunting	0.741	25	3
Lark Sparrow	0.506	50	2
Mountain Bluebird	0.277	71	1
<b>Sage Thrasher</b>	0.247	71	1
Vesper Sparrow	0.742	25	3
Western Meadowlark	0.759	22	3

**d) Cody BLM field office**

Field technicians surveyed two planned transects throughout the Cody Field Office. Technicians conducted 30 point counts within the 2 transects between 7 June and 10 June 2010. We detected 18 species, including 1 priority species as designated by BLM Wyoming (Appendix C).

We do not present density or occupancy results for this section, because results from strata with only two samples are not informative. However, this data is incorporated into larger scale estimates.

**e) Kemmerer BLM field office**

Field technicians surveyed two planned transects throughout the Kemmerer Field Office in 2010. Technicians conducted 28 point counts within the 2 transects between 31 May and 1 June 2010. We detected 126 birds of 12 species. Technicians recorded four priority species as designated by BLM Wyoming (Appendix C).

We do not present density or occupancy results for this section, because results from strata with only two samples are not informative. However, this data is incorporated into larger scale estimates.

**f) Lander BLM field office**

Field technicians surveyed two planned transects throughout the Lander Field Office in 2010. Technicians conducted 15 point counts within the 2 transects between 23 May and 24 May 2010. We detected 20 species, including 1 priority species as designated by BLM Wyoming (Appendix C).

We do not present density or occupancy results for this section, because results from strata with only two samples are not informative. However, this data is incorporated into larger scale estimates.

**g) Newcastle BLM field office**

Field technicians surveyed all 12 planned transects throughout the Newcastle Field Office in 2010. Technicians conducted 151 point counts within the 12 transects between 15 May and 18 June 2010. We detected 60 species, including 5 priority species as designated by BLM Wyoming (Appendix C).

RMBO estimated densities and population sizes for 42 species, four of which are priority species as designated by BLM Wyoming (Table 79). The data yielded robust density estimates (CV < 50%) for nine of these species.

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We estimated the proportion of transects occupied (Psi) by 28 species, 4 of which are priority species as designated by BLM Wyoming (Table 80). The data yielded robust occupancy estimates (CV < 50%) for eight of these species.

Table 79. Estimated densities per km<sup>2</sup> (D), population sizes (N), percent coefficient of variation of estimates (% CV) and number of independent detections (n) of breeding bird species in the Bureau of Land Management Newcastle Field Office, Wyoming, 2010. S indicates the number of transects used in analyses. Priority species are bolded.

Species	Newcastle Field Office (S=12)			
	D	N	% CV	n
American Kestrel	0.16	161	87	1
American Robin	3.34	3,419	59	6
Barn Swallow	16.39	16,804	67	6
Black-billed Magpie	0.17	171	106	2
Black-capped Chickadee	3.77	3,861	93	4
<b>Brewer's Sparrow</b>	51.56	52,848	18	108
Brown-headed Cowbird	22.46	23,025	51	23
Canada Goose	0.03	26	86	1
Cliff Swallow	4.03	4,130	88	1
Common Grackle	3.45	3,538	83	3
Dark-eyed Junco	4.63	4,745	90	5
Dusky Flycatcher	7.98	8,183	82	13
Eastern Kingbird	0.28	288	84	1
European Starling	0.86	883	85	1
Grasshopper Sparrow	9.64	9,883	44	27
Horned Lark	23.65	24,245	31	75
House Wren	0.58	597	87	1
Killdeer	3.72	3,817	40	9
Lark Bunting	54.87	56,243	22	237
Lark Sparrow	14.42	14,785	59	23
Lazuli Bunting	0.36	373	87	1
<b>Loggerhead Shrike</b>	0.24	245	91	1
Mountain Bluebird	0.77	787	87	1
Mourning Dove	5.38	5,513	28	23
Northern Flicker	0.35	356	82	2
Northern Harrier	0.13	138	87	1
Ovenbird	1.79	1,832	82	5
Red-breasted Nuthatch	0.53	541	82	1
Red-tailed Hawk	0.41	416	65	3
Red-winged Blackbird	2.72	2,786	70	9
Rock Wren	3.24	3,322	60	30
<b>Sage Sparrow</b>	0.28	292	88	1
<b>Sage Thrasher</b>	0.21	215	82	2

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Species	Newcastle Field Office (S=12)			
	D	N	% CV	n
Savannah Sparrow	1.44	1,475	85	3
Say's Phoebe	0.77	790	52	6
Song Sparrow	3.71	3,804	82	10
Spotted Towhee	6.86	7,032	85	14
Upland Sandpiper	1.61	1,655	46	11
Vesper Sparrow	18.28	18,742	42	73
Western Kingbird	0.91	930	52	2
Western Meadowlark	48.22	49,423	10	392
Western Tanager	0.69	711	100	2

Table 80. Estimated proportion of sample units occupied (Psi), percent coefficient of variation of Psi (% CV) and number of transects with one or more detections (n Tran) of breeding bird species in the Bureau of Land Management Newcastle Field Office, Wyoming, 2010. Dashes indicate the data were insufficient for estimating site occupancy. A Psi estimate equal to 1 indicates the species was detected on all transects surveyed. S indicates the number of transects used in analyses. Priority species are bolded.

Species	Newcastle Field Office (S=12)		
	Psi	% CV	n Tran
Blue Grosbeak	0.090	96	1
<b>Brewer's Sparrow</b>	0.837	13	10
Brown-headed Cowbird	0.337	41	4
Cedar Waxwing	0.139	97	1
Downy Woodpecker	0.137	96	1
Dusky Flycatcher	0.086	96	1
Eastern Kingbird	0.110	96	1
European Starling	0.172	65	2
Grasshopper Sparrow	0.584	24	7
Horned Lark	0.835	13	10
Lark Bunting	0.918	9	11
Lark Sparrow	0.259	50	3
Lazuli Bunting	0.090	96	1
Least Flycatcher	0.127	97	1
<b>Loggerhead Shrike</b>	0.221	98	1
Mountain Bluebird	0.182	65	2
Northern Shoveler	0.174	101	1
Ovenbird	0.087	96	1
Rock Wren	0.373	41	4
<b>Sage Sparrow</b>	0.084	96	1
<b>Sage Thrasher</b>	0.171	65	2
Savannah Sparrow	0.085	96	1
Say's Phoebe	0.264	65	2

Species	Newcastle Field Office (S=12)		
	Psi	% CV	n Tran
Song Sparrow	0.098	96	1
Spotted Towhee	0.084	96	1
Upland Sandpiper	0.310	50	3
Vesper Sparrow	0.587	24	7
Western Meadowlark	0.917	9	11

**h) Pinedale BLM field office**

Field technicians surveyed all eight planned transects throughout the Pinedale Field Office in 2010. Technicians conducted 124 point counts within the 8 transects between 10 June and 18 June 2010. We detected 15 species, including 3 priority species as designated by BLM Wyoming (Appendix C).

RMBO estimated densities and population sizes for 11 species, 3 of which are priority species as designated by BLM Wyoming (Table 81). The data yielded robust density estimates (CV < 50%) for five of these species.

We estimated the proportion of transects occupied (Psi) by six species, none of which are priority species as designated by BLM Wyoming (Table 82). The data yielded robust occupancy estimates (CV < 50%) for one of these species.

Table 81. Estimated densities per km<sup>2</sup> (D), population sizes (N), percent coefficient of variation of estimates (% CV) and number of independent detections (n) of breeding bird species in the Bureau of Land Management Pinedale Field Office, Wyoming, 2010. S indicates the number of transects used in analyses. Priority species are bolded.

Species	Pinedale Field Office (S=8)			
	D	N	% CV	n
Black-billed Magpie	0.41	1,496	58	4
Brewer's Blackbird	0.70	2,588	83	1
<b>Brewer's Sparrow</b>	75.30	277,627	17	130
Green-tailed Towhee	3.11	11,481	68	6
Horned Lark	46.47	171,335	17	121
Killdeer	0.50	1,858	85	1
Mountain Bluebird	1.87	6,891	47	2
Rock Wren	0.53	1,940	65	4
<b>Sage Sparrow</b>	40.39	150,909	22	118
<b>Sage Thrasher</b>	7.29	26,881	22	57
Vesper Sparrow	12.51	46,109	25	41

Table 82. Estimated proportion of sample units occupied (Psi), percent coefficient of variation of Psi (% CV) and number of transects with one or more detections (n Tran) of breeding bird species in the Bureau of Land Management Pinedale Field Office, Wyoming, 2010. Dashes indicate the data were insufficient for estimating site occupancy. A Psi estimate equal to 1 indicates the species was detected on all transects surveyed. S indicates the number of transects used in analyses. Priority species are bolded.

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Species	Pinedale Field Office (S=8)		
	Psi	% CV	n Tran
Black-billed Magpie	0.135	94	1
<b>Brewer's Sparrow</b>	1	--	8
Green-tailed Towhee	0.250	61	2
Horned Lark	1	--	8
Mountain Bluebird	0.258	61	2
Rock Wren	0.260	61	2
<b>Sage Sparrow</b>	1	--	8
<b>Sage Thrasher</b>	1	--	8
Vesper Sparrow	0.750	20	6
Willet	0.155	95	1

**i) Rawlins BLM field office**

Field technicians surveyed all eight planned transects throughout the Rawlins Field Office in 2010. Technicians conducted 96 point counts within the 8 transects between 20 May and 7 July 2010. We detected 26 species, including 5 priority species as designated by BLM Wyoming (Appendix C).

RMBO estimated densities and population sizes for 21 species, 4 of which are priority species as designated by BLM Wyoming (Table 83). The data yielded robust density estimates (CV < 50%) for five of these species.

We estimated the proportion of transects occupied (Psi) by 13 species, 3 of which are priority species as designated by BLM Wyoming (Table 84). The data yielded robust occupancy estimates (CV < 50%) for 5 of these species.

Table 83. Estimated densities per km<sup>2</sup> (D), population sizes (N), percent coefficient of variation of estimates (% CV) and number of independent detections (n) of breeding bird species in the Bureau of Land Management Rawlins Field Office, Wyoming, 2010. S indicates the number of transects used in analyses. Priority species are bolded.

Species	Rawlins Field Office (S=8)			
	D	N	% CV	n
American Kestrel	0.25	3,447	83	1
Brewer's Blackbird	1.81	25,299	92	2
<b>Brewer's Sparrow</b>	<b>38.30</b>	<b>534,388</b>	29	<b>51</b>
Brown-headed Cowbird	1.54	21,436	92	1
Chestnut-collared Longspur	3.70	51,698	82	4
Cliff Swallow	6.34	88,429	90	1
Common Nighthawk	0.66	9,268	92	1
Common Raven	0.11	1,490	81	1
Green-tailed Towhee	2.01	28,062	92	3
Horned Lark	117.57	1,640,536	12	237
Lark Sparrow	3.83	53,497	88	6
<b>Loggerhead Shrike</b>	0.38	5,237	88	1

Species	Rawlins Field Office (S=8)			
	D	N	% CV	n
McCown's Longspur	13.03	181,841	83	22
Mourning Dove	0.37	5,133	91	1
Northern Harrier	0.21	2,953	86	1
Rock Wren	0.51	7,113	83	3
<b>Sage Sparrow</b>	15.23	212,564	39	34
<b>Sage Thrasher</b>	2.81	39,192	40	17
Say's Phoebe	0.20	2,818	83	1
Vesper Sparrow	11.03	153,933	57	28
Western Meadowlark	8.71	121,488	49	45

Table 84. Estimated proportion of sample units occupied (Psi), percent coefficient of variation of Psi (% CV) and number of transects with one or more detections (n Tran) of breeding bird species in the Bureau of Land Management Rawlins Field Office, Wyoming, 2010. Dashes indicate the data were insufficient for estimating site occupancy. A Psi estimate equal to 1 indicates the species was detected on all transects surveyed. S indicates the number of transects used in analyses. Priority species are bolded.

Species	Rawlins Field Office (S=8)		
	Psi	% CV	n Tran
<b>Brewer's Sparrow</b>	0.750	20	6
Brown-headed Cowbird	0.136	93	1
Chestnut-collared Longspur	0.126	94	1
Common Nighthawk	0.250	94	1
Green-tailed Towhee	0.129	94	1
Horned Lark	1	--	8
Lark Sparrow	0.131	93	1
McCown's Longspur	0.129	94	1
Rock Wren	0.142	93	1
<b>Sage Sparrow</b>	0.387	46	3
<b>Sage Thrasher</b>	0.507	35	4
Say's Phoebe	0.203	93	1
Vesper Sparrow	0.502	35	4
Western Meadowlark	0.500	35	4

**j) Rock Springs BLM field office**

Field technicians surveyed all eight planned transects throughout the Rock Springs Field Office in 2010. Technicians conducted 121 point counts within the 8 transects between 28 May and 3 July 2010. We detected 30 species, including 3 priority species as designated by BLM Wyoming (Appendix C).

RMBO estimated densities and population sizes for 26 species, 3 of which are priority species as designated by BLM Wyoming (Table 85). The data yielded robust density estimates (CV < 50%) for seven of these species.



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We estimated the proportion of transects occupied (Psi) by 15 species, 3 of which are priority species as designated by BLM Wyoming (Table 86). The data yielded robust occupancy estimates (CV < 50%) for five of these species.

Table 85. Estimated densities per km<sup>2</sup> (D), population sizes (N), percent coefficient of variation of estimates (% CV) and number of independent detections (n) of breeding bird species in the Bureau of Land Management Rock Springs Field Office, Wyoming, 2010. S indicates the number of transects used in analyses. Priority species are bolded.

Species	Rock Springs Field Office (S=8)			
	D	N	% CV	n
Black-billed Magpie	0.42	6,301	51	4
Blue-gray Gnatcatcher	2.25	34,140	83	2
Brewer's Blackbird	2.16	32,693	85	3
<b>Brewer's Sparrow</b>	50.04	758,268	21	84
Chipping Sparrow	4.78	72,407	83	4
Cliff Swallow	5.03	76,182	83	1
Common Raven	0.17	2,568	83	2
Dusky Flycatcher	1.53	23,223	59	2
Green-tailed Towhee	5.85	88,643	44	11
Horned Lark	32.27	488,999	22	82
Lincoln's Sparrow	3.23	48,902	98	3
Mountain Bluebird	4.79	72,549	69	5
Mourning Dove	0.58	8,844	61	2
Northern Flicker	0.43	6,559	60	2
Pine Siskin	1.20	18,110	83	1
Rock Wren	0.94	14,299	32	7
Ruby-crowned Kinglet	1.25	19,004	84	2
<b>Sage Sparrow</b>	27.37	414,723	30	77
<b>Sage Thrasher</b>	5.37	81,431	33	41
Say's Phoebe	0.16	2,428	82	1
Vesper Sparrow	13.75	208,393	41	44
Violet-green Swallow	5.23	79,289	58	4
Warbling Vireo	0.46	6,976	84	1
Western Tanager	0.43	6,562	83	1
White-crowned Sparrow	1.81	27,429	98	3
Yellow Warbler	0.93	14,106	84	1

Table 86. Estimated proportion of sample units occupied (Psi), percent coefficient of variation of Psi (% CV) and number of transects with one or more detections (n Tran) of breeding bird species in the Bureau of Land Management Rock Springs Field Office, Wyoming, 2010. Dashes indicate the data were insufficient for estimating site occupancy. A Psi estimate equal to 1 indicates the species was detected on all transects surveyed. S indicates the number of transects used in analyses. Priority species are bolded.

Species	Rock Springs Field Office (S=8)		
	Psi	% CV	n Tran
Black-billed Magpie	0.135	94	1
Blue-gray Gnatcatcher	0.126	94	1
<b>Brewer's Sparrow</b>	1	--	8
Dusky Flycatcher	0.255	61	2
Green-tailed Towhee	0.501	35	4
Horned Lark	1	--	8
Lincoln's Sparrow	0.133	94	1
Mountain Bluebird	0.259	61	2
Pine Siskin	0.126	94	1
Rock Wren	0.645	27	5
Ruby-crowned Kinglet	0.125	94	1
<b>Sage Sparrow</b>	0.750	20	6
<b>Sage Thrasher</b>	0.628	27	5
Say's Phoebe	0.175	94	1
Vesper Sparrow	0.500	35	4
Warbling Vireo	0.125	94	1
Yellow Warbler	0.128	94	1

**k) Worland BLM field office**

Field technicians surveyed two planned transects throughout the Worland Field Office in 2010. Technicians conducted 25 point counts within the 2 transects between 16 May and 2 July 2010. We detected 225 birds of 24 species. Technicians recorded two priority species as designated by BLM Wyoming (Appendix C). The most common species detected were Horned Lark (56 birds), Western Meadowlark (42 birds) and Vesper Sparrow (29 birds).

We do not present density or occupancy results for this section, because results from strata with only two samples are not informative. However, this data is incorporated into larger scale estimates.

**k) WY BCR 16 BLM**

Field technicians surveyed 2 planned transects throughout BLM lands in the BCR 16 portion of Wyoming in 2010. Technicians conducted 28 point counts within the 2 transects between 25 May and 2 June 2010. We detected 43 species.

We do not present density or occupancy results for this section, because results from strata with only two samples are not informative. However, this data is incorporated into larger scale estimates.

**I) WY BCR 18 BLM**

Field technicians surveyed two planned transects throughout BLM lands in the BCR 18 portion of Wyoming in 2010. Technicians conducted 32 point counts within the 2 transects between 18 May and 15 June 2010. We detected 21 species, including 1 priority species as designated by BLM Wyoming (Appendix C).

We do not present density or occupancy results for this section, because results from strata with only two samples are not informative. However, this data is incorporated into larger scale estimates.

C. Department of Defense

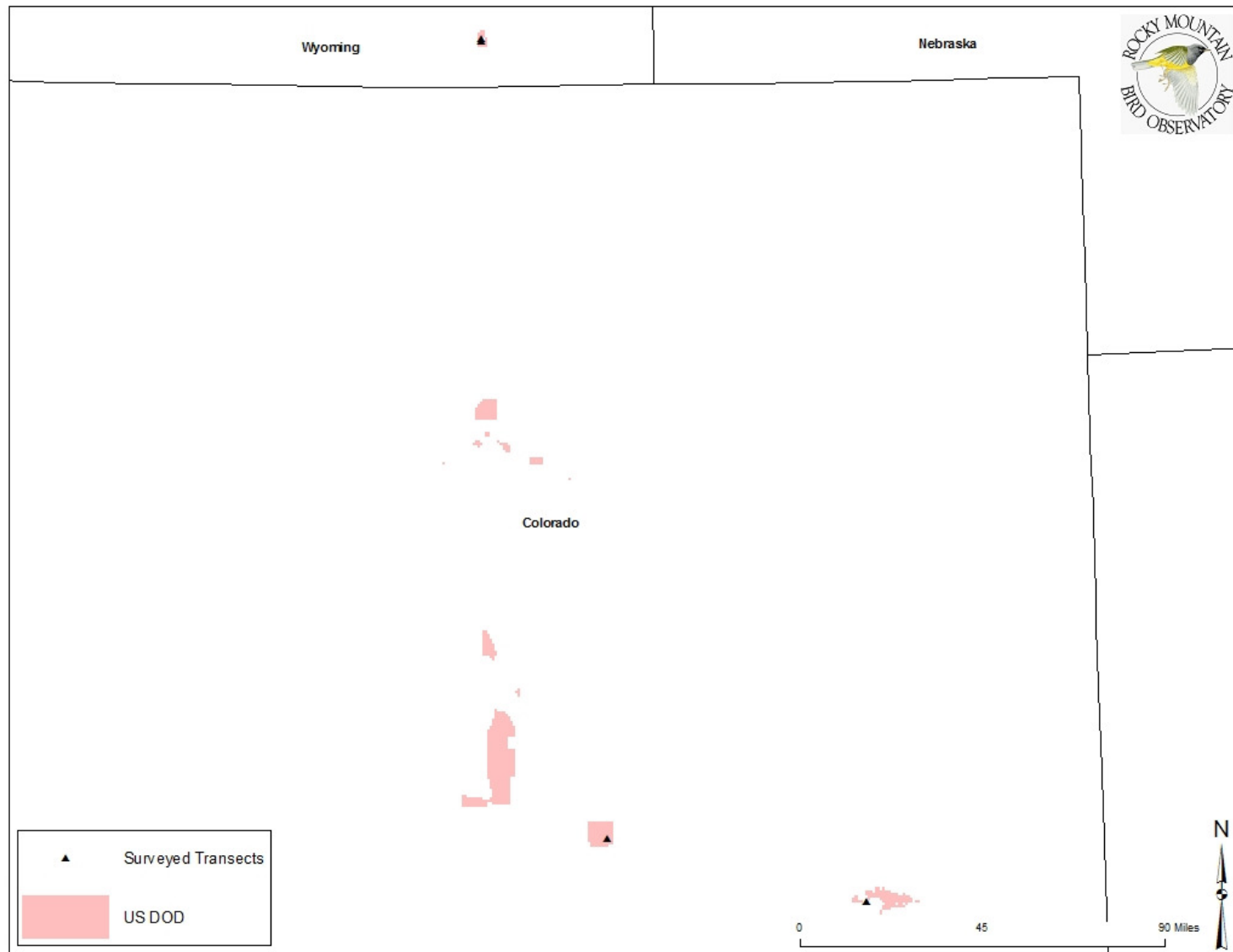


Figure 10. Survey locations on Department of Defense Lands, 2010.

**1. DOD Colorado BCR 18**

Field technicians surveyed two of three planned transects throughout Department of Defense (DOD) lands in the BCR 18 portion of Colorado in 2010. Technicians conducted 23 point counts within the 2 transects between 29 May and 4 June 2010. We detected 42 species, including 7 priority species as designated by CDOW (Appendix B).

We do not present density or occupancy results for this section, because results from strata with only two samples are not informative. However, this data is incorporated into larger scale estimates.

**2. DOD Wyoming BCR 18**

Field technicians surveyed two planned transects throughout DOD lands in the BCR 18 portion of Wyoming in 2010. Technicians conducted 28 point counts within the 2 transects between 27 May and 28 May 2010. We detected 30 species, including 5 priority species as designated by WGFD (Appendix B).

We do not present density or occupancy results for this section, because results from strata with only two samples are not informative. However, this data is incorporated into larger scale estimates.

### D. National Park Service

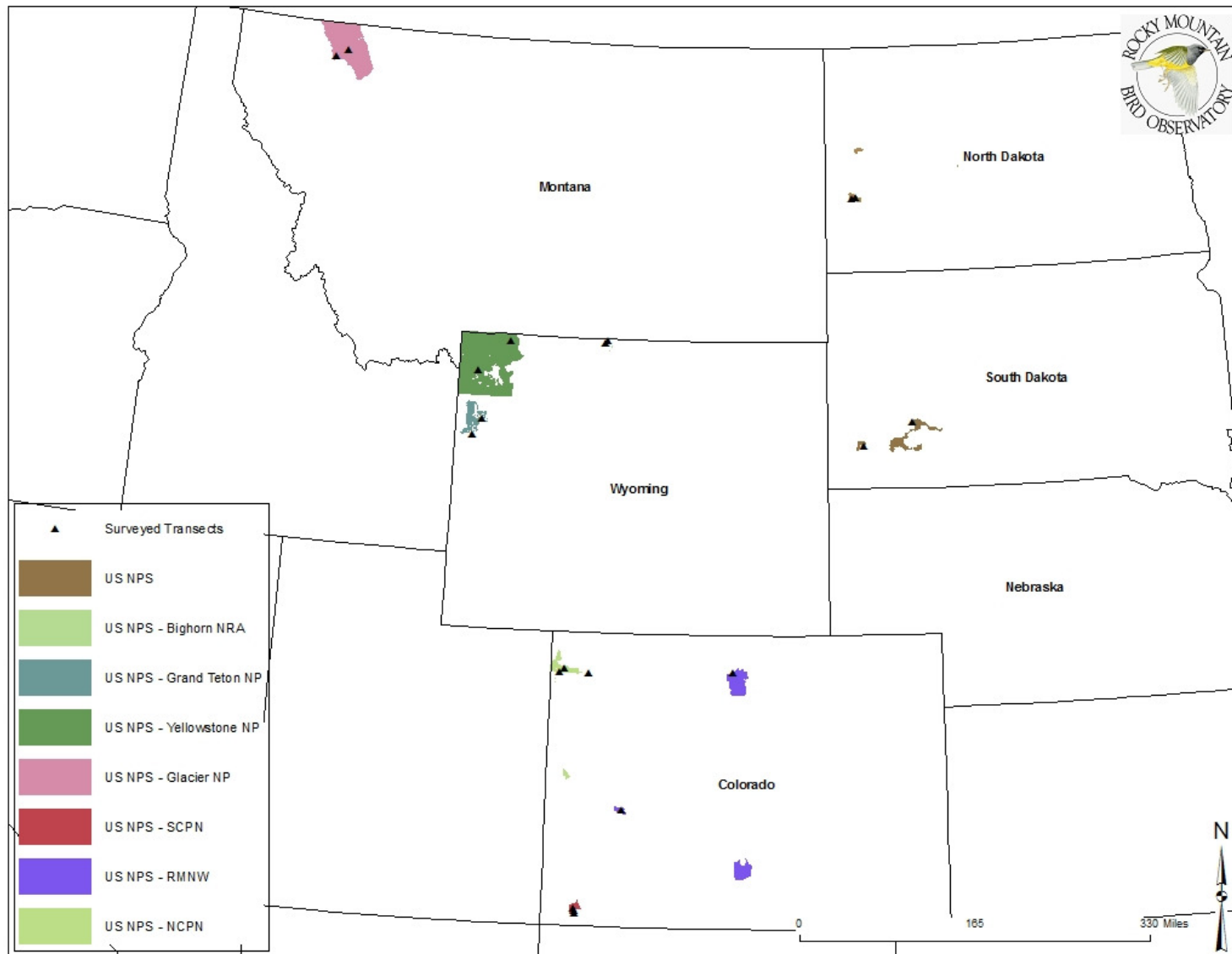


Figure 11. Survey locations on National Park Service Lands, 2010.

**1. Greater Yellowstone Network**

**a) Greater Yellowstone Network: Total**

Field technicians surveyed all six planned transects throughout the NPS Greater Yellowstone Network (GRYN) in 2010. Technicians conducted 56 point counts within the 6 transects between 8 June and 23 June 2010. We detected 55 species.

RMBO estimated densities and population sizes for 44 species (Table 87). The data yielded robust density estimates (CV < 50%) for three of these species.

We estimated the proportion of transects occupied (Psi) by 23 species (Table 88). The data yielded robust occupancy estimates (CV < 50%) for one of these species.

Table 87. Estimated densities per km<sup>2</sup> (D), population sizes (N), percent coefficient of variation of estimates (% CV) and number of independent detections (n) of breeding bird species in the National Park Service Greater Yellowstone Network, 2010. S indicates the number of transects used in analyses.

Species	GRYN (S=6)			
	D	N	% CV	n
American Crow	0.02	158	101	6
American Robin	36.01	306,272	93	12
Black-capped Chickadee	1.14	9,738	118	2
Brewer's Sparrow	8.71	74,048	101	30
Canada Goose	0.02	140	94	2
Canyon Wren	0.00	28	99	1
Chipping Sparrow	29.26	248,831	98	3
Clark's Nutcracker	21.72	184,698	66	7
Dark-eyed Junco	2.25	19,148	109	4
Downy Woodpecker	0.55	4,641	102	1
Dusky Flycatcher	1.12	9,525	100	3
Grasshopper Sparrow	0.02	138	100	1
Gray Jay	14.91	126,801	101	1
Green-tailed Towhee	6.64	56,489	96	2
Horned Lark	0.41	3,455	100	28
House Wren	2.48	21,079	105	7
Killdeer	0.02	162	101	1
Lark Sparrow	0.30	2,543	73	16
Lincoln's Sparrow	64.55	549,037	107	5
Loggerhead Shrike	0.01	93	105	1
Mountain Bluebird	0.50	4,268	94	2
Mountain Chickadee	0.40	3,438	100	1
Northern Flicker	0.42	3,587	22	4
Olive-sided Flycatcher	0.12	980	101	1
Pine Siskin	31.60	268,758	91	7
Red Crossbill	14.03	119,292	97	2

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Species	GRYN (S=6)			
	D	N	% CV	n
Red-breasted Nuthatch	8.55	72,754	93	3
Rock Wren	0.05	465	65	11
Ruby-crowned Kinglet	54.82	466,255	33	14
Sage Thrasher	1.31	11,149	98	27
Sandhill Crane	0.02	183	91	5
Savannah Sparrow	71.82	610,867	101	10
Say's Phoebe	0.01	50	101	1
Song Sparrow	16.67	141,808	101	3
Spotted Sandpiper	19.65	167,112	106	6
Steller's Jay	3.75	31,891	100	1
Tree Swallow	1.27	10,840	89	3
Vesper Sparrow	2.74	23,311	40	18
Warbling Vireo	0.22	1,907	100	1
Western Meadowlark	1.65	14,067	91	48
Western Tanager	0.21	1,794	100	1
Western Wood-Pewee	0.65	5,502	107	4
White-crowned Sparrow	8.42	71,591	87	5
Yellow-rumped Warbler	9.46	80,451	90	4

Table 88. Estimated proportion of sample units occupied (Psi), percent coefficient of variation of Psi (% CV) and number of transects with one or more detections (n Tran) of breeding bird species in the National Park Service Greater Yellowstone Network, 2010. Dashes indicate the data were insufficient for estimating site occupancy. A Psi estimate equal to 1 indicates the species was detected on all transects surveyed. S indicates the number of transects used in analyses.

Species	GRYN (S=6)		
	Psi	% CV	n Tran
Brewer's Sparrow	0.050	71	1
Canada Goose	0.004	71	1
Canyon Wren	0.004	72	1
Clark's Nutcracker	--	--	2
Downy Woodpecker	0.083	71	1
Dusky Flycatcher	0.052	71	1
Dusky Grouse	--	--	1
Grasshopper Sparrow	0.003	71	1
Gray Jay	--	--	1
Green-tailed Towhee	0.557	65	2
Horned Lark	0.003	71	1
Lark Sparrow	0.004	71	2
Lincoln's Sparrow	0.719	71	1
Loggerhead Shrike	0	--	1



Species	GRYN (S=6)		
	Psi	% CV	n Tran
Mountain Bluebird	0.057	67	2
Olive-sided Flycatcher	0.061	71	1
Pine Siskin	0.637	60	3
Red Crossbill	0.770	66	2
Rock Wren	--	--	2
Ruby-crowned Kinglet	0.943	4	3
Ruffed Grouse	0.062	71	1
Sage Thrasher	0.056	66	2
Savannah Sparrow	0.523	71	1
Say's Phoebe	0.005	71	1
Song Sparrow	0.802	71	1
Tree Swallow	0.059	67	2
Vesper Sparrow	--	--	2
Warbling Vireo	0.051	71	1
Western Meadowlark	0.054	66	2

**b) Bighorn National Recreation Area**

Field technicians surveyed two planned transects throughout the Bighorn National Recreation Area in 2010. Technicians conducted 22 point counts within the 2 transects between 8 June and 9 June 2010. We detected 20 species.

We do not present density or occupancy results for this section, because results from strata with only two samples are not informative. However, this data is incorporated into larger scale estimates.

**c) Grand Teton National Park**

Field technicians surveyed two planned transects throughout Grand Teton National Park in 2010. Technicians conducted 25 point counts within the 2 transects between 11 June and 14 June 2010. We detected 34 species.

We do not present density or occupancy results for this section, because results from strata with only two samples are not informative. However, this data is incorporated into larger scale estimates.

**d) Yellowstone National Park**

Field technicians surveyed two planned transects throughout Yellowstone National Park in 2010. Technicians conducted 9 point counts within the 2 transects between 22 June and 23 June 2010. We detected 18 species.

We do not present density or occupancy results for this section, because results from strata with only two samples are not informative. However, this data is incorporated into larger scale estimates.

**2. Northern Colorado Plateau Network in Colorado BCR 16**

Field technicians surveyed all three planned transects throughout the NPS Northern Colorado Plateau Network (NCPN) in 2010. Technicians conducted 37 point counts within the 3 transects between 28 May and 5 June 2010. We detected 36 species.

RMBO estimated densities and population sizes for 31 species (Table 89). The data yielded robust density estimates (CV < 50%) for eight of these species.

We estimated the proportion of transects occupied (Psi) by 18 species (Table 90). The data yielded robust occupancy estimates (CV < 50%) for four of these species.

Table 89. Estimated densities per km<sup>2</sup> (D), population sizes (N), percent coefficient of variation of estimates (% CV) and number of independent detections (n) of breeding bird species in the Northern Colorado Plateau Network in Colorado Bird Conservation Region 16, 2010. S indicates the number of transects used in analyses.

Species	CO NCPN (S=3)			
	D	N	% CV	n
Ash-throated Flycatcher	13.37	10,786	35	12
Bewick's Wren	16.21	13,079	105	8
Black-throated Gray Warbler	91.35	73,718	24	48
Blue-gray Gnatcatcher	58.95	47,570	51	16
Broad-tailed Hummingbird	31.05	25,054	44	4
Bushtit	9.26	7,471	108	2
Canyon Wren	0.57	464	101	2
Chipping Sparrow	60.20	48,585	43	14
Clark's Nutcracker	0.85	682	101	1
Common Raven	1.39	1,118	60	5
Gray Flycatcher	48.47	39,112	21	18
Gray Vireo	7.85	6,333	101	8
House Finch	60.16	48,548	94	18
Juniper Titmouse	64.79	52,289	46	7
Lazuli Bunting	2.97	2,398	101	2
Mountain Bluebird	6.26	5,054	100	2
Mourning Dove	25.77	20,796	56	27
Northern Flicker	2.12	1,714	67	3
Pine Siskin	3.91	3,154	100	1
Plumbeous Vireo	13.69	11,048	33	9
Rock Wren	5.73	4,625	77	13
Say's Phoebe	0.52	423	100	1
Spotted Towhee	16.00	12,911	84	8
Townsend's Solitaire	1.61	1,300	101	1
Vesper Sparrow	2.04	1,650	100	2
Violet-green Swallow	17.11	13,810	30	4
Virginia's Warbler	6.00	4,840	79	2
Western Scrub-Jay	3.31	2,672	102	4

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Species	CO NCPN (S=3)			
	D	N	% CV	n
Western Tanager	1.42	1,143	100	1
White-breasted Nuthatch	2.60	2,098	101	1
White-throated Swift	7.82	6,307	64	11

Table 90. Estimated proportion of sample units occupied (Psi), percent coefficient of variation of Psi (% CV) and number of transects with one or more detections (n Tran) of breeding bird species in the Northern Colorado Plateau Network, 2010. Dashes indicate the data were insufficient for estimating site occupancy. A Psi estimate equal to 1 indicates the species was detected on all transects surveyed. S indicates the number of transects used in analyses.

Species	CO NCPN (S=3)		
	Psi	% CV	n Tran
Ash-throated Flycatcher	1	--	3
Bewick's Wren	0.349	82	1
Black-chinned Hummingbird	0.801	41	2
Black-throated Gray Warbler	1	--	3
Blue-gray Gnatcatcher	1	--	3
Broad-tailed Hummingbird	1	--	3
Bushtit	0.621	83	1
Canyon Wren	0.474	83	1
Clark's Nutcracker	0.366	82	1
Gray Flycatcher	1	--	3
Gray Vireo	0.335	82	1
Juniper Titmouse	1	--	3
Lazuli Bunting	0.355	82	1
Lesser Goldfinch	0.350	82	1
Mountain Bluebird	0.364	82	1
Pine Siskin	0.339	82	1
Plumbeous Vireo	1	--	3
Rock Wren	0.361	82	1
Say's Phoebe	0.492	82	1
Spotted Towhee	0.671	41	2
Townsend's Solitaire	0.371	82	1
Vesper Sparrow	0.336	82	1
Virginia's Warbler	0.686	41	2
Western Scrub-Jay	0.345	82	1
White-throated Swift	0.726	41	2

### 3. Northern Great Plains Network

#### a) Northern Great Plains Network in North Dakota BCR 17

Field technicians surveyed two planned transects throughout NPS lands in the BCR17 portion of North Dakota in 2010. Technicians conducted 20 point counts within the 2 transects between 26 May and 27 May 2010. We detected 36 species.

We do not present density or occupancy results for this section, because results from strata with only two samples are not informative. However, this data is incorporated into larger scale estimates.

#### b) Northern Great Plains Network in South Dakota BCR 17

Field technicians surveyed two planned transects throughout NPS lands in the BCR 17 portion of South Dakota in 2010. Technicians conducted 18 point counts within the 2 transects between 26 June and 10 July 2010. We detected 16 species.

We do not present density or occupancy results for this section, because results from strata with only two samples are not informative. However, this data is incorporated into larger scale estimates.

### 4. Rocky Mountain Network

#### a). Colorado Bird Conservation Region 16

Field technicians surveyed two of three planned transects throughout the NPS Rocky Mountain Network (RMNW) in Colorado in 2010. Technicians conducted 29 point counts within the 2 transects between 2 July and 16 July 2010. We detected 34 species.

We do not present density or occupancy results for this section, because results from strata with only two samples are not informative. However, this data is incorporated into larger scale estimates.

#### b) Glacier National Park

Field technicians surveyed two planned transects throughout Glacier National Park in 2010. Technicians conducted 25 point counts within the 2 transects between 9 July and 24 July 2010. We detected 38 species.

We do not present density or occupancy results for this section, because results from strata with only two samples are not informative. However, this data is incorporated into larger scale estimates.

### 5. Southern Colorado Plateau Network in Colorado BCR 16

Field technicians surveyed all three planned transects throughout the NPS South Colorado Plateau Network (SCPN) in 2010. Technicians conducted 38 point counts within the 3 transects between 25 May and 27 May 2010. We detected 53 species.

RMBO estimated densities and population sizes for 45 species (Table 91). The data yielded robust density estimates ( $CV < 50\%$ ) for eight of these species.

We estimated the proportion of transects occupied ( $\Psi$ ) by 21 species (Table 92). The data yielded robust occupancy estimates ( $CV < 50\%$ ) for 11 of these species.

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Table 91. Estimated densities per km<sup>2</sup> (D), population sizes (N), percent coefficient of variation of estimates (% CV) and number of independent detections (n) of breeding bird species in the Southern Colorado Plateau Network in Colorado Bird Conservation Region 16, 2010. S indicates the number of transects used in analyses.

Species	CO SCPN (S=3)			
	D	N	% CV	n
American Goldfinch	8.58	1,837	100	1
American Robin	8.84	1,891	73	4
Ash-throated Flycatcher	10.85	2,321	14	10
Bewick's Wren	5.92	1,266	82	3
Blue-gray Gnatcatcher	132.73	28,404	23	37
Brown-headed Cowbird	23.29	4,983	40	6
Black-headed Grosbeak	4.89	1,046	51	4
Broad-tailed Hummingbird	68.02	14,555	53	9
Black-throated Gray Warbler	48.18	10,310	65	26
Chipping Sparrow	104.53	22,369	28	27
Common Raven	1.08	231	21	4
Dusky Flycatcher	19.52	4,178	55	8
Gray Flycatcher	15.73	3,366	44	6
Gray Vireo	1.91	409	101	2
Green-tailed Towhee	47.42	10,147	58	28
Hairy Woodpecker	2.50	534	100	1
Hermit Thrush	1.36	291	100	2
House Finch	3.25	696	100	1
House Wren	18.52	3,962	62	8
Juniper Titmouse	46.56	9,965	78	7
Lark Sparrow	1.61	345	100	1
Lazuli Bunting	2.89	619	51	2
Mountain Bluebird	42.69	9,136	56	14
Mourning Dove	13.94	2,983	55	15
Northern Flicker	4.82	1,032	52	7
Northern Mockingbird	6.48	1,386	102	13
Pinyon Jay	0.39	84	101	1
Plumbeous Vireo	6.06	1,297	51	5
Red-naped Sapsucker	3.19	683	100	1
Rock Wren	0.86	184	100	2
Spotted Towhee	149.94	32,087	38	77
Townsend's Solitaire	1.57	336	101	1
Tree Swallow	14.47	3,097	101	2
Vesper Sparrow	7.96	1,704	66	8
Violet-green Swallow	4.17	891	101	1
Virginia's Warbler	63.39	13,565	44	19

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Species	CO SCPN (S=3)			
	D	N	% CV	n
Warbling Vireo	1.47	314	100	1
White-breasted Nuthatch	5.06	1,083	101	2
Western Bluebird	38.79	8,301	60	8
Western Kingbird	1.80	386	101	1
Western Meadowlark	0.49	105	100	1
Western Scrub-Jay	0.81	172	102	1
Western Tanager	1.38	295	100	1
Western Wood-Pewee	4.23	905	107	4
White-throated Swift	2.77	592	107	4

Table 92. Estimated proportion of sample units occupied (Psi), percent coefficient of variation of Psi (% CV) and number of transects with one or more detections (n Tran) of breeding bird species in the Southern Colorado Plateau Network in Colorado Bird Conservation Region 16, 2010. Dashes indicate the data were insufficient for estimating site occupancy. A Psi estimate equal to 1 indicates the species was detected on all transects surveyed. S indicates the number of transects used in analyses.

Species	CO SCPN (S=3)		
	Psi	% CV	n Tran
Ash-throated Flycatcher	1	--	3
Bewick's Wren	0.679	41	2
Black-chinned Hummingbird	0.380	82	1
Black-throated Gray Warbler	0.667	41	2
Blue-gray Gnatcatcher	1	--	3
Broad-tailed Hummingbird	1	--	3
Brown-headed Cowbird	1	--	3
Cassin's Kingbird	0.751	41	2
Dusky Flycatcher	0.703	41	2
Gray Flycatcher	1	--	3
Gray Vireo	0.334	82	1
Green-tailed Towhee	1	--	3
Hairy Woodpecker	0.373	82	1
Juniper Titmouse	0.671	41	2
Lark Sparrow	0.692	41	2
Lazuli Bunting	1	--	3
Mountain Bluebird	1	--	3
Plumbeous Vireo	0.670	41	2
Red-naped Sapsucker	0.379	82	1
Rock Wren	0.700	41	2
Rufous Hummingbird	0.558	83	1
Spotted Towhee	1	--	3
Townsend's Solitaire	0.385	82	1

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Species	CO SCPN (S=3)		
	Psi	% CV	n Tran
Tree Swallow	0.781	41	2
Vesper Sparrow	0.673	41	2
Virginia's Warbler	1	--	3
Warbling Vireo	0.335	82	1
Western Bluebird	0.733	41	2
Western Meadowlark	0.334	82	1
Western Scrub-Jay	0.343	82	1
White-throated Swift	0.369	82	1

### E. Tribal Lands

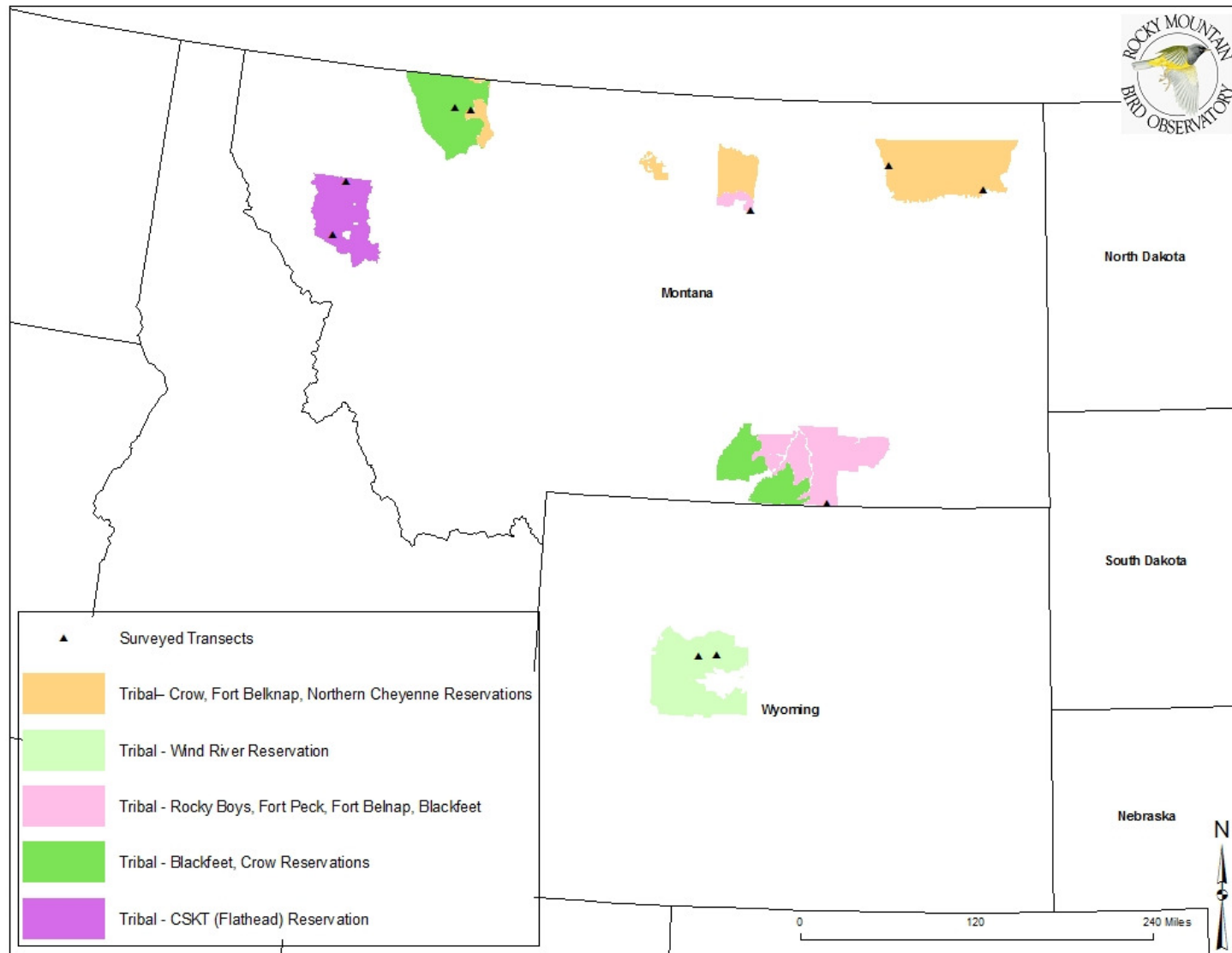


Figure 12. Survey locations on Tribal Lands in Montana and Wyoming, 2010.



**1. Blackfeet and Crow Tribal Lands in BCR 10**

Field technicians surveyed two planned transects throughout Blackfeet and Crow Tribal lands in the BCR 10 portion of Montana in 2010. Technicians conducted 11 point counts within the 2 transects on 17 June 2010. We detected 14 species, including 4 priority species as designated by MTFWP (Appendix B).

We do not present density or occupancy results for this section, because results from strata with only two samples are not informative. However, this data is incorporated into larger scale estimates.

**2. Flathead Tribal Lands in BCR 10**

Field technicians surveyed two planned transects throughout Flathead Tribal Lands in the BCR10 portion of Montana in 2010. Technicians conducted 25 point counts within the 2 transects between 23 June and 24 June 2010. We detected 50 species, including 3 priority species as designated by MTFWP (Appendix B).

We do not present density or occupancy results for this section, because results from strata with only two samples are not informative. However, this data is incorporated into larger scale estimates.

**3. Blackfeet, Fort Belknap, Fort Peck and Rocky Boys Tribal Lands in BCR 11**

Field technicians surveyed two planned transects throughout Blackfeet, Fort Belknap, Fort Peck and Rocky Boys Tribal Lands in the BCR 11 portion of Montana in 2010. Technicians conducted 20 point counts within the 2 transects between 7 June and 8 June 2010. We detected 31 species, including 7 priority species as designated by MTFWP (Appendix B).

We do not present density or occupancy results for this section, because results from strata with only two samples are not informative. However, this data is incorporated into larger scale estimates.

**4. Crow, Fort Belknap and Northern Cheyenne Tribal Lands in BCR 17**

Field technicians surveyed two planned transects throughout Crow, Fort Belknap and Northern Cheyenne Tribal Lands in the BCR 17 portion of Montana in 2010. Technicians conducted 11 point counts within the 2 transects between 31 May and 8 June 2010. We detected 33 species, including 1 priority species (Appendix B).

We do not present density or occupancy results for this section, because results from strata with only two samples are not informative. However, this data is incorporated into larger scale estimates.

**5. Wind River Tribal Lands in BCR 10**

Field technicians surveyed two planned transects throughout Wind River Tribal lands in the Wyoming in 2010. Technicians conducted 30 point counts within the 2 transects between 23 June and 24 June 2010. We detected 29 species, including 2 priority species as designated by WGFD (Appendix B).

We do not present density or occupancy results for this section, because results from strata with only two samples are not informative. However, this data is incorporated into larger scale estimates.

**F. US Forest Service**

**1. US Forest Service Region 1**

Table 93. Planned and completed surveys in U.S. Forest Service Region 1, by stratum, 2010.

Strata Name	State	BCR	Strata Code	Area (km <sup>2</sup> )	Planned	Completed	% Completed
<b>Region 1 National Forests</b>							
Beaverhead-Deerlodge National Forest – Roaded/Managed	MT	10	BE	7,697	10	10	100%
Beaverhead-Deerlodge National Forest – Roadless/Wilderness	MT	10	BR	8,236	4	4	100%
Bitterroot National Forest – Roaded/Managed	MT	10	BI	2,324	10	10	100%
Bitterroot National Forest – Roadless/Wilderness	MT	10	BW	2,763	4	4	100%
Clearwater National Forest – Roaded/Managed	MT	10	CL	1,946	10	10	100%
Clearwater National Forest – Roadless/Wilderness	ID	10	CR	5,036	4	3	75%
Custer National Forest – Roaded/Managed	MT	10	CU	779	2	2	100%
Custer National Forest – Roadless/Wilderness	MT	10	CR	1,783	4	4	100%
Custer National Forest	MT	17	CU	2,649	8	8	100%
Custer National Forest	SD	17	CU	446	5	2	40%
Flathead National Forest – Roaded/Managed	MT	10	FL	4,945	10	10	100%
Flathead National Forest – Roadless/Wilderness	MT	10	FR	6,410	4	3	75%
Gallatin National Forest – Roaded/Managed	MT	10	GA	3,479	10	10	100%
Gallatin National Forest – Roadless/Wilderness	MT	10	GR	5,787	4	4	100%
Helena National Forest – Roaded/Managed	MT	10	HE	3,024	10	10	100%
Helena National Forest – Roadless/Wilderness	MT	10	HR	2,248	4	4	100%
Idaho Panhandle National Forest – Roaded/Managed	ID	10	IP	8,660	10	10	100%
Idaho Panhandle National Forest – Roadless/Wilderness	ID	10	IR	3,155	4	4	100%
Kootenai National Forest – Roaded/Managed	MT	10	KO	7,239	10	10	100%
Kootenai National Forest – Roadless/Wilderness	MT	10	KR	1,887	4	4	100%
Lewis and Clark National Forest – Roaded/Managed	MT	10	LC	2,778	5	5	100%

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<b>Strata Name</b>	<b>State</b>	<b>BCR</b>	<b>Strata Code</b>	<b>Area (km<sup>2</sup>)</b>	<b>Planned</b>	<b>Completed</b>	<b>% Completed</b>
Lewis and Clark National Forest – Roadless/Wilderness	MT	10	LR	5,007	4	4	100%
Lewis and Clark National Forest	MT	17	LC	867	5	5	100%
Lolo National Forest – Roaded/Managed	MT	10	LO	7,742	10	10	100%
Lolo National Forest – Roadless/Wilderness	MT	10	LW	3,859	4	4	100%
Nez Perce National Forest – Roaded/Managed	ID	10	NP	2,864	10	10	100%
Nez Perce National Forest – Roadless/Wilderness	ID	10	NR	6,370	4	4	100%
				<b>Subtotal</b>	<b>173</b>	<b>168</b>	<b>97%</b>
<b>Region 1 National Grasslands</b>							
Cedar River National Grassland	ND	17	CR	84	5	5	100%
Grand River National Grassland	SD	17	GR	1,027	5	5	100%
Little Missouri National Grassland	ND	17	LM	6,567	15	14	93%
				<b>Subtotal</b>	<b>25</b>	<b>24</b>	<b>96%</b>
				<b>Grand Total</b>	<b>198</b>	<b>192</b>	<b>97%</b>

**a) National Forests**

Within this sampling design each National Forest in Region 1 is stratified separately. This forest-level stratification distinction is made so we can analyze the data separately for each Forest, or together as a whole. In this section of the report, we present estimates for all Region 1 Forests combined, followed by estimates for each individual Forest.

**(1) Region 1 National Forests: Total**

Field technicians surveyed 168 of 173 planned transects throughout US Forest Service (USFS) Region 1 Forests in 2010. Technicians conducted 1,653 point counts within the 168 transects between 17 May and 25 July 2010. We detected 156 species, including 28 priority species as designated by USFS Region 1 (Appendix D).

RMBO estimated densities and population sizes for 109 species, 11 of which are priority species in USFS Region 1 (Table 94). The data yielded robust density estimates (CV < 50%) for 72 of these species.

We estimated the proportion of transects occupied (Psi) by 72 species, 11 of which are priority species in USFS Region 1 (Table 95). The data yielded robust occupancy estimates (CV < 50%) for 47 of these species.

Table 94. Estimated densities per km<sup>2</sup> (D), population sizes (N), percent coefficient of variation of estimates (% CV) and number of independent detections (n) of breeding bird species on National Forests in Region 1, 2010. S indicates the number of transects used in analyses. Priority species are bolded.

Species	USFS Region 1 NF (S=168)			
	D	N	% CV	n
American Crow	0.08	8,284	58	11
American Goldfinch	2.59	284,621	49	13
American Kestrel	0.14	15,140	28	11
American Pipit	1.64	180,643	46	39
American Redstart	0.21	23,262	61	4
American Robin	27.42	3,015,158	10	493
American Three-toed Woodpecker	3.32	364,753	27	29
Barn Swallow	1.02	112,426	72	2
Black-billed Magpie	0.02	1,925	60	3
Black-capped Chickadee	13.39	1,472,185	17	163
Black-headed Grosbeak	0.92	100,947	20	45
Brewer's Blackbird	0.14	15,342	64	2
Brewer's Sparrow	1.76	193,455	60	40
<b>Broad-tailed Hummingbird</b>	0.18	19,353	83	1
Brown Creeper	2.97	326,143	31	16
Brown-headed Cowbird	7.41	815,310	18	119
Bullock's Oriole	0.40	43,959	77	10

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Species	USFS Region 1 NF (S=168)			
	D	N	% CV	n
Canada Goose	0.01	752	89	3
Cassin's Finch	2.43	266,742	29	53
Cassin's Vireo	4.01	440,523	12	129
Chipping Sparrow	39.96	4,394,992	9	432
<b>Clark's Nutcracker</b>	2.11	231,803	20	88
Clay-colored Sparrow	0.04	4,940	66	2
Cliff Swallow	1.49	163,475	85	4
Common Grackle	0.23	25,826	24	5
Common Nighthawk	0.12	13,671	48	4
Common Raven	0.83	90,969	12	153
Common Yellowthroat	0.36	40,013	53	14
Cordilleran Flycatcher	0.68	75,120	53	7
Dark-eyed Junco	69.87	7,684,346	7	803
Downy Woodpecker	0.36	39,275	53	7
Dusky Flycatcher	11.21	1,232,760	14	200
Eastern Kingbird	0.06	6,842	81	7
European Starling	0.35	38,918	65	4
Evening Grosbeak	2.00	219,656	18	50
Field Sparrow	0.18	19,847	10	23
Fox Sparrow	1.11	122,472	33	47
Golden-crowned Kinglet	26.05	2,864,637	23	71
<b>Grasshopper Sparrow</b>	0.85	93,648	52	28
<b>Gray Jay</b>	5.74	631,453	12	82
Green-tailed Towhee	0.08	8,477	45	5
Hairy Woodpecker	7.71	847,840	12	120
Hammond's Flycatcher	7.51	826,416	14	108
Hermit Thrush	5.06	556,855	13	266
Horned Lark	0.43	47,419	61	8
House Finch	0.07	8,138	89	1
House Wren	4.19	461,360	17	142
Killdeer	0.35	38,653	75	7
Lark Bunting	0.03	3,118	46	3
Lark Sparrow	1.33	145,745	78	40
Lazuli Bunting	1.34	147,196	30	48
Least Flycatcher	0.09	10,006	66	2
Lincoln's Sparrow	2.60	285,686	27	34
<b>Loggerhead Shrike</b>	0.01	1,170	104	1
MacGillivray's Warbler	12.66	1,392,263	14	238
Mallard	0.02	1,873	85	1
Mountain Bluebird	5.04	553,985	25	61

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Species	USFS Region 1 NF (S=168)			
	D	N	% CV	n
Mountain Chickadee	26.12	2,872,189	10	320
Mourning Dove	0.39	42,665	37	22
Northern Flicker	3.94	433,758	10	238
<b>Northern Harrier</b>	0.02	2,083	66	2
Northern Rough-winged Swallow	0.07	7,926	52	2
<b>Olive-sided Flycatcher</b>	1.61	177,529	16	81
Orange-crowned Warbler	6.84	752,589	17	80
Ovenbird	0.48	53,125	39	26
Pine Grosbeak	3.71	408,526	32	41
Pine Siskin	48.65	5,350,434	9	472
Pinyon Jay	0.01	1,055	68	2
Plumbeous Vireo	0.11	12,335	46	4
<b>Pygmy Nuthatch</b>	0.28	30,912	95	3
Red Crossbill	12.70	1,397,010	13	187
Red-breasted Nuthatch	25.47	2,800,731	9	507
<b>Red-headed Woodpecker</b>	0.29	31,834	124	4
<b>Red-naped Sapsucker</b>	4.16	457,849	31	43
Red-tailed Hawk	0.40	43,616	31	25
Red-winged Blackbird	0.24	26,134	42	9
Ring-necked Pheasant	0.00	135	91	1
Rock Pigeon	0.21	22,581	90	2
Rock Wren	0.07	7,637	40	10
Ruby-crowned Kinglet	25.00	2,749,149	11	495
<b>Sandhill Crane</b>	0.00	479	63	4
Savannah Sparrow	0.38	41,650	48	8
Say's Phoebe	0.02	1,730	10	3
Song Sparrow	1.18	130,024	30	27
Spotted Sandpiper	0.02	2,697	94	1
Spotted Towhee	2.24	246,576	19	80
Steller's Jay	0.49	53,966	27	22
Swainson's Thrush	22.85	2,512,778	14	650
Townsend's Solitaire	4.70	516,489	18	122
Townsend's Warbler	32.46	3,570,101	15	469
Tree Swallow	1.53	167,969	43	9
Upland Sandpiper	0.01	1,318	47	2
Varied Thrush	6.68	734,187	15	260
Vesper Sparrow	1.07	117,358	37	50
Violet-green Swallow	4.44	488,049	26	46
Warbling Vireo	11.33	1,245,603	10	349
Western Bluebird	0.76	84,073	91	6
Western Kingbird	0.10	10,517	53	4

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Species	USFS Region 1 NF (S=168)			
	D	N	% CV	n
Western Meadowlark	0.86	94,575	33	130
Western Tanager	20.82	2,289,994	7	724
Western Wood-Pewee	1.51	165,848	19	83
White-breasted Nuthatch	0.57	62,236	35	12
White-crowned Sparrow	6.12	672,783	27	130
Wild Turkey	0.04	4,779	52	6
Wilson's Snipe	0.05	5,778	93	1
Wilson's Warbler	8.52	937,337	46	38
Yellow Warbler	1.10	121,105	31	24
Yellow-breasted Chat	0.04	4,781	47	4
Yellow-rumped Warbler	59.51	6,545,179	6	1066

Table 95. Estimated proportion of sample units occupied (Psi), percent coefficient of variation of Psi (% CV) and number of transects with one or more detections (n Tran) of breeding bird species on National Forests in Region 1, 2010. Dashes indicate the data were insufficient for estimating site occupancy. A Psi estimate equal to 1 indicates the species was detected on all transects surveyed. S indicates the number of transects used in analyses. Priority species are bolded.

Species	USFS Region 1 NF (S=168)		
	Psi	% CV	n Tran
American Pipit	0.033	53	4
American Three-toed Woodpecker	0.374	19	28
<b>Black Rosy-Finch</b>	0.008	87	1
Black-billed Magpie	0.013	72	2
Brewer's Sparrow	0.039	40	7
<b>Broad-tailed Hummingbird</b>	0.007	86	1
Brown Creeper	--	--	23
Brown Thrasher	0.007	97	1
Brown-headed Cowbird	0.141	16	32
Bullock's Oriole	0.008	61	2
Calliope Hummingbird	--	--	9
Canada Goose	0.009	96	1
Cassin's Finch	0.277	18	30
Cassin's Kingbird	0.004	94	1
Cassin's Vireo	0.327	10	50
Cedar Waxwing	0.053	48	5
Chestnut-backed Chickadee	0.185	16	28
<b>Clark's Nutcracker</b>	--	--	38
Clay-colored Sparrow	0.012	71	2
Common Nighthawk	0.058	45	6
Common Yellowthroat	--	--	7

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Species	USFS Region 1 NF (S=168)		
	Psi	% CV	n Tran
Cordilleran Flycatcher	0.078	42	4
Downy Woodpecker	0.080	44	6
Dusky Flycatcher	0.389	11	65
Dusky Grouse	--	--	8
Eastern Kingbird	0.009	67	2
European Starling	0.020	53	4
Evening Grosbeak	0.237	17	30
Field Sparrow	--	--	2
Golden-crowned Kinglet	--	--	50
<b>Grasshopper Sparrow</b>	0.029	57	5
Gray Catbird	0.064	39	7
<b>Gray Jay</b>	0.335	13	47
Green-tailed Towhee	0.012	49	3
Hairy Woodpecker	--	--	70
Hammond's Flycatcher	0.478	12	59
Horned Lark	0.037	51	4
Lark Bunting	--	--	2
Lark Sparrow	0.031	13	10
Lazuli Bunting	0.095	26	15
Least Flycatcher	0.018	76	2
<b>Lewis's Woodpecker</b>	0.039	56	3
Lincoln's Sparrow	--	--	18
MacGillivray's Warbler	0.465	10	74
Mountain Bluebird	0.178	20	25
Nashville Warbler	0.080	30	11
<b>Northern Harrier</b>	0.027	82	2
Northern Rough-winged Swallow	--	--	1
Northern Waterthrush	0.043	39	6
<b>Olive-sided Flycatcher</b>	--	--	34
Orange-crowned Warbler	--	--	37
Ovenbird	0.026	35	8
Pileated Woodpecker	0.186	21	19
Pine Grosbeak	0.210	22	23
Pine Siskin	0.841	4	129
Pinyon Jay	0.007	58	2
Plumbeous Vireo	0.016	34	5
<b>Pygmy Nuthatch</b>	0.007	70	2
Red Crossbill	0.478	10	75
Red-eyed Vireo	0.028	45	5
<b>Red-naped Sapsucker</b>	0.244	17	31
Rock Wren	0.023	49	4



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Species	USFS Region 1 NF (S=168)		
	Psi	% CV	n Tran
Ruby-crowned Kinglet	0.697	6	110
Ruffed Grouse	0.079	29	13
Rufous Hummingbird	0.244	29	18
Savannah Sparrow	0.034	54	4
Say's Phoebe	--	--	1
Song Sparrow	0.151	24	17
Spotted Towhee	0.093	19	22
Swainson's Thrush	0.534	6	87
Townsend's Solitaire	--	--	61
Townsend's Warbler	0.455	7	76
Tree Swallow	0.045	43	6
Veery	0.058	77	5
Vesper Sparrow	0.049	34	9
Warbling Vireo	0.513	8	81
Western Bluebird	0.013	66	3
Western Meadowlark	0.029	30	9
White-winged Crossbill	0.132	30	11
Wild Turkey	0.087	74	4
<b>Williamson's Sapsucker</b>	0.067	44	7
Willow Flycatcher	0.011	67	2
Wilson's Snipe	0.010	96	1
Wilson's Warbler	0.187	24	21
Winter Wren	0.289	12	32
Yellow Warbler	0.055	27	13
Yellow-breasted Chat	0.011	53	3

**(2) Beaverhead-Deerlodge National Forest**

Within this sampling design Beaverhead-Deerlodge National Forest is split into two strata, front-country, managed areas and designated roadless and wilderness areas. This forest-level stratification distinction was made due to field implementation cost considerations and the desire to focus monitoring on the more highly managed areas while maintaining inference to the entire management unit. In this section of this report these two strata are combined to the administrative area of Beaverhead-Deerlodge National Forest.

Field technicians surveyed all 14 planned transects throughout Beaverhead-Deerlodge National Forest in 2010. Technicians conducted 147 point counts within the 14 transects between 10 June and 14 July 2010. We detected 67 species, including 9 priority species for the Beaverhead-Deerlodge National Forest (Appendix D).

RMBO estimated densities and population sizes for 55 species, 5 of which are priority species for Beaverhead-Deerlodge National Forest (Table 96). The data yielded robust density estimates ( $CV < 50\%$ ) for 20 of these species.

We estimated the proportion of transects occupied ( $P_{si}$ ) by 40 species, 6 of which are priority species for Beaverhead-Deerlodge National Forest (Table 97). The data yielded robust occupancy estimates ( $CV < 50\%$ ) for 13 of these species.

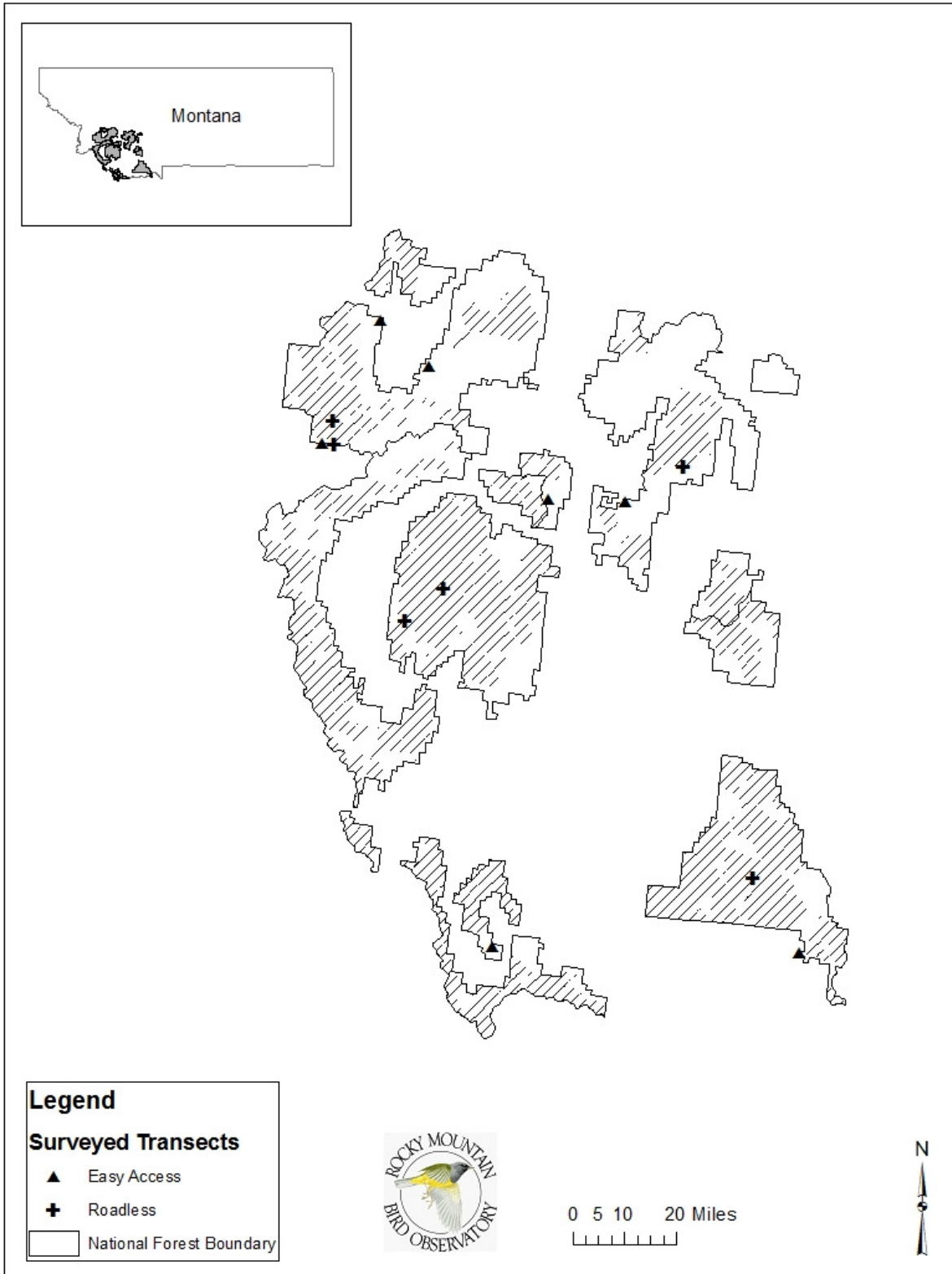


Figure 13. Survey locations in Beaverhead-Deerlodge National Forest, 2010. Survey locations labeled Easy Access are located in Roaded/Managed areas, and those labeled Roadless are located in Roadless/Wilderness areas.

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Table 96. Estimated densities per km<sup>2</sup> (D), population sizes (N), percent coefficient of variation of estimates (% CV) and number of independent detections (n) of breeding bird species in Beaverhead-Deerlodge National Forest, 2010. S indicates the number of transects used in analyses. Priority species are bolded.

Species	Beaverhead-Deerlodge NF (S=14)			
	D	N	% CV	n
American Kestrel	0.11	1,807	84	1
American Pipit	2.52	40,088	96	3
American Robin	34.29	546,287	32	53
American Three-toed Woodpecker	3.16	50,378	87	2
Black-billed Magpie	0.06	959	88	1
Black-capped Chickadee	1.60	25,461	85	1
Brewer's Sparrow	9.31	148,328	76	27
Brown Creeper	1.14	18,158	89	1
Brown-headed Cowbird	2.82	44,955	55	4
Cassin's Finch	0.64	10,187	83	2
Cassin's Vireo	0.27	4,287	81	1
Chipping Sparrow	21.23	338,279	43	22
<b>Clark's Nutcracker</b>	3.16	50,288	46	13
Common Raven	0.82	13,087	40	10
Cordilleran Flycatcher	1.92	30,526	48	2
Dark-eyed Junco	72.48	1,154,790	19	76
Dusky Flycatcher	12.62	201,013	52	19
Golden-crowned Kinglet	1.82	29,014	91	1
<b>Grasshopper Sparrow</b>	3.59	57,166	83	6
<b>Gray Jay</b>	0.72	11,455	85	1
Hairy Woodpecker	6.08	96,902	38	8
Hammond's Flycatcher	8.35	133,036	41	9
Hermit Thrush	5.71	91,005	23	30
Horned Lark	2.82	44,993	64	7
Lincoln's Sparrow	4.79	76,373	56	5
MacGillivray's Warbler	1.03	16,365	86	1
Mountain Bluebird	10.20	162,457	51	13
Mountain Chickadee	34.62	551,533	22	46
Mourning Dove	0.34	5,382	91	2
Northern Flicker	5.87	93,590	28	28
<b>Olive-sided Flycatcher</b>	1.93	30,759	49	6
Pine Grosbeak	2.54	40,394	86	2
Pine Siskin	48.56	773,636	27	54
Red Crossbill	8.48	135,135	36	9
Red-breasted Nuthatch	20.71	330,036	31	30
<b>Red-naped Sapsucker</b>	2.90	46,221	62	5
Red-tailed Hawk	0.29	4,669	72	3

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Species	Beaverhead-Deerlodge NF (S=14)			
	D	N	% CV	n
Rock Wren	0.23	3,729	62	3
Ruby-crowned Kinglet	24.44	389,394	36	39
Savannah Sparrow	1.85	29,522	62	4
Song Sparrow	1.89	30,099	86	3
Spotted Towhee	0.35	5,639	87	1
Steller's Jay	0.36	5,762	104	2
Swainson's Thrush	0.88	14,000	69	3
Townsend's Solitaire	5.24	83,542	34	13
Vesper Sparrow	5.25	83,588	49	29
Violet-green Swallow	6.06	96,507	58	8
Warbling Vireo	4.45	70,895	50	14
Western Meadowlark	1.33	21,232	88	15
Western Tanager	18.28	291,299	25	50
Western Wood-Pewee	1.48	23,571	71	5
White-breasted Nuthatch	0.46	7,329	88	1
White-crowned Sparrow	13.55	215,865	54	28
Wilson's Warbler	3.69	58,822	103	1
Yellow-rumped Warbler	45.48	724,568	20	70

Table 97. Estimated proportion of sample units occupied (Psi), percent coefficient of variation of Psi (% CV) and number of transects with one or more detections (n Tran) of breeding bird species in Beaverhead-Deerlodge National Forest, 2010. Dashes indicate the data were insufficient for estimating site occupancy. A Psi estimate equal to 1 indicates the species was detected on all transects surveyed. S indicates the number of transects used in analyses. Priority species are bolded.

Species	Beaverhead-Deerlodge NF (S=14)		
	Psi	% CV	n Tran
American Pipit	0.129	87	1
American Three-toed Woodpecker	0.194	87	1
Black-billed Magpie	0.062	95	1
Brewer's Sparrow	0.097	63	2
Brown Creeper	0.076	95	1
Brown-headed Cowbird	0.159	48	3
Cassin's Finch	0.065	95	1
Cassin's Vireo	0.052	95	1
<b>Clark's Nutcracker</b>	0.442	36	5
Cordilleran Flycatcher	0.417	50	2
Dusky Flycatcher	0.343	42	5
Dusky Grouse	0.175	101	1
Golden-crowned Kinglet	0.067	95	1
<b>Grasshopper Sparrow</b>	0.129	87	1

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Species	Beaverhead-Deerlodge NF (S=14)		
	Psi	% CV	n Tran
<b>Gray Jay</b>	0.061	95	1
Hairy Woodpecker	0.498	41	4
Hammond's Flycatcher	0.473	41	4
Horned Lark	0.226	56	3
Lincoln's Sparrow	0.452	41	4
MacGillivray's Warbler	0.142	87	1
Mountain Bluebird	0.309	47	4
<b>Olive-sided Flycatcher</b>	0.411	50	2
Pileated Woodpecker	0.090	97	1
Pine Grosbeak	0.152	86	1
Pine Siskin	0.814	17	11
Red Crossbill	0.530	33	6
<b>Red-naped Sapsucker</b>	0.167	48	3
Rock Wren	0.113	63	2
Ruby-crowned Kinglet	0.559	27	8
Rufous Hummingbird	0.241	87	1
Savannah Sparrow	0.182	68	2
Song Sparrow	0.165	86	1
Spotted Towhee	0.049	95	1
Swainson's Thrush	0.098	63	2
Townsend's Solitaire	0.591	30	7
Vesper Sparrow	0.098	63	2
Warbling Vireo	0.285	48	4
Western Meadowlark	0.049	95	1
<b>Williamson's Sapsucker</b>	0.318	57	3
Wilson's Warbler	0.376	51	2

**(3) Bitterroot National Forest**

Within this sampling design Bitterroot National Forest is split into two strata, front-country, managed areas and designated roadless and wilderness areas. This forest-level stratification distinction was made due to field implementation cost considerations and the desire to focus monitoring on the more highly managed areas while maintaining inference to the entire management unit. In this section of the report these two strata are combined to the administrative area of Bitterroot National Forest.

Field technicians surveyed all 14 planned transects throughout Bitterroot National Forest in 2010. Technicians conducted 137 point counts within the 14 transects between 6 June and 25 July 2010. We detected 65 species, including 7 priority species for Bitterroot National Forest (Appendix D).

RMBO estimated densities and population sizes for 52 species, 4 of which are priority species for Bitterroot National Forest (Table 98). The data yielded robust density estimates ( $CV < 50\%$ ) for 24 of these species.

We estimated the proportion of transects occupied ( $\Psi$ ) by 37 species, 6 of which are priority species for Bitterroot National Forest (Table 99). The data yielded robust occupancy estimates ( $CV < 50\%$ ) for 19 of these species.

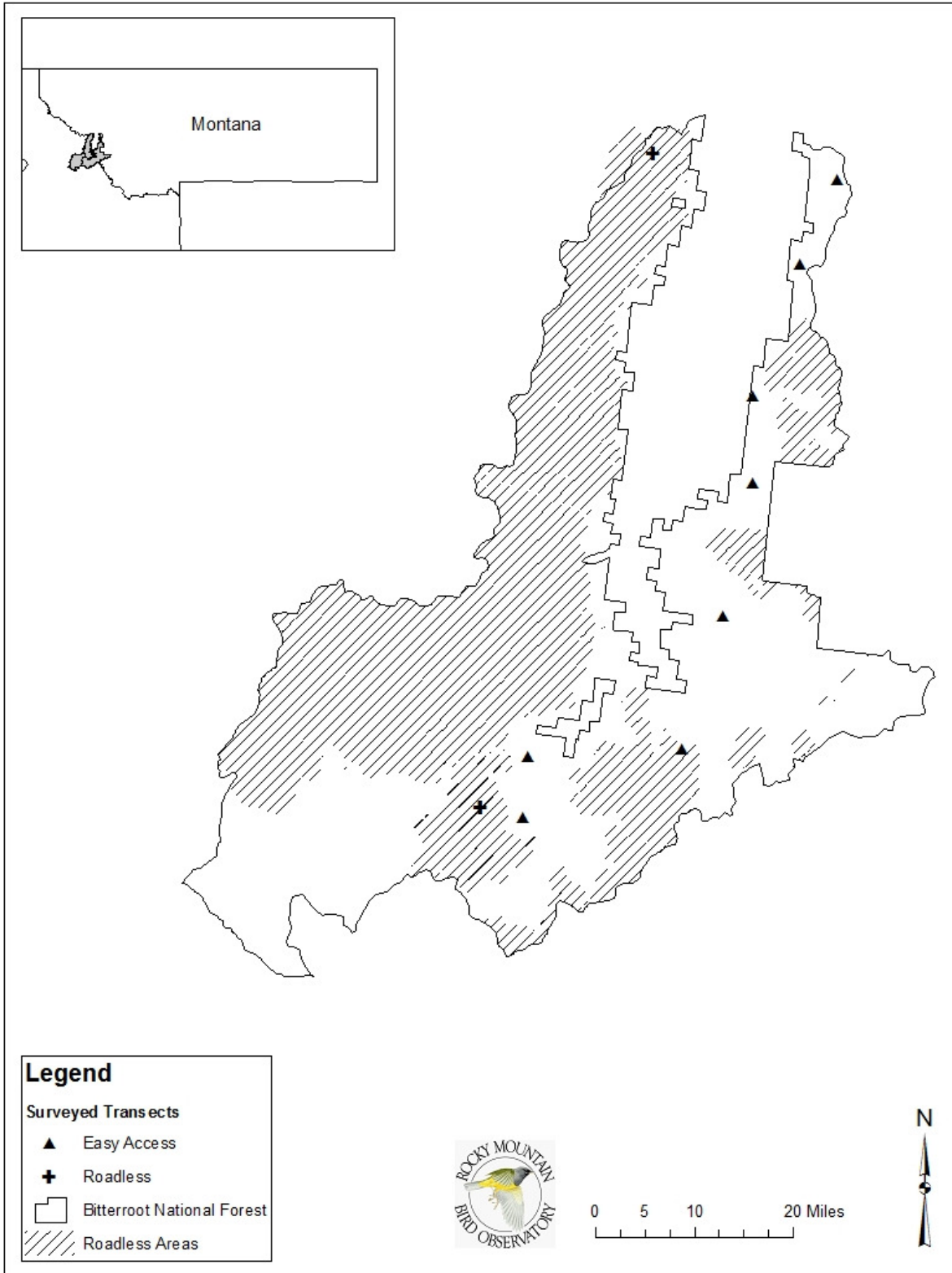


Figure 14. Survey locations in Bitterroot National Forest, 2010. Survey locations labeled Easy Access are located in Roaded/Managed areas, and those labeled Roadless are located in Roadless/Wilderness areas.



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Table 98. Estimated densities per km<sup>2</sup> (D), population sizes (N), percent coefficient of variation of estimates (% CV) and number of independent detections (n) of breeding bird species in Bitterroot National Forest, 2010. S indicates the number of transects used in analyses. Priority species are bolded.

Species	Bitterroot NF (S=14)			
	D	N	% CV	n
American Kestrel	0.23	1,148	90	2
American Pipit	2.97	15,089	96	3
American Redstart	0.54	2,735	82	1
American Robin	30.01	152,646	37	43
American Three-toed Woodpecker	3.73	18,962	56	2
Black-capped Chickadee	7.15	36,379	64	7
<b>Broad-tailed Hummingbird</b>	3.80	19,353	83	1
Brown-headed Cowbird	3.51	17,851	51	5
Cassin's Finch	0.89	4,504	86	1
Cassin's Vireo	2.14	10,894	53	8
Chipping Sparrow	22.40	113,969	36	29
<b>Clark's Nutcracker</b>	2.71	13,772	68	12
Common Raven	1.93	9,835	35	20
Dark-eyed Junco	48.17	245,056	26	51
Dusky Flycatcher	6.08	30,941	31	12
European Starling	0.62	3,148	83	1
Evening Grosbeak	2.11	10,729	71	6
Golden-crowned Kinglet	15.52	78,963	71	5
<b>Gray Jay</b>	7.36	37,434	41	8
Hairy Woodpecker	10.61	53,961	43	11
Hammond's Flycatcher	5.14	26,122	42	7
Hermit Thrush	4.73	24,086	31	26
House Wren	0.42	2,129	88	1
Lazuli Bunting	0.78	3,992	82	3
Lincoln's Sparrow	0.62	3,151	85	1
MacGillivray's Warbler	4.35	22,127	35	10
Mountain Bluebird	6.38	32,448	51	8
Mountain Chickadee	34.21	174,044	30	47
Mourning Dove	0.17	855	88	1
Northern Flicker	6.43	32,729	32	32
<b>Olive-sided Flycatcher</b>	4.40	22,368	32	18
Orange-crowned Warbler	5.05	25,686	45	6
Pine Grosbeak	3.53	17,935	46	3
Pine Siskin	54.20	275,737	31	52
Red Crossbill	7.34	37,344	47	6
Red-breasted Nuthatch	21.79	110,857	24	36
Red-tailed Hawk	0.10	494	97	1

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Species	Bitterroot NF (S=14)			
	D	N	% CV	n
Ruby-crowned Kinglet	34.30	174,460	24	70
Song Sparrow	0.27	1,357	82	1
Spotted Towhee	0.70	3,583	85	2
Steller's Jay	1.18	6,011	86	3
Swainson's Thrush	4.66	23,719	36	16
Townsend's Solitaire	7.07	35,945	33	16
Townsend's Warbler	9.42	47,925	50	10
Violet-green Swallow	5.27	26,824	71	7
Warbling Vireo	2.39	12,138	34	9
Western Tanager	24.02	122,200	32	66
Western Wood-Pewee	1.49	7,570	69	6
White-breasted Nuthatch	0.46	2,328	89	1
White-crowned Sparrow	10.71	54,507	74	13
Yellow Warbler	0.54	2,727	82	1
Yellow-rumped Warbler	35.16	178,837	27	53

Table 99. Estimated proportion of sample units occupied (Psi), percent coefficient of variation of Psi (% CV) and number of transects with one or more detections (n Tran) of breeding bird species in Bitterroot National Forest, 2010. Dashes indicate the data were insufficient for estimating site occupancy. A Psi estimate equal to 1 indicates the species was detected on all transects surveyed. S indicates the number of transects used in analyses. Priority species are bolded.

Species	Bitterroot NF (S=14)		
	Psi	% CV	n Tran
American Pipit	0.136	87	1
American Three-toed Woodpecker	0.386	51	2
<b>Black Rosy-Finch</b>	0.177	87	1
<b>Broad-tailed Hummingbird</b>	0.157	86	1
Brown Creeper	0.223	86	1
Brown-headed Cowbird	0.099	63	2
Cassin's Finch	0.190	86	1
Cassin's Vireo	0.152	48	3
<b>Clark's Nutcracker</b>	0.339	48	4
Dusky Flycatcher	0.403	38	6
European Starling	0.048	95	1
Evening Grosbeak	0.143	63	2
Golden-crowned Kinglet	0.376	48	4
<b>Gray Jay</b>	0.453	40	4
Hairy Woodpecker	0.540	41	4
Hammond's Flycatcher	0.513	41	4
Lazuli Bunting	0.052	95	1

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Species	Bitterroot NF (S=14)		
	Psi	% CV	n Tran
Lincoln's Sparrow	0.056	95	1
MacGillivray's Warbler	0.302	26	6
Mountain Bluebird	0.260	57	3
<b>Olive-sided Flycatcher</b>	0.742	13	6
Orange-crowned Warbler	0.380	42	5
Pine Grosbeak	0.361	45	3
Pine Siskin	0.941	7	12
Red Crossbill	0.461	37	5
Red-eyed Vireo	0.049	95	1
Ruby-crowned Kinglet	0.713	21	11
Rufous Hummingbird	0.354	70	2
Song Sparrow	0.058	95	1
Spotted Towhee	0.093	63	2
Swainson's Thrush	0.423	33	7
Townsend's Solitaire	0.605	30	7
Townsend's Warbler	0.547	28	8
Warbling Vireo	0.237	32	5
White-winged Crossbill	0.181	87	1
<b>Williamson's Sapsucker</b>	0.195	49	3
Yellow Warbler	0.050	95	1

**(4) Clearwater National Forest**

Within this sampling design Clearwater National Forest is split into two strata, front-country, managed areas and designated roadless and wilderness areas. This forest-level stratification distinction was made due to field implementation cost considerations and the desire to focus monitoring on the more highly managed areas while maintaining inference to the entire management unit. In this section of this report these two strata are combined to the administrative area of Clearwater National Forest.

Field technicians surveyed 13 of 14 planned transects throughout Clearwater National Forest in 2010. Technicians conducted 143 point counts within the 13 transects between 30 May and 20 July 2010. We detected 66 species, including 6 priority species for Clearwater National Forest (Appendix D).

RMBO estimated densities and population sizes for 51 species, 4 of which are priority species for Clearwater National Forest (Table 100). The data yielded robust density estimates ( $CV < 50\%$ ) for 18 of these species.

We estimated the proportion of transects occupied ( $\Psi$ ) by 37 species, 6 of which are priority species for Clearwater National Forest (Table 101). The data yielded robust occupancy estimates ( $CV < 50\%$ ) for 15 of these species. This monitoring design and current sampling intensity is providing population information for one of the three species designated as Management Indicators for Clearwater National Forest. This includes occupancy estimates for Pileated Woodpecker.

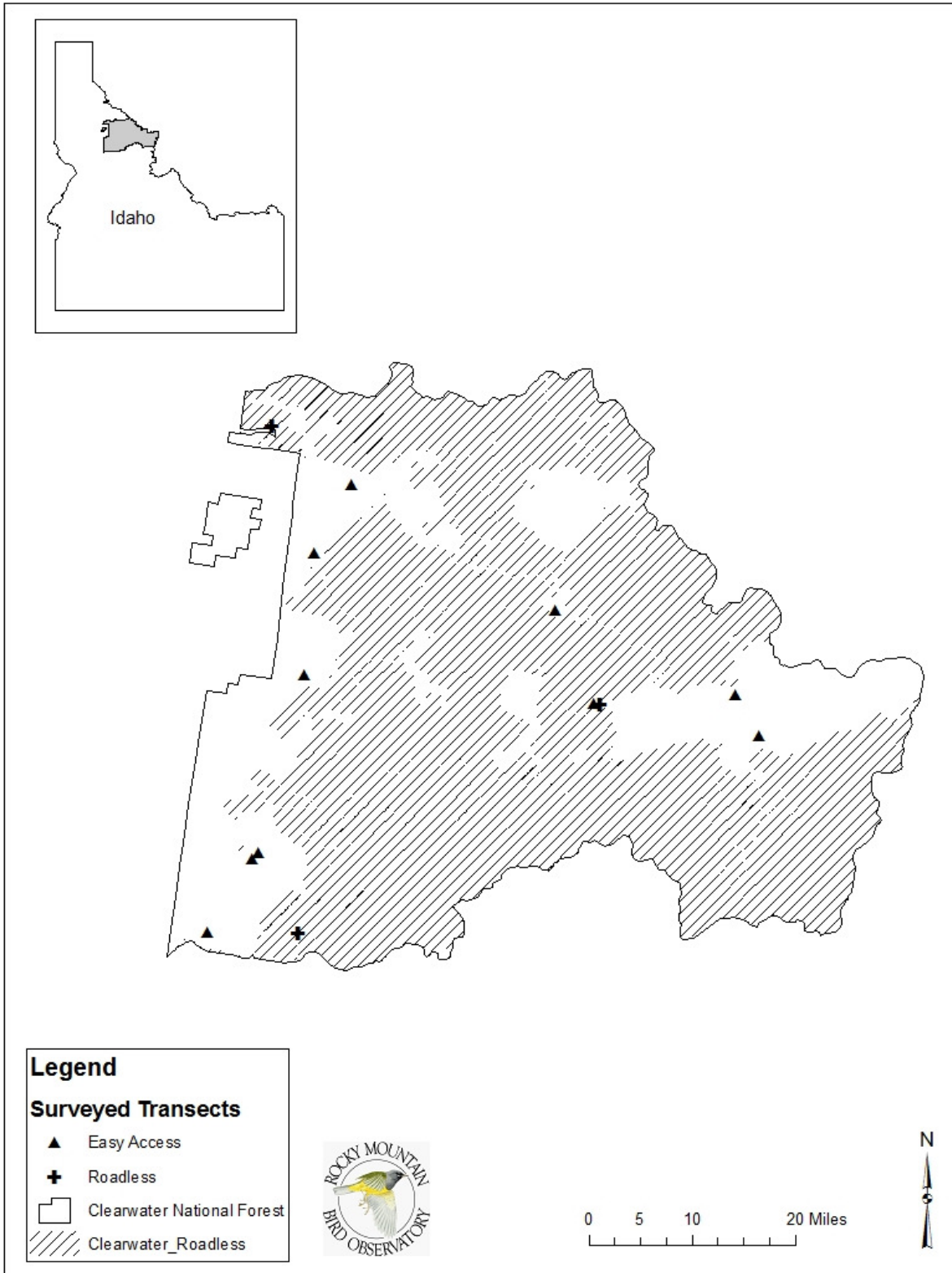


Figure 15. Survey locations in Clearwater National Forest, 2010. Survey locations labeled Easy Access are located in Roaded/Managed areas, and those labeled Roadless are located in Roadless/Wilderness areas.

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Table 100. Estimated densities per km<sup>2</sup> (D), population sizes (N), percent coefficient of variation of estimates (% CV) and number of independent detections (n) of breeding bird species in Clearwater National Forest, 2010. S indicates the number of transects used in analyses. Priority species are bolded.

Species	Clearwater NF (S=13)			
	D	N	% CV	n
American Kestrel	0.06	408	91	1
American Robin	16.67	116,364	40	28
American Three-toed Woodpecker	3.38	23,617	103	1
Barn Swallow	9.92	69,260	102	1
Black-capped Chickadee	4.12	28,769	84	3
Black-headed Grosbeak	4.49	31,375	41	13
Brown Creeper	6.90	48,203	84	3
Cassin's Finch	10.47	73,071	93	11
Cassin's Vireo	5.62	39,227	50	23
Chipping Sparrow	21.66	151,204	55	17
<b>Clark's Nutcracker</b>	0.91	6,328	85	3
Common Nighthawk	0.16	1,098	89	1
Common Raven	0.42	2,957	62	8
Dark-eyed Junco	66.11	461,573	47	43
Dusky Flycatcher	11.43	79,828	41	15
Evening Grosbeak	2.14	14,943	84	3
Fox Sparrow	2.00	13,943	34	18
Golden-crowned Kinglet	6.99	48,787	45	7
<b>Gray Jay</b>	4.82	33,653	29	13
Hairy Woodpecker	2.34	16,344	25	10
Hammond's Flycatcher	3.78	26,377	26	15
Hermit Thrush	1.26	8,792	52	11
House Wren	2.11	14,763	100	1
Lazuli Bunting	0.95	6,626	67	7
MacGillivray's Warbler	21.08	147,153	63	41
Mountain Bluebird	5.57	38,902	100	2
Mountain Chickadee	32.10	224,155	65	13
Mourning Dove	1.70	11,856	101	2
Northern Flicker	2.47	17,248	77	12
<b>Olive-sided Flycatcher</b>	0.21	1,479	86	3
Pine Grosbeak	3.27	22,821	84	3
Pine Siskin	36.65	255,859	36	24
Red Crossbill	14.16	98,863	44	16
Red-breasted Nuthatch	30.95	216,090	35	61
<b>Red-naped Sapsucker</b>	0.60	4,178	86	2
Red-tailed Hawk	1.03	7,208	103	3
Ruby-crowned Kinglet	35.04	244,645	79	56

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Species	Clearwater NF (S=13)			
	D	N	% CV	n
Steller's Jay	1.10	7,648	84	3
Swainson's Thrush	48.18	336,363	57	144
Townsend's Solitaire	3.89	27,188	41	9
Townsend's Warbler	40.11	280,018	30	97
Varied Thrush	24.14	168,515	34	91
Violet-green Swallow	3.81	26,573	101	1
Warbling Vireo	12.33	86,094	32	46
Western Bluebird	0.45	3,173	84	1
Western Tanager	23.39	163,296	19	85
Western Wood-Pewee	1.56	10,895	66	7
White-breasted Nuthatch	2.31	16,144	101	1
White-crowned Sparrow	0.18	1,257	85	1
Wilson's Warbler	5.67	39,604	71	7
Yellow-rumped Warbler	35.01	244,468	44	62

Table 101. Estimated proportion of sample units occupied (Psi), percent coefficient of variation of Psi (% CV) and number of transects with one or more detections (n Tran) of breeding bird species in Clearwater National Forest, 2010. Dashes indicate the data were insufficient for estimating site occupancy. A Psi estimate equal to 1 indicates the species was detected on all transects surveyed. S indicates the number of transects used in analyses. Priority species are bolded.

Species	Clearwater NF (S=13)		
	Psi	% CV	n Tran
American Three-toed Woodpecker	0.442	82	1
Brown Creeper	0.474	62	4
Calliope Hummingbird	0.101	106	1
Cassin's Finch	0.367	74	2
Cassin's Vireo	0.459	47	8
Cedar Waxwing	0.049	96	1
Chestnut-backed Chickadee	0.167	32	5
<b>Clark's Nutcracker</b>	0.333	74	2
Common Nighthawk	0.059	96	1
Dusky Flycatcher	0.677	31	8
Dusky Grouse	0.096	102	1
Evening Grosbeak	0.458	69	3
Golden-crowned Kinglet	0.226	26	6
<b>Gray Jay</b>	0.515	50	7
Hairy Woodpecker	0.482	55	6
Hammond's Flycatcher	0.506	46	8
Lazuli Bunting	0.061	63	2
<b>Lewis's Woodpecker</b>	0.351	83	1

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Species	Clearwater NF (S=13)		
	Psi	% CV	n Tran
MacGillivray's Warbler	0.491	43	9
Mountain Bluebird	0.271	82	1
<b>Olive-sided Flycatcher</b>	0.036	95	1
<b>Pileated Woodpecker</b>	0.099	66	2
Pine Grosbeak	0.377	68	3
Pine Siskin	0.977	3	12
Red Crossbill	0.721	29	9
<b>Red-naped Sapsucker</b>	0.064	63	2
Ruby-crowned Kinglet	0.468	43	9
Ruffed Grouse	0.112	49	3
Rufous Hummingbird	0.049	96	1
Swainson's Thrush	0.684	30	9
Townsend's Solitaire	0.405	63	4
Townsend's Warbler	0.732	27	11
Veery	0.187	85	2
Warbling Vireo	0.715	28	10
Western Bluebird	0.030	95	1
Wilson's Warbler	0.103	49	3
Winter Wren	0.895	31	9



**(5) Custer National Forest**

Within this sampling design the Custer National Forest is split into four strata because the National Forest occurs in two states (Montana and South Dakota) and two BCRs (10 and 17). Within Montana BCR 10, Custer National Forest is further split into front-country, managed areas and designated roadless and wilderness areas. This forest-level stratification distinction was made due to field implementation cost considerations and the desire to focus monitoring on the more highly managed areas while maintaining inference to the entire management unit. The state-level stratification distinction is made for the benefit of the state partners to allow for the summation of the data for individual states. Likewise, the BCR-level stratification distinction is made to allow for the summation of the data for individual BCRs. In this section of this report these four strata are combined to the administrative area of Custer National Forest.

Field technicians surveyed 16 of 19 planned transects throughout Custer National Forest in 2010. Technicians conducted 143 point counts within the 16 transects between 18 May and 22 July 2010. We detected 87 species, including 14 priority species for Custer National Forest (Appendix D).

RMBO estimated densities and population sizes for 69 species, 10 of which are priority species for Custer National Forest (Table 102). The data yielded robust density estimates (CV < 50%) for 22 of these species.

We estimated the proportion of transects occupied (Psi) by 41 species, 9 of which are priority species for Custer National Forest (Table 103). The data yielded robust occupancy estimates (CV < 50%) for 13 of these species.

This monitoring design and current sampling intensity is providing population information for 6 of the 10 species designated as Management Indicators for Custer National Forest. This includes density and occupancy estimates for Brewer's Sparrow, Bullock's Oriole, Lark Sparrow, Ovenbird and Yellow Warbler. Additionally, density estimates were produced for Western Kingbird.

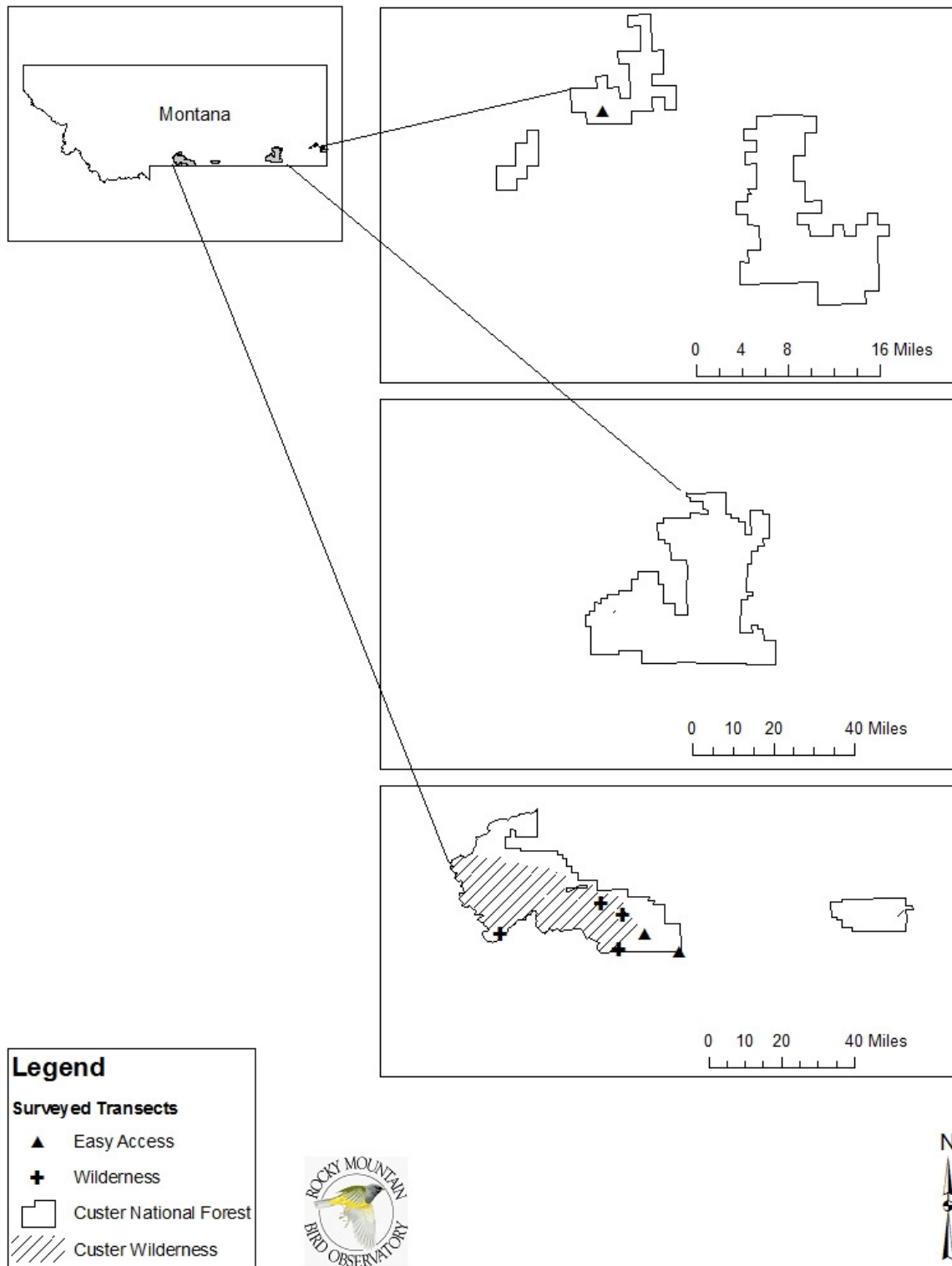


Figure 16. Survey locations in Custer National Forest, 2010. Survey locations labeled Easy Access are located in Roded/Managed areas, and those labeled Roadless are located in Roadless/Wilderness areas.

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Table 102. Estimated densities per km<sup>2</sup> (D), population sizes (N), percent coefficient of variation of estimates (% CV) and number of independent detections (n) of breeding bird species in Custer National Forest, 2010. S indicates the number of transects used in analyses. Priority species are bolded.

Species	Custer NF (S=16)			
	D	N	% CV	n
American Goldfinch	20.22	51,800	91	4
American Kestrel	0.66	1,680	68	2
American Pipit	48.97	125,467	58	33
American Redstart	1.69	4,337	84	1
American Robin	14.66	37,561	50	11
American Three-toed Woodpecker	8.39	21,501	88	3
Black-billed Magpie	0.38	966	82	2
Black-capped Chickadee	43.08	110,361	39	17
Black-headed Grosbeak	0.70	1,782	90	1
<b>Brewer's Sparrow</b>	11.64	29,819	82	11
Brown-headed Cowbird	130.38	334,046	21	59
<b>Bullock's Oriole</b>	17.16	43,959	77	10
Cassin's Finch	3.66	9,375	65	3
Chipping Sparrow	72.98	186,974	30	34
<b>Clark's Nutcracker</b>	2.49	6,374	52	4
Clay-colored Sparrow	0.71	1,820	93	1
Cliff Swallow	14.12	36,178	67	2
Common Grackle	10.08	25,826	47	5
Common Yellowthroat	0.58	1,488	100	1
Dark-eyed Junco	55.51	142,225	32	25
Dusky Flycatcher	13.25	33,949	43	10
Eastern Kingbird	2.16	5,533	98	6
Field Sparrow	7.75	19,847	13	23
<b>Grasshopper Sparrow</b>	14.24	36,481	52	22
Hairy Woodpecker	6.15	15,766	47	4
Hermit Thrush	2.06	5,268	59	4
Horned Lark	0.95	2,426	85	1
House Wren	115.38	295,599	22	88
Killdeer	0.73	1,858	101	1
Lark Bunting	1.22	3,118	100	3
<b>Lark Sparrow</b>	56.89	145,745	78	40
Lazuli Bunting	0.70	1,784	101	1
Lincoln's Sparrow	12.94	33,157	56	5
<b>Loggerhead Shrike</b>	0.46	1,170	104	1
MacGillivray's Warbler	1.82	4,656	86	1
Mountain Bluebird	5.21	13,345	44	3
Mountain Chickadee	19.26	49,353	92	4

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Species	Custer NF (S=16)			
	D	N	% CV	n
Mourning Dove	7.17	18,369	46	14
Northern Flicker	6.22	15,932	46	16
Northern Rough-winged Swallow	3.09	7,926	103	2
<b>Ovenbird</b>	5.66	14,508	70	7
Pine Grosbeak	2.24	5,747	87	1
Pine Siskin	16.21	41,532	77	6
Pinyon Jay	0.41	1,055	68	2
Plumbeous Vireo	3.97	10,170	52	3
Red Crossbill	114.04	292,171	21	56
Red-breasted Nuthatch	4.60	11,777	64	4
<b>Red-headed Woodpecker</b>	12.43	31,834	124	4
Red-tailed Hawk	0.85	2,175	56	3
Red-winged Blackbird	1.06	2,712	100	2
Rock Wren	1.53	3,908	56	7
Ruby-crowned Kinglet	7.82	20,046	64	7
Say's Phoebe	0.68	1,730	16	3
Spotted Towhee	58.70	150,394	22	57
Swainson's Thrush	4.65	11,926	105	6
Townsend's Solitaire	2.54	6,509	51	3
Upland Sandpiper	0.51	1,318	101	2
Vesper Sparrow	10.07	25,794	49	19
Violet-green Swallow	4.74	12,154	84	2
Warbling Vireo	0.71	1,808	100	1
<b>Western Kingbird</b>	4.10	10,517	53	4
Western Meadowlark	28.40	72,770	34	114
Western Tanager	2.36	6,036	77	3
Western Wood-Pewee	14.45	37,016	37	24
White-breasted Nuthatch	10.09	25,845	42	7
White-crowned Sparrow	40.67	104,199	35	23
<b>Yellow Warbler</b>	24.72	63,343	35	16
Yellow-breasted Chat	1.27	3,263	79	3
Yellow-rumped Warbler	41.25	105,685	30	31

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Table 103. Estimated proportion of sample units occupied (Psi), percent coefficient of variation of Psi (% CV) and number of transects with one or more detections (n Tran) of breeding bird species in Custer National Forest, 2010. Dashes indicate the data were insufficient for estimating site occupancy. A Psi estimate equal to 1 indicates the species was detected on all transects surveyed. S indicates the number of transects used in analyses. Priority species are bolded.

Species	Custer NF (S=16)		
	Psi	% CV	n Tran
American Pipit	0.159	50	2
American Three-toed Woodpecker	0.140	87	1
Black-billed Magpie	0.077	94	1
<b>Brewer's Sparrow</b>	0.160	49	3
Brown Thrasher	0.130	97	1
Brown-headed Cowbird	--	--	8
<b>Bullock's Oriole</b>	0.152	61	2
Cassin's Finch	0.209	64	2
Cassin's Kingbird	0.072	94	1
<b>Clark's Nutcracker</b>	0.208	49	2
Clay-colored Sparrow	0.076	94	1
Common Nighthawk	0.288	63	2
Common Yellowthroat	--	--	1
Downy Woodpecker	0.119	94	1
Dusky Flycatcher	0.331	27	5
Eastern Kingbird	0.096	94	1
Evening Grosbeak	0.096	94	1
Field Sparrow	--	--	2
<b>Grasshopper Sparrow</b>	0.207	36	4
Gray Catbird	0.121	96	1
<b>Gray Jay</b>	0.085	71	1
Hairy Woodpecker	0.260	50	3
Horned Lark	0.079	87	1
Lark Bunting	--	--	2
<b>Lark Sparrow</b>	0.605	13	10
Lazuli Bunting	0.076	71	1
<b>Lewis's Woodpecker</b>	0.093	96	1
Lincoln's Sparrow	--	--	3
MacGillivray's Warbler	0.087	86	1
Mountain Bluebird	0.216	46	3
Northern Rough-winged Swallow	--	--	1
<b>Ovenbird</b>	0.128	61	2
Pine Grosbeak	0.216	50	2
Pine Siskin	0.152	57	2
Pinyon Jay	0.145	58	2

Species	Custer NF (S=16)		
	Psi	% CV	n Tran
Plumbeous Vireo	0.246	35	4
Red Crossbill	--	--	8
Rock Wren	0.125	61	2
Ruby-crowned Kinglet	0.227	41	3
Say's Phoebe	--	--	1
Spotted Towhee	0.500	11	9
Swainson's Thrush	0.069	71	1
Townsend's Solitaire	0.240	48	3
Vesper Sparrow	0.251	38	4
Warbling Vireo	0.069	71	1
Western Meadowlark	0.382	25	7
White-winged Crossbill	0.112	87	1
<b>Yellow Warbler</b>	0.348	27	6
Yellow-breasted Chat	0.121	61	2

**(6) Flathead National Forest**

Within this sampling design Flathead National Forest is split into two strata, front-country, managed areas, and designated roadless and wilderness areas. This forest-level stratification distinction was made due to field implementation cost considerations and the desire to focus monitoring on the more highly managed areas while maintaining inference to the entire management unit. In this section of this report these two strata are combined to the administrative area of Flathead National Forest.

Field technicians surveyed 13 of 14 planned transects throughout Flathead National Forest in 2010. Technicians conducted 91 point counts within the 13 transects between 17 May and 14 July 2010. We detected 76 species, including 6 priority species for Flathead National Forest (Appendix D).

RMBO estimated densities and population sizes for 54 species, 4 of which are priority species for Flathead National Forest (Table 104). The data yielded robust density estimates (CV < 50%) for 26 of these species.

We estimated the proportion of transects occupied (Psi) by 37 species, 4 of which are priority species for Flathead National Forest (Table 105). The data yielded robust occupancy estimates (CV < 50%) for 18 of these species.

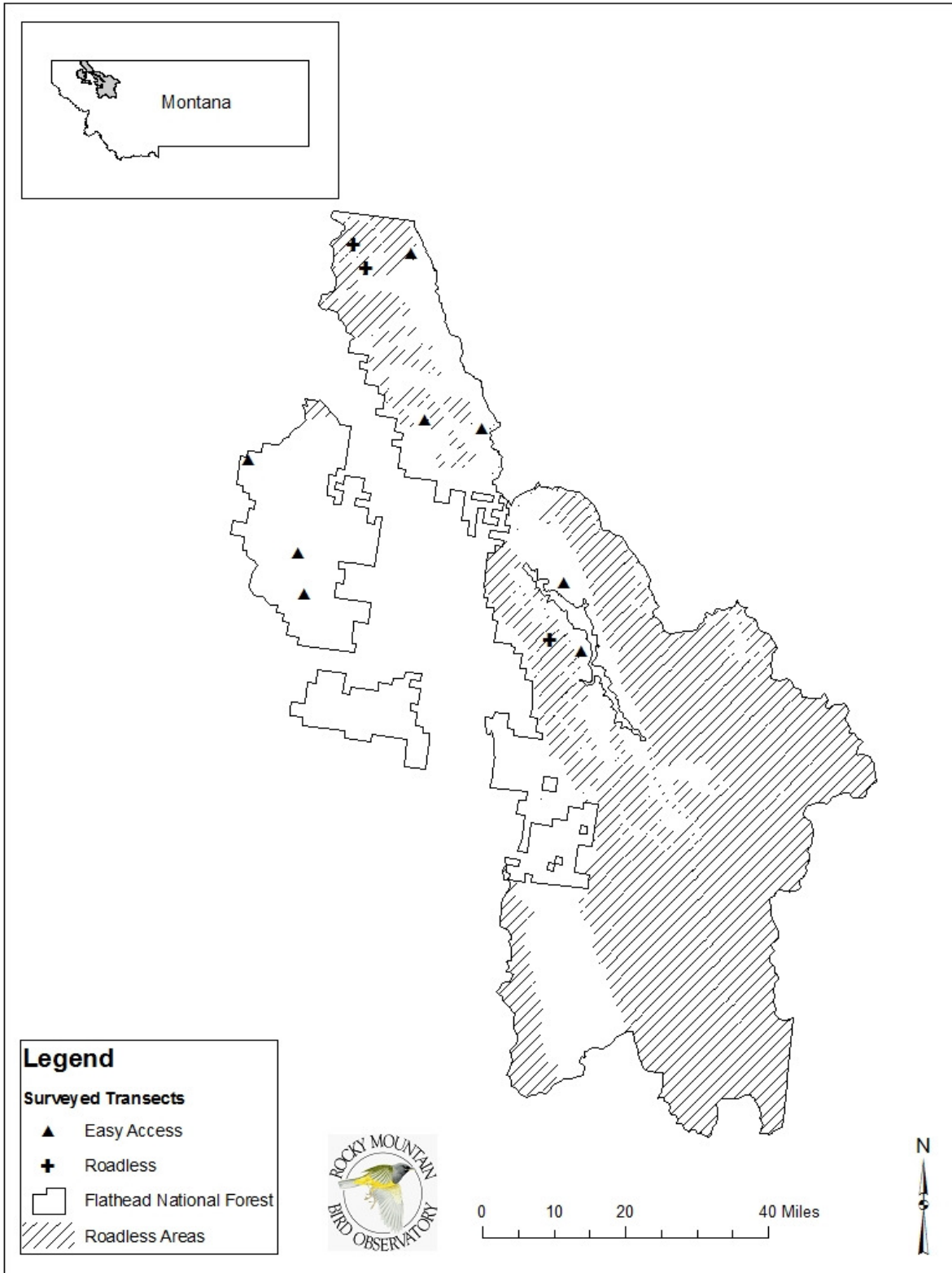


Figure 17. Survey locations in Flathead National Forest, 2010. Survey locations labeled Easy Access are located in Roaded/Managed areas, and those labeled Roadless are located in Roadless/Wilderness areas.

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Table 104. Estimated densities per km<sup>2</sup> (D), population sizes (N), percent coefficient of variation of estimates (% CV) and number of independent detections (n) of breeding bird species in Flathead National Forest, 2010. S indicates the number of transects used in analyses. Priority species are bolded.

Species	Flathead NF (S=13)			
	D	N	% CV	n
American Crow	0.13	1,454	45	2
American Kestrel	0.15	1,700	91	1
American Redstart	1.43	16,191	83	2
American Robin	28.86	327,658	30	33
American Three-toed Woodpecker	1.78	20,165	64	2
Black-capped Chickadee	8.14	92,390	61	6
Black-headed Grosbeak	1.47	16,636	52	5
Brewer's Blackbird	0.55	6,237	91	1
Brown Creeper	6.11	69,421	100	1
Cassin's Finch	4.67	53,002	44	8
Cassin's Vireo	3.20	36,281	48	9
Chipping Sparrow	52.56	596,786	26	53
Common Raven	0.45	5,144	43	7
Common Yellowthroat	1.90	21,518	91	6
Dark-eyed Junco	69.17	785,464	36	60
Dusky Flycatcher	7.02	79,745	42	12
Evening Grosbeak	1.40	15,881	45	3
Fox Sparrow	3.44	39,105	71	6
Golden-crowned Kinglet	146.06	1,658,552	36	24
<b>Gray Jay</b>	6.70	76,115	59	4
Hairy Woodpecker	15.09	171,381	36	16
Hammond's Flycatcher	9.11	103,408	59	8
Hermit Thrush	10.93	124,101	39	21
Lazuli Bunting	1.39	15,756	86	4
Lincoln's Sparrow	1.64	18,658	103	2
MacGillivray's Warbler	30.19	342,774	30	37
Mallard	0.16	1,873	85	1
Mountain Bluebird	8.04	91,345	56	11
Mountain Chickadee	26.26	298,234	36	25
Northern Flicker	2.98	33,785	20	18
<b>Northern Harrier</b>	0.13	1,456	87	1
<b>Olive-sided Flycatcher</b>	3.26	37,071	34	15
Orange-crowned Warbler	9.46	107,461	29	11
Ovenbird	1.36	15,476	83	4
Pine Grosbeak	7.21	81,902	82	4
Pine Siskin	90.47	1,027,298	28	47
Red Crossbill	14.69	166,847	55	11



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Species	Flathead NF (S=13)			
	D	N	% CV	n
Red-breasted Nuthatch	21.29	241,698	48	21
<b>Red-naped Sapsucker</b>	9.29	105,459	83	6
Red-tailed Hawk	0.78	8,877	75	3
Ruby-crowned Kinglet	42.01	477,038	15	54
Song Sparrow	1.77	20,080	71	5
Steller's Jay	0.93	10,567	70	4
Swainson's Thrush	52.20	592,685	28	86
Townsend's Solitaire	5.31	60,344	61	8
Townsend's Warbler	112.86	1,281,480	38	72
Varied Thrush	25.06	284,578	26	45
Violet-green Swallow	10.99	124,790	76	11
Warbling Vireo	22.90	260,037	16	59
Western Tanager	12.94	146,964	28	33
Western Wood-Pewee	0.51	5,758	79	2
White-crowned Sparrow	0.92	10,465	86	2
Wilson's Warbler	46.03	522,619	70	13
Yellow-rumped Warbler	89.88	1,020,623	13	97

Table 105. Estimated proportion of sample units occupied (Psi), percent coefficient of variation of Psi (% CV) and number of transects with one or more detections (n Tran) of breeding bird species in Flathead National Forest, 2010. Dashes indicate the data were insufficient for estimating site occupancy. A Psi estimate equal to 1 indicates the species was detected on all transects surveyed. S indicates the number of transects used in analyses. Priority species are bolded.

Species	Flathead NF (S=13)		
	Psi	% CV	n Tran
Brown Creeper	--	--	2
Calliope Hummingbird	--	--	2
Cassin's Finch	0.544	53	4
Cassin's Vireo	0.265	32	5
Cedar Waxwing	0.108	97	1
Chestnut-backed Chickadee	0.065	95	1
Common Yellowthroat	0.093	96	1
Dusky Flycatcher	0.158	48	3
Dusky Grouse	--	--	1
Evening Grosbeak	0.348	40	4
Golden-crowned Kinglet	--	--	10
<b>Gray Jay</b>	0.569	47	5
Hairy Woodpecker	--	--	10
Hammond's Flycatcher	0.652	39	7
Lazuli Bunting	0.055	95	1

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Species	Flathead NF (S=13)		
	Psi	% CV	n Tran
Lincoln's Sparrow	0.060	95	1
MacGillivray's Warbler	0.845	24	9
Mountain Bluebird	0.225	39	4
Nashville Warbler	0.155	66	2
<b>Northern Harrier</b>	0.183	104	1
Northern Waterthrush	0.053	96	1
<b>Olive-sided Flycatcher</b>	0.685	39	6
Orange-crowned Warbler	0.352	25	6
Ovenbird	0.050	95	1
Pileated Woodpecker	0.214	67	2
Pine Grosbeak	0.433	60	3
Pine Siskin	0.959	6	11
Red Crossbill	0.471	46	5
Red-eyed Vireo	0.050	95	1
<b>Red-naped Sapsucker</b>	0.435	51	4
Ruby-crowned Kinglet	0.940	6	11
Rufous Hummingbird	0.217	66	2
Song Sparrow	0.131	63	2
Swainson's Thrush	0.929	6	11
Townsend's Solitaire	0.555	47	5
Townsend's Warbler	0.643	26	8
Veery	0.217	112	1
Warbling Vireo	0.716	24	9
White-winged Crossbill	0.494	61	3
Wilson's Warbler	0.630	44	6
Winter Wren	0.635	11	4

**(7) Gallatin National Forest**

Within this sampling design Gallatin National Forest is split into two strata, front-country, managed areas and designated roadless and wilderness areas. This forest-level stratification distinction was made due to field implementation cost considerations and the desire to focus monitoring on the more highly managed areas while maintaining inference to the entire management unit. In this section of this report these two strata are combined to the administrative area of Gallatin National Forest.

Field technicians surveyed all 14 planned transects throughout Gallatin National Forest in 2010. Technicians conducted 109 point counts within the 14 transects between 24 June and 22 July 2010. We detected 69 species, including 7 priority species for Gallatin National Forest (Appendix D).

RMBO estimated densities and population sizes for 48 species, 3 of which are priority species for Gallatin National Forest (Table 106). The data yielded robust density estimates ( $CV < 50\%$ ) for 21 of these species.

We estimated the proportion of transects occupied ( $P_{si}$ ) by 36 species, 4 of which are priority species for Gallatin National Forest (Table 107). The data yielded robust occupancy estimates ( $CV < 50\%$ ) for 15 of these species.

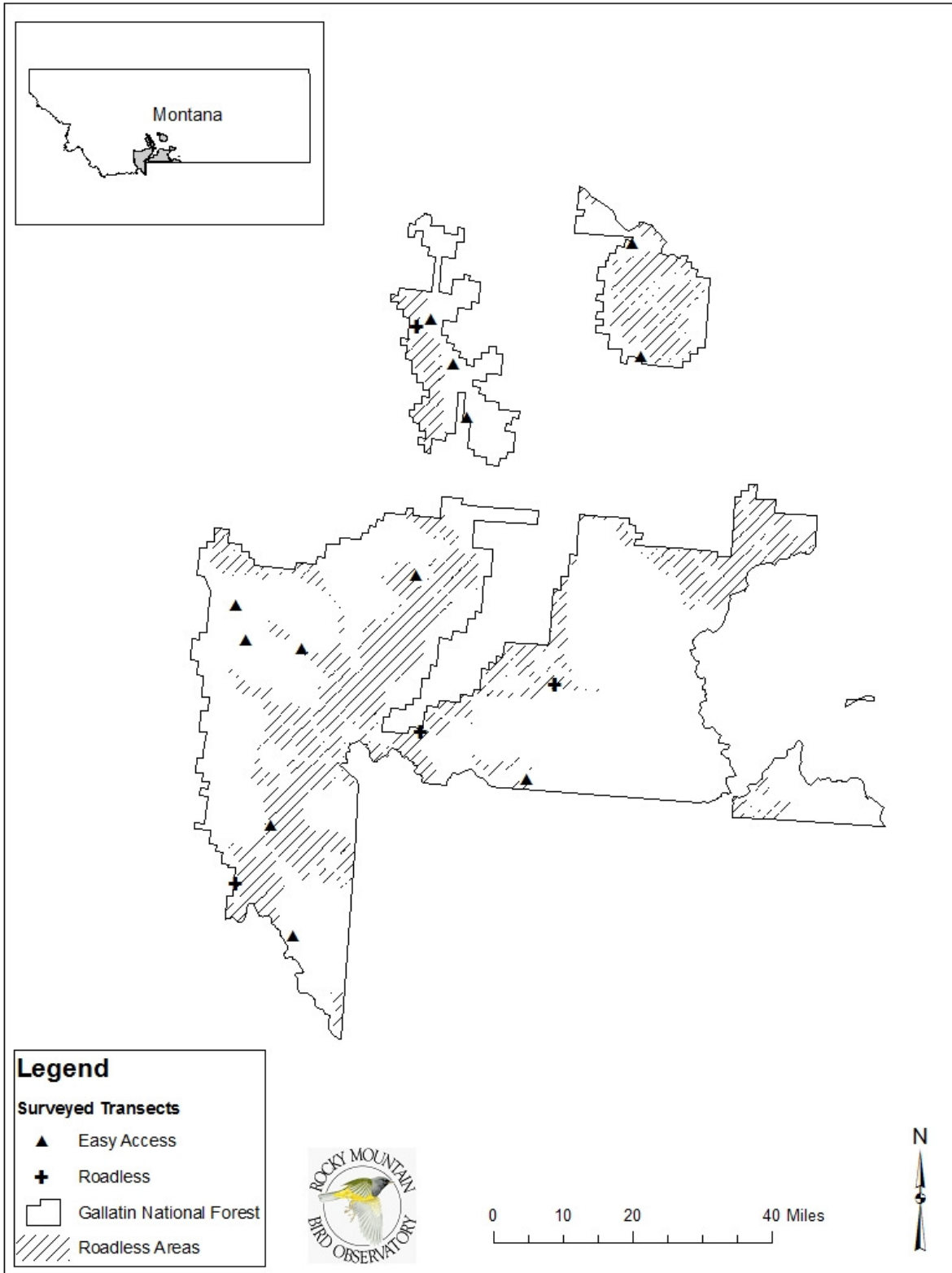


Figure 18. Survey locations in Gallatin National Forest, 2010. Survey locations labeled Easy Access are located in Roaded/Managed areas, and those labeled Roadless are located in Roadless/Wilderness areas.

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Table 106. Estimated densities per km<sup>2</sup> (D), population sizes (N), percent coefficient of variation of estimates (% CV) and number of independent detections (n) of breeding bird species in Gallatin National Forest, 2010. S indicates the number of transects used in analyses. Priority species are bolded.

Species	Gallatin NF (S=14)			
	D	N	% CV	n
American Goldfinch	4.97	46,011	78	3
American Robin	34.37	318,461	27	53
Black-capped Chickadee	11.01	101,984	54	12
Black-headed Grosbeak	1.65	15,279	50	7
Brewer's Sparrow	1.65	15,308	68	2
Brown-headed Cowbird	5.99	55,467	58	8
Cassin's Finch	0.34	3,142	89	1
Chipping Sparrow	53.34	494,248	20	40
<b>Clark's Nutcracker</b>	5.24	48,546	33	14
Common Nighthawk	0.32	2,998	88	1
Common Raven	0.16	1,446	47	3
Dark-eyed Junco	96.69	895,909	14	91
Dusky Flycatcher	25.01	231,786	36	28
Evening Grosbeak	0.37	3,473	89	1
Golden-crowned Kinglet	1.93	17,899	89	1
<b>Gray Jay</b>	3.05	28,268	52	4
Hairy Woodpecker	3.62	33,540	49	5
Hammond's Flycatcher	1.55	14,401	66	3
Hermit Thrush	2.63	24,390	63	10
House Wren	7.82	72,427	38	15
Lazuli Bunting	5.32	49,272	49	9
Lincoln's Sparrow	7.27	67,318	47	11
MacGillivray's Warbler	14.89	137,945	39	17
Mountain Chickadee	38.59	357,562	23	37
Northern Flicker	2.39	22,118	39	13
<b>Olive-sided Flycatcher</b>	0.58	5,385	88	4
Ovenbird	0.27	2,538	88	1
Pine Siskin	38.66	358,231	25	25
Plumbeous Vireo	0.23	2,166	88	1
Red Crossbill	6.52	60,372	35	11
Red-breasted Nuthatch	6.70	62,071	46	9
Red-tailed Hawk	0.83	7,713	82	3
Ruby-crowned Kinglet	18.52	171,599	28	33
Sandhill Crane	0.01	113	83	1
Song Sparrow	0.28	2,634	87	1
Steller's Jay	0.19	1,777	85	1
Swainson's Thrush	19.93	184,645	28	44

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Species	Gallatin NF (S=14)			
	D	N	% CV	n
Townsend's Solitaire	0.60	5,603	62	2
Townsend's Warbler	0.59	5,432	89	1
Tree Swallow	6.30	58,394	69	2
Vesper Sparrow	0.67	6,254	84	1
Violet-green Swallow	1.61	14,884	50	2
Warbling Vireo	19.28	178,631	30	38
Western Tanager	10.00	92,682	41	20
Western Wood-Pewee	0.41	3,777	77	2
White-breasted Nuthatch	0.49	4,521	88	1
White-crowned Sparrow	15.34	142,139	87	17
Yellow-rumped Warbler	65.55	607,376	33	84

Table 107. Estimated proportion of sample units occupied (Psi), percent coefficient of variation of Psi (% CV) and number of transects with one or more detections (n Tran) of breeding bird species in Gallatin National Forest, 2010. Dashes indicate the data were insufficient for estimating site occupancy. A Psi estimate equal to 1 indicates the species was detected on all transects surveyed. S indicates the number of transects used in analyses. Priority species are bolded.

Species	Gallatin NF(S=14)		
	Psi	% CV	n Tran
American Three-toed Woodpecker	0.221	48	3
Brewer's Sparrow	0.195	72	2
Brown-headed Cowbird	0.144	48	3
Calliope Hummingbird	0.193	106	1
Cassin's Finch	0.059	95	1
<b>Clark's Nutcracker</b>	0.940	34	8
Common Nighthawk	0.113	96	1
Cordilleran Flycatcher	0.066	95	1
Downy Woodpecker	0.383	84	1
Dusky Flycatcher	0.539	32	7
Dusky Grouse	0.195	101	1
Evening Grosbeak	0.069	95	1
Golden-crowned Kinglet	0.453	46	5
<b>Gray Jay</b>	0.203	38	4
Hairy Woodpecker	0.429	45	5
Hammond's Flycatcher	0.341	62	3
Lazuli Bunting	0.421	41	4
Lincoln's Sparrow	0.192	38	4
MacGillivray's Warbler	0.846	8	9
<b>Olive-sided Flycatcher</b>	0.065	95	1
Ovenbird	0.044	95	1

Species	Gallatin NF(S=14)		
	Psi	% CV	n Tran
Pine Siskin	1	--	14
Plumbeous Vireo	0.042	95	1
Red Crossbill	0.226	31	5
<b>Red-naped Sapsucker</b>	0.302	60	3
Ruby-crowned Kinglet	0.647	30	9
Ruffed Grouse	0.063	96	1
Song Sparrow	0.315	60	3
Swainson's Thrush	0.856	7	10
Townsend's Solitaire	0.170	48	3
Townsend's Warbler	0.038	95	1
Tree Swallow	0.245	71	2
Veery	0.199	113	1
Vesper Sparrow	0.162	87	1
Warbling Vireo	0.866	7	10
Willow Flycatcher	0.061	96	1
Yellow Warbler	0.046	95	1

**(8) Helena National Forest**

Within this sampling design Helena National Forest is split into two strata, front-country, managed areas and designated roadless and wilderness areas. This forest-level stratification distinction was made due to field implementation cost considerations and the desire to focus monitoring on the more highly managed areas while maintaining inference to the entire management unit. In this section of this report these two strata are combined to the administrative area of Helena National Forest.

Field technicians surveyed all 14 planned transects throughout Helena National Forest in 2010. Technicians conducted 134 point counts within the 14 transects between 3 June and 20 July 2010. We detected 63 species, including 7 priority species for Helena National Forest (Appendix D).

RMBO estimated densities and population sizes for 52 species, 6 of which is a priority species for Helena National Forest (Table 108). The data yielded robust density estimates (CV < 50%) for 21 of these species.

We estimated the proportion of transects occupied (Psi) by 36 species, 6 of which is a priority species for Helena National Forest (Table 109). The data yielded robust occupancy estimates (CV < 50%) for 10 of these species.

This monitoring design and current sampling intensity is providing population information for one of the four species designated as Management Indicators for Helena National Forest. This includes density and occupancy estimates for Hairy Woodpecker.

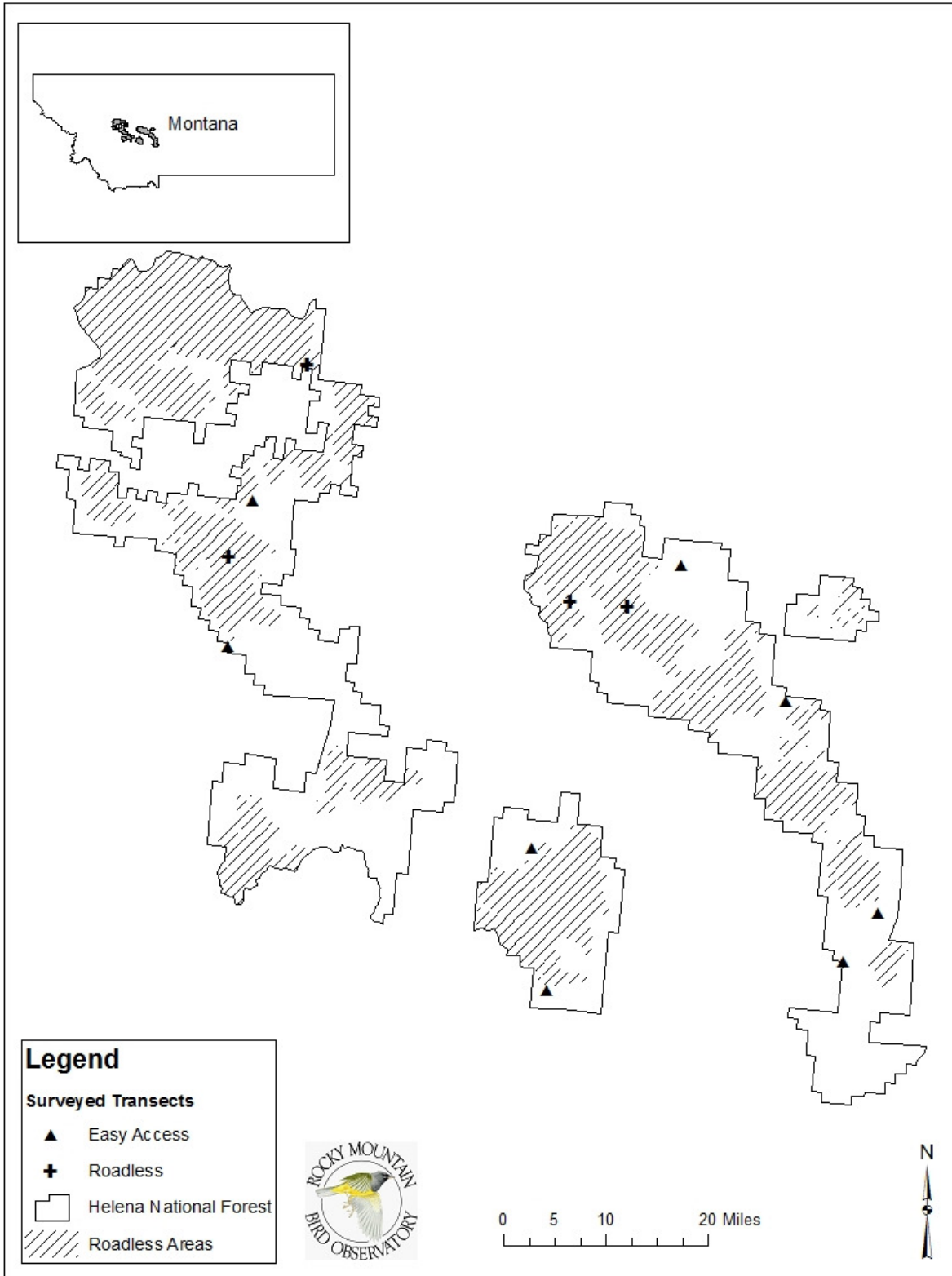


Figure 19. Survey locations in Helena National Forest, 2010. Survey locations labeled Easy Access are located in Roaded/Managed areas, and those labeled Roadless are located in Roadless/Wilderness areas.



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Table 108. Estimated densities per km<sup>2</sup> (D), population sizes (N), percent coefficient of variation of estimates (% CV) and number of independent detections (n) of breeding bird species in Helena National Forest, 2010. S indicates the number of transects used in analyses. Priority species are bolded.

Species	Helena NF (S=14)			
	D	N	% CV	n
American Goldfinch	1.91	10,066	90	1
American Robin	27.68	145,929	18	42
American Three-toed Woodpecker	1.67	8,785	88	1
Black-capped Chickadee	38.48	202,889	39	36
Black-headed Grosbeak	0.54	2,865	60	2
Brown-headed Cowbird	13.81	72,811	32	16
Cassin's Finch	6.29	33,144	50	13
Chipping Sparrow	62.62	330,141	20	53
<b>Clark's Nutcracker</b>	2.06	10,875	46	8
Common Raven	1.69	8,890	31	24
Common Yellowthroat	0.59	3,125	85	1
Dark-eyed Junco	112.71	594,191	20	106
Downy Woodpecker	4.76	25,095	66	6
Dusky Flycatcher	11.99	63,219	42	18
Eastern Kingbird	0.25	1,309	85	1
Evening Grosbeak	2.61	13,783	64	4
<b>Hairy Woodpecker</b>	5.61	29,563	48	6
Hammond's Flycatcher	6.05	31,881	49	5
Hermit Thrush	5.36	28,241	50	18
House Wren	9.78	51,562	50	19
Least Flycatcher	0.52	2,743	92	1
MacGillivray's Warbler	5.92	31,225	58	8
Mountain Bluebird	6.17	32,518	77	5
Mountain Chickadee	20.64	108,816	39	28
Mourning Dove	0.21	1,090	86	1
Northern Flicker	2.77	14,623	23	14
<b>Northern Harrier</b>	0.12	627	87	1
<b>Olive-sided Flycatcher</b>	0.68	3,576	84	2
Orange-crowned Warbler	4.03	21,230	69	3
Pine Grosbeak	5.34	28,176	60	4
Pine Siskin	33.21	175,102	27	29
<b>Pygmy Nuthatch</b>	5.29	27,887	104	2
Red Crossbill	9.58	50,520	36	10
Red-breasted Nuthatch	17.84	94,062	39	29
<b>Red-naped Sapsucker</b>	2.13	11,229	81	3
Red-tailed Hawk	0.24	1,260	75	2
Ring-necked Pheasant	0.03	135	91	1

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Species	Helena NF (S=14)			
	D	N	% CV	n
Ruby-crowned Kinglet	18.75	98,840	30	33
Savannah Sparrow	0.42	2,235	83	1
Song Sparrow	0.66	3,499	86	1
Spotted Towhee	2.63	13,862	73	3
Swainson's Thrush	3.95	20,830	55	10
Townsend's Solitaire	3.17	16,722	36	5
Tree Swallow	6.44	33,941	86	4
Warbling Vireo	5.23	27,586	47	14
Western Meadowlark	0.11	573	85	1
Western Tanager	9.90	52,205	39	20
Western Wood-Pewee	2.12	11,186	47	8
White-crowned Sparrow	12.83	67,643	51	29
Wild Turkey	0.10	517	93	1
Yellow Warbler	1.99	10,510	64	2
Yellow-rumped Warbler	55.02	290,067	23	86

Table 109. Estimated proportion of sample units occupied (Psi), percent coefficient of variation of Psi (% CV) and number of transects with one or more detections (n Tran) of breeding bird species in Helena National Forest, 2010. Dashes indicate the data were insufficient for estimating site occupancy. A Psi estimate equal to 1 indicates the species was detected on all transects surveyed. S indicates the number of transects used in analyses. Priority species are bolded.

Species	Helena NF (S=14)		
	Psi	% CV	n Tran
American Three-toed Woodpecker	0.295	65	2
Brown-headed Cowbird	0.604	24	8
Cassin's Finch	0.372	45	4
<b>Clark's Nutcracker</b>	0.444	38	5
Common Yellowthroat	0.186	87	1
Downy Woodpecker	0.231	63	2
Dusky Flycatcher	0.422	33	6
Dusky Grouse	0.426	94	1
Eastern Kingbird	0.086	95	1
European Starling	0.062	95	1
Evening Grosbeak	0.254	65	2
Gray Catbird	0.112	96	1
<b>Hairy Woodpecker</b>	0.483	35	5
Hammond's Flycatcher	0.260	50	2
Least Flycatcher	0.100	96	1
MacGillivray's Warbler	0.369	39	4
Mountain Bluebird	0.189	65	2

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Species	Helena NF (S=14)		
	Psi	% CV	n Tran
Nashville Warbler	0.084	96	1
<b>Northern Harrier</b>	0.178	102	1
<b>Olive-sided Flycatcher</b>	0.152	87	1
Orange-crowned Warbler	0.205	65	2
Pine Grosbeak	0.265	50	2
Pine Siskin	0.649	21	8
<b>Pygmy Nuthatch</b>	0.112	87	1
Red Crossbill	0.379	38	5
<b>Red-naped Sapsucker</b>	0.140	63	2
Ruby-crowned Kinglet	0.635	22	9
Savannah Sparrow	0.061	95	1
Song Sparrow	0.138	87	1
Spotted Towhee	0.215	50	2
Swainson's Thrush	0.227	53	3
Townsend's Solitaire	--	--	5
Tree Swallow	0.142	63	2
Vesper Sparrow	0.058	95	1
Warbling Vireo	0.355	38	5
Western Meadowlark	0.058	95	1
Yellow Warbler	0.184	65	2

**(9) Idaho Panhandle National Forest**

Within this sampling design Idaho Panhandle National Forest is split into two strata, front-country, managed areas and designated roadless and wilderness areas. This forest-level stratification distinction was made due to field implementation cost considerations and the desire to focus monitoring on the more highly managed areas while maintaining inference to the entire management unit. In this section of this report these two strata are combined to the administrative area of Idaho Panhandle National Forest.

Field technicians surveyed all 14 planned transects throughout Idaho Panhandle National Forest in 2010. Technicians conducted 156 point counts within the 14 transects between 19 May and 29 June 2010. We detected 84 species, including 11 priority species for Idaho Panhandle National Forest (Appendix D).

RMBO estimated densities and population sizes for 50 species, 3 of which are priority species for Idaho Panhandle National Forest (Table 110). The data yielded robust density estimates ( $CV < 50\%$ ) for 28 of these species.

We estimated the proportion of transects occupied ( $\Psi$ ) by 38 species, 5 of which is a priority species for Idaho Panhandle National Forest (Table 111). The data yielded robust occupancy estimates ( $CV < 50\%$ ) for 18 of these species.

This monitoring design and current sampling intensity is providing population information for one of the three species designated as Management Indicators for Idaho-Panhandle National Forest. This includes occupancy estimates for Pileated Woodpecker.

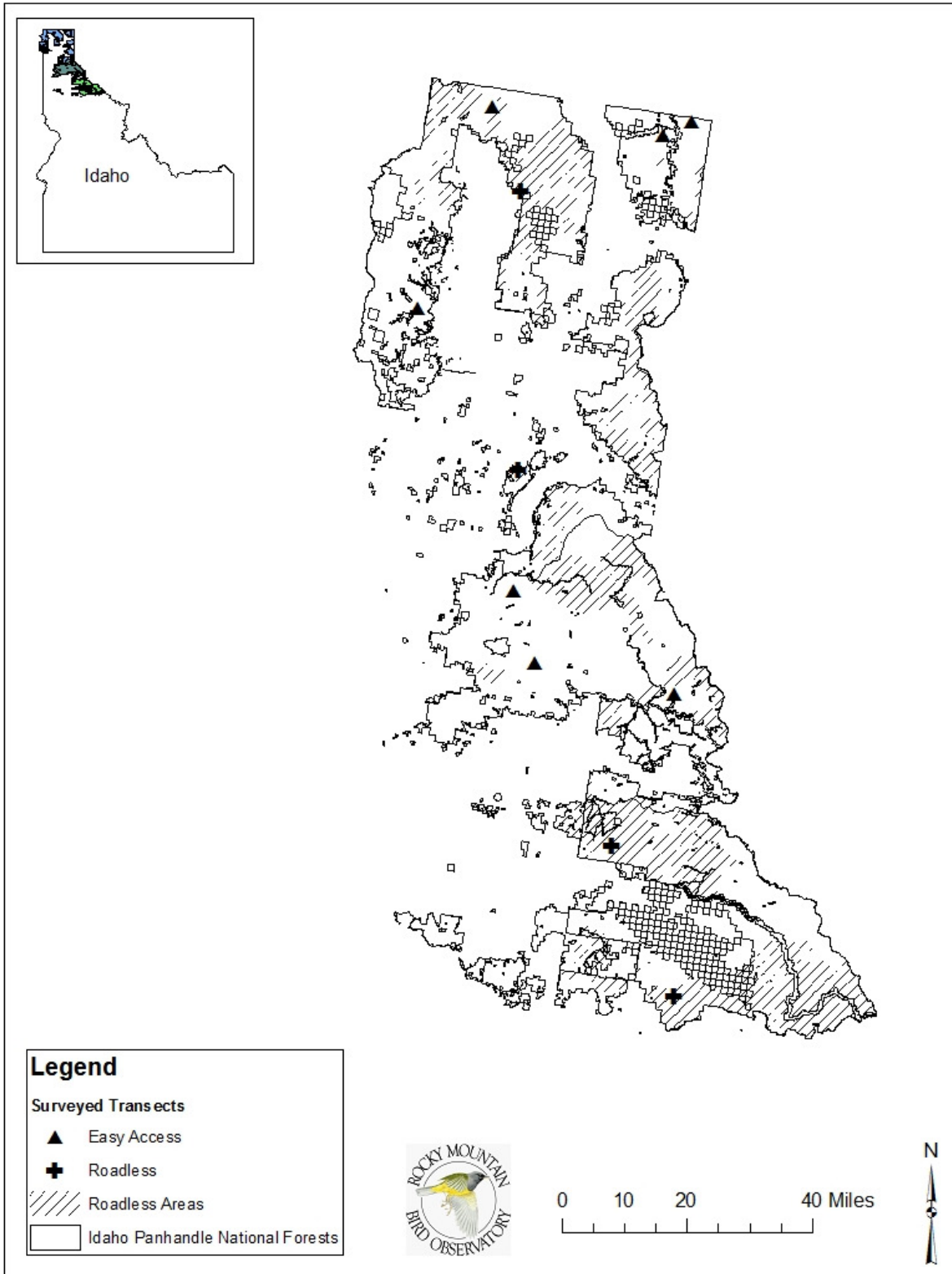


Figure 20. Survey locations in Idaho Panhandle National Forest, 2010. Survey locations labeled Easy Access are located in Roded/Managed areas, and those labeled Roadless are located in Roadless/Wilderness areas.

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Table 110. Estimated densities per km<sup>2</sup> (D), population sizes (N), percent coefficient of variation of estimates (% CV) and number of independent detections (n) of breeding bird species in Idaho Panhandle National Forest, 2010. S indicates the number of transects used in analyses. Priority species are bolded.

Species	Idaho Panhandle NF (S=14)			
	D	N	% CV	n
American Kestrel	0.29	3,434	60	2
American Robin	21.24	250,931	17	40
Black-capped Chickadee	9.39	110,890	54	10
Black-headed Grosbeak	0.50	5,859	83	2
Brown Creeper	7.11	84,034	49	5
Cassin's Finch	1.18	13,895	61	3
Cassin's Vireo	13.12	154,976	13	36
Chipping Sparrow	13.75	162,444	37	12
Common Raven	0.79	9,290	25	12
Common Yellowthroat	0.35	4,088	85	1
Dark-eyed Junco	51.67	610,474	16	58
Dusky Flycatcher	9.47	111,909	35	15
Evening Grosbeak	0.39	4,661	86	1
Fox Sparrow	0.48	5,676	86	2
Golden-crowned Kinglet	23.93	282,718	48	10
<b>Gray Jay</b>	3.92	46,327	51	4
Hairy Woodpecker	13.18	155,769	22	21
Hammond's Flycatcher	10.49	123,978	30	16
Hermit Thrush	4.05	47,804	27	24
Least Flycatcher	0.61	7,263	84	1
MacGillivray's Warbler	1.90	22,402	48	3
Mountain Chickadee	11.55	136,462	33	18
Mourning Dove	0.43	5,113	62	2
Northern Flicker	9.82	116,011	16	59
<b>Olive-sided Flycatcher</b>	2.00	23,602	32	11
Orange-crowned Warbler	12.98	153,378	35	14
Pine Siskin	17.72	209,414	13	20
Red Crossbill	1.67	19,678	62	2
Red-breasted Nuthatch	38.86	459,116	12	75
<b>Red-naped Sapsucker</b>	2.78	32,872	59	4
Red-tailed Hawk	0.14	1,668	97	1
Red-winged Blackbird	0.32	3,725	88	1
Ruby-crowned Kinglet	12.73	150,447	24	27
Song Sparrow	3.87	45,780	49	10
Spotted Sandpiper	0.23	2,697	94	1
Spotted Towhee	2.05	24,181	92	4
Steller's Jay	0.99	11,651	51	4

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Species	Idaho Panhandle NF (S=14)			
	D	N	% CV	n
Swainson's Thrush	0.85	10,006	84	2
Townsend's Solitaire	4.48	52,876	35	12
Townsend's Warbler	36.71	433,729	13	48
Varied Thrush	8.43	99,607	21	38
Violet-green Swallow	9.35	110,504	38	9
Warbling Vireo	6.50	76,744	30	18
Western Tanager	40.84	482,579	12	120
Western Wood-Pewee	4.56	53,849	36	18
White-breasted Nuthatch	0.51	6,068	84	1
White-crowned Sparrow	1.95	23,036	69	5
Wild Turkey	0.12	1,368	87	1
Yellow Warbler	2.34	27,609	101	3
Yellow-rumped Warbler	62.66	740,271	10	115

Table 111. Estimated proportion of sample units occupied (Psi), percent coefficient of variation of Psi (% CV) and number of transects with one or more detections (n Tran) of breeding bird species in Idaho Panhandle National Forest, 2010. Dashes indicate the data were insufficient for estimating site occupancy. A Psi estimate equal to 1 indicates the species was detected on all transects surveyed. S indicates the number of transects used in analyses. Priority species are bolded.

Species	Idaho Panhandle NF (S=14)		
	Psi	% CV	n Tran
American Three-toed Woodpecker	0.127	95	1
Brown Creeper	0.539	37	5
Calliope Hummingbird	0.296	106	1
Cassin's Finch	0.271	47	3
Cassin's Vireo	1	--	13
Cedar Waxwing	0.283	65	2
Chestnut-backed Chickadee	0.674	23	8
Common Yellowthroat	0.118	95	1
Downy Woodpecker	0.129	95	1
Dusky Flycatcher	0.393	35	5
Evening Grosbeak	0.094	87	1
Golden-crowned Kinglet	0.658	27	7
Gray Catbird	0.125	96	1
<b>Gray Jay</b>	0.265	51	3
Hairy Woodpecker	0.901	16	10
Hammond's Flycatcher	0.606	27	7
Least Flycatcher	0.125	96	1
<b>Lewis's Woodpecker</b>	0.108	96	1
MacGillivray's Warbler	0.235	48	3

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Species	Idaho Panhandle NF (S=14)		
	Psi	% CV	n Tran
Northern Waterthrush	0.157	64	2
<b>Olive-sided Flycatcher</b>	0.620	26	7
Orange-crowned Warbler	0.500	30	6
<b>Pileated Woodpecker</b>	0.402	51	3
Pine Grosbeak	0.078	86	1
Pine Siskin	0.906	11	12
Red Crossbill	0.236	51	3
<b>Red-naped Sapsucker</b>	0.251	47	3
Ruby-crowned Kinglet	0.864	11	12
Ruffed Grouse	0.103	95	1
Rufous Hummingbird	0.492	45	4
Song Sparrow	0.350	39	4
Spotted Towhee	0.074	95	1
Swainson's Thrush	0.151	63	2
Townsend's Solitaire	0.556	25	7
Townsend's Warbler	1	--	14
Warbling Vireo	0.440	31	6
Wild Turkey	0.510	84	2
Wilson's Warbler	0.092	95	1
Winter Wren	0.643	25	7
Yellow Warbler	0.080	95	1



**(10) Kootenai National Forest**

Within this sampling design Kootenai National Forest is split into two strata, front-country, managed areas and designated roadless and wilderness areas. This forest-level stratification distinction was made due to field implementation cost considerations and the desire to focus monitoring on the more highly managed areas while maintaining inference to the entire management unit. In this section of this report these two strata are combined to the administrative area of Kootenai National Forest.

Field technicians surveyed all 14 planned transects throughout Kootenai National Forest in 2010. Technicians conducted 138 point counts within the 14 transects between 17 May and 22 July 2010. We detected 76 species, including 7 priority species for Kootenai National Forest (Appendix D).

RMBO estimated densities and population sizes for 55 species, 5 of which are priority species for Kootenai National Forest (Table 112). The data yielded robust density estimates ( $CV < 50\%$ ) for 30 of these species.

We estimated the proportion of transects occupied ( $\Psi$ ) by 43 species, 5 of which are priority species for Kootenai National Forest (Table 113). The data yielded robust occupancy estimates ( $CV < 50\%$ ) for 23 of these species.

This monitoring design and current sampling intensity is providing population information for one of the two species designated as Management Indicators for Kootenai National Forest. This includes occupancy estimates for Pileated Woodpecker.

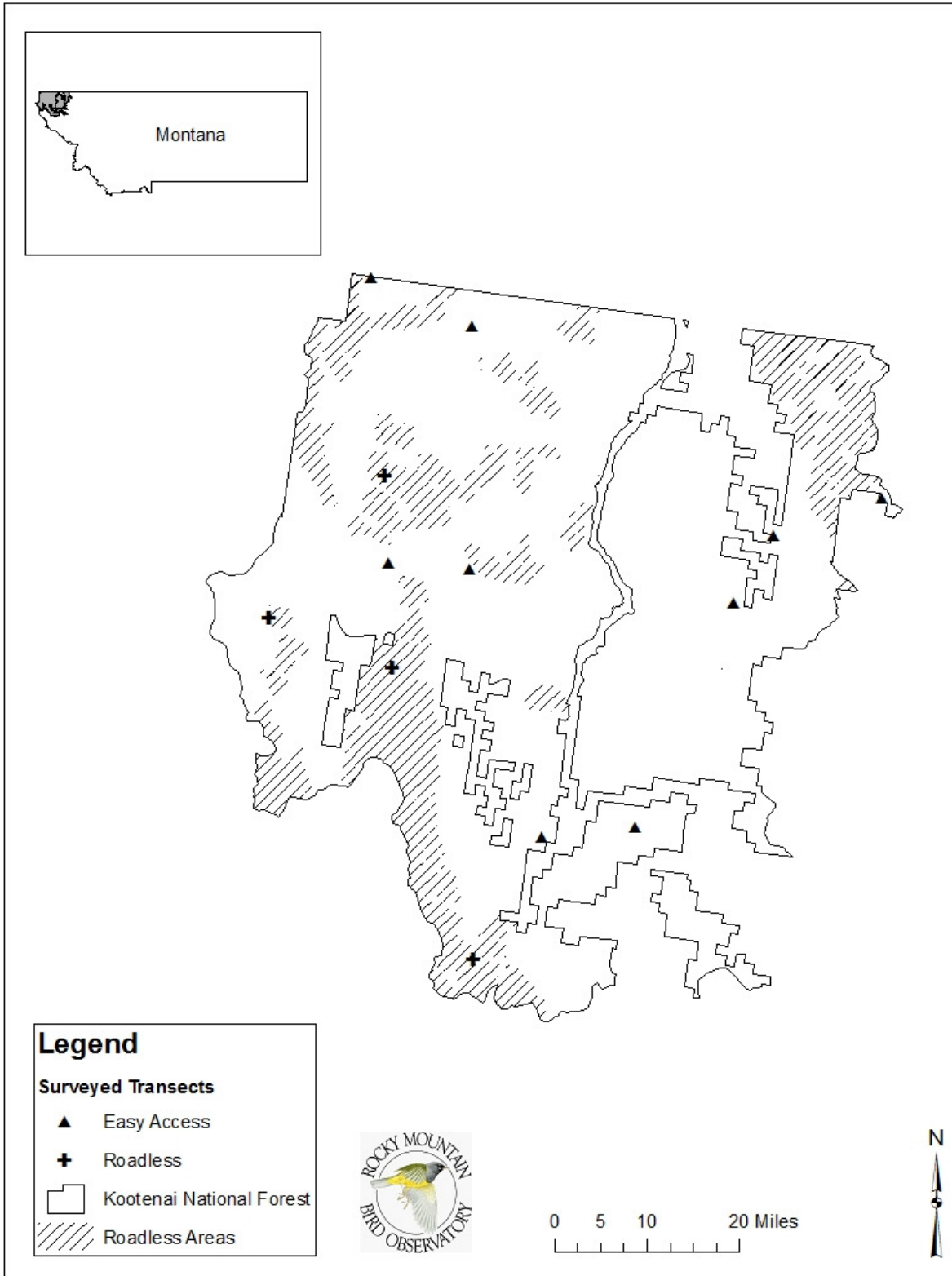


Figure 21. Survey locations in Kootenai National Forest, 2010. Survey locations labeled Easy Access are located in Roaded/Managed areas, and those labeled Roadless are located in Roadless/Wilderness areas.

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Table 112. Estimated densities per km<sup>2</sup> (D), population sizes (N), percent coefficient of variation of estimates (% CV) and number of independent detections (n) of breeding bird species in Kootenai National Forest, 2010. S indicates the number of transects used in analyses. Priority species are bolded.

Species	Kootenai NF (S=14)			
	D	N	% CV	n
American Robin	28.48	259,934	41	47
American Three-toed Woodpecker	1.01	9,258	87	1
Black-capped Chickadee	44.98	410,477	38	40
Black-headed Grosbeak	0.68	6,184	59	2
Brown Creeper	1.72	15,680	82	1
Brown-headed Cowbird	12.76	116,463	80	12
Canada Goose	0.08	752	89	3
Cassin's Finch	1.93	17,593	43	4
Cassin's Vireo	7.72	70,422	33	19
Chipping Sparrow	57.49	524,641	22	52
<b>Clark's Nutcracker</b>	0.92	8,382	68	4
Clay-colored Sparrow	0.34	3,120	90	1
Common Raven	1.86	17,017	38	25
Dark-eyed Junco	97.99	894,230	18	97
Dusky Flycatcher	17.39	158,659	37	26
European Starling	0.94	8,558	89	1
Evening Grosbeak	10.70	97,686	28	20
Golden-crowned Kinglet	13.79	125,877	69	5
<b>Gray Jay</b>	8.72	79,614	29	8
Hairy Woodpecker	7.56	69,005	25	11
Hammond's Flycatcher	8.10	73,916	23	11
Hermit Thrush	4.30	39,252	36	23
House Finch	0.89	8,138	89	1
Killdeer	0.45	4,112	90	1
Lazuli Bunting	0.79	7,234	88	2
MacGillivray's Warbler	15.22	138,927	32	23
Mountain Bluebird	1.71	15,618	86	2
Mountain Chickadee	20.30	185,276	47	17
Northern Flicker	3.22	29,383	32	17
<b>Olive-sided Flycatcher</b>	2.07	18,934	42	10
Orange-crowned Warbler	26.73	243,937	38	27
Pine Grosbeak	3.33	30,409	87	4
Pine Siskin	54.56	497,895	25	52
Red Crossbill	7.89	71,978	37	8
Red-breasted Nuthatch	37.88	345,698	15	65
<b>Red-naped Sapsucker</b>	8.79	80,211	46	10
Red-tailed Hawk	0.30	2,720	67	2

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Species	Kootenai NF (S=14)			
	D	N	% CV	n
Red-winged Blackbird	0.66	6,002	89	2
Ruby-crowned Kinglet	30.10	274,651	25	55
<b>Sandhill Crane</b>	0.03	317	89	2
Song Sparrow	0.40	3,688	89	1
Steller's Jay	0.55	5,036	60	2
Swainson's Thrush	27.09	247,186	29	61
Townsend's Solitaire	6.92	63,118	31	16
Townsend's Warbler	67.70	617,870	19	81
Tree Swallow	1.98	18,096	90	1
Varied Thrush	4.83	44,077	33	20
Warbling Vireo	25.35	231,324	27	63
Western Tanager	30.00	273,778	19	79
Western Wood-Pewee	0.29	2,644	84	1
White-crowned Sparrow	3.22	29,408	80	6
Wild Turkey	0.24	2,204	92	2
Wilson's Snipe	0.63	5,778	93	1
Wilson's Warbler	23.75	216,726	92	10
Yellow-rumped Warbler	108.29	988,221	13	176

Table 113. Estimated proportion of sample units occupied (Psi), percent coefficient of variation of Psi (% CV) and number of transects with one or more detections (n Tran) of breeding bird species in Kootenai National Forest, 2010. Dashes indicate the data were insufficient for estimating site occupancy. A Psi estimate equal to 1 indicates the species was detected on all transects surveyed. S indicates the number of transects used in analyses. Priority species are bolded.

Species	Kootenai NF (S=14)		
	Psi	% CV	n Tran
American Three-toed Woodpecker	0.245	64	2
Brown Creeper	--	--	4
Brown-headed Cowbird	0.176	63	2
Calliope Hummingbird	0.288	106	1
Canada Goose	0.113	96	1
Cassin's Finch	0.511	31	5
Cassin's Vireo	0.749	19	9
Chestnut-backed Chickadee	0.614	26	6
<b>Clark's Nutcracker</b>	0.169	65	2
Clay-colored Sparrow	0.095	95	1
Dusky Flycatcher	0.441	31	5
Dusky Grouse	0.267	101	1
European Starling	0.084	95	1
Evening Grosbeak	0.791	23	8

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Species	Kootenai NF (S=14)		
	Psi	% CV	n Tran
Golden-crowned Kinglet	0.483	36	5
<b>Gray Jay</b>	0.730	22	8
Hairy Woodpecker	0.826	20	8
Hammond's Flycatcher	0.701	16	8
Lazuli Bunting	0.087	95	1
MacGillivray's Warbler	0.621	23	8
Mountain Bluebird	0.066	87	1
Nashville Warbler	0.395	41	4
Northern Waterthrush	0.086	95	1
<b>Olive-sided Flycatcher</b>	0.387	42	4
Orange-crowned Warbler	--	--	9
<b>Pileated Woodpecker</b>	0.591	42	4
Pine Grosbeak	0.078	87	1
Pine Siskin	0.775	15	11
Red Crossbill	0.478	30	6
Red-eyed Vireo	0.084	95	1
<b>Red-naped Sapsucker</b>	0.464	35	5
Ruby-crowned Kinglet	0.637	16	8
Ruffed Grouse	0.338	49	3
Rufous Hummingbird	0.398	50	3
Song Sparrow	0.100	95	1
Swainson's Thrush	0.802	14	11
Townsend's Solitaire	0.733	20	8
Townsend's Warbler	0.793	14	11
Tree Swallow	0.095	95	1
Warbling Vireo	0.646	21	9
White-winged Crossbill	0.194	65	2
Wild Turkey	0.294	110	1
Wilson's Snipe	0.123	96	1
Wilson's Warbler	0.270	51	3
Winter Wren	0.393	43	4

**(11) Lewis and Clark National Forest**

Within this sampling design Lewis and Clark National Forest is split into three strata, one in BCR 17 and two in BCR 10. Within BCR 10, the Forest is split into front-country, managed areas and designated roadless and wilderness areas. This forest-level stratification distinction is made for two reasons. The BCR 10 portion is split into front-country, managed areas, and designated roadless and wilderness areas due to field implementation cost considerations and the desire to focus monitoring on the more highly managed areas while maintaining inference to the entire management unit. The BCR-level stratification distinction is made to allow for the summation of the data for individual BCRs. In this section of this report these three strata are combined to the administrative area of Lewis and Clark National Forest.

Field technicians surveyed all 14 planned transects throughout Lewis and Clark National Forest in 2010. Technicians conducted 164 point counts within the 14 transects between 20 June and 13 July 2010. We detected 66 species, including 5 priority species for Lewis and Clark National Forest (Appendix D).

RMBO estimated densities and population sizes for 52 species, 4 of which are priority species for Lewis and Clark National Forest (Table 114). The data yielded robust density estimates ( $CV < 50\%$ ) for 18 of these species.

We estimated the proportion of transects occupied ( $\Psi$ ) by 40 species, 4 of which are priority species for Lewis and Clark National Forest (Table 115). The data yielded robust occupancy estimates ( $CV < 50\%$ ) for 11 of these species.

This monitoring design and current sampling intensity is providing population information for one of the three species designated as Management Indicators for Lewis and Clark National Forest. This includes density and occupancy estimates for American Three-toed Woodpecker.

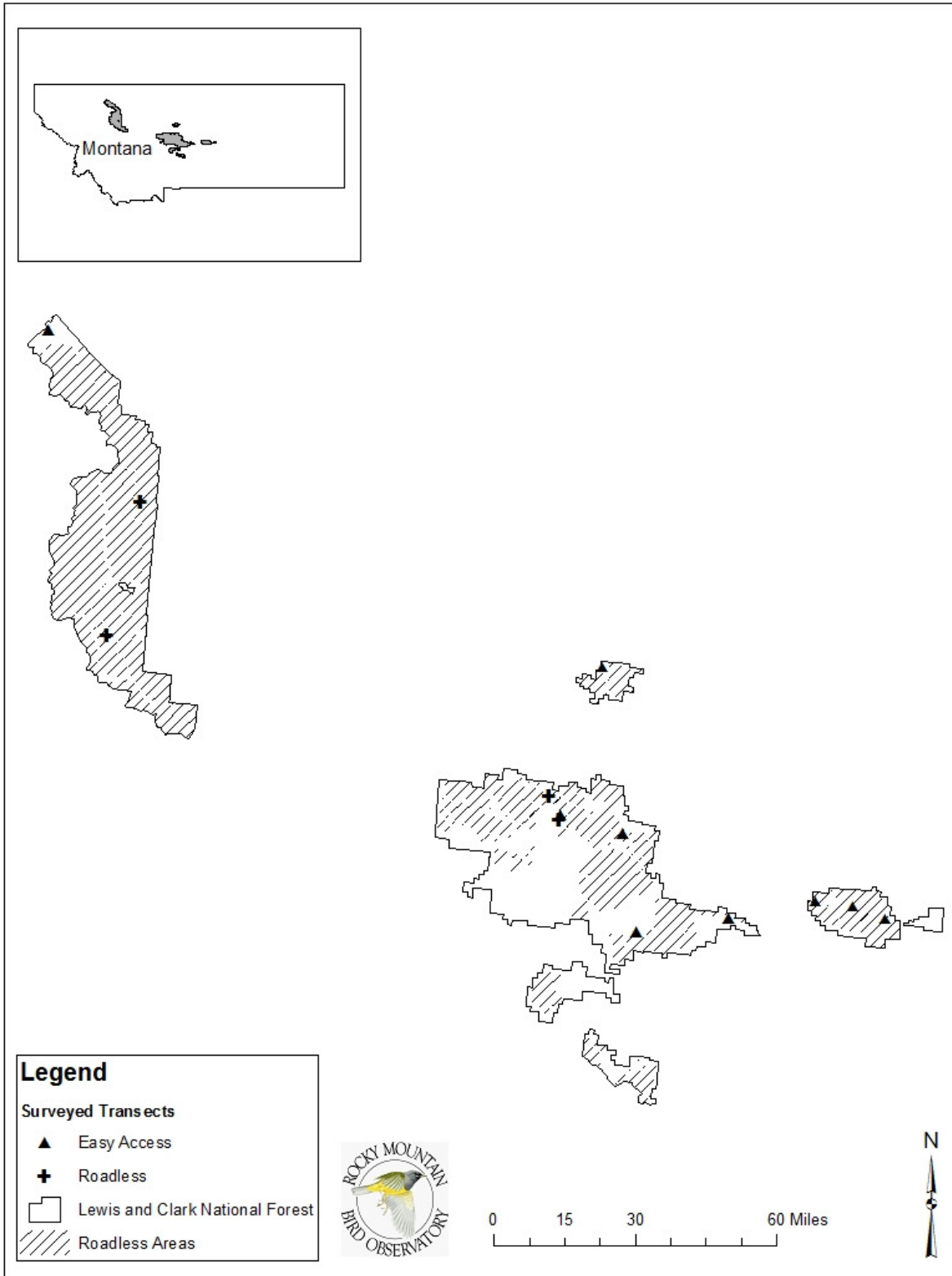


Figure 22. Survey locations in Lewis and Clark National Forest, 2010. Survey locations labeled Easy Access are located in Roded/Managed areas, and those labeled Roadless are located in Roadless/Wilderness areas.

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Table 114. Estimated densities per km<sup>2</sup> (D), population sizes (N), percent coefficient of variation of estimates (% CV) and number of independent detections (n) of breeding bird species in Lewis and Clark National Forest, 2010. S indicates the number of transects used in analyses. Priority species are bolded.

Species	Lewis and Clark NF (S=14)			
	D	N	% CV	n
American Crow	0.18	1,523	77	4
American Goldfinch	20.43	176,744	72	5
American Robin	23.29	201,473	33	40
<b>American Three-toed Woodpecker</b>	4.18	36,124	61	2
Black-capped Chickadee	12.51	108,251	78	10
Black-headed Grosbeak	0.98	8,457	82	4
Brown-headed Cowbird	2.25	19,426	60	5
Cassin's Vireo	1.67	14,443	47	2
Chipping Sparrow	36.15	312,745	29	32
<b>Clark's Nutcracker</b>	5.20	45,007	63	19
Common Nighthawk	0.34	2,904	82	1
Common Raven	0.42	3,635	27	12
Common Yellowthroat	1.13	9,794	65	5
Dark-eyed Junco	65.55	567,175	19	79
Evening Grosbeak	0.39	3,364	83	1
Golden-crowned Kinglet	11.30	97,757	103	2
Green-tailed Towhee	0.98	8,477	45	5
Hairy Woodpecker	1.41	12,185	83	1
Hammond's Flycatcher	1.67	14,492	76	2
Hermit Thrush	9.61	83,146	36	54
House Wren	2.67	23,068	63	17
Lazuli Bunting	0.29	2,503	82	1
Lincoln's Sparrow	0.69	5,928	82	1
MacGillivray's Warbler	15.51	134,210	29	31
Mountain Bluebird	4.95	42,830	47	7
Mountain Chickadee	30.11	260,524	22	37
Northern Flicker	2.70	23,346	51	13
Orange-crowned Warbler	2.74	23,709	67	2
Ovenbird	2.38	20,602	61	14
Pine Siskin	68.56	593,201	27	55
<b>Pygmy Nuthatch</b>	0.35	3,025	88	1
Red Crossbill	14.51	125,519	34	29
Red-breasted Nuthatch	14.97	129,515	32	21
<b>Red-naped Sapsucker</b>	4.24	36,671	68	3
Red-winged Blackbird	0.48	4,153	82	2
Ruby-crowned Kinglet	16.55	143,165	27	37
Savannah Sparrow	1.14	9,894	82	3



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Species	Lewis and Clark NF (S=14)			
	D	N	% CV	n
Song Sparrow	0.29	2,552	82	1
Spotted Towhee	1.13	9,747	62	5
Swainson's Thrush	14.22	122,990	44	30
Townsend's Solitaire	10.97	94,935	76	22
Townsend's Warbler	6.86	59,331	59	4
Vesper Sparrow	0.20	1,722	82	1
Violet-green Swallow	2.50	21,627	83	3
Warbling Vireo	14.25	123,315	25	30
Western Tanager	5.75	49,729	44	21
Western Wood-Pewee	1.01	8,754	64	9
White-crowned Sparrow	1.92	16,626	91	5
Wilson's Warbler	5.19	44,885	100	3
Yellow Warbler	0.59	5,130	82	1
Yellow-breasted Chat	0.18	1,518	82	1
Yellow-rumped Warbler	60.23	521,068	22	106

Table 115. Estimated proportion of sample units occupied (Psi), percent coefficient of variation of Psi (% CV) and number of transects with one or more detections (n Tran) of breeding bird species in Lewis and Clark National Forest, 2010. Dashes indicate the data were insufficient for estimating site occupancy. A Psi estimate equal to 1 indicates the species was detected on all transects surveyed. S indicates the number of transects used in analyses. Priority species are bolded.

Species	Lewis and Clark NF (S=14)		
	Psi	% CV	n Tran
<b>American Three-toed Woodpecker</b>	0.475	48	2
Brown-headed Cowbird	0.106	59	3
Calliope Hummingbird	0.529	97	1
Cassin's Vireo	0.296	50	2
Cedar Waxwing	0.100	91	1
<b>Clark's Nutcracker</b>	--	--	6
Common Nighthawk	0.116	90	1
Common Yellowthroat	0.202	49	3
Dusky Flycatcher	0.069	89	1
Evening Grosbeak	0.082	90	1
Golden-crowned Kinglet	0.195	86	1
Gray Catbird	0.500	54	4
Green-tailed Towhee	0.152	49	3
Hairy Woodpecker	0.200	86	1
Hammond's Flycatcher	0.198	77	2
Lazuli Bunting	0.067	89	1
Lincoln's Sparrow	0.069	89	1

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Species	Lewis and Clark NF (S=14)		
	Psi	% CV	n Tran
MacGillivray's Warbler	0.488	32	8
Mountain Bluebird	0.339	50	4
Northern Waterthrush	0.066	90	1
Orange-crowned Warbler	0.256	68	2
Ovenbird	0.129	50	4
Pine Siskin	0.970	7	13
<b>Pygmy Nuthatch</b>	0.020	89	1
Red Crossbill	0.490	33	7
Red-eyed Vireo	0.065	89	1
<b>Red-naped Sapsucker</b>	0.456	39	4
Rub-crowned Kinglet	0.689	21	9
Savannah Sparrow	0.065	89	1
Song Sparrow	0.072	89	1
Spotted Towhee	0.151	49	3
Swainson's Thrush	0.543	30	8
Townsend's Solitaire	0.269	65	4
Townsend's Warbler	0.289	50	2
Vesper Sparrow	0.064	89	1
Warbling Vireo	0.856	7	9
White-winged Crossbill	0.349	51	2
Willow Flycatcher	0.076	90	1
Wilson's Warbler	0.073	90	1
Yellow Warbler	0.066	89	1
Yellow-breasted Chat	0.067	89	1

**(12) Lolo National Forest**

Within this sampling design Lolo National Forest is split into two strata, front-country, managed areas and designated roadless and wilderness areas. This forest-level stratification distinction was made due to field implementation cost considerations and the desire to focus monitoring on the more highly managed areas while maintaining inference to the entire management unit. In this section of this report these two strata are combined to the administrative area of Lolo National Forest.

Field technicians surveyed all 14 planned transects throughout Lolo National Forest in 2010. Technicians conducted 103 point counts within the 14 transects between 23 May and 16 July 2010. We detected 83 species, including 10 priority species for Lolo National Forest (Appendix D).

RMBO estimated densities and population sizes for 61 species, 4 of which are priority species for Lolo National Forest (Table 116). The data yielded robust density estimates ( $CV < 50\%$ ) for 26 of these species.

We estimated the proportion of transects occupied ( $\Psi$ ) by 48 species, 6 of which are priority species for Lolo National Forest (Table 117). The data yielded robust occupancy estimates ( $CV < 50\%$ ) for 19 of these species.

This monitoring design and current sampling intensity is providing population information for one of the three species designated as Management Indicators for Lolo National Forest. This includes occupancy estimates for Pileated Woodpecker.

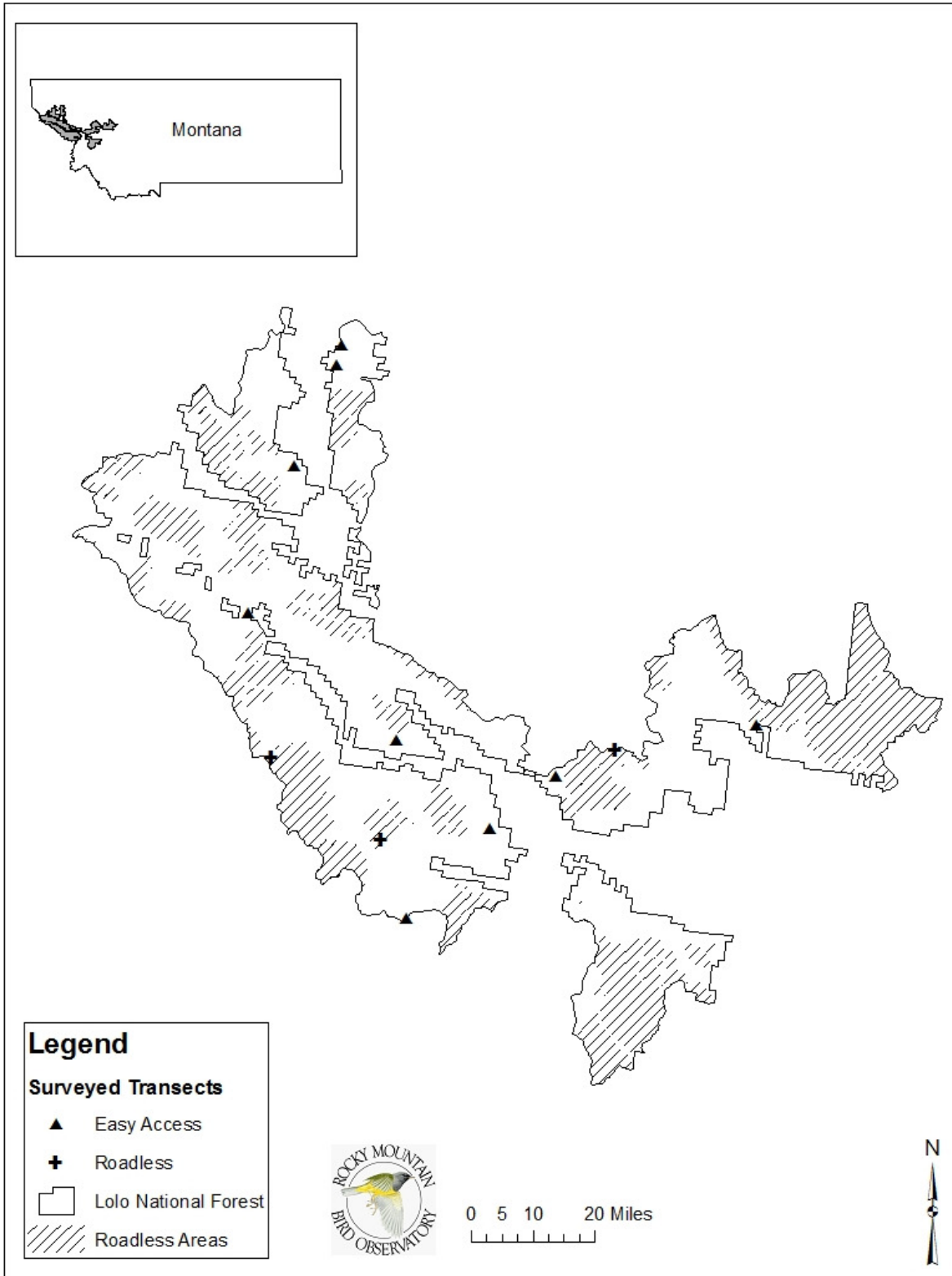


Figure 23. Survey locations in Lolo National Forest, 2010. Survey locations labeled Easy Access are located in Roaded/Managed areas, and those labeled Roadless are located in Roadless/Wilderness areas.

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Table 116. Estimated densities per km<sup>2</sup> (D), population sizes (N), percent coefficient of variation of estimates (% CV) and number of independent detections (n) of breeding bird species in Lolo National Forest, 2010. S indicates the number of transects used in analyses. Priority species are bolded.

Species	Lolo NF (S=14)			
	D	N	% CV	n
American Crow	0.46	5,307	88	5
American Kestrel	0.43	4,962	54	2
American Robin	29.45	341,699	23	37
American Three-toed Woodpecker	7.61	88,313	49	6
Barn Swallow	3.72	43,166	90	1
Black-capped Chickadee	18.20	211,196	56	15
Black-headed Grosbeak	0.42	4,857	84	1
Brewer's Blackbird	0.78	9,105	87	1
Brown Creeper	4.30	49,855	59	2
Brown-headed Cowbird	13.30	154,292	53	10
Cassin's Finch	3.34	38,764	50	5
Cassin's Vireo	7.05	81,820	38	12
Chipping Sparrow	79.09	917,576	27	60
<b>Clark's Nutcracker</b>	0.56	6,545	57	2
Cliff Swallow	10.97	127,297	108	2
Common Nighthawk	0.58	6,671	82	1
Common Raven	0.86	9,947	30	9
Cordilleran Flycatcher	3.84	44,594	84	5
Dark-eyed Junco	78.86	914,822	23	62
Downy Woodpecker	1.22	14,181	89	1
Dusky Flycatcher	13.98	162,195	38	14
European Starling	2.35	27,212	88	2
Evening Grosbeak	3.33	38,639	51	5
Golden-crowned Kinglet	28.70	332,973	51	7
<b>Gray Jay</b>	6.78	78,632	49	5
Hairy Woodpecker	12.52	145,282	29	13
Hammond's Flycatcher	19.75	229,115	25	19
Hermit Thrush	4.26	49,419	47	18
Killdeer	2.82	32,683	88	5
Lazuli Bunting	0.63	7,314	85	1
MacGillivray's Warbler	22.18	257,269	30	25
Mountain Bluebird	10.73	124,523	67	10
Mountain Chickadee	26.31	305,266	30	20
Northern Flicker	2.49	28,890	39	10
<b>Olive-sided Flycatcher</b>	2.91	33,766	40	11
Orange-crowned Warbler	12.29	142,615	37	10
Pine Grosbeak	9.16	106,215	83	9

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Species	Lolo NF (S=14)			
	D	N	% CV	n
Pine Siskin	60.23	698,673	23	44
Red Crossbill	19.16	222,248	47	14
Red-breasted Nuthatch	31.69	367,631	25	33
<b>Red-naped Sapsucker</b>	11.51	133,510	72	7
Red-tailed Hawk	0.55	6,410	82	3
Red-winged Blackbird	0.82	9,542	87	2
Rock Pigeon	1.95	22,581	90	2
Ruby-crowned Kinglet	28.05	325,418	20	38
Song Sparrow	1.65	19,182	63	3
Spotted Towhee	2.85	33,071	59	4
Steller's Jay	0.34	3,955	83	1
Swainson's Thrush	31.67	367,430	24	53
Townsend's Solitaire	5.37	62,340	33	10
Townsend's Warbler	34.94	405,346	24	30
Tree Swallow	4.96	57,538	88	2
Varied Thrush	4.53	52,523	78	12
Violet-green Swallow	4.67	54,186	63	3
Warbling Vireo	7.85	91,107	37	14
Western Bluebird	6.65	77,104	99	4
Western Tanager	30.45	353,295	26	59
White-crowned Sparrow	0.66	7,639	83	1
Wilson's Warbler	2.96	34,372	104	1
Yellow Warbler	1.02	11,785	89	1
Yellow-rumped Warbler	69.96	811,604	20	82

Table 117. Estimated proportion of sample units occupied (Psi), percent coefficient of variation of Psi (% CV) and number of transects with one or more detections (n Tran) of breeding bird species in Lolo National Forest, 2010. Dashes indicate the data were insufficient for estimating site occupancy. A Psi estimate equal to 1 indicates the species was detected on all transects surveyed. S indicates the number of transects used in analyses. Priority species are bolded.

Species	Lolo NF (S=14)		
	Psi	% CV	n Tran
American Three-toed Woodpecker	0.559	39	4
Brown Creeper	0.493	39	4
Brown-headed Cowbird	0.240	48	3
Calliope Hummingbird	0.343	107	1
Cassin's Finch	0.482	39	4
Cassin's Vireo	0.351	40	4
Chestnut-backed Chickadee	0.099	95	1
<b>Clark's Nutcracker</b>	0.185	63	2
Common Nighthawk	0.194	96	1

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Species	Lolo NF (S=14)		
	Psi	% CV	n Tran
Cordilleran Flycatcher	0.112	95	1
Downy Woodpecker	0.160	96	1
Dusky Flycatcher	0.599	25	7
Dusky Grouse	--	--	1
European Starling	0.076	95	1
Evening Grosbeak	0.249	64	2
Golden-crowned Kinglet	0.485	40	4
<b>Gray Jay</b>	0.198	63	2
Hairy Woodpecker	0.739	27	7
Hammond's Flycatcher	0.718	21	8
Lazuli Bunting	0.100	87	1
MacGillivray's Warbler	0.660	23	8
Mountain Bluebird	0.271	51	3
Nashville Warbler	0.144	89	1
Northern Waterthrush	0.081	96	1
<b>Olive-sided Flycatcher</b>	0.589	36	5
Orange-crowned Warbler	0.350	39	4
<b>Pileated Woodpecker</b>	0.308	67	2
Pine Grosbeak	0.193	63	2
Pine Siskin	0.849	11	11
Red Crossbill	0.514	30	6
Red-eyed Vireo	0.076	95	1
<b>Red-naped Sapsucker</b>	0.301	51	3
Ruby-crowned Kinglet	0.972	7	13
Ruffed Grouse	0.136	88	1
Rufous Hummingbird	0.513	55	3
Song Sparrow	0.217	64	2
Spotted Towhee	0.223	51	3
Swainson's Thrush	0.749	14	10
Townsend's Solitaire	0.286	48	3
Townsend's Warbler	0.735	14	10
Tree Swallow	0.092	95	1
Warbling Vireo	0.468	31	6
Western Bluebird	0.082	95	1
White-winged Crossbill	0.218	65	2
<b>Williamson's Sapsucker</b>	0.109	95	1
Wilson's Warbler	0.103	95	1
Winter Wren	--	--	3
Yellow Warbler	0.080	95	1

**(13) Nez Perce National Forest**

Within this sampling design Nez Perce National Forest is split into two strata, front-country, managed areas and designated roadless and wilderness areas. This forest-level stratification distinction was made due to field implementation cost considerations and the desire to focus monitoring on the more highly managed areas while maintaining inference to the entire management unit. In this section of this report these two strata are combined to the administrative area of Nez Perce National Forest.

Field technicians surveyed all 14 planned transects throughout Nez Perce National Forest in 2010. Technicians conducted 188 point counts within the 14 transects between 5 May and 18 July 2010. We detected 65 species, including 8 priority species for Nez Perce National Forest (Appendix D).

RMBO estimated densities and population sizes for 49 species, 5 of which are priority species for Nez Perce National Forest (Table 118). The data yielded robust density estimates ( $CV < 50\%$ ) for 23 of these species.

We estimated the proportion of transects occupied ( $\Psi$ ) by 39 species, 5 of which are priority species for Nez Perce National Forest (Table 119). The data yielded robust occupancy estimates ( $CV < 50\%$ ) for 20 of these species.

This monitoring design and current sampling intensity is providing population information for one of the three species designated as Management Indicators for the Nez Perce National Forest. This includes occupancy estimates for Pileated Woodpecker.



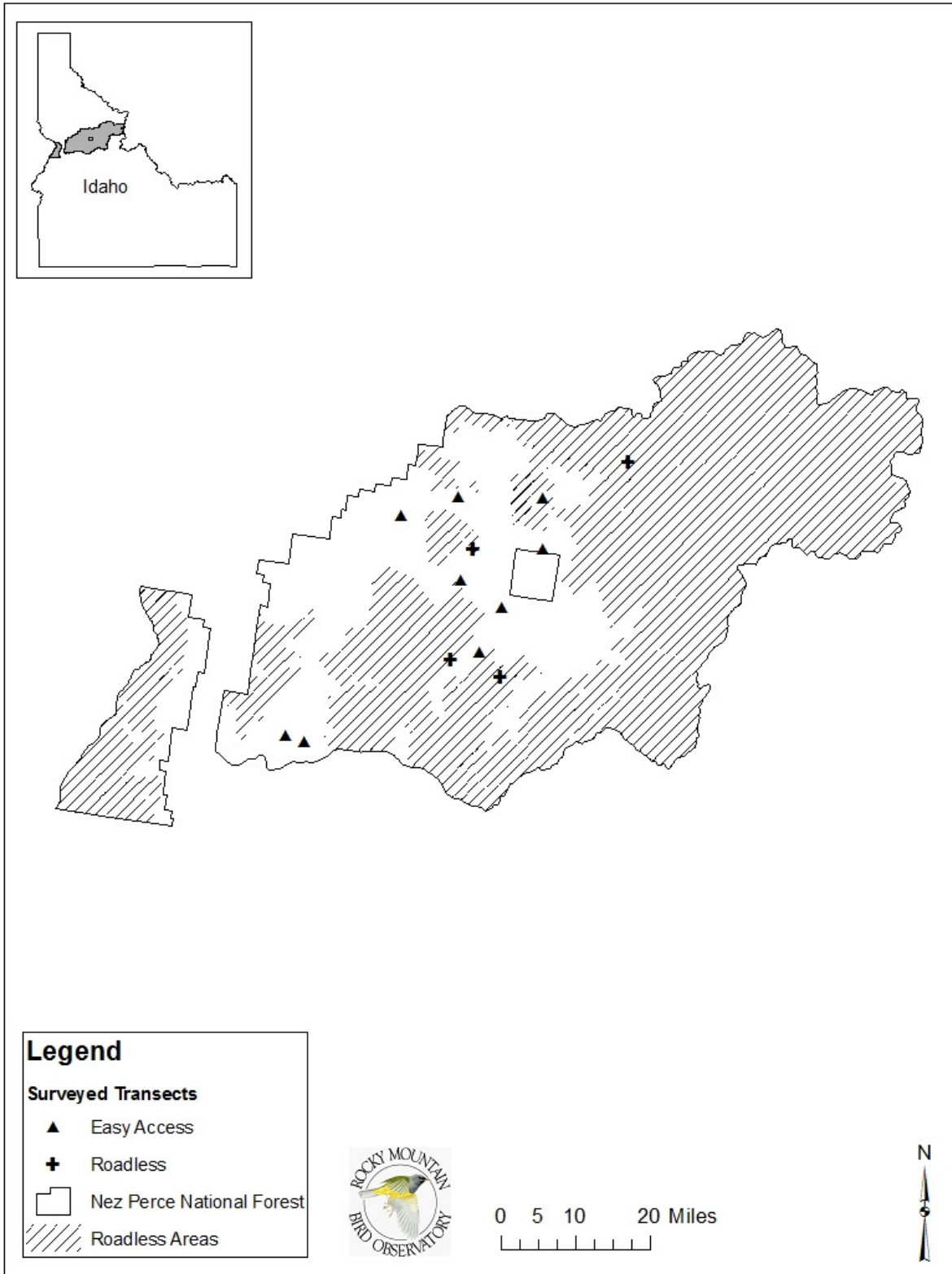


Figure 24. Survey locations in Nez Perce National Forest, 2010. Survey locations labeled Easy Access are located in Roaded/Managed areas, and those labeled Roadless are located in Roadless/Wilderness areas.

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Table 118. Estimated densities per km<sup>2</sup> (D), population sizes (N), percent coefficient of variation of estimates (% CV) and number of independent detections (n) of breeding bird species in Nez Perce National Forest, 2010. S indicates the number of transects used in analyses. Priority species are bolded.

Species	Nez Perce NF (S=14)			
	D	N	% CV	n
American Robin	34.24	316,216	27	66
American Three-toed Woodpecker	9.49	87,651	75	9
Black-capped Chickadee	3.59	33,137	54	6
Black-headed Grosbeak	0.83	7,653	51	8
Brown Creeper	4.42	40,793	68	3
Cassin's Finch	1.09	10,066	73	2
Cassin's Vireo	3.05	28,174	39	19
Chipping Sparrow	28.80	265,985	16	28
<b>Clark's Nutcracker</b>	3.86	35,688	50	9
Common Raven	1.05	9,720	37	23
Dark-eyed Junco	45.32	418,439	25	55
Dusky Flycatcher	8.61	79,515	37	31
Evening Grosbeak	1.79	16,498	54	6
Fox Sparrow	6.90	63,747	45	21
Golden-crowned Kinglet	20.80	192,098	55	9
<b>Gray Jay</b>	25.99	239,954	13	35
Hairy Woodpecker	5.21	48,142	46	14
Hammond's Flycatcher	5.38	49,691	50	13
Hermit Thrush	3.40	31,350	35	27
House Wren	0.20	1,812	84	1
Lazuli Bunting	5.71	52,714	61	20
Lincoln's Sparrow	8.78	81,100	61	9
MacGillivray's Warbler	14.86	137,209	44	41
Mountain Chickadee	23.93	220,965	29	28
Northern Flicker	0.66	6,103	51	6
<b>Olive-sided Flycatcher</b>	0.06	590	87	1
Orange-crowned Warbler	3.74	34,573	51	7
Pine Grosbeak	8.11	74,928	68	11
Pine Siskin	48.07	443,855	35	64
Red Crossbill	12.60	116,335	40	15
Red-breasted Nuthatch	46.80	432,180	22	123
<b>Red-naped Sapsucker</b>	0.81	7,498	83	3
Red-tailed Hawk	0.05	421	95	1
Ruby-crowned Kinglet	30.26	279,446	29	46
<b>Sandhill Crane</b>	0.01	50	89	1
Song Sparrow	0.13	1,155	87	1
Spotted Towhee	0.66	6,099	94	4

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Species	Nez Perce NF (S=14)			
	D	N	% CV	n
Steller's Jay	0.17	1,558	100	2
Swainson's Thrush	62.92	580,997	31	195
Townsend's Solitaire	0.80	7,366	46	6
Townsend's Warbler	47.54	438,970	33	126
Varied Thrush	9.19	84,886	35	54
Warbling Vireo	9.31	85,924	44	43
Western Bluebird	0.41	3,796	85	1
Western Tanager	27.72	255,929	20	168
Western Wood-Pewee	0.09	828	84	1
Wild Turkey	0.07	690	88	2
Wilson's Warbler	2.20	20,308	70	3
Yellow-rumped Warbler	33.83	312,392	13	104

Table 119. Estimated proportion of sample units occupied (Psi), percent coefficient of variation of Psi (% CV) and number of transects with one or more detections (n Tran) of breeding bird species in Nez Perce National Forest, 2010. Dashes indicate the data were insufficient for estimating site occupancy. A Psi estimate equal to 1 indicates the species was detected on all transects surveyed. S indicates the number of transects used in analyses. Priority species are bolded.

Species	Nez Perce NF (S=14)		
	Psi	% CV	n Tran
American Three-toed Woodpecker	0.736	39	6
Brown Creeper	0.283	75	2
Calliope Hummingbird	0.095	105	1
Cassin's Finch	0.279	66	3
Cassin's Vireo	0.306	53	5
Chestnut-backed Chickadee	0.405	45	7
<b>Clark's Nutcracker</b>	0.400	50	2
Dusky Flycatcher	0.374	43	7
Dusky Grouse	0.090	101	1
Evening Grosbeak	0.408	54	5
Golden-crowned Kinglet	0.650	37	7
<b>Gray Jay</b>	0.978	4	12
Hairy Woodpecker	0.420	45	7
Hammond's Flycatcher	0.365	48	6
Lazuli Bunting	0.248	66	3
Lincoln's Sparrow	0.465	44	4
MacGillivray's Warbler	0.404	40	8
Nashville Warbler	0.077	64	2
<b>Olive-sided Flycatcher</b>	0.038	95	1
Orange-crowned Warbler	0.255	66	3

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Species	Nez Perce NF (S=14)		
	Psi	% CV	n Tran
<b>Pileated Woodpecker</b>	0.232	36	5
Pine Grosbeak	0.513	41	5
Pine Siskin	0.813	19	12
Red Crossbill	0.788	21	10
<b>Red-naped Sapsucker</b>	0.069	63	2
Ruby-crowned Kinglet	0.676	23	8
Ruffed Grouse	0.155	40	4
Rufous Hummingbird	0.324	77	2
Song Sparrow	0.035	95	1
Spotted Towhee	0.031	95	1
Swainson's Thrush	0.831	18	13
Townsend's Solitaire	0.169	32	5
Townsend's Warbler	0.483	31	11
Veery	0.086	109	1
Warbling Vireo	0.363	44	7
Western Bluebird	0.033	95	1
Wild Turkey	0.091	109	1
Wilson's Warbler	0.145	39	4
Winter Wren	0.357	54	5

**b) Dakota Prairie National Grasslands (not including Sheyenne NG)**

Within this sampling design the Dakota Prairie National Grasslands are split into three strata, Cedar River, Grand River and Little Missouri National Grasslands. This grassland-level stratification distinction is made so we can analyze these data separately for each Grassland, or together as a whole. In this section of this report we present estimates for each Grassland, as well as for the Dakota Prairie Grasslands combined. Since all of the National Grasslands in USFS Region 1 fall within the Dakota Prairie National Grasslands, this section also represents region-wide estimates for Grasslands in Region 1. Note that we did not survey one National Grassland within Region 1 – Sheyenne National Grassland. We did, however, collect data from this grassland using a different study design. For more information on this, refer to the “Monitoring of Grassland Birds on Little Missouri, Sheyenne and Grand River National Grasslands” report (Sparks and Hanni 2011).

Field technicians surveyed 24 of 25 planned transects throughout the Dakota Prairie National Grasslands in 2010. Technicians conducted 239 point counts within the 24 transects between 28 May and 28 June 2010. We detected 91 species, including 9 priority species for the Dakota Prairie National Grasslands (Appendix D).

RMBO estimated densities and population sizes for 66 species, 7 of which are priority species for the Dakota Prairie National Grasslands (Table 120). The data yielded robust density estimates ( $CV < 50\%$ ) for 27 of these species.

We estimated the proportion of transects occupied (Psi) by 50 species, 5 of which are priority species, for the Dakota Prairie National Grasslands (Table 121). The data yielded robust occupancy estimates ( $CV < 50\%$ ) for 20 of these species.

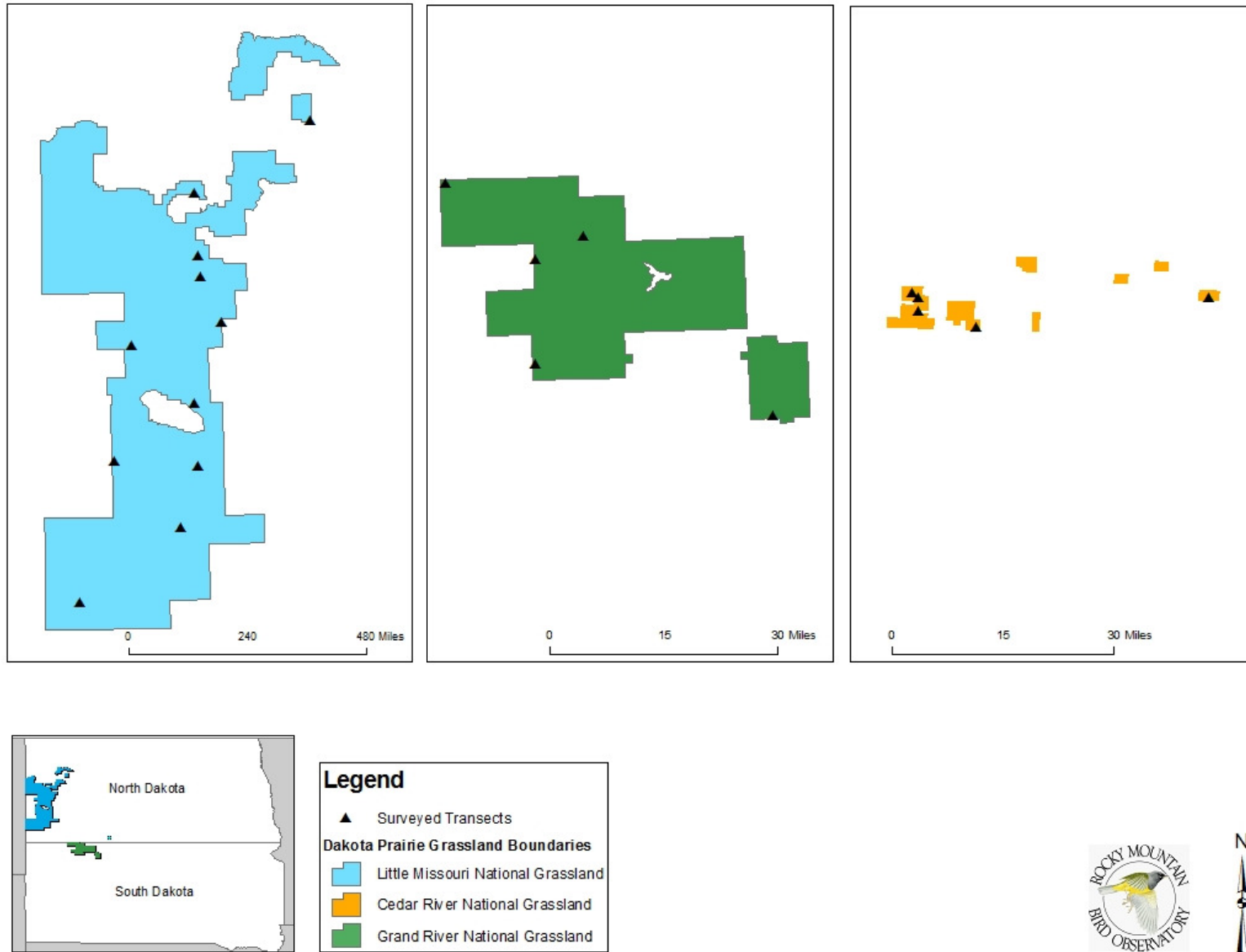


Figure 25. Survey locations in Dakota Prairie National Grasslands, 2010.

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Table 120. Estimated densities per km<sup>2</sup> (D), population sizes (N), percent coefficient of variation of estimates (% CV) and number of independent detections (n) of breeding bird species in the Dakota Prairie National Grasslands, 2010. S indicates the number of transects used in analyses. Priority species are bolded.

Species	Dakota Prairie NG (S=22)				Cedar River NG (S=5)				Grand River NG (S=5)				Little Missouri NG (S=12)			
	D	N	% CV	n	D	N	% CV	n	D	N	% CV	n	D	N	% CV	n
American Crow	1.26	9,681	26	19	--	--	--	--	0.46	474	89	2	1.40	9,207	27	17
American Goldfinch	30.54	234,503	52	15	5.53	464	84	1	7.41	7,614	89	1	34.48	226,424	53	13
American Redstart	3.14	24,124	50	4	--	--	--	--	--	--	--	--	3.67	24,124	50	4
American Robin	7.84	60,229	61	14	--	--	--	--	1.91	1,960	89	1	8.87	58,269	63	13
<b>Baird's Sparrow</b>	2.88	22,077	41	32	6.80	571	39	14	4.56	4,681	66	7	2.56	16,825	50	11
Barn Swallow	31.58	242,480	44	17	34.97	2,937	73	5	18.75	19,260	90	2	33.54	220,282	48	10
Black-billed Magpie	0.17	1,343	79	2	--	--	--	--	--	--	--	--	0.20	1,343	79	2
Black-capped Chickadee	5.93	45,554	78	6	--	--	--	--	--	--	--	--	6.94	45,554	78	6
Bobolink	2.96	22,732	38	31	20.53	1,724	37	20	11.01	11,308	57	8	1.48	9,700	60	3
Brewer's Blackbird	3.29	25,263	81	6	--	--	--	--	1.98	2,031	83	1	3.54	23,232	88	5
Brewer's Sparrow	1.00	7,698	101	2	--	--	--	--	--	--	--	--	1.17	7,698	101	2
Brown-headed Cowbird	69.24	531,612	16	107	72.49	6,089	20	29	67.03	68,844	22	20	69.54	456,679	18	58
Canada Goose	0.08	590	39	5	0.06	5	89	1	0.17	178	55	2	0.06	407	50	2
Chestnut-collared Longspur	16.75	128,577	28	92	48.23	4,051	38	32	121.25	124,525	29	60	--	--	--	--
Chipping Sparrow	13.14	100,866	64	12	--	--	--	--	--	--	--	--	15.36	100,866	64	12
Clay-colored Sparrow	1.43	11,002	64	17	10.45	877	55	13	--	--	--	--	1.54	10,125	69	4
Cliff Swallow	23.04	176,898	57	22	221.12	18,574	55	16	27.65	28,400	110	2	19.78	129,924	74	4
Common Grackle	8.42	64,631	57	6	--	--	--	--	--	--	--	--	9.84	64,631	57	6
Common Nighthawk	0.47	3,586	77	3	2.16	182	85	2	--	--	--	--	0.52	3,404	81	1
Common Yellowthroat	0.38	2,885	85	4	2.54	214	79	3	--	--	--	--	0.41	2,672	91	1
Eastern Kingbird	3.16	24,295	53	18	2.88	242	68	4	5.78	5,939	74	6	2.76	18,114	67	8
Eurasian Collared-Dove	0.02	131	92	1	1.56	131	92	1	--	--	--	--	--	--	--	--
Field Sparrow	8.77	67,323	31	44	--	--	--	--	--	--	--	--	10.25	67,323	31	44
<b>Grasshopper Sparrow</b>	48.56	372,870	16	295	100.12	8,410	9	111	119.73	122,965	12	99	36.77	241,496	24	85
Hairy Woodpecker	0.66	5,067	91	1	--	--	--	--	--	--	--	--	0.77	5,067	91	1
Horned Lark	7.63	58,592	32	51	12.91	1,085	17	16	23.81	24,454	18	22	5.03	33,053	55	13

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Species	Dakota Prairie NG (S=22)				Cedar River NG (S=5)				Grand River NG (S=5)				Little Missouri NG (S=12)			
	D	N	% CV	n	D	N	% CV	n	D	N	% CV	n	D	N	% CV	n
House Wren	10.66	81,876	45	18	--	--	--	--	2.00	2,053	89	1	12.16	79,823	46	17
Killdeer	5.59	42,882	38	19	4.24	356	45	4	5.68	5,833	43	4	5.59	36,693	44	11
Lark Bunting	2.75	21,113	73	13	--	--	--	--	2.38	2,448	66	3	2.84	18,665	82	10
Lark Sparrow	20.59	158,078	32	38	--	--	--	--	--	--	--	--	24.07	158,078	32	38
Lazuli Bunting	3.06	23,476	45	8	--	--	--	--	--	--	--	--	3.57	23,476	45	8
Least Flycatcher	3.09	23,732	84	5	--	--	--	--	--	--	--	--	3.61	23,732	84	5
<b>Loggerhead Shrike</b>	1.00	7,695	95	4	--	--	--	--	--	--	--	--	1.17	7,695	95	4
<b>Long-billed Curlew</b>	0.06	480	91	1	--	--	--	--	--	--	--	--	0.07	480	91	1
Mallard	1.70	13,037	41	10	--	--	--	--	2.38	2,440	48	4	1.61	10,597	49	6
Mountain Bluebird	5.64	43,305	66	7	--	--	--	--	--	--	--	--	6.59	43,305	66	7
Mourning Dove	11.51	88,355	20	59	5.39	452	32	9	4.82	4,945	69	6	12.63	82,957	21	44
Northern Flicker	0.18	1,398	88	1	--	--	--	--	--	--	--	--	0.21	1,398	88	1
<b>Northern Harrier</b>	0.14	1,085	91	1	--	--	--	--	--	--	--	--	0.17	1,085	91	1
Northern Rough-winged Swallow	2.78	21,347	69	3	--	--	--	--	--	--	--	--	3.25	21,347	69	3
Ovenbird	1.50	11,529	91	4	--	--	--	--	--	--	--	--	1.76	11,529	91	4
Pine Siskin	1.01	7,722	82	1	--	--	--	--	--	--	--	--	1.18	7,722	82	1
Red Crossbill	0.95	7,256	83	1	--	--	--	--	--	--	--	--	1.10	7,256	83	1
Red-tailed Hawk	0.43	3,271	86	3	--	--	--	--	--	--	--	--	0.50	3,271	86	3
Red-winged Blackbird	16.65	127,852	41	74	22.41	1,883	40	29	10.36	10,644	38	10	17.56	115,326	45	35
Ring-necked Pheasant	0.85	6,505	26	44	0.89	75	26	12	0.80	818	29	8	0.85	5,612	29	24
Rock Pigeon	2.25	17,285	92	3	--	--	--	--	--	--	--	--	2.63	17,285	92	3
Rock Wren	1.93	14,806	37	17	--	--	--	--	--	--	--	--	2.25	14,806	37	17
Savannah Sparrow	0.29	2,206	70	6	6.14	516	65	5	1.65	1,690	89	1	--	--	--	--
Say's Phoebe	1.74	13,328	29	14	--	--	--	--	0.88	905	89	2	1.89	12,423	31	12
Song Sparrow	0.44	3,391	80	6	4.75	399	84	5	--	--	--	--	0.46	2,992	90	1
Spotted Towhee	31.90	244,942	32	62	--	--	--	--	--	--	--	--	37.30	244,942	32	62
<b>Sprague's Pipit</b>	0.00	37	88	1	0.44	37	88	1	--	--	--	--	--	--	--	--
<b>Swainson's Hawk</b>	0.17	1,343	65	3	--	--	--	--	0.61	626	92	2	0.11	716	92	1
Swainson's Thrush	0.43	3,269	88	1	--	--	--	--	--	--	--	--	0.50	3,269	88	1



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Species	Dakota Prairie NG (S=22)				Cedar River NG (S=5)				Grand River NG (S=5)				Little Missouri NG (S=12)			
	D	N	% CV	n	D	N	% CV	n	D	N	% CV	n	D	N	% CV	n
Tree Swallow	0.10	783	89	2	9.32	783	89	2	--	--	--	--	--	--	--	--
Upland Sandpiper	2.80	21,490	28	43	6.76	568	21	18	6.55	6,724	27	13	2.16	14,198	41	12
Vesper Sparrow	16.36	125,574	22	65	--	--	--	--	4.30	4,414	88	5	18.45	121,160	23	60
Western Kingbird	3.57	27,418	46	16	8.13	683	36	7	4.67	4,796	90	3	3.34	21,940	54	6
Western Meadowlark	27.68	212,537	14	311	18.89	1,587	11	60	28.70	29,479	20	68	27.63	181,471	16	183
Wild Turkey	0.23	1,788	91	2	--	--	--	--	--	--	--	--	0.27	1,788	91	2
Wilson's Snipe	2.10	16,111	74	4	--	--	--	--	2.00	2,049	88	1	2.14	14,062	83	3
Yellow Warbler	27.66	212,374	34	37	--	--	--	--	7.68	7,888	102	3	31.14	204,486	35	34
Yellow-breasted Chat	7.12	54,692	43	27	--	--	--	--	--	--	--	--	8.33	54,692	43	27
Yellow-headed Blackbird	0.02	136	85	2	1.62	136	85	2	--	--	--	--	--	--	--	--
Yellow-rumped Warbler	0.59	4,539	83	1	--	--	--	--	--	--	--	--	0.69	4,539	83	1

Table 121. Estimated proportion of sample units occupied (Psi), percent coefficient of variation of Psi (% CV) and number of transects with one or more detections (n Tran) of breeding bird species in Dakota Prairie National Grasslands, 2010. Dashes indicate the data were insufficient for estimating site occupancy. A Psi estimate equal to 1 indicates the species was detected on all transects surveyed. S indicates the number of transects used in analyses. Priority species are bolded.

Species	Dakota Prairie NG (S=22)			Cedar River NG (S=5)			Grand River NG (S=5)			Little Missouri NG (S=12)		
	Psi	% CV	n Tran	Psi	% CV	n Tran	Psi	% CV	n Tran	Psi	% CV	n Tran
<b>Baird's Sparrow</b>	0.294	41	8	0.630	36	3	0.419	55	2	0.270	50	3
Black-and-white Warbler	0.248	50	3	0	--	0	0	--	0	0.290	50	3
Blue-winged Teal	0.208	75	3	0.372	92	1	0.449	93	1	0.169	99	1
Bobolink	0.210	47	8	0.827	22	4	0.405	55	2	0.171	65	2
Brewer's Sparrow	0.073	96	1	0	--	0	0	--	0	0.086	96	1
Brown Thrasher	0.194	76	2	0	--	0	0.441	94	1	0.158	98	1
Brown-headed Cowbird	0.977	7	21	1	--	5	1	--	5	0.973	9	11
Canada Goose	0.108	96	1	0	--	0	0	--	0	0.126	96	1
Cedar Waxwing	0.705	36	5	0	--	0	0	--	0	0.824	36	5
Chestnut-collared Longspur	0.143	1	9	0.800	22	4	1	--	5	0	--	0

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Species	Dakota Prairie NG (S=22)			Cedar River NG (S=5)			Grand River NG (S=5)			Little Missouri NG (S=12)		
	Psi	% CV	n Tran	Psi	% CV	n Tran	Psi	% CV	n Tran	Psi	% CV	n Tran
Clay-colored Sparrow	0.266	49	5	0.492	55	2	0	--	0	0.305	50	3
Common Nighthawk	0.173	94	2	0.430	90	1	0	--	0	0.197	96	1
Common Yellowthroat	0.128	90	3	0.711	56	2	0	--	0	0.141	96	1
Eastern Kingbird	0.716	26	10	0.549	54	2	0.650	55	2	0.729	28	6
Field Sparrow	0.487	29	6	0	--	0	0	--	0	0.570	29	6
Gadwall	0.063	93	1	0	--	0	0.469	93	1	0	--	0
<b>Grasshopper Sparrow</b>	0.869	11	20	1	--	5	1	--	5	0.846	13	10
Gray Catbird	0.383	52	3	0	--	0	0	--	0	0.448	52	3
Hairy Woodpecker	0.093	96	1	0	--	0	0	--	0	0.109	96	1
Horned Lark	0.365	30	13	1	--	5	1	--	5	0.258	50	3
Lark Bunting	0.270	42	5	0	--	0	0.401	55	2	0.253	50	3
Lark Sparrow	0.699	16	9	0	--	0	0	--	0	0.818	16	9
Lazuli Bunting	0.254	50	3	0	--	0	0	--	0	0.297	50	3
Least Flycatcher	0.250	66	2	0	--	0	0	--	0	0.292	66	2
<b>Loggerhead Shrike</b>	0.211	98	1	0	--	0	0	--	0	0.247	98	1
Marbled Godwit	0.114	38	3	0	--	0	0.853	38	3	0	--	0
Mountain Bluebird	0.256	50	3	0	--	0	0	--	0	0.299	50	3
Northern Rough-winged Swallow	0.268	66	2	0	--	0	0	--	0	0.313	66	2
Northern Shoveler	0.070	96	1	0	--	0	0.524	96	1	0	--	0
Ovenbird	0.078	96	1	0	--	0	0	--	0	0.091	96	1
Pine Siskin	0.077	96	1	0	--	0	0	--	0	0.090	96	1
Red Crossbill	0.083	96	1	0	--	0	0	--	0	0.097	96	1
Red-eyed Vireo	0.158	65	2	0	--	0	0	--	0	0.184	65	2
Rock Wren	0.267	50	3	0	--	0	0	--	0	0.312	50	3
Savannah Sparrow	0.034	72	4	0.614	37	3	0.207	89	1	0	--	0
Say's Phoebe	0.479	46	4	0	--	0	0.408	90	1	0.496	50	3

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Species	Dakota Prairie NG (S=22)			Cedar River NG (S=5)			Grand River NG (S=5)			Little Missouri NG (S=12)		
	Psi	% CV	n Tran	Psi	% CV	n Tran	Psi	% CV	n Tran	Psi	% CV	n Tran
Song Sparrow	0.098	93	2	0.249	89	1	0	--	0	0.111	96	1
Spotted Towhee	0.596	20	8	0	--	0	0	--	0	0.697	20	8
<b>Sprague's Pipit</b>	0.003	90	1	0.234	90	1	0	--	0	0	--	0
<b>Swainson's Hawk</b>	0.324	75	2	0	--	0	0.718	105	1	0.267	109	1
Swainson's Thrush	0.074	96	1	0	--	0	0	--	0	0.087	96	1
Tree Swallow	0.003	89	1	0.235	89	1	0	--	0	0	--	0
Upland Sandpiper	0.329	42	9	1	--	4	0.881	37	3	0.234	65	2
Vesper Sparrow	0.699	16	10	0	--	0	0.204	89	1	0.785	17	9
Western Meadowlark	0.929	7	21	1	--	5	1	--	5	0.917	9	11
Willow Flycatcher	0.099	97	1	0	--	0	0	--	0	0.116	97	1
Wilson's Phalarope	0.268	58	3	0	--	0	0.330	91	1	0.262	66	2
Wilson's Snipe	0.270	56	3	0	--	0	0.332	90	1	0.264	65	2
Yellow Warbler	0.682	19	9	0	--	0	0.229	89	1	0.762	20	8
Yellow-breasted Chat	0.509	28	6	0	--	0	0	--	0	0.596	28	6

**2. US Forest Service Region 2**

Table 122. Planned and completed surveys in U.S. Forest Service Region 2, by stratum, 2010.

Strata Name	State	BCR	Strata Code	Area (km <sup>2</sup> )	Planned	Completed	% Completed
<b>Region 2 National Forests</b>							
Arapaho-Roosevelt National Forest	CO	16	AR	9,645	10	9	90%
Bighorn National Forest	WY	10	BI	4,712	10	10	100%
Black Hills National Forest	SD	17	BH	5,482	75	68	91%
Black Hills National Forest	WY	17	BH	1,085	15	15	100%
Grand Mesa, Uncompahgre and Gunnison National Forests	CO	16	GM	13,630	10	9	90%
Medicine Bow National Forest	WY	10	MB	773	2	2	100%
Medicine Bow National Forest	WY	16	MB	5,329	23	23	100%
Nebraska National Forest	NE	18	NE	360	4	0	0%
Pike-San Isabel National Forest	CO	16	PS	10,968	10	5	50%
Rio Grande National Forest	CO	16	RI	8,170	10	9	90%
Routt National Forest	CO	16	RO	5,123	24	22	92%
San Juan National Forest	CO	16	SA	8,794	10	8	80%
Shoshone National Forest – Roaded/Managed	WY	10	SE	2,101	18	18	100%
Shoshone National Forest – Roadless/Wilderness	WY	10	SR	8,311	5	5	100%
White River National Forest	CO	16	WH	8,814	10	10	100%
				<b>Subtotal</b>	<b>236</b>	<b>213</b>	<b>90%</b>
<b>Region 2 National Grasslands</b>							
Buffalo Gap National Grassland	SD	17	BG	3,611	4	3	75%
Cimarron National Grassland	KS	18	CI	690	4	0	0%
Comanche National Grassland	CO	18	CO	4,836	8	8	100%
Fort Pierre National Grassland	SD	17	FP	716	4	4	100%
Oglala National Grassland	NE	17	OG	550	4	2	50%
Oglala National Grassland	NE	18	OG	61	2	0	0%

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<b>Strata Name</b>	<b>State</b>	<b>BCR</b>	<b>Strata Code</b>	<b>Area (km<sup>2</sup>)</b>	<b>Planned</b>	<b>Completed</b>	<b>% Completed</b>
Pawnee National Grassland	CO	18	PA	3,268	10	10	100%
Thunder Basin National Grassland	WY	17	TB	4,520	10	10	100%
				<b>Subtotal</b>	<b>46</b>	<b>37</b>	<b>80%</b>
				Grand Total	282	250	89%

**a) National Forests**

Within this sampling design each National Forest in Region 2 is stratified separately. This forest-level stratification distinction is made so we can analyze the data separately for each Forest, or together as a whole. In this section of the report, we present estimates for all Region 2 Forests combined, followed by estimates for each individual Forest.

Note that we did not survey the Pine Ridge portion of the Nebraska National Forest due to a planning error. The samples missed on the Pine Ridge in 2010 will be added to the 2011 sampling plan. The Bessey portion of the Nebraska National Forest and the Samuel R. McKelvie portion of the Nebraska National Forest were not surveyed in 2010 because the IMBCR program had not yet expanded into BCR 19. These two units will receive sampling in 2011.

**(1) Region 2 National Forests: Total**

Field technicians surveyed 213 of 236 planned transects throughout USFS Region 2 Forests in 2010. Technicians conducted 2,319 point counts within the 213 transects between 4 June and 30 July 2010. We detected 151 species, including 19 priority species as designated by USFS Region 2 (Appendix E).

RMBO estimated densities and population sizes for 110 species, 4 of which are priority species in USFS Region 2 (Table 123). The data yielded robust density estimates (CV < 50%) for 74 of these species.

We estimated the proportion of transects occupied (Psi) by 88 species, 6 of which are priority species in USFS Region 2 (Table 124). The data yielded robust occupancy estimates (CV < 50%) for 48 of these species.

Table 123. Estimated densities per km<sup>2</sup> (D), population sizes (N), percent coefficient of variation of estimates (% CV) and number of independent detections (n) of breeding bird species in National Forests in Region 2, 2010. S indicates the number of transects used in analyses. Priority species are bolded.

Species	USFS Region 2 NF (S=203)			
	D	N	% CV	n
American Crow	0.34	31,398	34	104
American Goldfinch	2.82	262,078	23	47
American Kestrel	0.10	9,289	35	5
American Pipit	2.58	239,802	48	69
American Redstart	0.05	4,353	49	4
American Robin	47.30	4,395,971	8	1303
<b>American Three-toed Woodpecker</b>	2.00	185,543	27	42
Ash-throated Flycatcher	0.12	10,699	83	2
Barn Swallow	0.47	43,322	74	9
Black-billed Magpie	0.15	14,378	37	24
Black-capped Chickadee	13.69	1,272,692	8	498
Black-headed Grosbeak	2.84	263,983	31	62
Blue-gray Gnatcatcher	2.44	226,567	67	15

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Species	USFS Region 2 NF (S=203)			
	D	N	% CV	n
Brewer's Blackbird	0.52	48,589	58	17
<b>Brewer's Sparrow</b>	0.94	87,384	32	73
Broad-tailed Hummingbird	21.14	1,964,881	25	95
Brown Creeper	7.25	673,732	21	74
Brown-headed Cowbird	3.17	294,744	17	126
Bullock's Oriole	0.09	7,955	71	7
Bushtit	0.28	26,188	65	2
Canada Goose	0.01	1,301	88	4
Canyon Wren	0.00	113	91	1
Cassin's Finch	1.49	138,398	22	55
Chipping Sparrow	29.98	2,786,466	9	692
Clark's Nutcracker	2.52	234,296	21	128
Cliff Swallow	2.24	208,577	75	12
Common Grackle	0.35	32,636	54	11
Common Nighthawk	0.14	12,828	38	16
Common Raven	0.73	68,120	30	109
Common Yellowthroat	0.11	9,983	46	17
Cordilleran Flycatcher	3.49	324,148	26	70
Dark-eyed Junco	74.00	6,877,606	8	1035
Downy Woodpecker	2.29	212,823	26	44
Dusky Flycatcher	12.45	1,156,622	21	235
Eastern Kingbird	0.03	2,860	62	7
Eurasian Collared-Dove	0.01	888	98	1
European Starling	0.06	5,797	72	3
Evening Grosbeak	0.48	44,994	31	19
Fox Sparrow	0.02	2,049	47	3
Golden-crowned Kinglet	7.95	738,860	46	26
<b>Grasshopper Sparrow</b>	0.10	9,646	49	18
Gray Flycatcher	0.02	2,238	87	1
Gray Jay	8.81	818,801	23	138
Green-tailed Towhee	11.53	1,071,112	27	256
Hairy Woodpecker	8.09	751,909	15	186
Hammond's Flycatcher	2.70	250,718	30	32
Hermit Thrush	14.61	1,357,472	13	800
Horned Lark	0.26	23,780	42	27
House Finch	2.24	208,472	79	13
House Wren	16.71	1,552,568	25	308
Killdeer	0.03	2,418	62	3
Lark Bunting	0.04	3,372	84	1
Lark Sparrow	0.87	81,180	41	68
Lazuli Bunting	0.48	45,046	45	23

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Species	USFS Region 2 NF (S=203)			
	D	N	% CV	n
Least Flycatcher	0.02	1,713	66	2
Lincoln's Sparrow	8.01	744,165	17	160
MacGillivray's Warbler	6.92	642,930	33	177
Mallard	0.04	3,265	53	4
Mountain Bluebird	6.84	635,956	24	171
Mountain Chickadee	41.60	3,866,024	11	584
Mourning Dove	1.64	152,013	15	209
Northern Flicker	3.02	280,475	17	302
<b>Olive-sided Flycatcher</b>	0.77	72,002	26	52
Orange-crowned Warbler	7.39	686,380	32	54
Ovenbird	0.58	53,740	16	99
Pine Grosbeak	3.23	300,035	22	52
Pine Siskin	37.05	3,443,340	14	511
Pinyon Jay	0.01	718	83	5
Plumbeous Vireo	1.00	92,920	36	71
Pygmy Nuthatch	3.62	336,701	35	18
Red Crossbill	9.62	894,090	15	293
Red-breasted Nuthatch	12.56	1,166,855	15	498
Red-headed Woodpecker	0.09	7,989	122	4
Red-naped Sapsucker	4.10	381,425	23	138
Red-tailed Hawk	0.29	26,756	27	27
Red-winged Blackbird	0.71	66,257	44	51
Rock Pigeon	0.01	1,040	93	1
Rock Wren	0.84	78,161	36	126
Ruby-crowned Kinglet	30.84	2,866,192	10	798
Sage Thrasher	0.00	168	83	1
Sandhill Crane	0.00	54	92	1
Savannah Sparrow	0.17	16,137	88	21
Say's Phoebe	0.01	1,335	62	3
Song Sparrow	2.16	200,282	43	74
Spotted Sandpiper	0.10	9,439	56	18
Spotted Towhee	8.29	770,737	65	192
Steller's Jay	1.96	182,619	20	61
Swainson's Hawk	0.01	586	57	3
Swainson's Thrush	2.77	257,748	24	123
Townsend's Solitaire	6.66	618,559	23	174
Tree Swallow	13.82	1,284,350	28	86
Vesper Sparrow	0.98	91,457	23	147
Violet-green Swallow	6.56	609,445	25	68
Virginia's Warbler	8.29	770,030	77	56
Warbling Vireo	17.12	1,590,906	18	571



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Species	USFS Region 2 NF (S=203)			
	D	N	% CV	n
Western Bluebird	0.55	51,003	51	3
Western Kingbird	0.06	5,939	83	9
Western Meadowlark	0.17	15,437	38	64
Western Scrub-Jay	0.04	3,976	85	1
Western Tanager	9.00	836,167	14	395
Western Wood-Pewee	7.42	689,455	23	407
White-breasted Nuthatch	3.03	281,291	18	89
White-crowned Sparrow	11.56	1,074,140	18	269
White-throated Swift	0.01	507	86	2
Wild Turkey	0.01	1,163	45	7
Wilson's Snipe	0.19	17,751	50	11
Wilson's Warbler	4.42	410,758	43	29
Yellow Warbler	2.72	253,190	33	62
Yellow-breasted Chat	0.01	1,285	73	4
Yellow-rumped Warbler	43.62	4,054,275	8	1033

Table 124. Estimated proportion of sample units occupied (Psi), percent coefficient of variation of Psi (% CV) and number of transects with one or more detections (n Tran) of breeding bird species in National Forests in Region 2, 2010. Dashes indicate the data were insufficient for estimating site occupancy. A Psi estimate equal to 1 indicates the species was detected on all transects surveyed. S indicates the number of transects used in analyses. Priority species are bolded.

Species	USFS Region 2 NF (S=203)		
	Psi	% CV	n Tran
American Pipit	0.056	41	8
<b>American Three-toed Woodpecker</b>	0.178	25	23
Ash-throated Flycatcher	0.017	94	1
Bank Swallow	0.002	70	2
Black Rosy-Finch	0.038	59	4
Black-and-white Warbler	0.001	99	1
Black-billed Magpie	0.087	36	9
Blue Jay	0.004	49	4
Blue-gray Gnatcatcher	0.032	62	3
<b>Brewer's Sparrow</b>	0.048	40	14
Broad-tailed Hummingbird	0.472	11	50
Brown Creeper	--	--	51
Brown-headed Cowbird	0.220	22	59
Bullock's Oriole	0.002	69	2
Bushtit	0.039	69	2
Calliope Hummingbird	0.005	108	1
Canada Goose	0.015	94	1

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Species	USFS Region 2 NF (S=203)		
	Psi	% CV	n Tran
Canyon Wren	0.002	99	1
Cassin's Finch	0.249	16	36
Cedar Waxwing	0.018	59	5
Clark's Nutcracker	0.299	16	35
Common Nighthawk	0.028	36	9
Common Yellowthroat	0.020	34	9
Cordilleran Flycatcher	0.361	15	46
Downy Woodpecker	0.249	23	35
Dusky Flycatcher	0.342	15	71
Dusky Grouse	0.181	53	8
Eastern Kingbird	0.005	57	3
European Starling	0.004	75	2
Evening Grosbeak	0.105	38	13
Golden-crowned Kinglet	0.159	29	18
<b>Grasshopper Sparrow</b>	0.009	39	7
Gray Catbird	0.006	72	1
Gray Flycatcher	0.005	67	2
Gray Jay	0.313	15	60
Green-tailed Towhee	0.222	16	34
Hairy Woodpecker	0.553	11	93
Hammond's Flycatcher	0.156	27	17
Horned Lark	0.019	60	6
Lark Bunting	0.012	94	1
Lark Sparrow	0.025	28	16
Lazuli Bunting	0.044	42	10
Least Flycatcher	0.004	72	2
<b>Lewis's Woodpecker</b>	0.035	55	7
Lincoln's Sparrow	0.295	15	41
MacGillivray's Warbler	0.262	15	51
Mountain Bluebird	0.268	15	74
Northern Rough-winged Swallow	0.002	98	1
<b>Olive-sided Flycatcher</b>	0.185	21	28
Orange-crowned Warbler	0.178	21	16
Ovenbird	0.037	13	35
Pine Grosbeak	0.220	19	26
Pine Siskin	0.574	9	115
Pinyon Jay	0.013	94	1
Plumbeous Vireo	0.107	30	37
<b>Purple Martin</b>	0.011	95	1
Pygmy Nuthatch	0.128	28	12
Red Crossbill	0.364	13	92

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Species	USFS Region 2 NF (S=203)		
	Psi	% CV	n Tran
Red-eyed Vireo	0.002	70	2
Red-naped Sapsucker	0.220	19	53
Rock Wren	0.099	29	22
Ruby-crowned Kinglet	0.683	7	122
Rufous Hummingbird	0.042	72	2
Sage Thrasher	0.001	97	1
Savannah Sparrow	0.001	97	1
Say's Phoebe	0.029	66	3
Song Sparrow	0.108	23	25
Sora	0.003	98	1
Spotted Towhee	0.062	33	29
Swainson's Hawk	0.013	75	2
Swainson's Thrush	0.142	21	41
Townsend's Solitaire	0.424	12	73
Tree Swallow	0.182	18	32
Veery	0.022	72	5
Vesper Sparrow	0.089	31	26
Virginia's Warbler	0.039	56	3
Warbling Vireo	0.536	8	90
Western Bluebird	0.041	56	3
Western Meadowlark	0.022	53	8
Western Scrub-Jay	0.017	94	1
White-throated Swift	0.003	70	2
White-winged Crossbill	0.060	55	3
Wild Turkey	0.025	70	6
Williamson's Sapsucker	0.081	43	8
Willow Flycatcher	0.010	52	4
Wilson's Snipe	0.023	40	6
Wilson's Warbler	0.103	26	15
Yellow Warbler	0.146	26	27
Yellow-breasted Chat	0.002	70	2

**(2) Arapaho-Roosevelt National Forest**

Field technicians surveyed 9 of 10 planned transects throughout the Arapaho-Roosevelt National Forest in 2010. Technicians conducted 100 point counts within the 9 transects between 5 June and 30 July 2010. We detected 56 species, including 6 priority species for the Arapaho-Roosevelt National Forest (Appendix E).

RMBO estimated densities and population sizes for 44 species, 6 of which are priority species for Arapaho-Roosevelt National Forest (Table 125). The data yielded robust density estimates ( $CV < 50\%$ ) for 11 of these species.

We estimated the proportion of transects occupied ( $\Psi$ ) by 27 species, 6 of which are priority species for Arapaho-Roosevelt National Forest (Table 126). The data yielded robust occupancy estimates ( $CV < 50\%$ ) for six of these species.

This monitoring design and current sampling intensity is providing population information for four of the seven species designated as Management Indicators for Arapaho-Roosevelt National Forest. This includes density and occupancy estimates for Golden-crowned Kinglet, Hairy Woodpecker, Mountain Bluebird, Pygmy Nuthatch and Warbling Vireo.



Figure 26. Survey locations in Arapaho-Roosevelt National Forest, 2010.

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Table 125. Estimated densities per km<sup>2</sup> (D), population sizes (N), percent coefficient of variation of estimates (% CV) and number of independent detections (n) of breeding bird species in Arapaho-Roosevelt National Forest, 2010. S indicates the number of transects used in analyses. Priority species are bolded.

Species	Arapaho-Roosevelt NF (S=9)			
	D	N	% CV	n
American Crow	0.10	978	83	1
American Robin	40.30	388,668	38	48
Black-billed Magpie	0.13	1,213	91	1
Broad-tailed Hummingbird	40.21	387,777	42	14
Brown Creeper	4.77	45,961	83	2
Chipping Sparrow	14.46	139,424	38	10
Clark's Nutcracker	2.50	24,094	71	6
Common Raven	0.10	989	84	1
Cordilleran Flycatcher	1.70	16,444	83	2
Dark-eyed Junco	104.86	1,011,333	18	75
Downy Woodpecker	1.36	13,073	93	1
Dusky Flycatcher	0.93	8,943	83	1
<b>Golden-crowned Kinglet</b>	7.61	73,441	101	2
Gray Jay	21.04	202,974	54	14
<b>Hairy Woodpecker</b>	18.98	183,078	36	20
Hermit Thrush	23.78	229,394	45	92
Horned Lark	0.95	9,186	83	2
Lark Bunting	0.35	3,372	84	1
Lincoln's Sparrow	5.21	50,220	81	4
MacGillivray's Warbler	0.91	8,816	83	1
<b>Mountain Bluebird</b>	10.43	100,582	61	9
Mountain Chickadee	78.51	757,188	22	76
Mourning Dove	1.06	10,218	86	3
<b>Olive-sided Flycatcher</b>	1.72	16,570	84	6
Pine Grosbeak	2.26	21,760	86	2
Pine Siskin	69.42	669,556	43	48
<b>Pygmy Nuthatch</b>	8.93	86,147	75	4
Red Crossbill	9.51	91,752	73	7
Red-breasted Nuthatch	23.02	222,013	63	29
Red-naped Sapsucker	1.21	11,700	86	1
Red-tailed Hawk	0.20	1,970	95	1
Red-winged Blackbird	3.19	30,787	84	7
Ruby-crowned Kinglet	57.67	556,222	34	76
Song Sparrow	1.12	10,809	92	2
Steller's Jay	2.27	21,878	70	6
Swainson's Thrush	1.84	17,719	95	3
Townsend's Solitaire	4.17	40,230	49	7

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Species	Arapaho-Roosevelt NF (S=9)			
	D	N	% CV	n
Violet-green Swallow	1.58	15,268	84	1
<b>Warbling Vireo</b>	2.79	26,866	58	5
Western Tanager	1.05	10,109	101	2
Western Wood-Pewee	1.21	11,624	96	3
White-breasted Nuthatch	1.92	18,552	67	2
White-crowned Sparrow	10.44	100,706	65	12
Yellow-rumped Warbler	44.21	426,403	30	52

Table 126. Estimated proportion of sample units occupied (Psi), percent coefficient of variation of Psi (% CV) and number of transects with one or more detections (n Tran) of breeding bird species in Arapaho-Roosevelt National Forest, 2010. Dashes indicate the data were insufficient for estimating site occupancy. A Psi estimate equal to 1 indicates the species was detected on all transects surveyed. S indicates the number of transects used in analyses. Priority species are bolded.

Species	Arapaho-Roosevelt NF (S=9)		
	Psi	% CV	n Tran
Black-billed Magpie	0.136	94	1
Broad-tailed Hummingbird	0.832	23	6
Brown Creeper	0.170	94	1
Clark's Nutcracker	0.133	94	1
Cordilleran Flycatcher	0.153	94	1
Downy Woodpecker	0.201	95	1
Dusky Flycatcher	0.118	94	1
<b>Golden-crowned Kinglet</b>	0.151	94	1
Gray Jay	0.562	37	4
<b>Hairy Woodpecker</b>	0.921	23	6
Horned Lark	0.111	94	1
Lark Bunting	0.111	94	1
Lincoln's Sparrow	0.258	62	2
MacGillivray's Warbler	0.120	94	1
<b>Mountain Bluebird</b>	0.250	62	2
<b>Olive-sided Flycatcher</b>	0.149	94	1
Pine Grosbeak	0.136	94	1
Pine Siskin	0.574	30	5
<b>Pygmy Nuthatch</b>	0.229	62	2
Red Crossbill	0.241	62	2
Red-naped Sapsucker	0.131	94	1
Ruby-crowned Kinglet	0.559	30	5
Song Sparrow	0.139	94	1
Swainson's Thrush	0.226	62	2
Townsend's Solitaire	0.414	47	3

Species	Arapaho-Roosevelt NF (S=9)		
	Psi	% CV	n Tran
Warbling Vireo	0.229	62	2
Western Meadowlark	0.112	94	1

**(3) Bighorn National Forest**

Field technicians surveyed all 10 planned transects throughout the Bighorn National Forest in 2010. Technicians conducted 95 point counts within the 10 transects between 5 June and 7 July 2010. We detected 44 species, including 3 priority species for Bighorn National Forest (Appendix E).

RMBO estimated densities and population sizes for 36 species, 3 of which are priority species for Bighorn National Forest (Table 127). The data yielded robust density estimates (CV < 50%) for eight of these species.

We estimated the proportion of transects occupied (Psi) by 25 species, 2 of which are priority species for Bighorn National Forest (Table 128). The data yielded robust occupancy estimates (CV < 50%) for eight of these species.

This monitoring design and current sampling intensity is providing population information for both species designated as Management Indicators for Bighorn National Forest. This includes density and occupancy estimates for Brewer’s Sparrow and density estimates for Red-breasted Nuthatch.



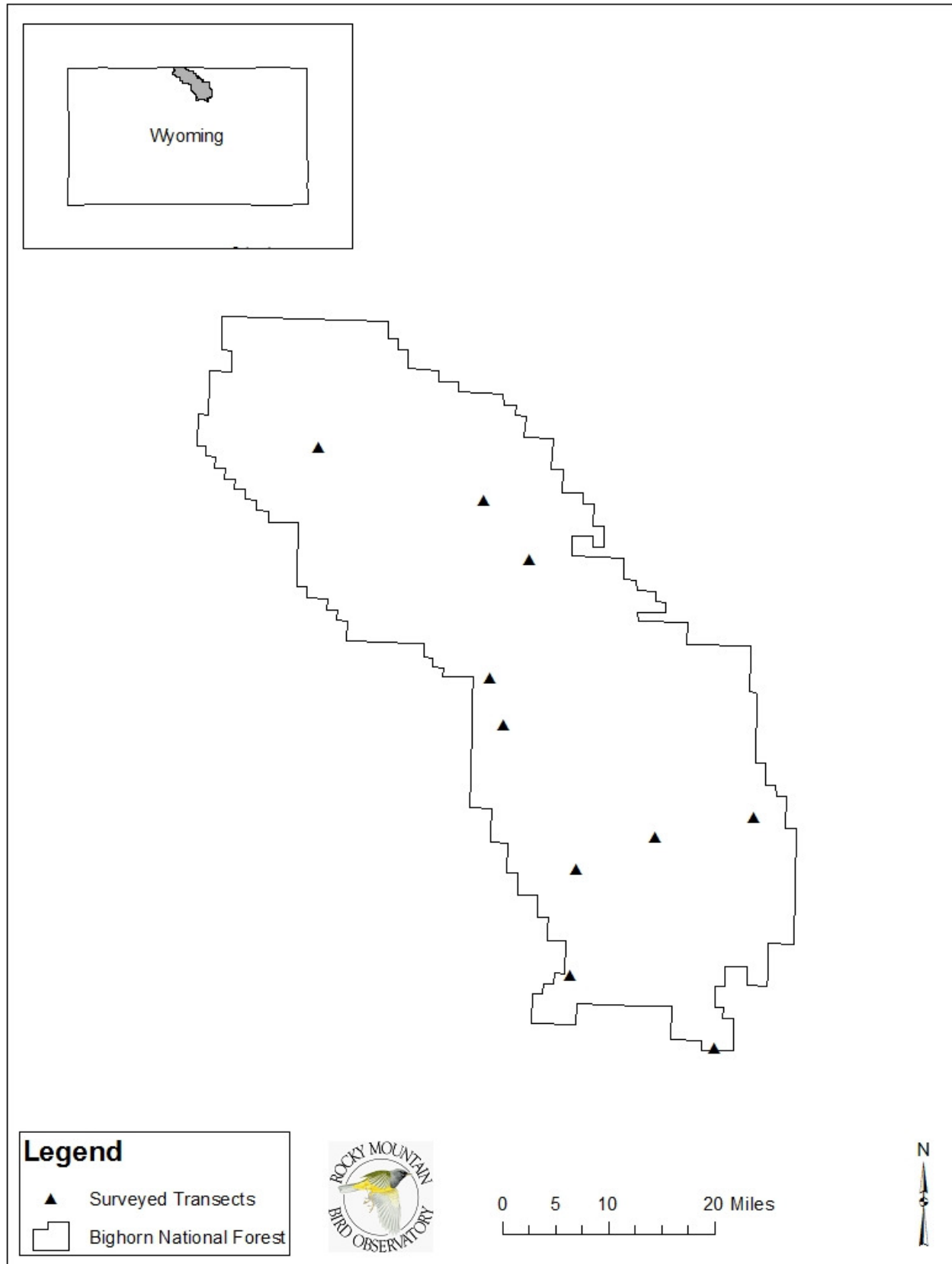


Figure 27. Survey locations in Bighorn National Forest, 2010.

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Table 127. Estimated densities per km<sup>2</sup> (D), population sizes (N), percent coefficient of variation of estimates (% CV) and number of independent detections (n) of breeding bird species in Bighorn National Forest, 2010. S indicates the number of transects used in analyses. Priority species are bolded.

Species	Bighorn NF (S=10)			
	D	N	% CV	n
American Crow	0.21	1,006	85	2
American Goldfinch	6.87	32,362	107	2
American Pipit	3.14	14,807	73	4
American Robin	48.60	229,023	15	55
Black-billed Magpie	0.13	624	84	1
Black-capped Chickadee	107.78	507,844	17	72
<b>Brewer's Sparrow</b>	1.52	7,151	103	2
Brown Creeper	5.02	23,636	60	2
Chipping Sparrow	85.87	404,642	23	52
Clark's Nutcracker	1.32	6,206	89	4
Common Grackle	3.66	17,233	85	2
Dark-eyed Junco	2.94	13,869	82	2
Downy Woodpecker	8.56	40,337	74	6
Dusky Flycatcher	4.88	22,996	48	5
Gray Jay	6.33	29,823	41	4
Hairy Woodpecker	3.00	14,122	70	3
Lark Sparrow	7.10	33,468	87	11
MacGillivray's Warbler	3.85	18,134	54	4
Mountain Bluebird	1.22	5,747	91	1
Northern Flicker	0.55	2,598	50	2
<b>Olive-sided Flycatcher</b>	0.90	4,261	87	3
Orange-crowned Warbler	7.17	33,806	55	5
Pine Siskin	1.52	7,173	88	1
<b>Red-breasted Nuthatch</b>	1.68	7,913	79	2
Red-tailed Hawk	0.64	3,039	53	3
Rock Wren	1.37	6,473	84	8
Ruby-crowned Kinglet	35.94	169,366	20	45
Say's Phoebe	0.20	962	82	1
Spotted Towhee	0.78	3,670	84	1
Swainson's Thrush	35.45	167,056	31	55
Townsend's Solitaire	2.51	11,822	39	4
Vesper Sparrow	0.40	1,876	84	1
Violet-green Swallow	5.00	23,554	83	3
Western Wood-Pewee	3.81	17,934	53	9
Wilson's Warbler	10.37	48,886	105	3
Yellow Warbler	8.30	39,111	61	7

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Table 128. Estimated proportion of sample units occupied (Psi), percent coefficient of variation of Psi (% CV) and number of transects with one or more detections (n Tran) of breeding bird species in Bighorn National Forest, 2010. Dashes indicate the data were insufficient for estimating site occupancy. A Psi estimate equal to 1 indicates the species was detected on all transects surveyed. S indicates the number of transects used in analyses. Priority species are bolded.

Species	Bighorn NF (S=10)		
	Psi	% CV	n Tran
American Pipit	0.200	63	2
Black Rosy-Finch	0.290	66	2
<b>Brewer's Sparrow</b>	0.100	95	1
Brown Creeper	0.329	63	2
Cedar Waxwing	0.195	96	1
Clark's Nutcracker	0.124	95	1
Downy Woodpecker	0.395	64	2
Dusky Flycatcher	0.335	48	3
Gray Jay	0.396	48	3
Hairy Woodpecker	0.273	63	2
Lark Sparrow	0.107	95	1
MacGillivray's Warbler	0.342	48	3
Mountain Bluebird	0.234	63	2
<b>Olive-sided Flycatcher</b>	0.148	95	1
Orange-crowned Warbler	0.368	48	3
Pine Siskin	0.105	95	1
Rock Wren	0.118	95	1
Ruby-crowned Kinglet	0.908	11	9
Say's Phoebe	0.180	95	1
Spotted Towhee	0.102	95	1
Swainson's Thrush	0.821	16	8
Townsend's Solitaire	0.620	31	5
Vesper Sparrow	0.101	95	1
Wilson's Warbler	0.132	95	1
Yellow Warbler	0.340	48	3

**(4) Black Hills National Forest**

Within this sampling design the Black Hills National Forest is split into two strata because the National Forest occurs in both the states of South Dakota and Wyoming. However this state level stratification distinction is made for the benefit of the state partners to allow for the summation of the data for individual states. In this section of this report these two strata are combined to the administrative area of the Black Hills National Forest lands.

Field technicians surveyed 83 of 90 planned transects throughout Black Hills National Forest in 2010. Technicians conducted 758 point counts within the 83 transects between 5 June and 21 July 2010. We detected 96 species, including 14 priority species, for the Black Hills National Forest (Appendix E).

RMBO estimated densities and population sizes for 74 species, 6 of which are priority species for Black Hills National Forest (Table 129). The data yielded robust density estimates ( $CV < 50\%$ ) for 46 of these species.

We estimated the proportion of transects occupied ( $\Psi$ ) by 51 species, 8 of which are priority species for Black Hills National Forest (Table 130). The data yielded robust occupancy estimates ( $CV < 50\%$ ) for 30 of these species.

This monitoring design and current sampling intensity is providing population information for four of the six species designated as Management Indicators for Black Hills National Forest. This includes density and occupancy estimates for the Brown Creeper, Golden-crowned Kinglet, Grasshopper Sparrow and Song Sparrow.

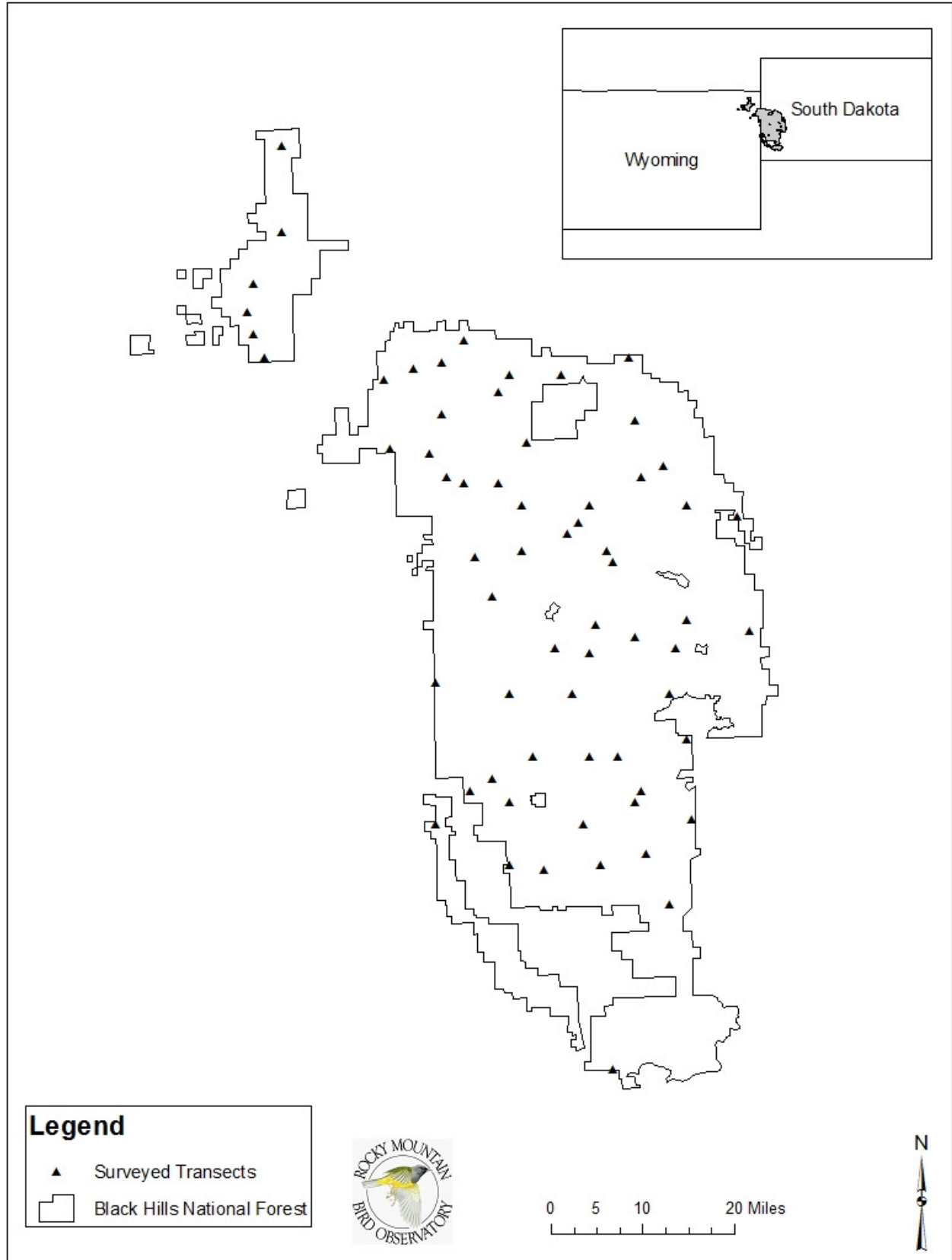


Figure 28. Survey locations in Black Hills National Forest, 2010.

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Table 129. Estimated densities per km<sup>2</sup> (D), population sizes (N), percent coefficient of variation of estimates (% CV) and number of independent detections (n) of breeding bird species in Black Hills National Forest, 2010. S indicates the number of transects used in analyses. Priority species are bolded.

Species	Black Hills NF (S=73)			
	D	N	% CV	n
American Crow	1.09	7,140	20	72
American Goldfinch	28.00	183,904	25	38
American Kestrel	0.03	228	83	1
American Redstart	0.66	4,353	49	4
American Robin	64.18	421,444	6	492
Barn Swallow	6.60	43,322	74	9
Black-capped Chickadee	104.74	687,850	8	400
Black-headed Grosbeak	0.41	2,684	48	6
Brewer's Blackbird	0.26	1,677	88	2
<b>Brewer's Sparrow</b>	0.77	5,046	65	6
<b>Brown Creeper</b>	9.20	60,419	22	24
Brown-headed Cowbird	23.12	151,809	13	106
Bullock's Oriole	1.21	7,955	71	7
Cassin's Finch	1.42	9,322	30	13
Chipping Sparrow	108.65	713,527	7	440
Cliff Swallow	8.03	52,752	55	9
Common Grackle	1.78	11,716	79	7
Common Nighthawk	0.94	6,143	38	10
Common Raven	0.07	479	52	4
Common Yellowthroat	1.12	7,360	55	14
Cordilleran Flycatcher	2.38	15,605	24	19
Dark-eyed Junco	55.38	363,649	11	255
Downy Woodpecker	1.59	10,447	38	8
Dusky Flycatcher	9.52	62,536	20	70
Eastern Kingbird	0.44	2,860	62	7
Eurasian Collared-Dove	0.14	888	98	1
European Starling	0.19	1,253	83	1
<b>Golden-crowned Kinglet</b>	0.56	3,668	84	1
<b>Grasshopper Sparrow</b>	1.33	8,716	54	17
Gray Jay	7.72	50,688	25	35
Hairy Woodpecker	8.69	57,078	15	62
Hermit Thrush	0.04	249	87	1
House Finch	0.18	1,191	90	1
House Wren	5.52	36,228	23	39
Lark Sparrow	5.43	35,681	31	50
Least Flycatcher	0.26	1,713	66	2
MacGillivray's Warbler	13.64	89,547	17	100

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Species	Black Hills NF (S=73)			
	D	N	% CV	n
Mountain Bluebird	17.63	115,761	15	98
Mourning Dove	8.76	57,506	12	157
Northern Flicker	5.33	34,994	15	137
<b>Olive-sided Flycatcher</b>	0.20	1,336	44	4
Ovenbird	8.10	53,167	16	98
Pine Siskin	16.32	107,172	18	69
Pinyon Jay	0.11	718	83	5
Plumbeous Vireo	3.76	24,716	19	54
Pygmy Nuthatch	2.03	13,362	57	6
Red Crossbill	43.71	287,016	13	219
Red-breasted Nuthatch	39.79	261,296	9	310
Red-headed Woodpecker	1.22	7,989	122	4
Red-naped Sapsucker	20.40	133,982	18	106
Red-tailed Hawk	0.28	1,854	43	9
Red-winged Blackbird	1.20	7,908	35	18
Rock Pigeon	0.16	1,040	93	1
Rock Wren	1.11	7,263	33	46
Ruby-crowned Kinglet	8.68	57,023	15	78
Say's Phoebe	0.06	374	61	2
<b>Song Sparrow</b>	0.49	3,239	55	6
Spotted Towhee	12.40	81,422	22	114
Swainson's Thrush	4.85	31,859	18	54
Townsend's Solitaire	5.44	35,718	20	58
Tree Swallow	0.40	2,649	83	1
Vesper Sparrow	3.39	22,268	33	59
Violet-green Swallow	1.86	12,201	39	8
Warbling Vireo	13.40	88,024	14	164
Western Kingbird	0.90	5,939	83	9
Western Meadowlark	0.74	4,832	45	27
Western Tanager	10.84	71,190	12	141
Western Wood-Pewee	11.93	78,373	13	197
White-breasted Nuthatch	8.18	53,697	17	55
White-throated Swift	0.08	507	86	2
Wild Turkey	0.18	1,163	45	7
Yellow Warbler	2.12	13,939	56	12
Yellow-breasted Chat	0.20	1,285	73	4
Yellow-rumped Warbler	24.50	160,891	14	196

Table 130. Estimated proportion of sample units occupied (Psi), percent coefficient of variation of Psi (% CV) and number of transects with one or more detections (n Tran) of breeding bird species in Black Hills National Forest, 2010. Dashes indicate the data were insufficient for

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estimating site occupancy. A Psi estimate equal to 1 indicates the species was detected on all transects surveyed. S indicates the number of transects used in analyses. Priority species are bolded.

Species	Black Hills NF (S=73)		
	Psi	% CV	n Tran
<b>American Three-toed Woodpecker</b>	0.026	100	1
Bank Swallow	0.033	70	2
Black-and-white Warbler	0.016	99	1
Blue Jay	0.062	49	4
<b>Brewer's Sparrow</b>	0.023	66	2
<b>Brown Creeper</b>	--	--	18
Brown-headed Cowbird	0.643	8	44
Bullock's Oriole	0.035	69	2
Cassin's Finch	0.160	31	8
Cedar Waxwing	0.087	60	3
Common Nighthawk	0.199	42	6
Common Yellowthroat	0.176	38	7
Cordilleran Flycatcher	0.306	23	15
Downy Woodpecker	0.248	32	9
Dusky Flycatcher	0.394	15	25
Eastern Kingbird	0.065	57	3
European Starling	0.015	99	1
<b>Golden-crowned Kinglet</b>	0.021	99	1
<b>Grasshopper Sparrow</b>	0.087	39	6
Gray Jay	0.264	23	14
Hairy Woodpecker	0.719	10	38
Lark Sparrow	0.196	25	13
Least Flycatcher	0.051	72	2
<b>Lewis's Woodpecker</b>	0.109	47	5
MacGillivray's Warbler	0.364	17	23
Mountain Bluebird	0.641	11	38
<b>Olive-sided Flycatcher</b>	0.081	43	4
Ovenbird	0.489	13	33
Pine Siskin	0.562	11	39
Plumbeous Vireo	0.440	13	30
Pygmy Nuthatch	0.058	49	4
Red Crossbill	0.849	2	53
Red-eyed Vireo	0.031	70	2
Red-naped Sapsucker	0.575	13	32
Rock Wren	0.134	33	8
Ruby-crowned Kinglet	0.371	15	25
Say's Phoebe	0.026	100	1
<b>Song Sparrow</b>	0.056	56	3



Species	Black Hills NF (S=73)		
	Psi	% CV	n Tran
Spotted Towhee	0.362	16	25
Swainson's Thrush	0.354	16	24
Townsend's Solitaire	0.568	14	30
Tree Swallow	0.035	70	2
Veery	0.215	75	4
Vesper Sparrow	0.151	28	11
Warbling Vireo	0.378	15	25
Western Meadowlark	0.043	56	3
White-throated Swift	0.037	70	2
White-winged Crossbill	0.021	100	1
Wild Turkey	0.348	70	6
Willow Flycatcher	0.038	69	2
Yellow Warbler	0.076	43	5
Yellow-breasted Chat	0.033	70	2

**(5) Grand Mesa, Uncompaghre and Gunnison National Forests**

Field technicians surveyed 9 of 10 planned transects throughout the Grand Mesa, Uncompaghre, Gunnison (GMUG) National Forest in 2010. Technicians conducted 105 point counts within the 9 transects between 11 June and 14 July 2010. We detected 67 species, including 6 priority species for the GMUG National Forest (Appendix E).

RMBO estimated densities and population sizes for 58 species, 5 of which are priority species for GMUG National Forest (Table 131). The data yielded robust density estimates (CV < 50%) for 19 of these species.

We estimated the proportion of transects occupied (Psi) by 42 species, 5 of which are priority species for GMUG National Forest (Table 132). The data yielded robust occupancy estimates (CV < 50%) for 13 of these species.

This monitoring design and current sampling intensity is providing population information for three of the five species designated as Management Indicators for GMUG National Forests. This includes density and occupancy estimates for the Brewer's Sparrow, Hairy Woodpecker and Red Crossbill.

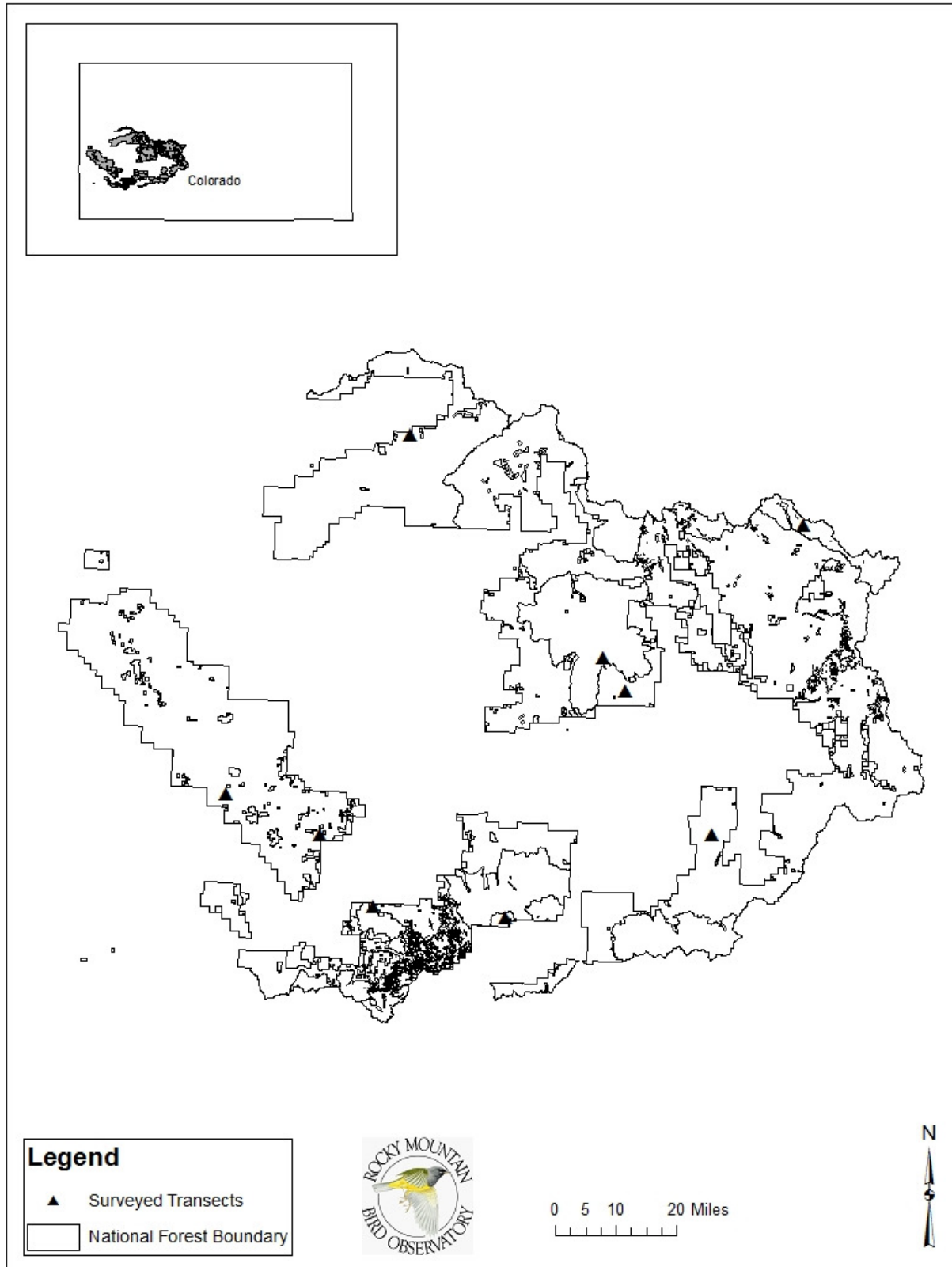


Figure 29. Survey locations in Grand Mesa, Uncompaghre and Gunnison National Forests, 2010.

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Table 131. Estimated densities per km<sup>2</sup> (D), population sizes (N), percent coefficient of variation of estimates (% CV) and number of independent detections (n) of breeding bird species in Grand Mesa, Uncompaghre and Gunnison National Forests, 2010. S indicates the number of transects used in analyses. Priority species are bolded.

Species	GMUG NF (S=9)			
	D	N	% CV	n
American Crow	0.39	5,267	86	4
American Robin	67.16	915,421	24	84
<b>American Three-toed Woodpecker</b>	1.34	18,262	93	1
Ash-throated Flycatcher	0.78	10,699	83	2
Black-headed Grosbeak	7.52	102,451	64	17
Blue-gray Gnatcatcher	12.98	176,950	83	10
<b>Brewer's Sparrow</b>	0.69	9,358	89	1
Broad-tailed Hummingbird	38.29	521,899	74	14
Brown Creeper	4.54	61,858	90	2
Brown-headed Cowbird	2.27	30,939	111	4
Cassin's Finch	2.55	34,703	36	4
Chipping Sparrow	5.51	75,059	58	4
Clark's Nutcracker	0.30	4,060	83	1
Common Raven	0.39	5,324	47	4
Cordilleran Flycatcher	11.37	154,924	51	14
Dark-eyed Junco	82.55	1,125,198	20	62
Downy Woodpecker	1.29	17,595	87	1
Dusky Flycatcher	32.68	445,362	42	37
Evening Grosbeak	0.70	9,588	83	1
Golden-crowned Kinglet	10.88	148,263	72	3
Gray Jay	2.86	39,025	90	2
Green-tailed Towhee	42.90	584,755	42	70
<b>Hairy Woodpecker</b>	4.52	61,600	64	5
Hammond's Flycatcher	1.94	26,509	66	2
Hermit Thrush	11.82	161,079	21	48
House Wren	44.39	605,065	55	53
Lazuli Bunting	1.57	21,405	83	3
Lincoln's Sparrow	7.44	101,385	54	6
MacGillivray's Warbler	23.50	320,353	62	27
Mountain Bluebird	9.93	135,371	81	9
Mountain Chickadee	66.08	900,613	33	62
Mourning Dove	2.02	27,504	41	6
Northern Flicker	4.24	57,795	31	17
<b>Olive-sided Flycatcher</b>	0.27	3,717	83	1
Orange-crowned Warbler	25.96	353,899	47	20
Pine Siskin	30.30	413,022	37	22
Plumbeous Vireo	0.44	5,979	83	1

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Species	GMUG NF (S=9)			
	D	N	% CV	n
Pygmy Nuthatch	2.13	28,986	83	1
<b>Red Crossbill</b>	7.77	105,846	65	6
Red-breasted Nuthatch	6.84	93,196	41	9
Red-naped Sapsucker	4.62	62,984	70	4
Red-tailed Hawk	0.58	7,953	60	3
Ruby-crowned Kinglet	7.95	108,351	39	11
Spotted Towhee	43.69	595,535	83	62
Steller's Jay	1.08	14,723	84	3
Townsend's Solitaire	0.57	7,735	88	1
Tree Swallow	5.24	71,391	89	2
Violet-green Swallow	10.55	143,838	36	7
Virginia's Warbler	51.78	705,703	83	49
Warbling Vireo	65.26	889,492	30	123
Western Bluebird	1.75	23,917	84	1
Western Scrub-Jay	0.29	3,976	85	1
Western Tanager	10.48	142,856	36	21
Western Wood-Pewee	22.19	302,469	49	58
White-breasted Nuthatch	3.66	49,936	69	4
White-crowned Sparrow	5.56	75,823	81	8
Yellow Warbler	5.36	73,114	89	5
Yellow-rumped Warbler	42.10	573,884	26	52

Table 132. Estimated proportion of sample units occupied (Psi), percent coefficient of variation of Psi (% CV) and number of transects with one or more detections (n Tran) of breeding bird species in Grand Mesa, Uncompaghre and Gunnison National Forests, 2010. Dashes indicate the data were insufficient for estimating site occupancy. A Psi estimate equal to 1 indicates the species was detected on all transects surveyed. S indicates the number of transects used in analyses. Priority species are bolded.

Species	GMUG NF (S=9)		
	Psi	% CV	n Tran
<b>American Three-toed Woodpecker</b>	0.174	94	1
Ash-throated Flycatcher	0.115	94	1
Black-billed Magpie	0.130	94	1
Blue-gray Gnatcatcher	0.117	94	1
<b>Brewer's Sparrow</b>	0.113	94	1
Broad-tailed Hummingbird	0.537	37	4
Brown Creeper	0.325	62	2
Brown-headed Cowbird	0.283	62	2
Cassin's Finch	0.712	29	5
Clark's Nutcracker	0.134	94	1
Cordilleran Flycatcher	0.818	30	5

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Species	GMUG NF (S=9)		
	Psi	% CV	n Tran
Downy Woodpecker	0.195	94	1
Dusky Flycatcher	0.361	47	3
Dusky Grouse	0.387	100	1
Evening Grosbeak	0.157	94	1
Golden-crowned Kinglet	0.292	62	2
Gray Jay	0.132	94	1
Green-tailed Towhee	0.461	37	4
<b>Hairy Woodpecker</b>	0.425	47	3
Hammond's Flycatcher	0.264	62	2
Lazuli Bunting	0.124	94	1
Lincoln's Sparrow	0.518	37	4
MacGillivray's Warbler	0.482	37	4
Mountain Bluebird	0.252	62	2
<b>Olive-sided Flycatcher</b>	0.150	94	1
Orange-crowned Warbler	0.498	37	4
Pine Grosbeak	0.132	94	1
Pine Siskin	0.569	30	5
Plumbeous Vireo	0.115	94	1
Pygmy Nuthatch	0.115	94	1
<b>Red Crossbill</b>	0.491	37	4
Red-naped Sapsucker	0.266	62	2
Ruby-crowned Kinglet	0.454	37	4
Rufous Hummingbird	0.188	95	1
Spotted Towhee	0.113	94	1
Townsend's Solitaire	0.136	94	1
Tree Swallow	0.126	94	1
Virginia's Warbler	0.116	94	1
Warbling Vireo	0.954	12	8
Western Bluebird	0.124	94	1
Western Scrub-Jay	0.118	94	1
Yellow Warbler	0.239	62	2

**(6) Medicine Bow National Forest**

Within this sampling design Medicine Bow National Forest is split into two strata, one in BCR 10 and one in BCR 16. This forest-level stratification distinction is made to allow for the summation of the data for individual BCRs. In this section of this report these two strata are combined to the administrative area of Medicine Bow National Forest.

Field technicians surveyed all 25 planned transects throughout Medicine Bow National Forest in 2010. Technicians conducted 330 point counts within the 25 transects between 4 June and 18 July 2010. We detected 84 species, including 10 priority species for the Medicine Bow National Forest (Appendix E).

RMBO estimated densities and population sizes for 71 species, 7 of which are priority species for Medicine Bow National Forest (Table 133). The data yielded robust density estimates ( $CV < 50\%$ ) for 38 of these species.

We estimated the proportion of transects occupied ( $\Psi$ ) by 49 species, 7 of which are priority species for Medicine Bow National Forest (Table 134). The data yielded robust occupancy estimates ( $CV < 50\%$ ) for 32 of these species.

This monitoring design and current sampling intensity is providing population information for four of the five species designated as Management Indicators for Medicine Bow National Forest. This includes density and occupancy estimates for the American Three-toed Woodpecker, Golden-crowned Kinglet, Lincoln's Sparrow and Wilson's Warbler.

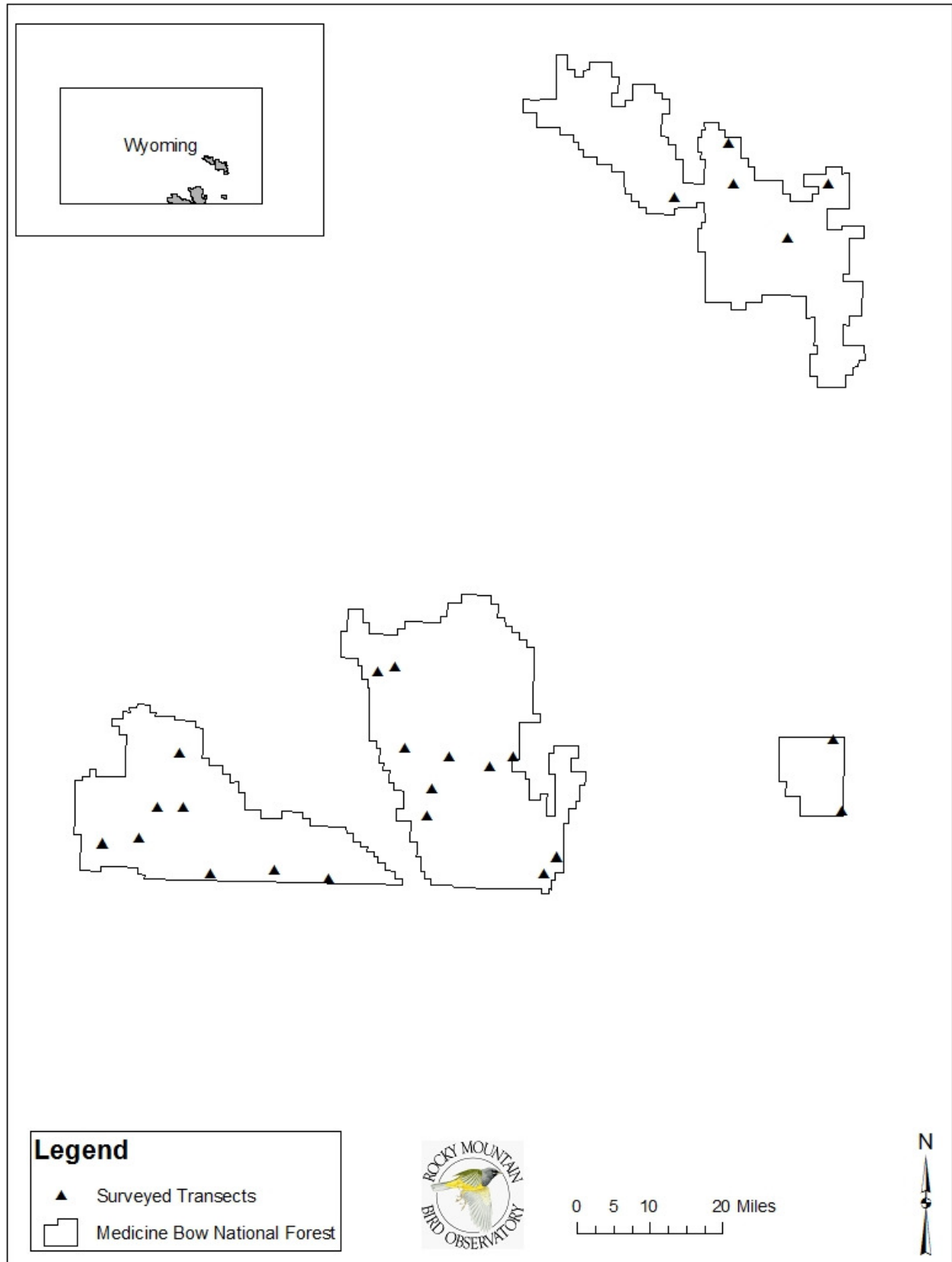


Figure 30. Survey locations in Medicine Bow National Forest, 2010.

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Table 133. Estimated densities per km<sup>2</sup> (D), population sizes (N), percent coefficient of variation of estimates (% CV) and number of independent detections (n) of breeding bird species in Medicine Bow National Forest, 2010. S indicates the number of transects used in analyses. Priority species are bolded.

Species	Medicine Bow NF (S=25)			
	D	N	% CV	n
American Crow	0.06	354	61	2
American Goldfinch	0.93	5,700	89	1
American Robin	28.35	172,979	20	111
<b>American Three-toed Woodpecker</b>	9.27	56,536	46	23
Black-billed Magpie	0.07	440	107	2
Black-headed Grosbeak	0.27	1,622	60	2
Brewer's Blackbird	2.51	15,344	77	9
<b>Brewer's Sparrow</b>	3.54	21,610	88	11
Broad-tailed Hummingbird	14.42	88,006	40	16
Brown Creeper	16.37	99,911	23	24
Brown-headed Cowbird	2.86	17,444	44	6
Cassin's Finch	2.83	17,247	40	14
Chipping Sparrow	5.70	34,778	49	13
Clark's Nutcracker	2.05	12,490	42	23
Common Nighthawk	1.10	6,685	64	6
Common Raven	0.28	1,709	67	8
Common Yellowthroat	0.43	2,623	85	3
Cordilleran Flycatcher	1.95	11,916	45	8
Dark-eyed Junco	73.07	445,895	13	181
Downy Woodpecker	5.05	30,787	34	13
Dusky Flycatcher	10.97	66,926	26	39
European Starling	0.74	4,544	88	2
Evening Grosbeak	2.33	14,196	33	11
Fox Sparrow	0.26	1,572	56	2
<b>Golden-crowned Kinglet</b>	3.27	19,956	78	3
<b>Grasshopper Sparrow</b>	0.15	930	88	1
Gray Jay	5.16	31,516	30	12
Green-tailed Towhee	19.11	116,602	30	86
Hairy Woodpecker	10.05	61,355	20	37
Hammond's Flycatcher	0.88	5,352	52	3
Hermit Thrush	8.43	51,424	17	110
Horned Lark	0.82	4,992	82	6
House Wren	17.63	107,572	33	60
Killdeer	0.18	1,092	84	1
Lark Sparrow	1.86	11,380	105	6
Lazuli Bunting	3.87	23,642	42	20
<b>Lincoln's Sparrow</b>	9.32	56,860	33	25



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Species	Medicine Bow NF (S=25)			
	D	N	% CV	n
MacGillivray's Warbler	1.83	11,179	55	7
Mallard	0.15	913	63	2
Mountain Bluebird	2.25	13,705	38	6
Mountain Chickadee	34.02	207,569	17	116
Mourning Dove	3.24	19,744	35	32
Northern Flicker	3.20	19,502	23	38
<b>Olive-sided Flycatcher</b>	0.41	2,501	67	5
Pine Grosbeak	3.23	19,709	48	10
Pine Siskin	41.63	254,054	15	99
Plumbeous Vireo	0.40	2,414	83	3
Red Crossbill	7.30	44,568	32	18
Red-breasted Nuthatch	10.29	62,817	31	42
Red-naped Sapsucker	2.08	12,716	64	6
Red-tailed Hawk	0.12	714	78	2
Red-winged Blackbird	3.00	18,325	55	23
Rock Wren	1.60	9,779	38	32
Ruby-crowned Kinglet	26.44	161,346	21	114
Song Sparrow	2.97	18,151	26	17
Steller's Jay	0.43	2,642	67	4
Swainson's Thrush	0.70	4,280	73	4
Townsend's Solitaire	4.02	24,507	36	22
Tree Swallow	7.69	46,939	51	9
Vesper Sparrow	3.01	18,351	41	27
Violet-green Swallow	1.81	11,063	45	4
Warbling Vireo	21.81	133,056	20	129
Western Meadowlark	1.38	8,437	61	26
Western Tanager	8.70	53,106	21	58
Western Wood-Pewee	3.68	22,462	45	32
White-breasted Nuthatch	0.83	5,041	50	3
White-crowned Sparrow	3.06	18,648	80	10
Wilson's Snipe	2.26	13,806	62	9
<b>Wilson's Warbler</b>	0.94	5,740	107	1
Yellow Warbler	6.58	40,127	70	15
Yellow-rumped Warbler	60.22	367,484	13	242

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Table 134. Estimated proportion of sample units occupied (Psi), percent coefficient of variation of Psi (% CV) and number of transects with one or more detections (n Tran) of breeding bird species in Medicine Bow National Forest, 2010. Dashes indicate the data were insufficient for estimating site occupancy. A Psi estimate equal to 1 indicates the species was detected on all transects surveyed. S indicates the number of transects used in analyses. Priority species are bolded.

Species	Medicine Bow NF (S=25)		
	Psi	% CV	n Tran
<b>American Three-toed Woodpecker</b>	0.459	30	8
<b>Brewer's Sparrow</b>	0.102	57	2
Broad-tailed Hummingbird	0.402	27	9
Brown Creeper	0.582	22	11
Brown-headed Cowbird	0.195	43	4
Cassin's Finch	0.395	29	8
Clark's Nutcracker	0.252	35	6
Common Nighthawk	0.206	56	3
Common Yellowthroat	0.109	68	2
Cordilleran Flycatcher	0.237	40	5
Downy Woodpecker	0.538	27	9
Dusky Flycatcher	0.596	16	14
Dusky Grouse	0.356	49	3
European Starling	0.039	98	1
Evening Grosbeak	0.304	36	6
<b>Golden-crowned Kinglet</b>	0.190	46	4
<b>Grasshopper Sparrow</b>	0.038	98	1
Gray Catbird	0.089	72	1
Gray Jay	0.346	29	8
Green-tailed Towhee	0.433	20	10
Hairy Woodpecker	0.711	17	15
Hammond's Flycatcher	0.128	54	3
Horned Lark	0.038	98	1
Lark Sparrow	0.064	71	1
Lazuli Bunting	0.366	23	8
<b>Lincoln's Sparrow</b>	0.295	32	7
MacGillivray's Warbler	0.198	40	5
Mountain Bluebird	0.231	38	5
<b>Olive-sided Flycatcher</b>	0.188	46	4
Pine Grosbeak	0.218	40	5
Pine Siskin	0.833	9	21
Plumbeous Vireo	0.038	98	1
Red Crossbill	0.432	25	10
Red-naped Sapsucker	0.170	45	4
Rock Wren	0.243	35	6

Species	Medicine Bow NF (S=25)		
	Psi	% CV	n Tran
Ruby-crowned Kinglet	0.711	13	18
Song Sparrow	0.433	22	9
Sora	0.039	98	1
Swainson's Thrush	0.115	54	3
Townsend's Solitaire	0.546	21	12
Tree Swallow	0.242	38	5
Veery	0.109	112	1
Vesper Sparrow	0.216	38	5
Warbling Vireo	0.743	11	18
Western Meadowlark	0.076	68	2
Williamson's Sapsucker	0.095	68	2
Wilson's Snipe	0.156	55	3
<b>Wilson's Warbler</b>	0.088	68	2
Yellow Warbler	0.184	43	4

**(7) Pike-San Isabel National Forest**

Field technicians surveyed 5 of 10 planned transects throughout the Pike-San Isabel National Forest in 2010. Five transects were not completed due to personnel issues with a field technician, these transects will be added to the 2011 sampling plan for the Pike-San Isabel National Forest. Technicians conducted 72 point counts within the 5 transects between 6 June and 17 July 2010. We detected 49 species in Pike-San Isabel National Forest (Appendix E).

RMBO estimated densities and population sizes for 42 species for Pike-San Isabel National Forest (Table 135). The data yielded robust density estimates (CV < 50%) for 11 of these species.

We estimated the proportion of transects occupied (Psi) by 25 species for Pike-San Isabel National Forest (Table 136). The data yielded robust occupancy estimates (CV < 50%) for five of these species.



Figure 31. Survey locations in Pike-San Isabel National Forest, 2010.

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Table 135. Estimated densities per km<sup>2</sup> (D), population sizes (N), percent coefficient of variation of estimates (% CV) and number of independent detections (n) of breeding bird species in Pike-San Isabel National Forest, 2010. S indicates the number of transects used in analyses. Priority species are bolded.

Species	Pike-San Isabel NF (S=5)			
	D	N	% CV	n
American Crow	0.85	9,272	90	6
American Robin	37.31	409,242	31	32
Black-headed Grosbeak	8.34	91,520	51	13
Broad-tailed Hummingbird	39.89	437,469	51	10
Brown Creeper	9.93	108,886	60	3
Brown-headed Cowbird	4.10	44,931	55	2
Chipping Sparrow	28.11	308,290	38	14
Clark's Nutcracker	1.74	19,059	88	4
Common Raven	1.99	21,869	70	14
Dark-eyed Junco	120.39	1,320,436	20	62
Downy Woodpecker	5.65	61,943	63	3
Dusky Flycatcher	19.32	211,880	54	15
Evening Grosbeak	1.03	11,252	83	1
Golden-crowned Kinglet	31.73	347,977	88	6
Gray Jay	14.61	160,289	83	7
Hairy Woodpecker	5.27	57,831	55	4
Hammond's Flycatcher	2.84	31,109	85	2
Hermit Thrush	21.90	240,224	47	61
House Finch	17.17	188,374	87	10
House Wren	7.33	80,383	65	6
Mountain Chickadee	69.73	764,828	21	50
Mourning Dove	1.96	21,518	63	4
Northern Flicker	4.73	51,865	62	13
Pine Grosbeak	7.83	85,919	59	5
Pine Siskin	40.17	440,624	40	20
Plumbeous Vireo	3.20	35,083	87	5
Pygmy Nuthatch	15.51	170,077	51	5
Red Crossbill	3.77	41,404	82	2
Red-breasted Nuthatch	14.40	157,974	31	13
Red-tailed Hawk	0.57	6,222	66	2
Ruby-crowned Kinglet	23.19	254,302	25	22
Song Sparrow	0.78	8,536	87	1
Steller's Jay	4.20	46,072	44	8
Swainson's Thrush	2.55	27,985	94	3
Townsend's Solitaire	33.10	363,078	38	40
Vesper Sparrow	0.53	5,762	88	1
Warbling Vireo	0.77	8,486	85	1

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<b>Species</b>	<b>Pike-San Isabel NF (S=5)</b>			
	<b>D</b>	<b>N</b>	<b>% CV</b>	<b>n</b>
Western Tanager	3.64	39,915	53	5
Western Wood-Pewee	1.67	18,360	76	3
White-breasted Nuthatch	2.67	29,300	55	2
Yellow Warbler	1.56	17,160	87	1
Yellow-rumped Warbler	62.58	686,412	22	53

Table 136. Estimated proportion of sample units occupied (Psi), percent coefficient of variation of Psi (% CV) and number of transects with one or more detections (n Tran) of breeding bird species in Pike-San Isabel National Forest, 2010. Dashes indicate the data were insufficient for estimating site occupancy. A Psi estimate equal to 1 indicates the species was detected on all transects surveyed. S indicates the number of transects used in analyses. Priority species are bolded.

<b>Species</b>	<b>Pike-San Isabel NF (S=5)</b>		
	<b>Psi</b>	<b>% CV</b>	<b>n Tran</b>
Broad-tailed Hummingbird	0.918	22	4
Brown Creeper	0.554	55	2
Brown-headed Cowbird	0.469	55	2
Clark's Nutcracker	0.222	89	1
Downy Woodpecker	0.628	55	2
Dusky Flycatcher	0.409	55	2
Evening Grosbeak	0.286	90	1
Golden-crowned Kinglet	0.258	90	1
Gray Jay	0.239	89	1
Hairy Woodpecker	0.471	55	2
Hammond's Flycatcher	0.226	89	1
Pine Grosbeak	0.455	55	2
Pine Siskin	0.829	22	4
Plumbeous Vireo	0.202	89	1
Pygmy Nuthatch	0.605	37	4
Red Crossbill	0.215	89	1
Ruby-crowned Kinglet	0.805	22	4
Swainson's Thrush	0.201	89	1
Townsend's Solitaire	0.856	22	4
Vesper Sparrow	0.200	89	1
Warbling Vireo	0.201	89	1
White-winged Crossbill	0.496	56	2
Williamson's Sapsucker	0.273	90	1
Yellow Warbler	0.209	89	1

**(8) Rio Grande National Forest**

Field technicians surveyed 9 of 10 planned transects throughout in the Rio Grande National Forest in 2010. Technicians conducted 121 point counts within the 9 transects between 18 June and 13 July 2010. We detected 63 species, including 8 priority species for Rio Grande National Forest (Appendix E).

RMBO estimated densities and population sizes for 49 species, 6 of which are priority species for Rio Grande National Forest (Table 137). The data yielded robust density estimates ( $CV < 50\%$ ) for 17 of these species.

We estimated the proportion of transects occupied ( $P_{si}$ ) by 34 species, 6 of which are priority species for Rio Grande National Forest (Table 138). The data yielded robust occupancy estimates ( $CV < 50\%$ ) for 13 of these species.

This monitoring design and current sampling intensity is providing population information for four of the six species designated as Management Indicators for Rio Grande National Forest. This includes occupancy and density estimates for Brown Creeper, Lincoln's Sparrow and Vesper Sparrow. Additionally, we estimated density for Hermit Thrush.

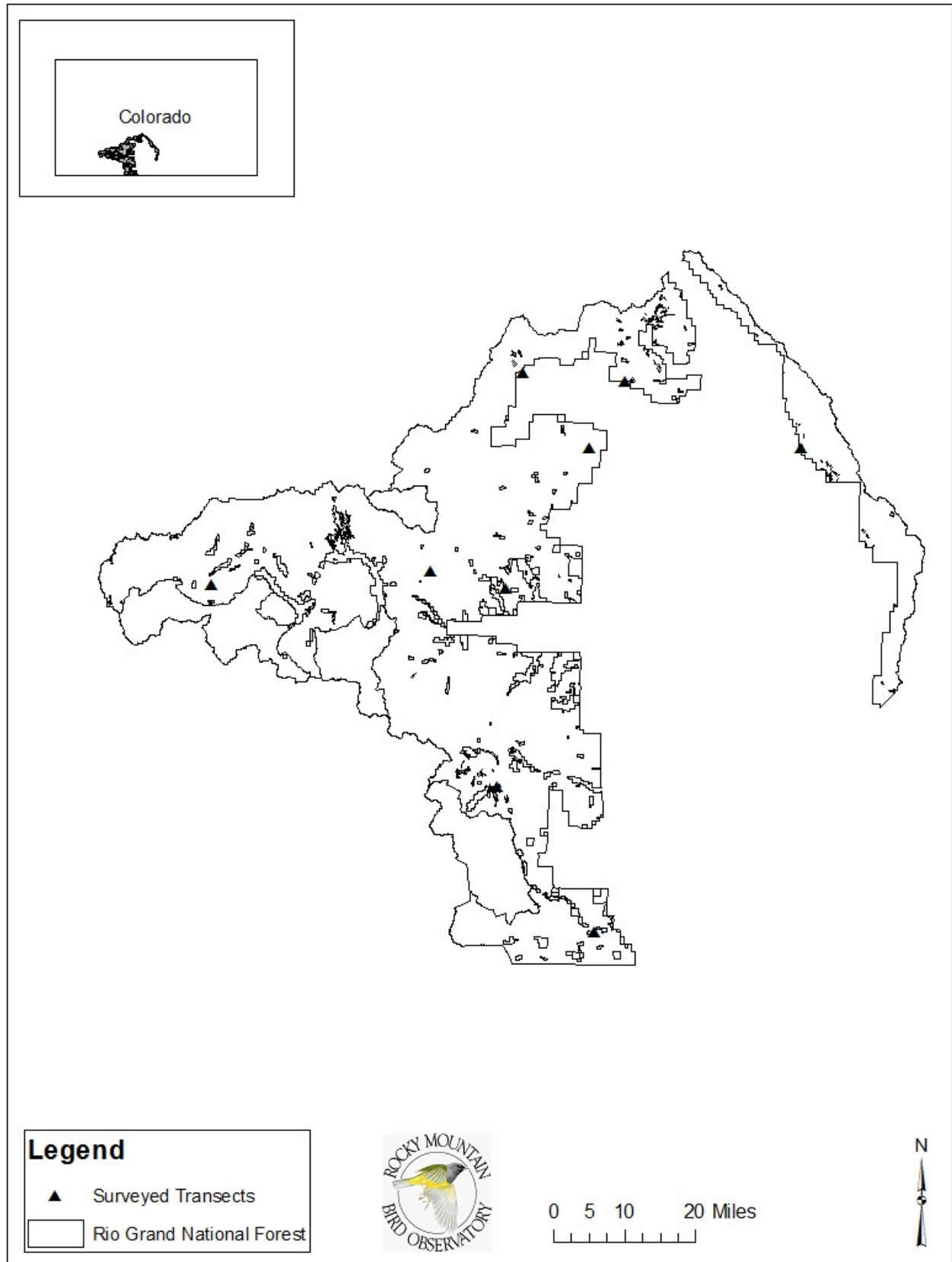


Figure 32. Survey locations in Rio Grande National Forest, 2010.



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Table 137. Estimated densities per km<sup>2</sup> (D), population sizes (N), percent coefficient of variation of estimates (% CV) and number of independent detections (n) of breeding bird species in Rio Grande National Forest, 2010. S indicates the number of transects used in analyses. Priority species are bolded.

Species	Rio Grande NF (S=9)			
	D	N	% CV	n
American Robin	29.14	238,079	20	42
<b>American Three-toed Woodpecker</b>	1.16	9,499	94	1
Black-billed Magpie	0.42	3,398	75	4
Broad-tailed Hummingbird	2.37	19,390	90	1
<b>Brown Creeper</b>	3.94	32,175	61	2
Bushtit	1.42	11,565	92	1
Cassin's Finch	1.10	9,025	62	2
Chipping Sparrow	21.70	177,328	35	17
Clark's Nutcracker	7.15	58,377	40	22
Common Raven	0.42	3,462	29	5
Cordilleran Flycatcher	2.82	23,024	36	4
Dark-eyed Junco	56.62	462,555	28	49
Dusky Flycatcher	9.20	75,132	57	12
Golden-crowned Kinglet	9.44	77,119	78	3
Green-tailed Towhee	15.96	130,355	61	30
Hairy Woodpecker	9.41	76,899	75	12
Hammond's Flycatcher	3.38	27,578	49	4
<b>Hermit Thrush</b>	18.37	150,116	24	86
House Finch	1.02	8,350	93	1
House Wren	4.24	34,629	77	4
<b>Lincoln's Sparrow</b>	2.15	17,579	103	2
Mallard	0.22	1,765	88	1
Mountain Bluebird	9.58	78,237	51	10
Mountain Chickadee	14.94	122,042	40	18
Mourning Dove	1.17	9,538	58	4
Northern Flicker	5.63	45,977	52	26
<b>Olive-sided Flycatcher</b>	1.66	13,533	63	7
Pine Grosbeak	1.86	15,233	92	2
Pine Siskin	2.39	19,530	62	2
Plumbeous Vireo	1.52	12,440	58	4
Red Crossbill	2.25	18,352	91	2
Red-breasted Nuthatch	1.32	10,772	83	2
Red-naped Sapsucker	3.01	24,571	70	3
Red-tailed Hawk	0.17	1,379	91	1
Red-winged Blackbird	1.13	9,237	87	3
Rock Wren	0.40	3,304	92	3
Ruby-crowned Kinglet	16.30	133,212	39	26

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Species	Rio Grande NF (S=9)			
	D	N	% CV	n
Steller's Jay	5.62	45,948	39	18
Townsend's Solitaire	5.42	44,256	41	11
Tree Swallow	18.18	148,536	51	8
<b>Vesper Sparrow</b>	0.31	2,554	82	1
Violet-green Swallow	5.23	42,753	82	4
Virginia's Warbler	0.92	7,491	81	1
Warbling Vireo	10.59	86,516	43	23
Western Tanager	26.42	215,844	34	61
Western Wood-Pewee	4.65	37,976	42	14
White-breasted Nuthatch	7.95	64,936	32	10
White-crowned Sparrow	6.64	54,229	59	11
Yellow-rumped Warbler	10.54	86,108	39	15

Table 138. Estimated proportion of sample units occupied (Psi), percent coefficient of variation of Psi (% CV) and number of transects with one or more detections (n Tran) of breeding bird species in Rio Grande National Forest, 2010. Dashes indicate the data were insufficient for estimating site occupancy. A Psi estimate equal to 1 indicates the species was detected on all transects surveyed. S indicates the number of transects used in analyses. Priority species are bolded.

Species	Rio Grande NF (S=9)		
	Psi	% CV	n Tran
<b>American Three-toed Woodpecker</b>	0.164	95	1
Black-billed Magpie	0.244	62	2
Broad-tailed Hummingbird	0.120	94	1
<b>Brown Creeper</b>	0.297	62	2
Brown-headed Cowbird	0.128	94	1
Bushtit	0.200	96	1
Cassin's Finch	0.259	62	2
Clark's Nutcracker	0.889	17	7
Cordilleran Flycatcher	0.575	37	4
Dusky Flycatcher	0.339	47	3
Dusky Grouse	0.326	100	1
Evening Grosbeak	0.143	94	1
Golden-crowned Kinglet	0.401	47	3
Gray Jay	0.126	94	1
Green-tailed Towhee	0.558	30	5
Hairy Woodpecker	0.254	62	2
Hammond's Flycatcher	0.373	47	3
<b>Lewis's Woodpecker</b>	0.143	95	1
<b>Lincoln's Sparrow</b>	0.121	94	1
Mountain Bluebird	0.347	47	3

Species	Rio Grande NF (S=9)		
	Psi	% CV	n Tran
<b>Olive-sided Flycatcher</b>	0.416	47	3
Pine Grosbeak	0.127	94	1
Pine Siskin	0.225	62	3
Plumbeous Vireo	0.224	62	2
Red Crossbill	0.117	94	1
Red-naped Sapsucker	0.364	47	3
Rock Wren	0.117	94	1
Ruby-crowned Kinglet	0.670	24	6
Townsend's Solitaire	0.492	37	4
Tree Swallow	0.472	37	4
<b>Vesper Sparrow</b>	0.112	94	1
Virginia's Warbler	0.113	94	1
Warbling Vireo	0.563	30	5
Williamson's Sapsucker	0.268	63	2

**(9) Routt National Forest**

Field technicians surveyed 22 of 24 planned transects throughout the Routt National Forest in 2010. Technicians conducted 228 point counts within the 22 transects between 16 June and 27 July 2010. We detected 77 species, including 5 priority species for Routt National Forest (Appendix E).

RMBO estimated densities and population sizes for 61 species, 4 of which are priority species for Routt National Forest (Table 139). The data yielded robust density estimates (CV < 50%) for 38 of these species.

We estimated the proportion of transects occupied (Psi) by 40 species, 4 of which are priority species for Routt National Forest (Table 140). The data yielded robust occupancy estimates (CV < 50%) for 24 of these species.

This monitoring design and current sampling intensity is providing population information for two of the four species designated as Management Indicators for Routt National Forest. This includes density and occupancy estimates for Golden-crowned Kinglet and Wilson's Warbler.

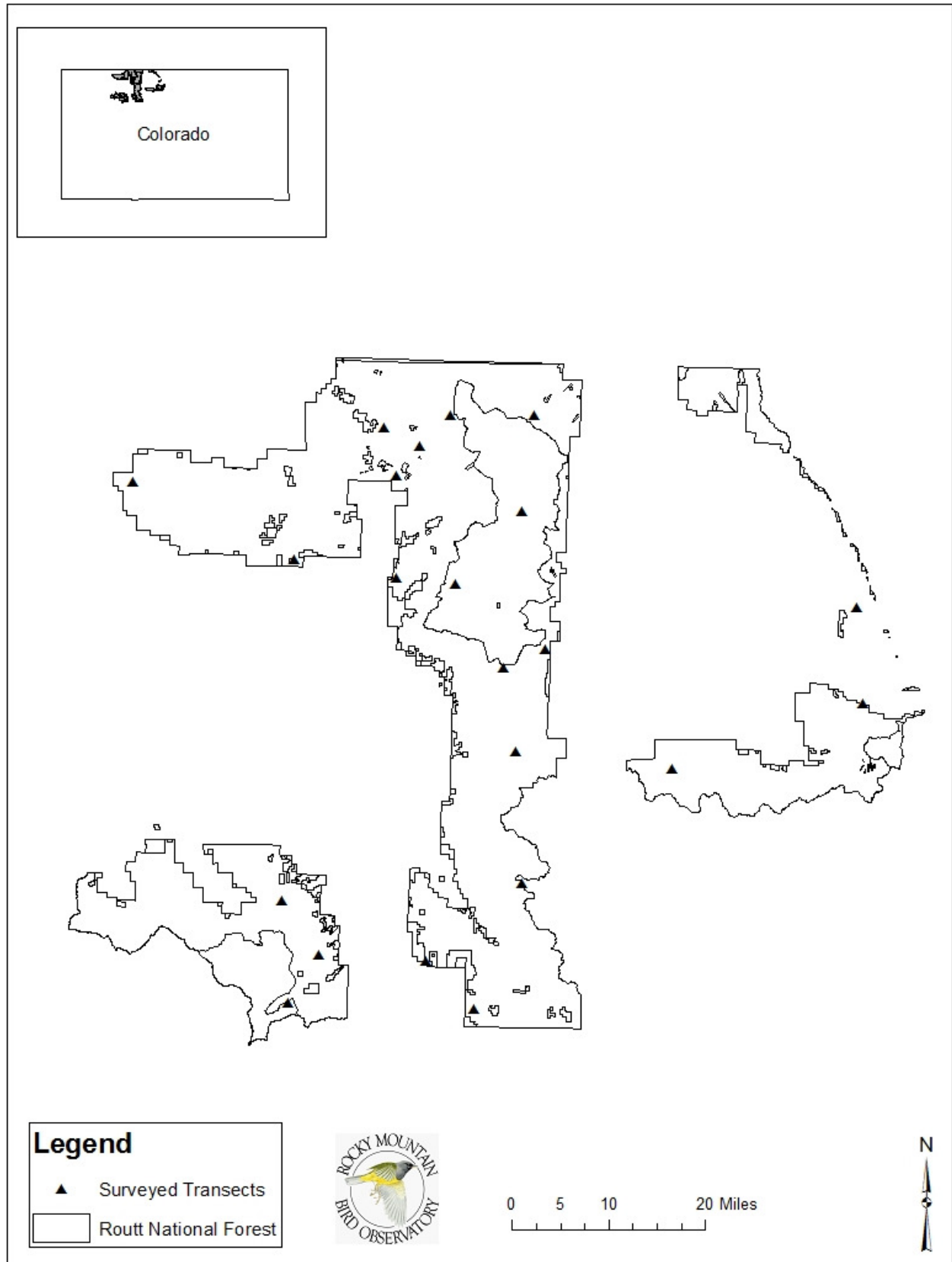


Figure 33. Survey locations in Routt National Forest, 2010.

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Table 139. Estimated densities per km<sup>2</sup> (D), population sizes (N), percent coefficient of variation of estimates (% CV) and number of independent detections (n) of breeding bird species in Routt National Forest, 2010. S indicates the number of transects used in analyses. Priority species are bolded.

Species	Routt NF (S=22)			
	D	N	% CV	n
American Crow	0.09	456	63	2
American Goldfinch	7.15	36,650	62	5
American Pipit	2.62	13,416	68	8
American Robin	75.85	388,590	11	206
<b>American Three-toed Woodpecker</b>	7.40	37,933	49	12
Black-billed Magpie	0.17	848	69	3
Black-capped Chickadee	13.26	67,944	44	20
Black-headed Grosbeak	1.02	5,216	84	5
Blue-gray Gnatcatcher	0.60	3,063	87	1
Broad-tailed Hummingbird	25.19	129,054	33	20
Brown Creeper	4.18	21,414	41	4
Cassin's Finch	1.76	9,010	48	6
Chipping Sparrow	28.38	145,384	27	40
Clark's Nutcracker	3.51	17,991	48	17
Common Raven	1.35	6,912	19	30
Cordilleran Flycatcher	2.99	15,324	38	8
Dark-eyed Junco	96.27	493,196	18	157
Downy Woodpecker	5.35	27,410	32	9
Dusky Flycatcher	4.88	25,002	35	12
Evening Grosbeak	1.94	9,958	48	6
<b>Golden-crowned Kinglet</b>	13.36	68,436	56	8
Gray Flycatcher	0.44	2,238	87	1
Gray Jay	28.35	145,234	21	43
Green-tailed Towhee	0.85	4,338	60	3
Hairy Woodpecker	4.16	21,325	35	10
Hammond's Flycatcher	0.90	4,589	64	2
Hermit Thrush	19.16	98,168	16	169
House Wren	21.80	111,667	30	53
Lincoln's Sparrow	43.39	222,291	25	76
MacGillivray's Warbler	2.00	10,269	60	5
Mallard	0.11	587	85	1
Mountain Bluebird	5.08	26,035	31	10
Mountain Chickadee	51.57	264,209	18	103
Mourning Dove	0.15	793	83	1
Northern Flicker	4.36	22,362	19	38
<b>Olive-sided Flycatcher</b>	1.51	7,720	30	12
Pine Grosbeak	7.42	38,019	38	15

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Species	Routt NF (S=22)			
	D	N	% CV	n
Pine Siskin	78.66	402,953	20	124
Red Crossbill	9.64	49,363	49	11
Red-breasted Nuthatch	18.00	92,217	23	45
Red-naped Sapsucker	2.66	13,628	56	5
Red-tailed Hawk	0.09	459	97	1
Ruby-crowned Kinglet	64.23	329,063	10	193
Sandhill Crane	0.01	54	92	1
Song Sparrow	1.97	10,073	45	8
Spotted Sandpiper	1.16	5,935	69	8
Spotted Towhee	0.32	1,663	87	1
Steller's Jay	0.99	5,097	50	6
Swainson's Hawk	0.06	301	92	1
Townsend's Solitaire	3.14	16,066	40	12
Tree Swallow	31.10	159,350	35	24
Violet-green Swallow	9.03	46,238	40	13
Warbling Vireo	9.28	47,567	41	38
Western Tanager	8.50	43,568	25	37
Western Wood-Pewee	5.46	27,983	33	31
White-breasted Nuthatch	2.11	10,805	46	5
White-crowned Sparrow	26.18	134,119	28	80
Wilson's Snipe	0.77	3,945	63	2
<b>Wilson's Warbler</b>	20.17	103,347	68	14
Yellow Warbler	2.47	12,656	87	5
Yellow-rumped Warbler	66.37	340,035	13	178

Table 140. Estimated proportion of sample units occupied (Psi), percent coefficient of variation of Psi (% CV) and number of transects with one or more detections (n Tran) of breeding bird species in Routt National Forest, 2010. Dashes indicate the data were insufficient for estimating site occupancy. A Psi estimate equal to 1 indicates the species was detected on all transects surveyed. S indicates the number of transects used in analyses. Priority species are bolded.

Species	Routt NF (S=22)		
	Psi	% CV	n Tran
American Pipit	0.098	67	2
<b>American Three-toed Woodpecker</b>	0.652	29	8
Black-billed Magpie	0.116	67	2
Blue-gray Gnatcatcher	0.049	98	1
Broad-tailed Hummingbird	0.677	17	13
Brown Creeper	0.291	45	4
Brown-headed Cowbird	0.061	98	1
Cassin's Finch	0.311	39	5
Clark's Nutcracker	0.235	45	4

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Species	Routt NF (S=22)		
	Psi	% CV	n Tran
Cordilleran Flycatcher	0.363	35	6
Downy Woodpecker	0.610	29	8
Dusky Flycatcher	0.306	35	6
Dusky Grouse	0.170	104	1
Evening Grosbeak	0.286	45	4
<b>Golden-crowned Kinglet</b>	0.340	39	5
Gray Flycatcher	0.096	67	2
Gray Jay	0.967	9	18
Green-tailed Towhee	0.096	67	2
Hairy Woodpecker	0.435	31	7
Hammond's Flycatcher	0.118	67	2
Lincoln's Sparrow	0.843	13	15
MacGillivray's Warbler	0.104	67	2
Mountain Bluebird	0.455	25	9
<b>Olive-sided Flycatcher</b>	0.438	31	7
Orange-crowned Warbler	0.056	98	1
Pine Grosbeak	0.423	31	7
Pine Siskin	0.798	14	15
Red Crossbill	0.383	31	7
Red-naped Sapsucker	0.270	39	5
Ruby-crowned Kinglet	1	--	22
Song Sparrow	0.246	45	4
Spotted Towhee	0.047	98	1
Swainson's Hawk	0.153	111	1
Townsend's Solitaire	0.371	34	6
Tree Swallow	0.765	15	14
Warbling Vireo	0.493	23	10
Williamson's Sapsucker	0.130	68	2
Willow Flycatcher	0.130	69	2
Wilson's Snipe	0.224	55	3
<b>Wilson's Warbler</b>	0.296	40	5
Yellow Warbler	0.158	54	3

**(10) San Juan National Forest**

Field technicians surveyed 8 of 10 planned transects throughout San Juan National Forest in 2010. Technicians conducted 103 point counts within the 8 transects between 22 June and 15 July 2010. We detected 69 species, including 5 priority species for San Juan National Forest (Appendix E).

RMBO estimated densities and population sizes for 57 species, 4 of which are priority species for San Juan National Forest (Table 141). The data yielded robust density estimates ( $CV < 50\%$ ) for 17 of these species.

We estimated the proportion of transects occupied ( $P_{si}$ ) by 38 species, 5 of which are priority species for San Juan National Forest (Table 142). The data yielded robust occupancy estimates ( $CV < 50\%$ ) for 11 of these species.

This monitoring design and current sampling intensity is providing population information for three of the four species designated as Management Indicators for San Juan National Forest. This includes density and occupancy estimates for Green-tailed Towhee, Hairy Woodpecker and Mountain Bluebird.



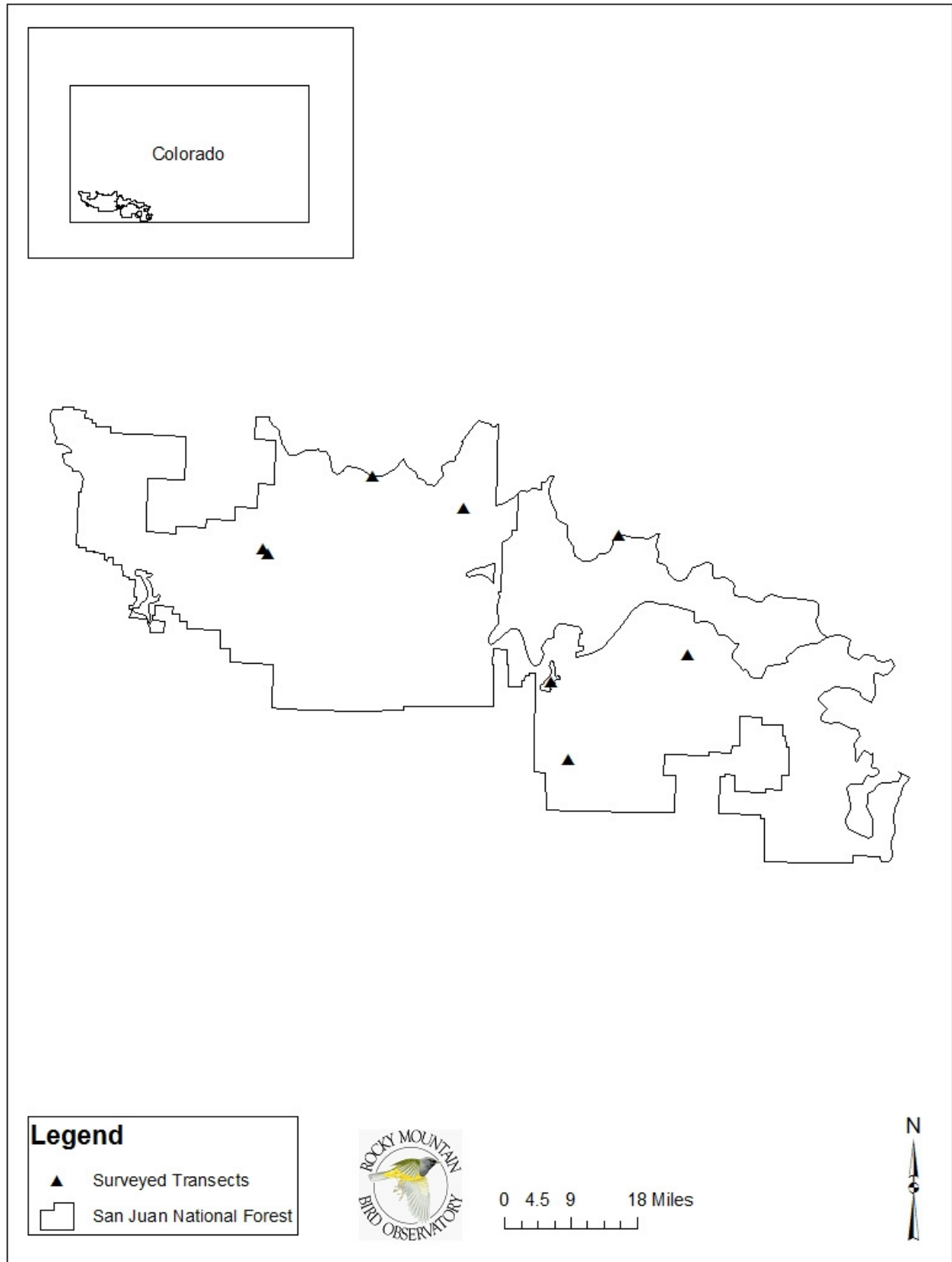


Figure 34. Survey locations in San Juan National Forest, 2010.

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Table 141. Estimated densities per km<sup>2</sup> (D), population sizes (N), percent coefficient of variation of estimates (% CV) and number of independent detections (n) of breeding bird species in San Juan National Forest, 2010. S indicates the number of transects used in analyses. Priority species are bolded.

Species	San Juan NF (S=8)			
	D	N	% CV	n
American Crow	0.69	6,063	69	7
American Kestrel	0.69	6,074	34	3
American Pipit	3.62	31,860	95	5
American Robin	74.17	652,267	25	91
Black-billed Magpie	0.37	3,222	99	3
Black-headed Grosbeak	5.41	47,566	44	12
Blue-gray Gnatcatcher	5.29	46,554	82	4
Brewer's Blackbird	3.38	29,721	86	4
Broad-tailed Hummingbird	11.15	98,076	73	4
Brown Creeper	2.31	20,343	83	1
Brown-headed Cowbird	2.86	25,183	50	2
Bushtit	1.66	14,623	92	1
Canada Goose	0.15	1,301	88	4
Chipping Sparrow	5.61	49,368	63	4
Clark's Nutcracker	1.21	10,682	72	4
Cliff Swallow	17.72	155,825	98	3
Common Raven	0.40	3,502	57	4
Cordilleran Flycatcher	3.31	29,113	48	4
Dark-eyed Junco	24.43	214,858	51	18
Gray Jay	4.38	38,502	89	3
<b>Green-tailed Towhee</b>	6.25	54,944	66	10
<b>Hairy Woodpecker</b>	7.37	64,825	40	8
Hammond's Flycatcher	16.85	148,204	45	17
Hermit Thrush	14.06	123,603	32	56
House Finch	1.20	10,558	85	1
House Wren	28.33	249,099	57	32
Lincoln's Sparrow	1.26	11,114	88	1
MacGillivray's Warbler	0.89	7,804	83	1
<b>Mountain Bluebird</b>	5.62	49,465	50	5
Mountain Chickadee	15.60	137,173	32	16
Mourning Dove	0.34	3,015	84	1
Northern Flicker	3.56	31,305	37	14
<b>Olive-sided Flycatcher</b>	0.83	7,334	64	3
Orange-crowned Warbler	22.50	197,852	65	17
Pine Siskin	14.04	123,479	41	10
Plumbeous Vireo	1.34	11,798	83	3
Pygmy Nuthatch	4.34	38,129	108	2

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Species	San Juan NF (S=8)			
	D	N	% CV	n
Red-breasted Nuthatch	3.10	27,243	74	4
Red-naped Sapsucker	9.42	82,852	79	8
Rock Wren	0.95	8,356	87	6
Ruby-crowned Kinglet	46.41	408,152	36	63
Song Sparrow	16.32	143,528	60	30
Spotted Towhee	10.06	88,448	85	14
Steller's Jay	3.67	32,278	31	10
Townsend's Solitaire	0.58	5,087	83	1
Tree Swallow	58.73	516,507	42	22
Violet-green Swallow	16.91	148,666	73	11
Virginia's Warbler	6.46	56,836	90	6
Warbling Vireo	11.36	99,885	41	21
Western Bluebird	1.79	15,731	83	1
Western Tanager	15.26	134,228	32	30
Western Wood-Pewee	10.53	92,610	38	27
White-breasted Nuthatch	4.67	41,055	50	5
White-crowned Sparrow	13.34	117,324	90	19
Wilson's Warbler	19.14	168,299	83	6
Yellow Warbler	3.28	28,853	82	3
Yellow-rumped Warbler	53.65	471,821	26	65

Table 142. Estimated proportion of sample units occupied (Psi), percent coefficient of variation of Psi (% CV) and number of transects with one or more detections (n Tran) of breeding bird species in San Juan National Forest, 2010. Dashes indicate the data were insufficient for estimating site occupancy. A Psi estimate equal to 1 indicates the species was detected on all transects surveyed. S indicates the number of transects used in analyses. Priority species are bolded.

Species	San Juan NF (S=8)		
	Psi	% CV	n Tran
American Pipit	0.127	94	1
Black-billed Magpie	0.144	94	1
Blue-gray Gnatcatcher	0.128	94	1
Broad-tailed Hummingbird	0.401	46	3
Brown Creeper	0.172	94	1
Brown-headed Cowbird	0.293	61	2
Bushtit	0.230	95	1
Canada Goose	0.157	94	1
Clark's Nutcracker	0.278	61	2
Cordilleran Flycatcher	0.466	46	3
Dusky Grouse	0.384	100	1
Gray Jay	0.144	94	1

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Species	San Juan NF (S=8)		
	Psi	% CV	n Tran
<b>Green-tailed Towhee</b>	0.252	61	2
<b>Hairy Woodpecker</b>	0.578	35	4
Hammond's Flycatcher	0.418	46	3
<b>Lewis's Woodpecker</b>	0.160	95	1
Lincoln's Sparrow	0.137	94	1
MacGillivray's Warbler	0.130	94	1
<b>Mountain Bluebird</b>	0.408	46	3
<b>Olive-sided Flycatcher</b>	0.156	94	1
Orange-crowned Warbler	0.538	35	4
Pine Siskin	0.383	46	3
Pinyon Jay	0.134	94	1
Plumbeous Vireo	0.127	94	1
Pygmy Nuthatch	0.126	94	1
Red-naped Sapsucker	0.277	61	2
Rock Wren	0.136	94	1
Ruby-crowned Kinglet	0.629	27	5
Say's Phoebe	0.195	94	1
Song Sparrow	0.436	46	3
Spotted Towhee	0.125	94	1
Townsend's Solitaire	0.143	94	1
Tree Swallow	0.413	46	3
Virginia's Warbler	0.127	94	1
Warbling Vireo	0.627	27	5
Western Bluebird	0.133	94	1
Wilson's Warbler	0.301	61	2
Yellow Warbler	0.261	61	2

**(11) Shoshone National Forest**

Within this sampling design Shoshone National Forest is split into two strata, front-country, managed areas and designated roadless and wilderness areas. This forest-level stratification distinction was made due to field implementation cost considerations and the desire to focus monitoring on the more highly managed areas while maintaining inference to the entire management unit. In this section of this report these two strata are combined to the administrative area of Shoshone National Forest.

Field technicians surveyed all 23 planned transects throughout Shoshone National Forest in 2010. Technicians conducted 264 point counts within the 23 transects between 11 June and 21 July 2010. We detected 84 species, including 6 priority species for Shoshone National Forest (Appendix E).

RMBO estimated densities and population sizes for 65 species, 4 of which are priority species for Shoshone National Forest (Table 143). The data yielded robust density estimates ( $CV < 50\%$ ) for 17 of these species.

We estimated the proportion of transects occupied ( $\Psi$ ) by 50 species, 4 of which are priority species for Shoshone National Forest (Table 144). The data yielded robust occupancy estimates ( $CV < 50\%$ ) for 16 of these species.

This monitoring design and current sampling intensity is providing population information for two of the five species designated as Management Indicators for Shoshone National Forest. This includes density and occupancy estimates for Brewer's Sparrow and Hairy Woodpecker.

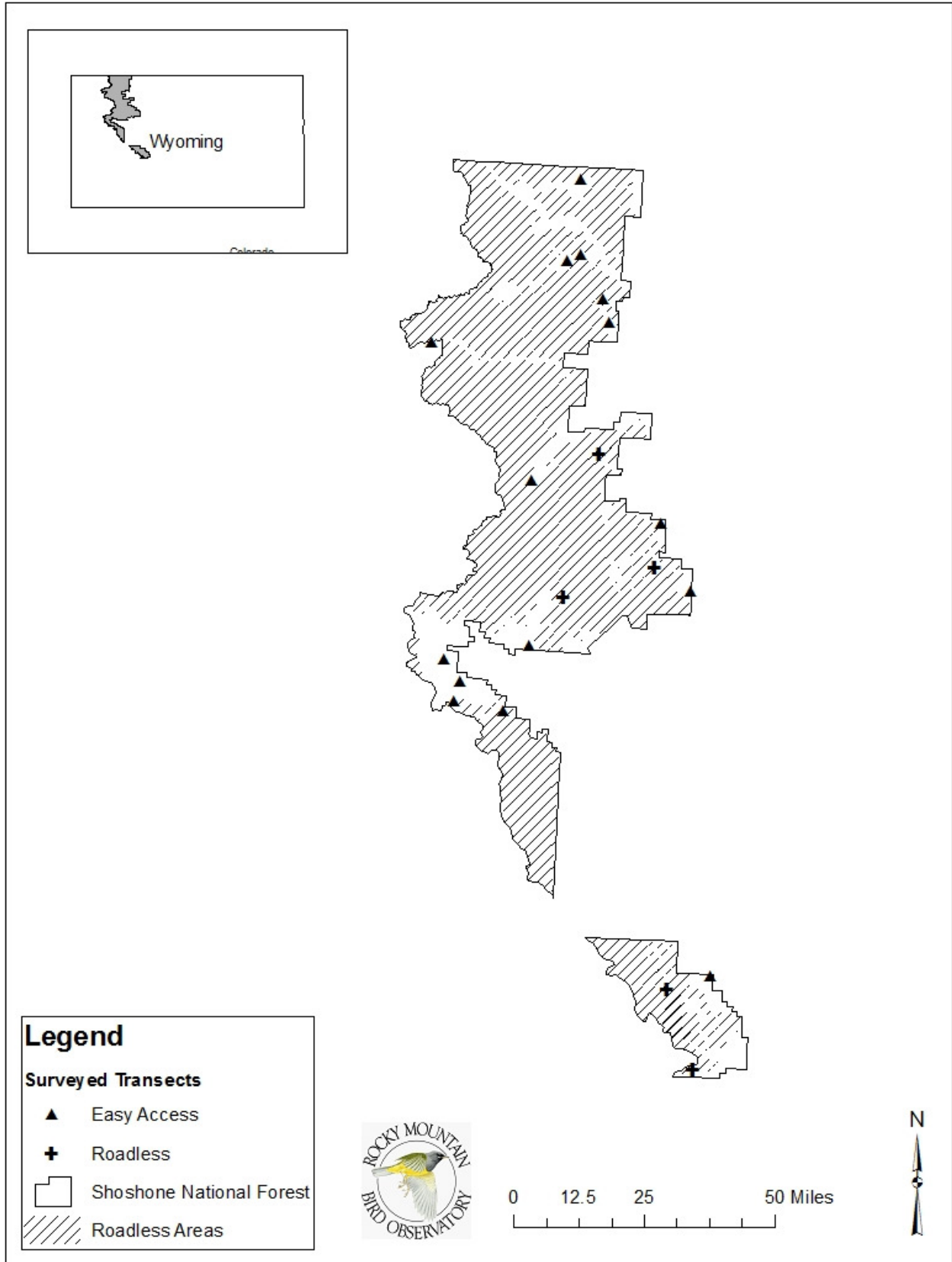


Figure 35. Survey locations in Shoshone National Forest, 2010.

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Table 143. Estimated densities per km<sup>2</sup> (D), population sizes (N), percent coefficient of variation of estimates (% CV) and number of independent detections (n) of breeding bird species in Shoshone National Forest, 2010. S indicates the number of transects used in analyses. Priority species are bolded.

Species	Shoshone NF (S=23)			
	D	N	% CV	n
American Crow	0.08	861	51	8
American Goldfinch	0.33	3,462	88	1
American Kestrel	0.29	2,986	84	1
American Pipit	14.17	147,518	73	45
American Robin	12.00	124,897	20	54
<b>American Three-toed Woodpecker</b>	5.25	54,640	59	4
Black-billed Magpie	0.22	2,306	87	7
Black-capped Chickadee	0.87	9,054	71	6
Black-headed Grosbeak	0.14	1,478	70	3
Brewer's Blackbird	0.18	1,847	64	2
<b>Brewer's Sparrow</b>	3.82	39,776	42	52
Brown Creeper	14.89	155,072	62	7
Brown-headed Cowbird	0.60	6,260	88	4
Canyon Wren	0.01	113	91	1
Cassin's Finch	0.14	1,418	57	2
Chipping Sparrow	32.76	341,065	28	54
Clark's Nutcracker	5.22	54,345	59	33
Common Grackle	0.35	3,687	88	2
Common Raven	0.29	3,018	50	6
Dark-eyed Junco	57.56	599,363	26	78
Downy Woodpecker	0.28	2,877	66	2
Dusky Flycatcher	15.16	157,829	59	30
Fox Sparrow	0.05	477	82	1
Gray Jay	0.92	9,570	55	6
Green-tailed Towhee	0.92	9,560	36	14
<b>Hairy Woodpecker</b>	7.47	77,750	51	12
Hammond's Flycatcher	0.10	1,083	88	1
Hermit Thrush	10.30	107,226	52	54
Horned Lark	0.92	9,601	53	19
House Wren	0.18	1,866	83	2
Killdeer	0.13	1,326	89	2
Lark Sparrow	0.06	651	87	1
Lincoln's Sparrow	10.39	108,203	52	24
MacGillivray's Warbler	1.29	13,450	75	3
Mountain Bluebird	1.06	11,066	34	9
Mountain Chickadee	20.00	208,209	44	65
Northern Flicker	0.27	2,779	33	10

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Species	Shoshone NF (S=23)			
	D	N	% CV	n
<b>Olive-sided Flycatcher</b>	0.09	911	64	3
Ovenbird	0.06	573	85	1
Pine Grosbeak	0.11	1,197	83	1
Pine Siskin	14.41	150,016	48	20
Plumbeous Vireo	0.05	489	83	1
Red Crossbill	10.42	108,446	43	10
Red-breasted Nuthatch	12.31	128,160	40	21
Red-naped Sapsucker	1.59	16,562	81	2
Red-tailed Hawk	0.06	650	75	3
Rock Wren	4.13	42,987	61	31
Ruby-crowned Kinglet	16.33	170,006	32	59
Sage Thrasher	0.02	168	83	1
Savannah Sparrow	1.55	16,137	88	21
Song Sparrow	0.57	5,946	46	10
Spotted Sandpiper	0.34	3,504	94	10
Swainson's Hawk	0.03	285	66	2
Swainson's Thrush	0.12	1,300	100	2
Townsend's Solitaire	3.91	40,678	51	10
Vesper Sparrow	1.89	19,665	37	49
Warbling Vireo	4.11	42,761	22	18
Western Meadowlark	0.21	2,168	80	11
Western Tanager	4.28	44,599	83	15
Western Wood-Pewee	0.04	426	90	1
White-breasted Nuthatch	0.20	2,041	62	2
White-crowned Sparrow	5.29	55,083	52	31
Wilson's Warbler	0.33	3,486	105	1
Yellow Warbler	1.38	14,344	49	12
Yellow-rumped Warbler	33.02	343,851	21	66

Table 144. Estimated proportion of sample units occupied (Psi), percent coefficient of variation of Psi (% CV) and number of transects with one or more detections (n Tran) of breeding bird species in Shoshone National Forest, 2010. Dashes indicate the data were insufficient for estimating site occupancy. A Psi estimate equal to 1 indicates the species was detected on all transects surveyed. S indicates the number of transects used in analyses. Priority species are bolded.

Species	Shoshone NF (S=23)		
	Psi	% CV	n Tran
American Pipit	0.171	84	2
<b>American Three-toed Woodpecker</b>	0.501	53	3
Black Rosy-Finch	0.212	84	2
Black-billed Magpie	0.014	97	1



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Species	Shoshone NF (S=23)		
	Psi	% CV	n Tran
<b>Brewer's Sparrow</b>	0.079	30	7
Broad-tailed Hummingbird	0.026	67	2
Brown Creeper	0.494	49	5
Brown-headed Cowbird	0.012	97	1
Calliope Hummingbird	0.043	108	1
Canyon Wren	0.018	99	1
Cassin's Finch	0.029	67	2
Cedar Waxwing	0.020	99	1
Clark's Nutcracker	0.434	46	7
Cordilleran Flycatcher	0.015	97	1
Downy Woodpecker	0.038	67	2
Dusky Flycatcher	0.612	31	11
Golden-crowned Kinglet	0.015	97	1
Gray Jay	0.042	53	3
Green-tailed Towhee	0.080	30	7
<b>Hairy Woodpecker</b>	0.450	46	7
Hammond's Flycatcher	0.027	67	2
Horned Lark	0.045	44	4
Lark Sparrow	0.012	97	1
Lazuli Bunting	0.012	97	1
Lincoln's Sparrow	0.381	49	5
MacGillivray's Warbler	0.205	74	4
Mountain Bluebird	0.087	29	7
Northern Rough-winged Swallow	0.020	98	1
<b>Olive-sided Flycatcher</b>	0.015	97	1
Orange-crowned Warbler	0.013	97	1
Ovenbird	0.024	67	2
Pine Grosbeak	0.014	97	1
Pine Siskin	0.423	43	10
Plumbeous Vireo	0.012	97	1
Red Crossbill	0.561	33	8
Red-naped Sapsucker	0.196	83	2
Rock Wren	0.395	50	5
Ruby-crowned Kinglet	0.765	19	15
Sage Thrasher	0.012	97	1
Savannah Sparrow	0.012	97	1
Song Sparrow	0.053	44	4
Swainson's Hawk	0.036	111	1
Swainson's Thrush	0.011	97	1
Townsend's Solitaire	0.399	51	4
Tree Swallow	0.013	97	1

Species	Shoshone NF (S=23)		
	Psi	% CV	n Tran
Vesper Sparrow	0.057	38	5
Warbling Vireo	0.710	20	10
Western Meadowlark	0.023	67	2
Wilson's Warbler	0.014	97	1
Yellow Warbler	0.071	33	6

**(12) White River National Forest**

Field technicians surveyed all 10 planned transects throughout White River National Forest in 2010. Technicians conducted 143 point counts within the 10 transects between 19 June and 21 July 2010. We detected 62 species, including 5 priority species for the White River National Forest (Appendix E).

RMBO estimated densities and population sizes for 53 species, 4 of which are priority species for White River National Forest (Table 145). The data yielded robust density estimates (CV < 50%) for 27 of these species.

We estimated the proportion of transects occupied (Psi) by 37 species, 5 of which are priority species for White River National Forest (Table 146). The data yielded robust occupancy estimates (CV < 50%) for 21 of these species.

This monitoring design and current sampling intensity is providing population information for both species designated as Management Indicators for the White River National Forest. This includes density and occupancy estimates for American Pipit and Brewer's Sparrow.

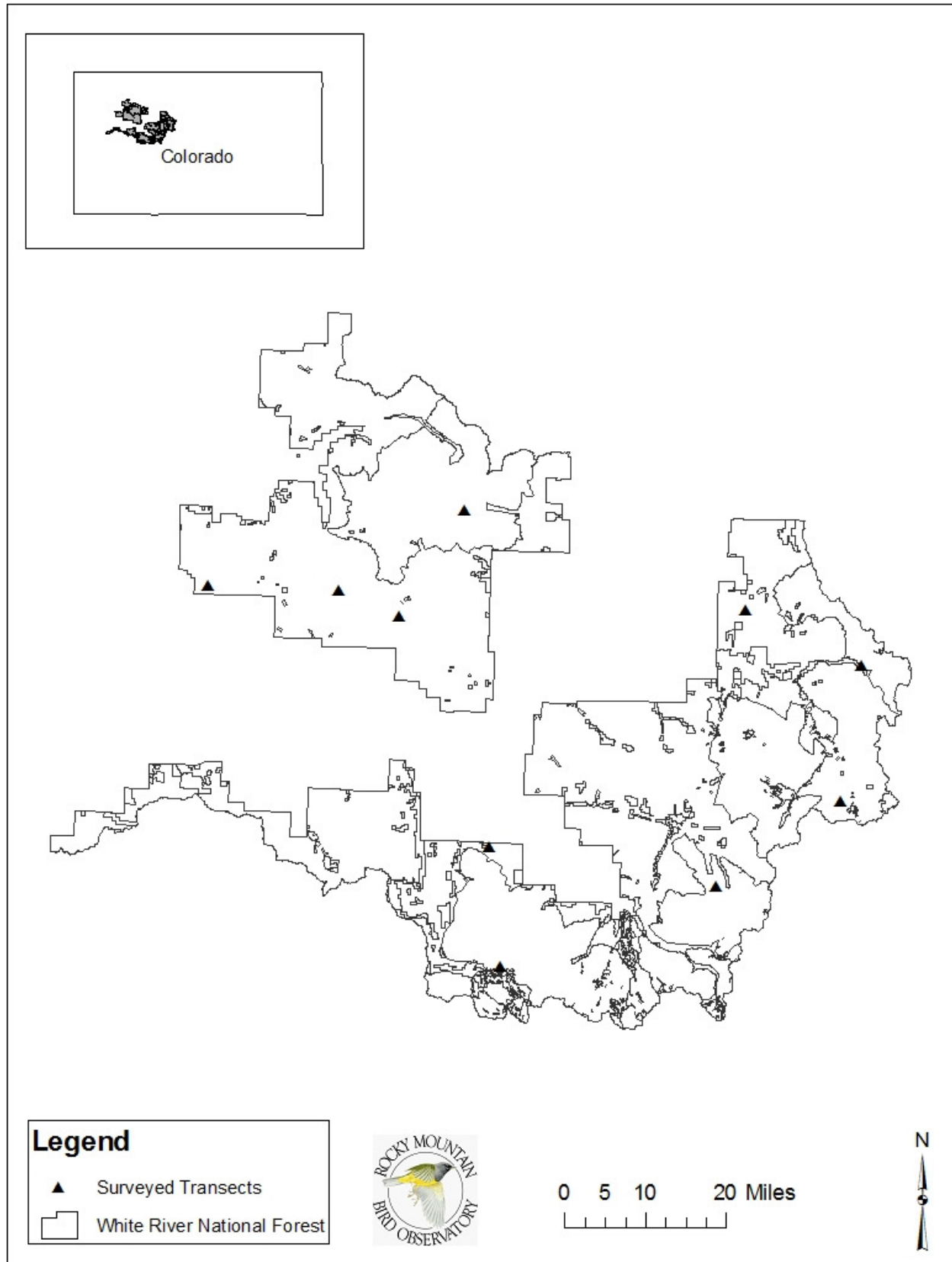


Figure 36. Survey locations in White River National Forest, 2010.

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Table 145. Estimated densities per km<sup>2</sup> (D), population sizes (N), percent coefficient of variation of estimates (% CV) and number of independent detections (n) of breeding bird species in White River National Forest, 2010. S indicates the number of transects used in analyses. Priority species are bolded.

Species	White River NF (S=10)			
	D	N	% CV	n
<b>American Pipit</b>	3.65	32,201	89	7
American Robin	51.66	455,360	19	88
<b>American Three-toed Woodpecker</b>	0.98	8,671	89	1
Black-billed Magpie	0.26	2,326	98	3
Black-headed Grosbeak	1.30	11,446	67	4
<b>Brewer's Sparrow</b>	0.50	4,443	85	1
Broad-tailed Hummingbird	32.13	283,210	42	16
Brown Creeper	5.00	44,057	46	3
Brown-headed Cowbird	2.06	18,180	58	2
Cassin's Finch	6.54	57,672	44	14
Chipping Sparrow	45.11	397,602	31	44
Clark's Nutcracker	3.06	26,991	44	14
Common Raven	2.37	20,857	61	33
Cordilleran Flycatcher	6.56	57,798	30	11
Dark-eyed Junco	93.86	827,254	32	96
Downy Woodpecker	0.95	8,354	85	1
Dusky Flycatcher	9.08	80,015	55	14
Gray Jay	12.61	111,180	40	12
Green-tailed Towhee	19.35	170,559	61	43
Hairy Woodpecker	8.63	76,047	28	13
Hammond's Flycatcher	0.71	6,294	82	1
Hermit Thrush	22.24	195,990	24	123
House Wren	36.99	326,059	42	59
Lincoln's Sparrow	20.03	176,513	38	22
MacGillivray's Warbler	18.54	163,378	40	29
Mountain Bluebird	11.34	99,986	74	14
Mountain Chickadee	57.20	504,194	28	78
Mourning Dove	0.25	2,177	86	1
Northern Flicker	1.28	11,300	42	7
<b>Olive-sided Flycatcher</b>	1.60	14,119	35	8
Orange-crowned Warbler	11.44	100,823	53	12
Pine Grosbeak	13.41	118,198	26	17
Pine Siskin	97.09	855,760	32	96
Red Crossbill	16.72	147,344	43	18
Red-breasted Nuthatch	11.71	103,253	32	21
Red-naped Sapsucker	2.54	22,430	81	3
Red-tailed Hawk	0.29	2,517	94	2

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Species	White River NF (S=10)			
	D	N	% CV	n
Ruby-crowned Kinglet	58.90	519,149	20	111
Steller's Jay	1.59	13,981	64	6
Swainson's Thrush	0.86	7,549	82	2
Townsend's Solitaire	3.33	29,381	52	8
Tree Swallow	38.46	338,978	80	20
Vesper Sparrow	2.38	20,981	72	9
Violet-green Swallow	18.82	165,865	53	17
Warbling Vireo	19.09	168,253	40	49
Western Bluebird	1.29	11,356	86	1
Western Tanager	9.16	80,751	34	25
Western Wood-Pewee	8.99	79,238	46	32
White-breasted Nuthatch	0.67	5,928	85	1
White-crowned Sparrow	58.79	518,208	25	98
Wilson's Warbler	9.19	80,999	74	4
Yellow Warbler	1.58	13,886	104	2
Yellow-rumped Warbler	67.78	597,388	19	114

Table 146. Estimated proportion of sample units occupied (Psi), percent coefficient of variation of Psi (% CV) and number of transects with one or more detections (n Tran) of breeding bird species in White River National Forest, 2010. Dashes indicate the data were insufficient for estimating site occupancy. A Psi estimate equal to 1 indicates the species was detected on all transects surveyed. S indicates the number of transects used in analyses. Priority species are bolded.

Species	White River NF (S=10)		
	Psi	% CV	n Tran
<b>American Pipit</b>	0.101	95	1
<b>American Three-toed Woodpecker</b>	0.143	95	1
Black-billed Magpie	0.111	95	1
<b>Brewer's Sparrow</b>	0.100	95	1
Broad-tailed Hummingbird	0.885	15	8
Brown Creeper	0.402	48	3
Brown-headed Cowbird	0.227	63	2
Cassin's Finch	0.676	26	6
Clark's Nutcracker	0.533	32	5
Cordilleran Flycatcher	0.760	26	6
Downy Woodpecker	0.151	95	1
Dusky Flycatcher	0.308	48	3
Dusky Grouse	0.284	101	1
Gray Jay	0.664	26	6
Green-tailed Towhee	0.403	39	4
Hairy Woodpecker	0.812	20	7

Species	White River NF (S=10)		
	Psi	% CV	n Tran
Lincoln's Sparrow	0.633	26	6
MacGillivray's Warbler	0.868	16	8
Mountain Bluebird	0.309	48	3
<b>Olive-sided Flycatcher</b>	0.478	39	5
Orange-crowned Warbler	0.325	48	3
Pine Grosbeak	0.866	16	8
Pine Siskin	0.903	11	9
<b>Purple Martin</b>	0.120	95	1
Red Crossbill	0.621	26	6
Red-naped Sapsucker	0.219	63	2
Ruby-crowned Kinglet	0.901	11	9
Rufous Hummingbird	0.153	96	1
Swainson's Thrush	0.201	63	2
Townsend's Solitaire	0.326	48	3
Tree Swallow	0.218	63	2
Vesper Sparrow	0.201	63	2
Warbling Vireo	0.610	26	6
Western Bluebird	0.105	95	1
Williamson's Sapsucker	0.121	95	1
Wilson's Warbler	0.468	39	4
Yellow Warbler	0.104	95	1

**b) National Grasslands**

Within this sampling design each National Grassland in Region 2 is stratified separately. This grassland-level stratification distinction is made so we can analyze the data separately for each Grassland, or together as a whole. In this section of the report, we present estimates for all Region 2 Grasslands combined, followed by estimates for each individual Grassland. Note that we did not survey the Cimarron National Grassland or the BCR 18 portion of the Oglala National Grassland in 2010 due to a planning error. These units will have extra sampling implemented during 2011. We did not survey any USFS lands within BCR 18 outside of Colorado and Wyoming this year.

**(1) Region 2 National Grasslands: Total**

Field technicians surveyed 37 of 46 planned transects throughout USFS Region 2 Grasslands in 2010. Technicians conducted 428 point counts within the 37 transects between 14 May and 8 July 2010. We detected 87 species, including 9 priority species as designated by USFS Region 2 (Appendix E).

RMBO estimated densities and population sizes for 60 species, 8 of which are priority species in USFS Region 2 (Table 147). The data yielded robust density estimates (CV < 50%) for 24 of these species.

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We estimated the proportion of transects occupied (Psi) by 43 species, 9 of which are priority species in USFS Region 2 (Table 148). The data yielded robust occupancy estimates (CV < 50%) for 12 of these species.

Table 147. Estimated densities per km<sup>2</sup> (D), population sizes (N), percent coefficient of variation of estimates (% CV) and number of independent detections (n) of breeding bird species in National Grasslands in Region 2, 2010. S indicates the number of transects used in analyses. Priority species are bolded.

Species	USFS Region 2 NG (S=37)			
	D	N	% CV	n
American Crow	0.16	2,886	47	5
American Goldfinch	1.49	26,091	93	3
American Robin	1.12	19,531	75	7
Barn Swallow	5.84	102,223	57	6
Bewick's Wren	1.95	34,118	95	8
Black-capped Chickadee	1.89	33,084	94	7
Black-headed Grosbeak	0.75	13,207	90	5
Blue-gray Gnatcatcher	0.89	15,511	83	2
Brewer's Blackbird	2.79	48,840	35	17
<b>Brewer's Sparrow</b>	12.22	213,801	31	84
Brown-headed Cowbird	18.21	318,615	25	78
Bullock's Oriole	0.96	16,835	48	3
Bushtit	0.56	9,745	99	1
Canada Goose	0.02	360	42	7
<b>Cassin's Sparrow</b>	17.82	311,952	21	236
<b>Chestnut-collared Longspur</b>	0.14	2,402	84	2
Chipping Sparrow	8.01	140,158	61	16
Clay-colored Sparrow	0.04	640	85	1
Cliff Swallow	9.07	158,782	67	7
Common Grackle	1.72	30,044	70	4
Common Nighthawk	0.94	16,388	54	5
Common Yellowthroat	0.13	2,339	63	2
Dusky Flycatcher	0.35	6,164	88	2
Eastern Kingbird	0.80	13,948	85	5
Field Sparrow	0.27	4,762	58	5
<b>Grasshopper Sparrow</b>	36.54	639,451	11	228
Horned Lark	48.73	852,779	12	489
Killdeer	2.06	35,984	29	21
Lark Bunting	37.13	649,881	20	459
Lark Sparrow	15.17	265,407	29	67
<b>Loggerhead Shrike</b>	0.38	6,703	42	5
<b>Long-billed Curlew</b>	0.06	1,023	93	2
Mallard	0.15	2,634	39	6

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Species	USFS Region 2 NG (S=37)			
	D	N	% CV	n
<b>McCown's Longspur</b>	2.58	45,203	57	27
Mountain Bluebird	0.44	7,702	62	2
Mourning Dove	7.20	126,039	25	75
Northern Flicker	0.30	5,223	44	6
<b>Northern Harrier</b>	0.11	1,949	54	3
Northern Mockingbird	1.79	31,246	45	29
Red-breasted Nuthatch	0.30	5,302	104	2
Red-tailed Hawk	0.04	679	91	1
Red-winged Blackbird	3.38	59,225	26	52
Ring-necked Pheasant	0.12	2,029	23	35
Rock Pigeon	0.18	3,177	86	1
Rock Wren	0.37	6,517	44	10
Sage Thrasher	0.06	1,054	59	2
Savannah Sparrow	0.25	4,363	59	3
Say's Phoebe	0.17	3,001	52	5
Spotted Towhee	2.21	38,640	81	15
Swainson's Hawk	0.02	395	86	1
Tree Swallow	0.21	3,715	85	1
Upland Sandpiper	0.89	15,645	17	25
Vesper Sparrow	4.09	71,651	27	57
Western Kingbird	2.60	45,511	30	19
Western Meadowlark	37.45	655,346	9	916
Western Scrub-Jay	0.10	1,743	92	1
Wild Turkey	0.03	557	87	1
Wilson's Snipe	0.07	1,186	88	1
Yellow-headed Blackbird	0.07	1,294	87	2
Yellow-rumped Warbler	0.65	11,302	88	4

Table 148. Estimated proportion of sample units occupied (Psi), percent coefficient of variation of Psi (% CV) and number of transects with one or more detections (n Tran) of breeding bird species in National Grasslands in Region 2, 2010. Dashes indicate the data were insufficient for estimating site occupancy. A Psi estimate equal to 1 indicates the species was detected on all transects surveyed. S indicates the number of transects used in analyses. Priority species are bolded.

Species	USFS Region 2 NG (S=37)		
	Psi	% CV	n Tran
Bewick's Wren	0.037	94	1
Blue Grosbeak	0.039	93	1
Blue-gray Gnatcatcher	0.037	94	1
Blue-winged Teal	--	--	3
<b>Brewer's Sparrow</b>	0.279	25	10



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Species	USFS Region 2 NG (S=37)		
	Psi	% CV	n Tran
Brown-headed Cowbird	0.681	11	22
Bullock's Oriole	0.117	52	3
Bushtit	0.070	95	1
<b>Cassin's Sparrow</b>	0.300	14	10
<b>Chestnut-collared Longspur</b>	0.010	87	1
Common Nighthawk	0.206	53	3
Common Yellowthroat	0.053	72	2
Downy Woodpecker	0.039	95	1
Dusky Flycatcher	0.027	95	1
Eastern Kingbird	0.152	56	3
European Starling	0.046	68	2
Field Sparrow	0.053	63	2
Gadwall	0.040	54	2
<b>Grasshopper Sparrow</b>	0.734	9	28
Horned Lark	0.844	7	31
Lark Bunting	0.696	12	25
Lark Sparrow	0.452	15	16
<b>Loggerhead Shrike</b>	0.275	52	4
<b>Long-billed Curlew</b>	0.059	95	1
Marbled Godwit	0.014	87	1
<b>McCown's Longspur</b>	0.078	39	4
Mountain Bluebird	0.055	63	2
<b>Mountain Plover</b>	0.021	95	1
<b>Northern Harrier</b>	0.064	101	1
Northern Shoveler	0.021	92	1
Rock Wren	0.183	36	6
Rufous-crowned Sparrow	0.036	94	1
Sage Thrasher	0.026	95	1
Savannah Sparrow	0.037	72	2
Say's Phoebe	0.110	53	3
Spotted Towhee	0.087	53	3
Swainson's Hawk	0.061	109	1
Tree Swallow	0.012	87	1
Upland Sandpiper	0.232	5	5
Vesper Sparrow	0.158	26	6
Western Meadowlark	0.966	3	36
Western Scrub-Jay	0.037	94	1
Wilson's Phalarope	0.029	51	2
Wilson's Snipe	0.014	87	1

**(2) Nebraska National Grasslands (Buffalo Gap NG, Fort Pierre NG, Oglala NG)**

Within this sampling design the Nebraska National Grasslands are split into four strata, Buffalo Gap, Fort Pierre, BCR 17 Oglala and BCR 18 Oglala. This grassland-level stratification distinction is made so we can analyze the data separately for each Grassland, or together as a whole. In this section of this report we present estimates for each Grassland, as well as for the Nebraska National Grasslands combined. However, we do not present density or occupancy results for Oglala National Grassland, because only two of the 6 planned sampling units were conducted in 2010 and results from strata with only two samples are not informative. However, this data is incorporated into the management unit estimates.

Field technicians surveyed 9 of 14 planned transects throughout the Nebraska National Grasslands in 2010. The five samples that were not conducted in 2010 will be added to the 2011 sampling plan. Technicians conducted 96 point counts within the 9 transects between 16 May and 8 July 2010. We detected 45 species, including 2 priority species for the Nebraska National Grasslands (Appendix E).

RMBO estimated densities and population sizes for 24 species, two of which is a priority species for the Nebraska National Grasslands (Table 149). The data yielded robust density estimates ( $CV < 50\%$ ) for nine of these species.

We estimated the proportion of transects occupied ( $P_{si}$ ) by 13 species, 2 of which are priority species for the Nebraska National Grasslands (Table 150). The data yielded robust occupancy estimates ( $CV < 50\%$ ) for three of these species.

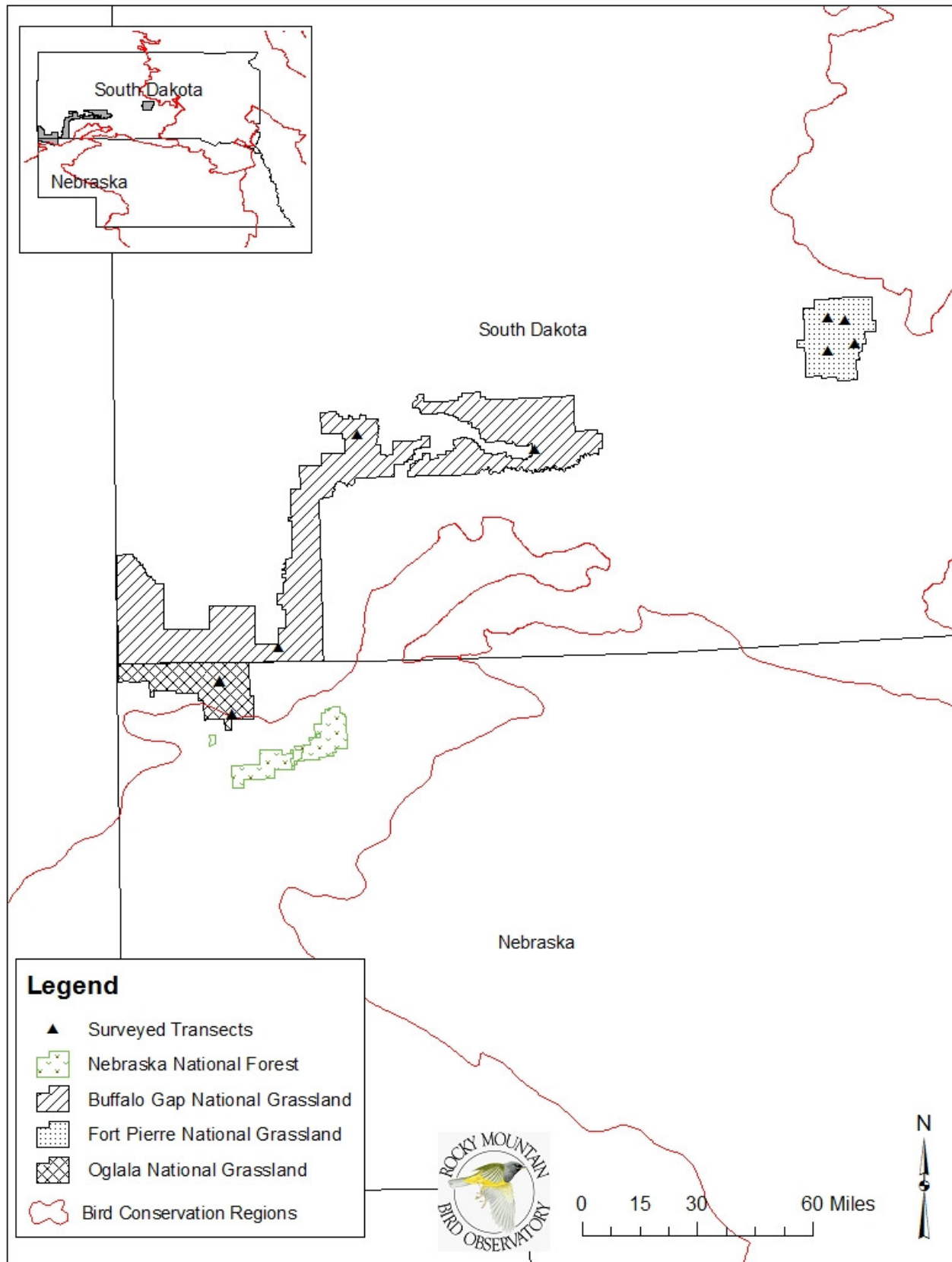


Figure 37. Survey locations in Nebraska National Forests and Grasslands, 2010.

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Table 149. Estimated densities per km<sup>2</sup> (D), population sizes (N), percent coefficient of variation of estimates (% CV) and number of independent detections (n) of breeding bird species in the Nebraska National Forests and Grasslands, 2010. S indicates the number of transects used in analyses. Priority species are bolded.

Species	Nebraska NG Total (S=9)				Buffalo Gap NG (S=2)				Fort Pierre NG (S=4)			
	D	N	% CV	n	D	N	% CV	n	D	N	% CV	n
American Goldfinch	0.90	4,407	84	1	--	--	--	--	6.16	4,407	84	1
Barn Swallow	11.00	53,634	92	2	13.31	48,060	102	1	7.78	5,574	87	1
Brown-headed Cowbird	25.68	125,251	43	40	14.27	51,536	100	3	102.95	73,716	21	37
Canada Goose	0.07	360	42	7	--	--	--	--	0.50	360	42	7
<b>Chestnut-collared Longspur</b>	0.49	2,402	84	2	--	--	--	--	3.36	2,402	84	2
Chipping Sparrow	0.40	1,953	84	1	--	--	--	--	2.73	1,953	84	1
Clay-colored Sparrow	0.13	640	85	1	--	--	--	--	0.89	640	85	1
Common Grackle	5.11	24,929	82	3	--	--	--	--	6.56	4,694	48	2
Common Yellowthroat	0.14	676	84	1	5.60	20,236	101	1	0.94	676	84	1
Eastern Kingbird	2.03	9,880	116	2	2.74	9,880	116	2	--	--	--	--
<b>Grasshopper Sparrow</b>	99.44	484,982	11	147	106.43	384,314	14	62	62.25	44,572	12	62
Horned Lark	21.67	105,669	36	36	21.51	77,661	47	14	11.68	8,364	58	13
Killdeer	1.21	5,908	55	7	--	--	--	--	8.25	5,908	55	7
Lark Bunting	38.38	187,193	53	49	49.62	179,182	55	44	--	--	--	--
Mallard	0.36	1,765	38	5	--	--	--	--	2.47	1,765	38	5
Mourning Dove	4.71	22,953	78	10	5.70	20,567	86	5	3.33	2,385	73	5
Red-winged Blackbird	7.02	34,243	38	36	1.47	5,312	100	1	25.81	18,481	29	30
Ring-necked Pheasant	0.42	2,029	23	35	--	--	--	--	2.83	2,029	23	35
Savannah Sparrow	0.40	1,957	85	2	--	--	--	--	2.73	1,957	85	2
Tree Swallow	0.76	3,715	85	1	--	--	--	--	5.19	3,715	85	1
Upland Sandpiper	2.82	13,732	18	23	2.14	7,744	25	3	8.36	5,988	24	20
Western Meadowlark	36.00	175,592	25	204	32.95	118,993	37	55	41.00	29,357	7	117
Wilson's Snipe	0.24	1,186	88	1	--	--	--	--	1.66	1,186	88	1
Yellow-headed Blackbird	0.27	1,294	87	2	--	--	--	--	1.81	1,294	87	2

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Table 150. Estimated proportion of sample units occupied (Psi), percent coefficient of variation of Psi (% CV) and number of transects with one or more detections (n Tran) of breeding bird species in the Nebraska National Forests and Grasslands, 2010. Dashes indicate the data were insufficient for estimating site occupancy. A Psi estimate equal to 1 indicates the species was detected on all transects surveyed. S indicates the number of transects used in analyses. Priority species are bolded.

Species	Nebraska NF and NG (S=9)			Buffalo Gap NG (S=3)			Fort Pierre NG (S=4)		
	Psi	% CV	n Tran	Psi	% CV	n Tran	Psi	% CV	n Tran
Blue-winged Teal	--	--	3	0	--	0	--	--	3
Brown-headed Cowbird	--	--	7	1	--	3	1	--	4
<b>Chestnut-collared Longspur</b>	0.037	87	1	0	--	0	0.250	87	1
Common Yellowthroat	0.055	87	1	0	--	0	0.374	87	1
Eastern Kingbird	0.332	81	1	0.449	81	1	0	--	0
Gadwall	0.143	54	2	0	--	0	0.975	54	2
<b>Grasshopper Sparrow</b>	1	--	9	1	--	3	1	--	4
Horned Lark	0.965	3	8	1	--	3	0.761	29	3
Lark Bunting	0.553	37	3	0.669	41	2	0	--	0
Marbled Godwit	0.049	87	1	0	--	0	0.332	87	1
Northern Shoveler	0.076	92	1	0	--	0	0.519	92	1
Savannah Sparrow	0.037	87	1	0	--	0	0.255	87	1
Tree Swallow	0.041	87	1	0	--	0	0.281	87	1
Upland Sandpiper	0.831	5	5	1	--	3	0.615	50	2
Western Meadowlark	1	--	9	1	--	3	1	--	4
Wilson's Phalarope	0.105	51	2	0	--	0	0.715	51	2
Wilson's Snipe	0.051	87	1	0	--	0	0.348	87	1

**(3) Comanche National Grassland**

Field technicians surveyed all eight planned transects throughout Comanche National Grasslands in 2010. Technicians conducted 85 point counts within the 8 transects between 24 May and 14 June 2010. We detected 38 species, including 6 priority species for Comanche National Grassland (Appendix E).

RMBO estimated densities and population sizes for 27 species, 6 of which are priority species for Comanche National Grassland (Table 151). The data yielded robust density estimates ( $CV < 50\%$ ) for nine of these species.

We estimated the proportion of transects occupied ( $P_{si}$ ) by 20 species, 6 of which are priority species for Comanche National Grassland (Table 152). The data yielded robust occupancy estimates ( $CV < 50\%$ ) for seven of these species.

This monitoring design and current sampling intensity is providing population information for both species designated as Management Indicators for Comanche National Grassland. This includes density and occupancy estimates for Bullock's Oriole and Long-billed Curlew.

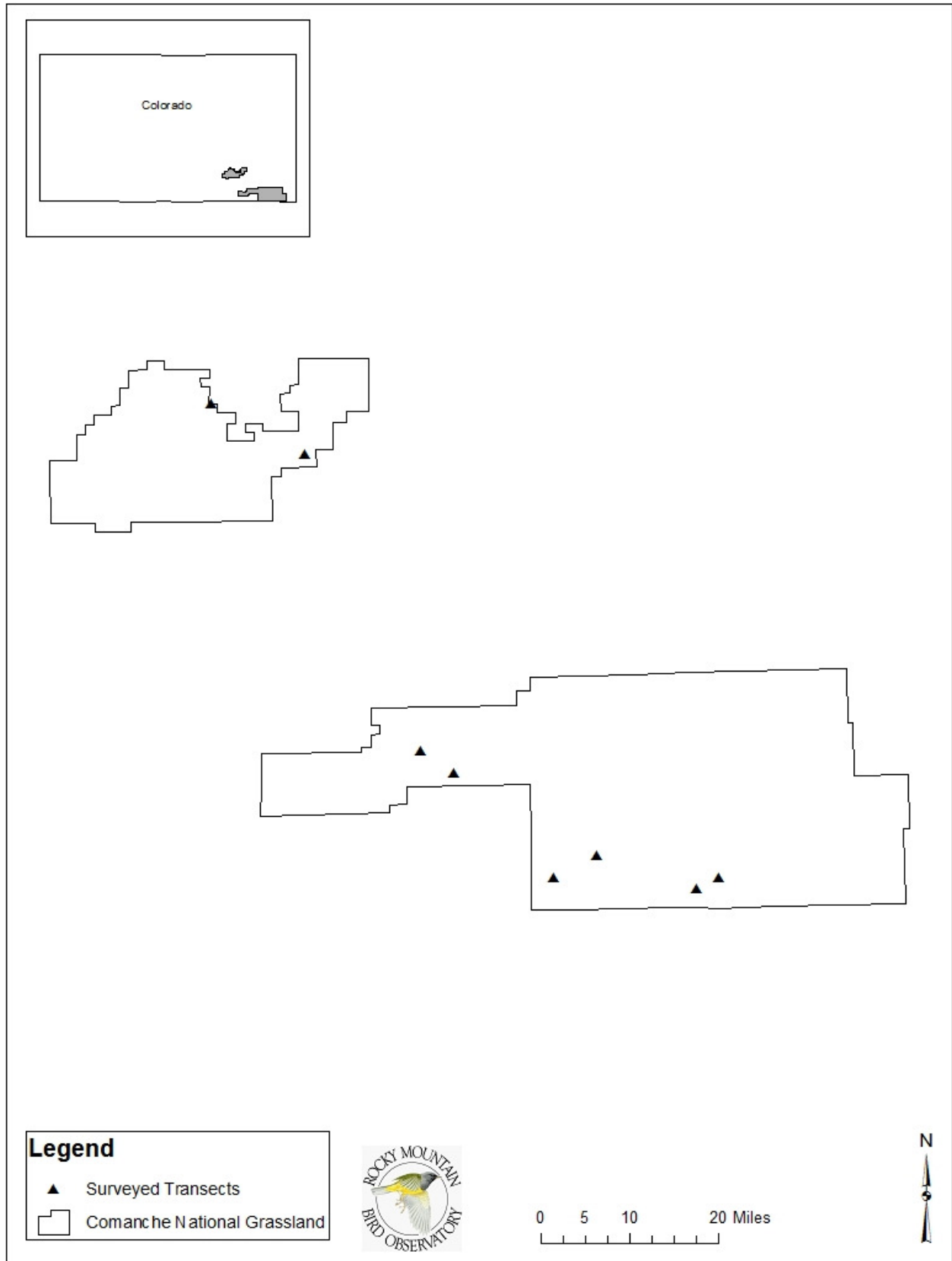


Figure 38. Survey locations in Comanche National Grassland, 2010.

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Table 151. Estimated densities per km<sup>2</sup> (D), population sizes (N), percent coefficient of variation of estimates (% CV) and number of independent detections (n) of breeding bird species in Comanche National Grassland, 2010. S indicates the number of transects used in analyses. Priority species are bolded.

Species	Comanche NG (S=8)			
	D	N	% CV	n
American Crow	0.60	2,886	47	5
Bewick's Wren	7.06	34,118	95	8
Black-headed Grosbeak	2.73	13,207	90	5
Blue-gray Gnatcatcher	3.21	15,511	83	2
<b>Brewer's Sparrow</b>	6.78	32,811	71	8
Brown-headed Cowbird	5.21	25,172	46	3
<b>Bullock's Oriole</b>	2.69	13,029	57	2
Bushtit	2.02	9,745	99	1
<b>Cassin's Sparrow</b>	61.86	299,170	22	218
Cliff Swallow	14.31	69,225	94	2
Common Nighthawk	3.00	14,511	59	4
<b>Grasshopper Sparrow</b>	9.39	45,414	61	15
Horned Lark	39.78	192,369	36	71
Killdeer	0.74	3,555	86	1
Lark Bunting	8.23	39,781	31	20
Lark Sparrow	37.24	180,096	37	38
<b>Loggerhead Shrike</b>	0.42	2,050	90	1
<b>Long-billed Curlew</b>	0.21	1,023	93	2
Mourning Dove	14.13	68,310	35	34
Northern Mockingbird	6.46	31,246	45	29
Red-winged Blackbird	0.54	2,594	90	1
Rock Wren	0.58	2,784	85	3
Spotted Towhee	0.87	4,210	90	1
Upland Sandpiper	0.26	1,261	83	1
Western Kingbird	2.42	11,690	60	3
Western Meadowlark	26.40	127,678	19	121
Western Scrub-Jay	0.36	1,743	92	1



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Table 152. Estimated proportion of sample units occupied (Psi), percent coefficient of variation of Psi (% CV) and number of transects with one or more detections (n Tran) of breeding bird species in Comanche National Grassland, 2010. Dashes indicate the data were insufficient for estimating site occupancy. A Psi estimate equal to 1 indicates the species was detected on all transects surveyed. S indicates the number of transects used in analyses. Priority species are bolded.

Species	Comanche NG (S=8)		
	Psi	% CV	n Tran
Bewick's Wren	0.135	94	1
Blue Grosbeak	0.141	93	1
Blue-gray Gnatcatcher	0.134	94	1
<b>Brewer's Sparrow</b>	0.293	61	2
Brown-headed Cowbird	0.454	46	3
<b>Bullock's Oriole</b>	0.320	61	2
Bushtit	0.255	95	1
<b>Cassin's Sparrow</b>	0.882	13	7
Common Nighthawk	0.600	62	2
<b>Grasshopper Sparrow</b>	0.506	35	4
Horned Lark	0.750	20	6
Lark Bunting	0.632	27	5
Lark Sparrow	0.672	27	5
<b>Loggerhead Shrike</b>	0.351	95	1
<b>Long-billed Curlew</b>	0.215	95	1
Rock Wren	0.278	61	2
Rufous-crowned Sparrow	0.131	94	1
Spotted Towhee	0.127	94	1
Western Meadowlark	0.876	13	7
Western Scrub-Jay	0.133	94	1

**(4) Pawnee National Grassland**

Field technicians surveyed all 10 planned transects throughout the Pawnee National Grasslands in 2010. Technicians conducted 111 point counts within the 10 transects between 18 May and 18 June 2010. We detected 32 species, including 7 priority species for the Pawnee National Grassland (Appendix E).

RMBO estimated densities and population sizes for 27 species, 7 of which are priority species for the Pawnee National Grassland (Table 153). The data yielded robust density estimates ( $CV < 50\%$ ) for six of these species.

We estimated the proportion of transects occupied ( $P_{si}$ ) by 13 species, 5 of which are priority species for the Pawnee National Grassland (Table 154). The data yielded robust occupancy estimates ( $CV < 50\%$ ) for four of these species.

This monitoring design and current sampling intensity is providing population information for two of the four species designated as Management Indicators for the Pawnee National Grassland. This includes density and occupancy estimates for Lark Bunting and occupancy estimates for Mountain Plover.

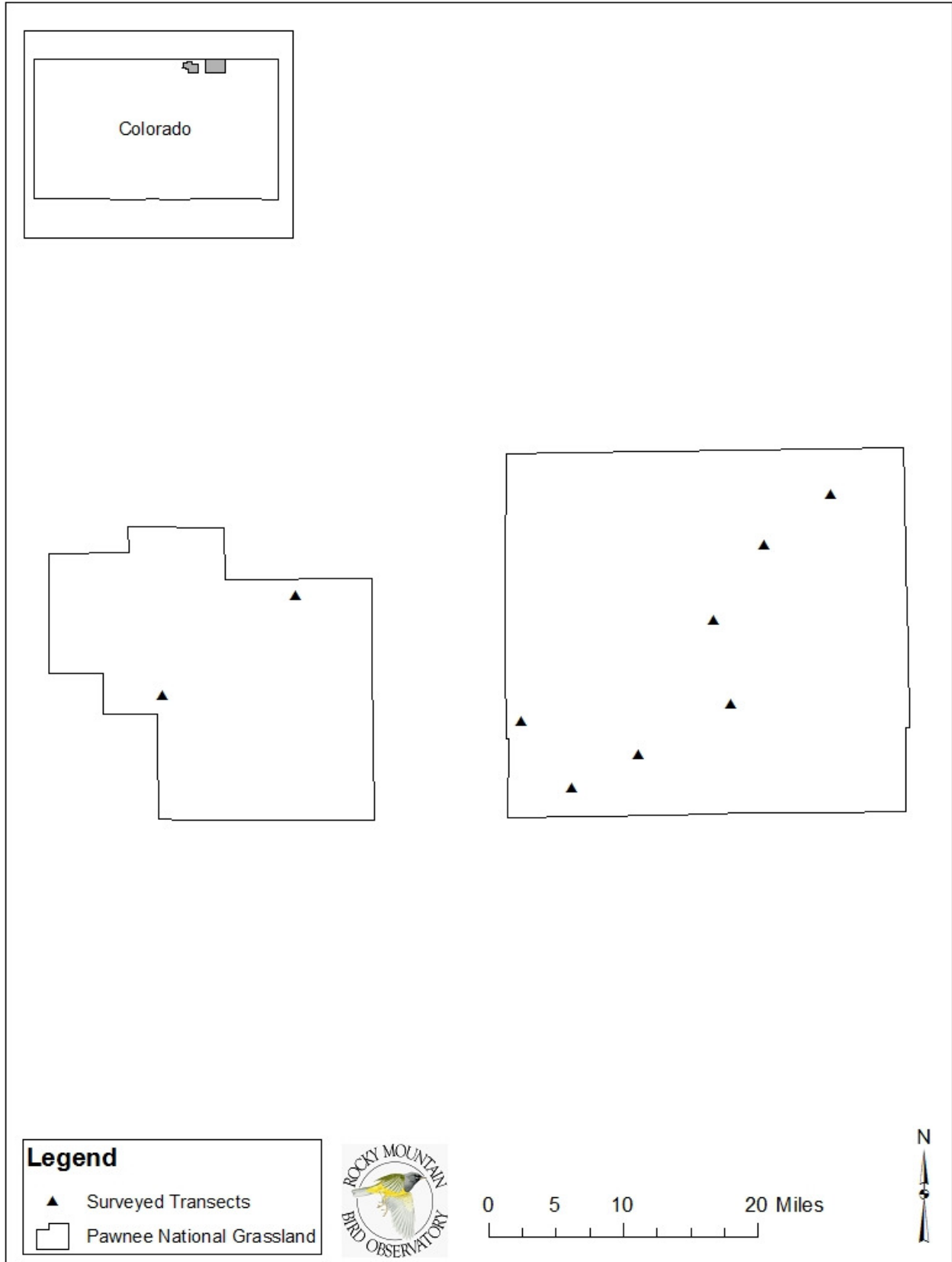


Figure 39. Survey locations in Pawnee National Grassland, 2010.

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Table 153. Estimated densities per km<sup>2</sup> (D), population sizes (N), percent coefficient of variation of estimates (% CV) and number of independent detections (n) of breeding bird species in Pawnee National Grassland, 2010. S indicates the number of transects used in analyses. Priority species are bolded.

Species	Pawnee NG (S=10)			
	D	N	% CV	n
Barn Swallow	14.87	48,589	63	4
Brewer's Blackbird	0.78	2,562	83	1
<b>Brewer's Sparrow</b>	2.60	8,489	86	4
Brown-headed Cowbird	7.97	26,051	57	6
<b>Cassin's Sparrow</b>	3.91	12,783	70	18
Chipping Sparrow	24.65	80,553	86	3
Cliff Swallow	27.40	89,556	93	5
Common Grackle	1.57	5,115	83	1
Common Nighthawk	0.57	1,877	83	1
Eastern Kingbird	0.38	1,249	82	1
<b>Grasshopper Sparrow</b>	18.22	59,535	32	38
Horned Lark	118.41	386,971	11	276
Killdeer	1.13	3,679	60	2
<b>Lark Bunting</b>	71.81	234,676	25	228
Lark Sparrow	3.32	10,836	62	6
<b>Loggerhead Shrike</b>	0.32	1,061	87	1
<b>McCown's Longspur</b>	13.83	45,203	57	27
Mourning Dove	3.82	12,476	43	12
<b>Northern Harrier</b>	0.18	598	94	1
Red-winged Blackbird	0.82	2,685	88	2
Rock Pigeon	0.97	3,177	86	1
Rock Wren	0.15	480	90	1
Say's Phoebe	0.52	1,713	58	3
Swainson's Hawk	0.12	395	86	1
Upland Sandpiper	0.20	652	89	1
Western Kingbird	6.17	20,164	43	10
Western Meadowlark	30.48	99,603	19	182

Table 154. Estimated proportion of sample units occupied (Psi), percent coefficient of variation of Psi (% CV) and number of transects with one or more detections (n Tran) of breeding bird species in Pawnee National Grassland, 2010. Dashes indicate the data were insufficient for estimating site occupancy. A Psi estimate equal to 1 indicates the species was detected on all transects surveyed. S indicates the number of transects used in analyses. Priority species are bolded.

Species	Pawnee NG (S=10)		
	Psi	% CV	n Tran
<b>Brewer's Sparrow</b>	0.222	63	2
Brown-headed Cowbird	0.514	39	4
<b>Cassin's Sparrow</b>	0.301	48	3
Common Nighthawk	0.214	96	1
Eastern Kingbird	0.144	95	1
European Starling	0.106	95	1
<b>Grasshopper Sparrow</b>	1	--	10
Horned Lark	1	--	10
<b>Lark Bunting</b>	1	--	10
Lark Sparrow	0.315	48	3
<b>Loggerhead Shrike</b>	0.296	97	1
<b>McCown's Longspur</b>	0.415	39	4
<b>Mountain Plover</b>	0.114	95	1
Rock Wren	0.113	95	1
Say's Phoebe	0.169	95	1
Swainson's Hawk	0.325	109	1
Western Meadowlark	1	--	10

**(5) Thunder Basin National Grassland**

Field technicians surveyed all 10 planned transects throughout Thunder Basin National Grasslands in 2010. Technicians conducted 136 point counts within the 10 transects between 14 May and 29 May 2010. Field technicians detected 43 species, including 4 priority species for the Thunder Basin National Grassland (Appendix E).

RMBO estimated densities and population sizes for 36 species, 4 of which are priority species for Thunder Basin National Grassland (Table 155). The data yielded robust density estimates (CV < 50%) for 13 of these species.

We estimated the proportion of transects occupied (Psi) by 22 species, 4 of which are priority species for Thunder Basin National Grassland (Table 156). The data yielded robust occupancy estimates (CV < 50%) for eight of these species.

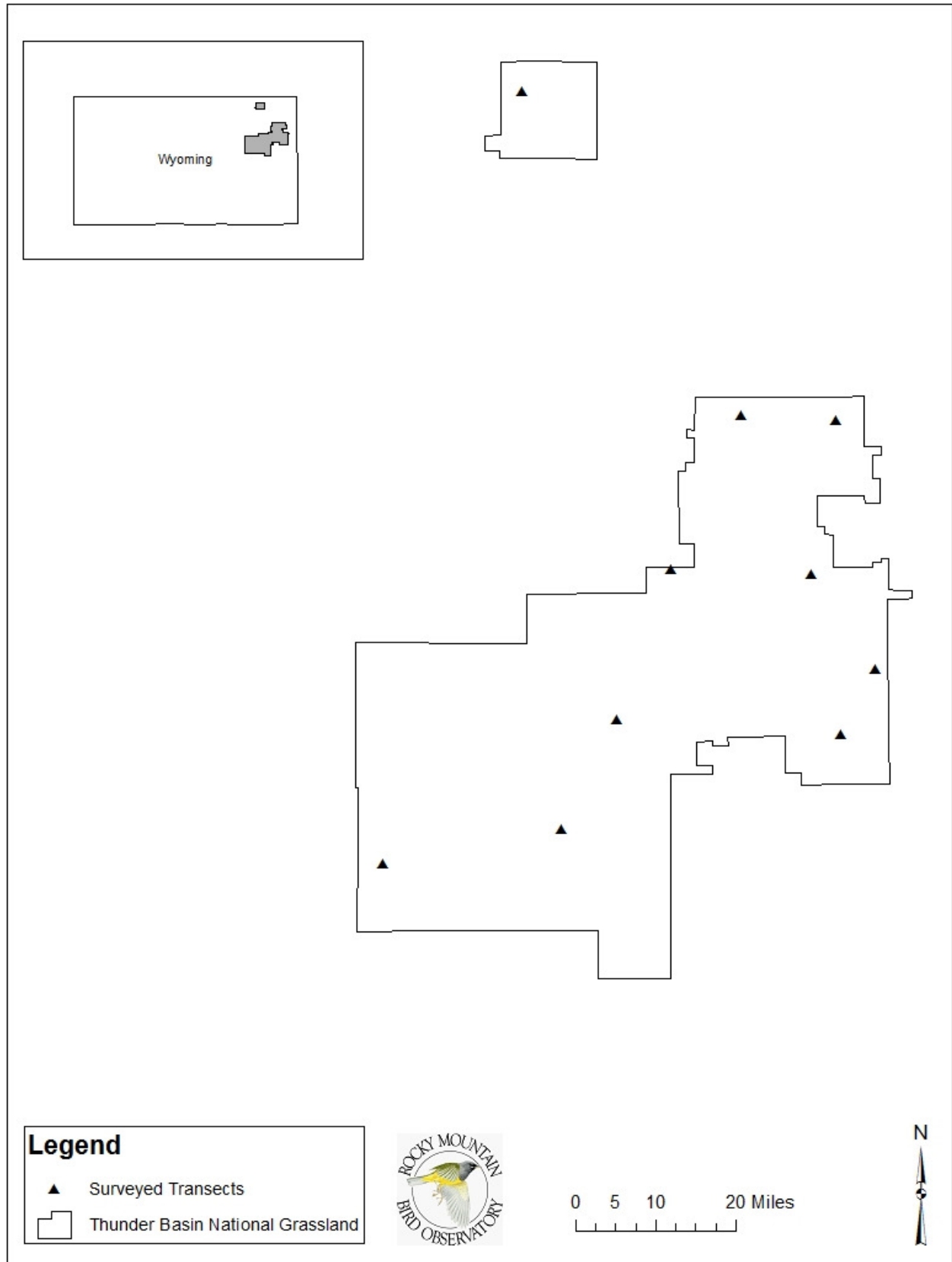


Figure 40. Survey locations in Thunder Basin National Grassland, 2010.

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Table 155. Estimated densities per km<sup>2</sup> (D), population sizes (N), percent coefficient of variation of estimates (% CV) and number of independent detections (n) of breeding bird species in Thunder Basin National Grassland, 2010. S indicates the number of transects used in analyses. Priority species are bolded.

Species	Thunder Basin NG (S=10)			
	D	N	% CV	n
American Goldfinch	4.80	21,684	111	2
American Robin	4.32	19,531	75	7
Black-capped Chickadee	7.32	33,084	94	7
Brewer's Blackbird	10.24	46,278	36	16
<b>Brewer's Sparrow</b>	38.16	172,501	36	72
Brown-headed Cowbird	31.45	142,141	38	29
Bullock's Oriole	0.84	3,806	85	1
Chipping Sparrow	12.75	57,652	88	12
Common Yellowthroat	0.37	1,663	82	1
Dusky Flycatcher	1.36	6,164	88	2
Eastern Kingbird	0.62	2,819	105	2
Field Sparrow	1.05	4,762	58	5
<b>Grasshopper Sparrow</b>	10.96	49,521	34	28
Horned Lark	37.12	167,770	27	106
Killdeer	5.05	22,842	40	11
Lark Bunting	41.64	188,230	27	162
Lark Sparrow	16.48	74,475	50	23
<b>Loggerhead Shrike</b>	0.79	3,593	53	3
Mallard	0.19	869	89	1
Mountain Bluebird	1.70	7,702	62	2
Mourning Dove	4.93	22,299	30	19
Northern Flicker	1.16	5,223	44	6
<b>Northern Harrier</b>	0.30	1,351	65	2
Red-breasted Nuthatch	1.17	5,302	104	2
Red-tailed Hawk	0.15	679	91	1
Red-winged Blackbird	4.36	19,702	38	13
Rock Wren	0.72	3,253	49	6
Sage Thrasher	0.23	1,054	59	2
Savannah Sparrow	0.53	2,407	82	1
Say's Phoebe	0.29	1,289	93	2
Spotted Towhee	7.62	34,430	91	14
Vesper Sparrow	15.85	71,651	27	57
Western Kingbird	3.02	13,657	61	6
Western Meadowlark	55.86	252,474	6	409
Wild Turkey	0.12	557	87	1
Yellow-rumped Warbler	2.50	11,302	88	4

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Table 156. Estimated proportion of sample units occupied (Psi), percent coefficient of variation of Psi (% CV) and number of transects with one or more detections (n Tran) of breeding bird species in Thunder Basin National Grassland, 2010. Dashes indicate the data were insufficient for estimating site occupancy. A Psi estimate equal to 1 indicates the species was detected on all transects surveyed. S indicates the number of transects used in analyses. Priority species are bolded.

Species	Thunder Basin NG (S=10)		
	Psi	% CV	n Tran
<b>Brewer's Sparrow</b>	0.607	26	6
Brown-headed Cowbird	0.821	16	8
Bullock's Oriole	0.112	95	1
Common Yellowthroat	0.144	95	1
Downy Woodpecker	0.152	95	1
Dusky Flycatcher	0.103	95	1
Eastern Kingbird	0.126	95	1
European Starling	0.103	95	1
Field Sparrow	0.206	63	2
<b>Grasshopper Sparrow</b>	0.500	32	5
Horned Lark	0.701	21	7
Lark Bunting	0.700	21	7
Lark Sparrow	0.804	16	8
<b>Loggerhead Shrike</b>	0.477	66	2
Mountain Bluebird	0.212	63	2
<b>Northern Harrier</b>	0.249	101	1
Rock Wren	0.328	48	3
Sage Thrasher	0.102	95	1
Savannah Sparrow	0.102	95	1
Say's Phoebe	0.304	63	2
Spotted Towhee	0.201	63	2
Vesper Sparrow	0.610	26	6
Western Meadowlark	1	--	10



### 3. US Forest Service Region 3

In this section of the report we present estimates for three forests in Region 3 (Table 157). These forests are the Coconino National Forest, Kaibab National Forest and Prescott National Forest. We hope to expand our monitoring efforts into other National Forests throughout Region 3 in future years. In 2011 we will be sampling Kiowa National Grassland in New Mexico and Rita Blanca National Grassland in portions of New Mexico, Oklahoma and Texas.

Table 157. Planned and completed surveys in U.S. Forest Service Region 3, by stratum, 2010.

Strata Name	State	BCR	Strata Code	Area (km <sup>2</sup> )	Planned	Completed	% Completed
Coconino National Forest	AZ	34	CF	7,426	50	49	98%
Kaibab National Forest	AZ	34	KF	5,990	45	45	100%
Prescott National Forest	AZ	34	PF	5,243	50	50	100%
<b>Grand Total</b>					<b>145</b>	<b>144</b>	<b>99%</b>

#### a) Coconino National Forest

Field technicians surveyed 49 of 50 planned transects throughout Coconino National Forest in 2010. Technicians conducted 624 point counts within the 49 transects between 2 May and 2 July 2010. We detected 119 species, including 8 priority species for Coconino National Forest (Appendix F).

RMBO estimated densities and population sizes for 62 species, 3 of which are priority species for Coconino National Forest (Table 158). The data yielded robust density estimates (CV < 50%) for 52 of these species.

We estimated the proportion of transects occupied (Psi) by 66 bird species, 4 of which are priority species for Coconino National Forest (Table 159). The data yielded robust occupancy estimates (CV < 50%) for 41 of these species.

This monitoring design and current sampling intensity is providing population information for four of the six species designated as Management Indicators for Coconino National Forest. This includes density and occupancy estimates for Hairy Woodpecker, Juniper Titmouse and Pygmy Nuthatch and occupancy estimates for Lucy's Warbler.

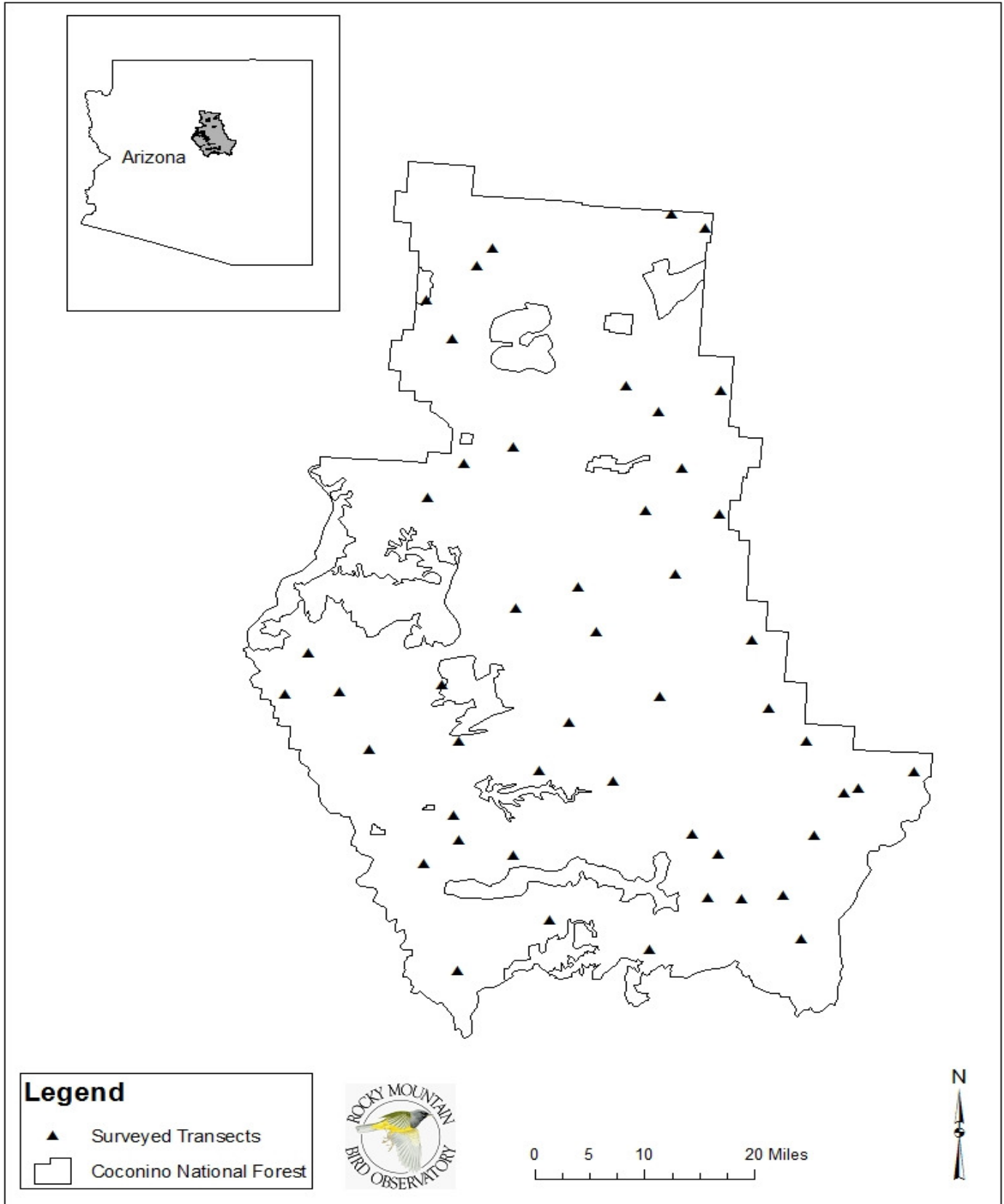


Figure 41. Survey locations in Coconino National Forest, 2010.

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Table 158. Estimated densities per km<sup>2</sup> (D), population sizes (N), percent coefficient of variation of estimates (% CV) and number of independent detections (n) of breeding bird species in Coconino National Forest, 2010. S indicates the number of transects used in analyses. Priority species are bolded.

Species	Coconino NF (S=49)			
	D	N	% CV	n
Acorn Woodpecker	1.04	7,702	43	13
American Crow	0.20	1,499	50	12
American Kestrel	0.26	1,905	57	6
American Robin	9.49	70,488	20	106
Ash-throated Flycatcher	9.73	72,246	15	133
Barn Swallow	4.20	31,171	72	6
Bewick's Wren	1.25	9,266	31	10
Black-chinned Sparrow	4.55	33,774	40	42
Black-headed Grosbeak	7.53	55,885	30	43
Black-throated Gray Warbler	3.52	26,129	34	32
Black-throated Sparrow	8.44	62,657	28	80
Blue-gray Gnatcatcher	4.16	30,920	58	4
Broad-tailed Hummingbird	21.09	156,648	21	47
Brown-headed Cowbird	4.18	31,054	25	29
Bushtit	3.15	23,412	59	6
Cactus Wren	0.12	895	76	3
Canyon Towhee	1.09	8,072	40	12
Cassin's Kingbird	1.40	10,377	34	25
Chipping Sparrow	38.99	289,571	22	149
Common Raven	2.38	17,686	25	74
Cordilleran Flycatcher	3.64	26,995	34	25
Dark-eyed Junco	14.62	108,571	22	94
Gambel's Quail	2.39	17,721	30	84
Grace's Warbler	27.78	206,290	15	202
Gray Flycatcher	13.96	103,697	24	75
Gray Vireo	1.60	11,896	32	30
<b>Hairy Woodpecker</b>	5.01	37,181	25	34
Hepatic Tanager	2.21	16,395	30	19
Hermit Thrush	6.23	46,246	28	47
Horned Lark	1.01	7,531	48	7
House Finch	5.30	39,344	31	76
House Sparrow	1.23	9,130	84	3
House Wren	2.22	16,486	51	16
<b>Juniper Titmouse</b>	23.69	175,958	28	76
Lark Sparrow	4.79	35,571	30	47
Lesser Goldfinch	8.59	63,771	23	68
Mountain Chickadee	9.30	69,057	30	55

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Species	Coconino NF (S=49)			
	D	N	% CV	n
Mourning Dove	4.92	36,550	14	100
Northern Flicker	2.62	19,482	23	53
Northern Mockingbird	7.17	53,252	19	202
Phainopepla	3.32	24,641	38	28
Pinyon Jay	0.58	4,299	30	21
Plumbeous Vireo	20.59	152,869	16	193
<b>Pygmy Nuthatch</b>	23.22	172,407	19	90
Red-breasted Nuthatch	0.39	2,880	81	3
Red-tailed Hawk	0.20	1,485	47	6
Rock Wren	0.66	4,928	29	15
Rufous-crowned Sparrow	1.98	14,730	23	24
Scott's Oriole	3.03	22,515	19	51
Spotted Towhee	8.45	62,737	26	77
Steller's Jay	6.61	49,086	18	92
Vesper Sparrow	0.21	1,593	48	4
Violet-green Swallow	28.52	211,802	25	74
Virginia's Warbler	3.46	25,693	43	25
Warbling Vireo	7.50	55,661	63	15
Western Bluebird	11.41	84,727	23	62
Western Meadowlark	2.16	16,053	40	78
Western Scrub-Jay	6.25	46,435	19	88
Western Tanager	8.62	64,017	15	116
Western Wood-Pewee	1.51	11,230	28	38
White-breasted Nuthatch	6.26	46,468	17	63
Yellow-rumped Warbler	25.54	189,680	26	124

Table 159. Estimated proportion of sample units occupied (Psi), percent coefficient of variation of Psi (% CV) and number of transects with one or more detections (n Tran) of breeding bird species in Coconino National Forest, 2010. Dashes indicate the data were insufficient for estimating site occupancy. A Psi estimate equal to 1 indicates the species was detected on all transects surveyed. S indicates the number of transects used in analyses. Priority species are bolded.

Species	Coconino NF (S=49)		
	Psi	% CV	n Tran
Ash-throated Flycatcher	0.539	13	26
Bewick's Wren	0.170	32	8
Black-chinned Hummingbird	0.310	34	9
Black-chinned Sparrow	0.102	42	5
Black-throated Gray Warbler	0.245	25	12
Black-throated Sparrow	0.205	28	10
Blue-gray Gnatcatcher	0.126	38	6

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Species	Coconino NF (S=49)		
	Psi	% CV	n Tran
Broad-tailed Hummingbird	0.607	13	27
Brown Creeper	0.029	99	1
Brown-headed Cowbird	0.417	19	18
Bullock's Oriole	0.069	56	3
Bushtit	0.192	46	5
Cactus Wren	0.041	69	2
Canyon Towhee	0.144	38	6
Canyon Wren	0.030	100	1
Cassin's Kingbird	0.223	28	10
Clark's Nutcracker	0.070	56	3
Common Nighthawk	0.078	71	2
Common Yellowthroat	0.030	99	1
Cooper's Hawk	0.200	93	2
Cordilleran Flycatcher	0.303	25	12
Curve-billed Thrasher	0.076	74	2
Downy Woodpecker	0.033	99	1
European Starling	0.021	99	1
Gambel's Quail	0.208	28	10
Grace's Warbler	0.368	13	18
Gray Flycatcher	0.391	18	19
Gray Vireo	0.211	28	10
Green-tailed Towhee	0.145	35	7
<b>Hairy Woodpecker</b>	0.449	18	18
Hepatic Tanager	0.252	27	11
Horned Lark	0.062	56	3
<b>Juniper Titmouse</b>	0.417	17	20
Ladder-backed Woodpecker	0.171	46	5
Lark Sparrow	0.252	25	12
Lesser Goldfinch	0.535	14	25
Loggerhead Shrike	0.104	72	2
<b>Lucy's Warbler</b>	0.067	56	3
Mountain Bluebird	0.066	56	3
Northern Rough-winged Swallow	0.100	58	3
Olive-sided Flycatcher	0.077	56	3
Orange-crowned Warbler	0.045	69	2
Phainopepla	0.125	38	6
Pine Siskin	0.104	42	5
Pinyon Jay	0.132	38	6
Plumbeous Vireo	0.538	13	26
Purple Martin	0.127	44	5
<b>Pygmy Nuthatch</b>	0.438	16	21

Species	Coconino NF (S=49)		
	Psi	% CV	n Tran
Red-faced Warbler	0.158	36	7
Rock Wren	0.157	35	7
Ruby-crowned Kinglet	0.041	69	2
Rufous-crowned Sparrow	0.209	28	10
Say's Phoebe	0.064	70	2
Scott's Oriole	0.370	20	17
Sharp-shinned Hawk	0.089	111	1
Spotted Towhee	0.329	21	16
Townsend's Solitaire	0.094	48	4
Vesper Sparrow	0.067	56	3
Virginia's Warbler	0.146	35	7
Warbling Vireo	0.125	38	6
Western Bluebird	0.505	15	23
Western Meadowlark	0.145	35	7
Western Scrub-Jay	0.359	20	17
White-throated Swift	0.048	70	2
White-winged Dove	0.022	99	1
Williamson's Sapsucker	0.052	70	2

**b) Kaibab National Forest**

Field technicians surveyed 45 of 45 planned transects throughout Kaibab National Forest in 2010. Technicians conducted 546 point counts within the 45 transects between 19 May and 5 July 2010. We detected 102 species including 7 priority species for Kaibab National Forest (Appendix F).

RMBO estimated densities and population sizes for 59 species, 3 of which are priority species for Kaibab National Forest (Table 160). The data yielded robust density estimates (CV < 50%) for 45 of these species.

We estimated the proportion of transects occupied (Psi) by 62 bird species, 4 of which are priority species for Kaibab National Forest (Table 161). The data yielded robust occupancy estimates (CV < 50%) for 36 of these species. We also estimated the proportion of transects occupied by Abert's Squirrel.

This monitoring design and current sampling intensity is providing population information for four of the six species designated as Management Indicators for Kaibab National Forest. This includes density and occupancy estimates for Hairy Woodpecker, Juniper Titmouse and Pygmy Nuthatch and occupancy estimates for Wild Turkey.

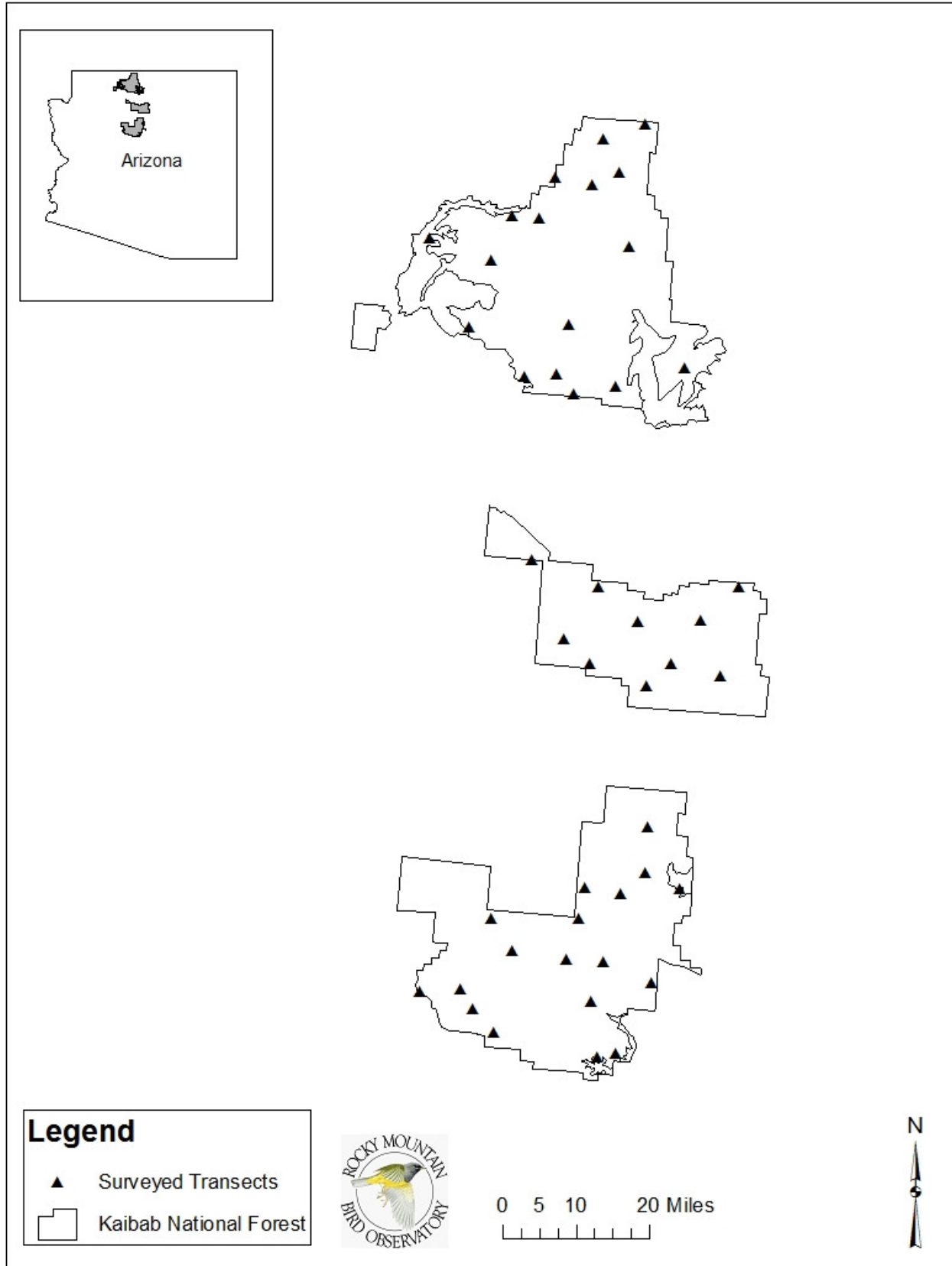


Figure 42. Survey locations in Kaibab National Forest, 2010.

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Table 160. Estimated densities per km<sup>2</sup> (D), population sizes (N), percent coefficient of variation of estimates (% CV) and number of independent detections (n) of breeding bird species in Kaibab National Forest, 2010. S indicates the number of transects used in analyses. Priority species are bolded.

Species	Kaibab NF (S=45)			
	D	N	% CV	n
Acorn Woodpecker	0.27	1,627	51	3
American Crow	0.09	213	1	5
American Kestrel	0.10	244	60	2
American Robin	6.73	40,342	22	65
Ash-throated Flycatcher	14.44	86,483	15	173
Bewick's Wren	6.55	39,210	28	45
Black-chinned Sparrow	0.14	812	88	1
Black-headed Grosbeak	11.06	66,274	24	55
Black-throated Gray Warbler	27.15	162,616	17	211
Black-throated Sparrow	3.30	19,776	15	25
Blue-gray Gnatcatcher	60.91	364,836	51	48
Broad-tailed Hummingbird	12.13	72,678	34	23
Brown-headed Cowbird	5.40	32,351	21	34
Bushtit	1.28	7,690	61	2
Cassin's Kingbird	1.21	7,253	42	19
Chipping Sparrow	47.40	283,897	16	160
Common Raven	1.17	6,979	19	33
Cordilleran Flycatcher	2.22	13,270	46	14
Dark-eyed Junco	14.04	84,084	19	78
Eastern Meadowlark	0.09	553	84	1
Gambel's Quail	0.55	3,295	13	18
Grace's Warbler	25.26	151,280	22	154
Gray Flycatcher	35.78	214,347	961	169
Gray Vireo	2.70	16,144	3	42
<b>Hairy Woodpecker</b>	9.71	58,144	24	58
Hepatic Tanager	1.85	11,096	25	14
Hermit Thrush	8.23	49,268	30	50
Horned Lark	2.36	14,126	88	13
House Finch	1.69	10,096	29	21
House Wren	2.53	15,184	48	16
<b>Juniper Titmouse</b>	34.80	208,425	24	99
Lark Sparrow	8.05	48,248	29	72
Lesser Goldfinch	4.62	27,652	28	33
Mountain Chickadee	21.08	126,289	26	112
Mourning Dove	1.51	9,045	19	29
Northern Flicker	3.66	21,928	17	64
Northern Mockingbird	1.44	8,647	30	36
Phainopepla	0.13	764	90	1
Pinyon Jay	1.82	10,911	30	57



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Species	Kaibab NF (S=45)			
	D	N	% CV	n
Plumbeous Vireo	21.80	130,589	13	181
<b>Pygmy Nuthatch</b>	<b>33.82</b>	<b>202,590</b>	<b>23</b>	<b>115</b>
Red-breasted Nuthatch	0.77	1,933	66	5
Red-tailed Hawk	0.08	190	71	2
Rock Wren	1.26	7,538	35	23
Scott's Oriole	0.38	2,298	65	6
Spotted Towhee	13.26	79,412	26	102
Steller's Jay	4.54	27,215	22	56
Vesper Sparrow	3.98	9,962	37	65
Violet-green Swallow	32.04	191,907	18	80
Virginia's Warbler	4.19	25,071	44	25
Warbling Vireo	36.85	220,759	38	60
Western Bluebird	16.50	98,823	18	80
Western Kingbird	0.24	1,417	91	2
Western Meadowlark	1.24	7,409	2	41
Western Scrub-Jay	6.00	35,914	22	75
Western Tanager	10.43	62,486	15	120
Western Wood-Pewee	4.63	27,718	87	104
White-breasted Nuthatch	9.77	58,511	18	87
Yellow-rumped Warbler	16.26	97,393	31	66

Table 161. Estimated proportion of sample units occupied (Psi), percent coefficient of variation of Psi (% CV) and number of transects with one or more detections (n Tran) of breeding bird species in Kaibab National Forest, 2010. Dashes indicate the data were insufficient for estimating site occupancy. A Psi estimate equal to 1 indicates the species was detected on all transects surveyed. S indicates the number of transects used in analyses. Priority species are bolded.

Species	Kaibab NF (S=45)		
	Psi	% CV	n Tran
American Three-toed Woodpecker	0.071	70	2
Ash-throated Flycatcher	0.694	10	30
Bewick's Wren	0.242	28	10
Black-chinned Hummingbird	0.299	32	9
Black-chinned Sparrow	0.022	97	1
Black-throated Gray Warbler	0.447	17	20
Black-throated Sparrow	0.067	55	3
Blue-gray Gnatcatcher	0.308	23	13
Broad-tailed Hummingbird	0.370	21	14
Brown Creeper	0.067	67	2
Brown-headed Cowbird	0.527	14	20
Bullock's Oriole	0.051	68	2
Bushtit	0.180	51	4
Canyon Wren	0.033	99	1

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Species	Kaibab NF (S=45)		
	Psi	% CV	n Tran
Cassin's Finch	0.086	55	3
Cassin's Kingbird	0.174	34	7
Clark's Nutcracker	0.106	48	4
Common Nighthawk	0.177	50	4
Cordilleran Flycatcher	0.145	42	5
Downy Woodpecker	0.143	47	4
Eastern Meadowlark	0.022	98	1
Evening Grosbeak	0.032	97	1
Gambel's Quail	0.139	36	6
Grace's Warbler	0.425	12	19
Gray Flycatcher	0.667	11	29
Gray Vireo	0.231	28	10
Greater Roadrunner	0.030	99	1
Green-tailed Towhee	0.046	68	2
<b>Hairy Woodpecker</b>	0.663	13	24
Hepatic Tanager	0.234	29	9
Horned Lark	0.022	97	1
<b>Juniper Titmouse</b>	0.489	16	21
Ladder-backed Woodpecker	0.084	69	2
Lark Sparrow	0.351	21	15
Lazuli Bunting	0.025	97	1
Lesser Goldfinch	0.334	22	14
Loggerhead Shrike	0.056	100	1
Mountain Bluebird	0.099	47	4
Olive-sided Flycatcher	0.091	55	3
Phainopepla	0.023	98	1
Pine Siskin	0.255	26	11
Pinyon Jay	0.427	19	17
Plumbeous Vireo	0.673	10	29
Purple Martin	0.059	70	2
<b>Pygmy Nuthatch</b>	0.564	13	24
Red Crossbill	0.172	34	7
Rock Wren	0.206	30	8
Ruby-crowned Kinglet	0.113	41	5
Sage Sparrow	0.023	97	1
Say's Phoebe	0.074	70	2
Scott's Oriole	0.072	54	3
Spotted Towhee	0.429	17	19
Townsend's Solitaire	0.052	68	2
Vesper Sparrow	0.240	27	10
Virginia's Warbler	0.162	32	7
Warbling Vireo	0.207	29	9

Species	Kaibab NF (S=45)		
	Psi	% CV	n Tran
Western Bluebird	0.626	13	25
Western Meadowlark	0.136	37	6
Western Scrub-Jay	0.446	17	19
White-throated Swift	0.056	67	2
<b>Wild Turkey</b>	0.222	78	3
Williamson's Sapsucker	0.173	36	6

**c) Prescott National Forest**

Field technicians surveyed 50 of 50 planned transects throughout Prescott National Forest in 2010. Technicians conducted 532 point counts within the 50 transects between 1 May and 24 June 2010. We detected 114 species, including 18 priority species for Prescott National Forest (Appendix F).

In 2010 RMBO estimated densities and population sizes for 61 species, 9 of which are priority species for Prescott National Forest (Table 162). The data yielded robust density estimates (CV < 50%) for 48 of these species.

We estimated the proportion of transects occupied (Psi) by 61 bird species, 12 of which are priority species for Prescott National Forest (Table 163). The data yielded robust occupancy estimates (CV < 50%) for 43 of these species. We also estimated the proportion of transects occupied by Abert's Squirrel.

This monitoring design and current sampling intensity is providing population information for 12 of the 18 species designated as Species of Concern for Prescott National Forest. This includes density and occupancy estimates for Brown Headed Cowbird, Grace's Warbler, Gray Vireo, Hairy Woodpecker, Juniper Titmouse, Pinyon Jay, Pygmy Nuthatch, Spotted Towhee and Virginia's Warbler. We provide occupancy estimates for Lucy's Warbler, Orange-crowned Warbler and Purple Martin.

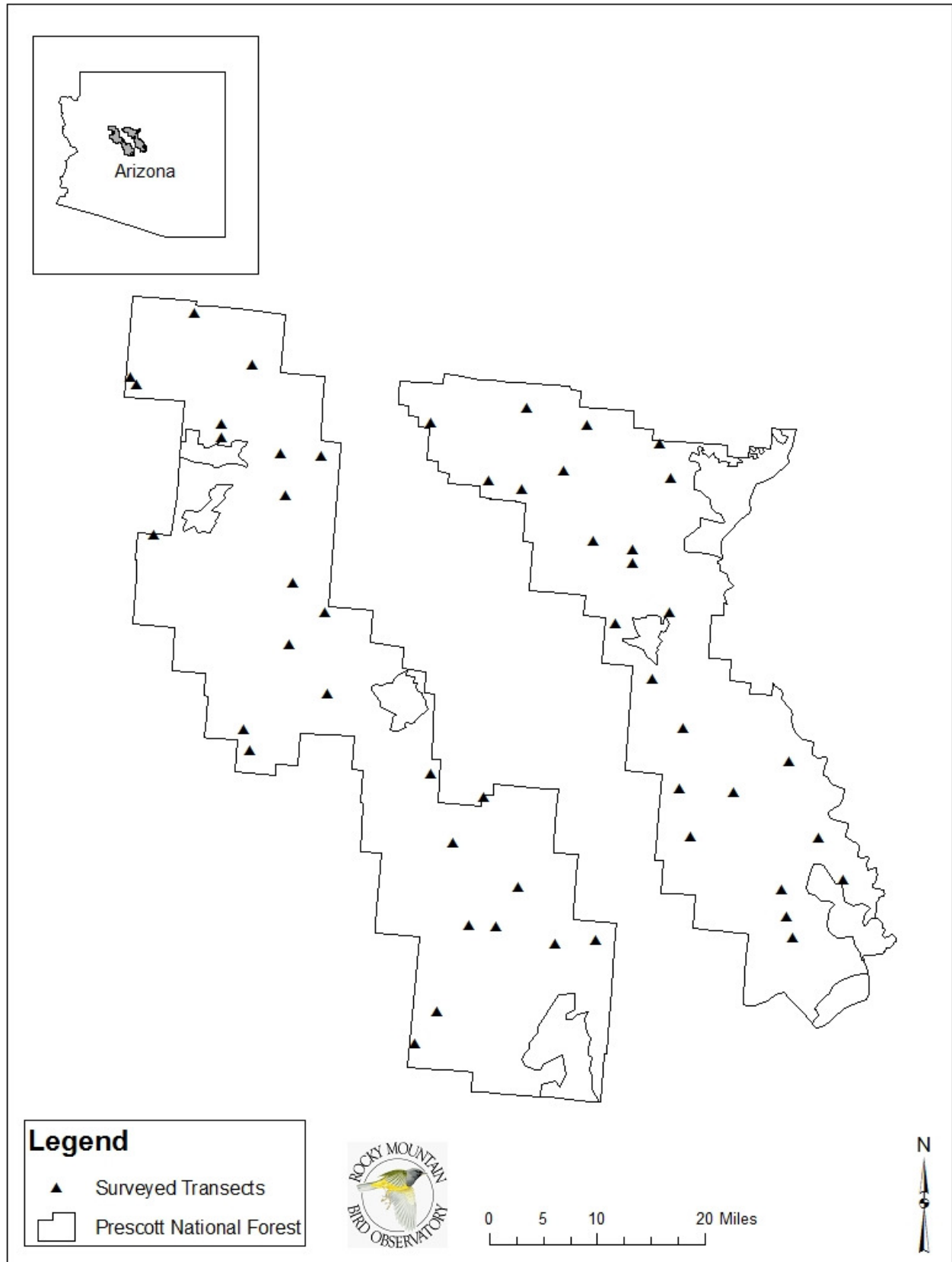


Figure 43. Survey locations in Prescott National Forest, 2010.

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Table 162. Estimated densities per km<sup>2</sup> (D), population sizes (N), percent coefficient of variation of estimates (% CV) and number of independent detections (n) of breeding bird species in Prescott National Forest, 2010. S indicates the number of transects used in analyses. Priority species are bolded.

Species	Prescott NF (S=50)			
	D	N	% CV	n
Acorn Woodpecker	1.12	5,888	57	12
American Kestrel	0.10	526	84	2
American Robin	1.37	7,159	74	13
Ash-throated Flycatcher	17.93	94,017	12	209
Barn Swallow	0.79	4,139	86	1
Bewick's Wren	6.73	35,296	22	46
Black-chinned Sparrow	21.34	111,879	16	168
Black-headed Grosbeak	15.60	81,798	29	76
Black-throated Gray Warbler	10.11	53,012	20	78
Black-throated Sparrow	19.42	101,831	16	157
Blue-gray Gnatcatcher	34.19	179,240	44	28
Broad-tailed Hummingbird	16.32	85,563	24	31
<b>Brown-headed Cowbird</b>	13.02	68,282	16	77
Bushtit	10.35	54,267	29	16
Cactus Wren	1.08	5,681	40	23
Canyon Towhee	4.50	23,618	27	34
Cassin's Kingbird	5.38	28,187	20	82
Chipping Sparrow	15.66	82,080	27	51
Common Raven	0.64	3,365	27	17
Dark-eyed Junco	1.64	8,608	50	9
Eastern Meadowlark	3.62	18,996	47	36
Gambel's Quail	7.10	37,211	14	213
<b>Grace's Warbler</b>	3.71	19,451	44	23
Gray Flycatcher	20.31	106,485	19	93
<b>Gray Vireo</b>	7.20	37,765	18	115
<b>Hairy Woodpecker</b>	2.59	13,584	37	15
Hepatic Tanager	5.18	27,154	29	38
Hermit Thrush	0.62	3,259	68	4
Horned Lark	7.65	40,093	48	45
House Finch	7.36	38,584	21	90
House Wren	4.07	21,332	51	25
<b>Juniper Titmouse</b>	38.76	203,235	28	106
Lark Sparrow	6.22	32,591	25	52
Lesser Goldfinch	12.74	66,790	17	86
Mountain Chickadee	1.90	9,974	50	10
Mourning Dove	11.31	59,310	10	206
Northern Flicker	0.52	2,740	42	9

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Species	Prescott NF (S=50)			
	D	N	% CV	n
Northern Mockingbird	8.20	43,008	18	197
Phainopepla	6.53	34,253	30	47
<b>Pinyon Jay</b>	0.55	2,882	39	17
Plumbeous Vireo	5.38	28,205	36	43
<b>Pygmy Nuthatch</b>	2.42	12,691	54	8
Red-breasted Nuthatch	0.15	795	83	1
Red-tailed Hawk	0.20	1,025	49	5
Rock Wren	2.54	13,331	29	49
Rufous-crowned Sparrow	13.28	69,631	20	137
Scott's Oriole	6.14	32,172	16	88
<b>Spotted Towhee</b>	49.80	261,122	15	387
Steller's Jay	1.18	6,186	61	14
Vesper Sparrow	0.13	660	87	2
Violet-green Swallow	6.72	35,256	35	17
<b>Virginia's Warbler</b>	2.92	15,319	48	18
Warbling Vireo	5.27	27,657	47	9
Western Bluebird	2.81	14,712	42	13
Western Kingbird	1.93	10,142	42	15
Western Meadowlark	0.75	3,920	50	23
Western Scrub-Jay	11.17	58,555	15	134
Western Tanager	5.40	28,335	22	62
Western Wood-Pewee	3.13	16,397	23	67
White-breasted Nuthatch	2.68	14,049	39	23
Yellow-rumped Warbler	8.46	44,337	34	35

Table 163. Estimated proportion of sample units occupied (Psi), percent coefficient of variation of Psi (% CV) and number of transects with one or more detections (n Tran) of breeding bird species in Prescott National Forest, 2010. Dashes indicate the data were insufficient for estimating site occupancy. A Psi estimate equal to 1 indicates the species was detected on all transects surveyed. S indicates the number of transects used in analyses. Priority species are bolded.

Species	Prescott NF (S=50)		
	Psi	% CV	n Tran
Ash-throated Flycatcher	0.784	8	37
Bewick's Wren	0.434	17	20
Black-chinned Hummingbird	0.265	39	7
Black-chinned Sparrow	0.622	11	31
Black-throated Gray Warbler	0.424	17	21
Black-throated Sparrow	0.549	13	27
Blue Grosbeak	0.091	48	4
Blue-gray Gnatcatcher	0.446	17	21

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Species	Prescott NF (S=50)		
	Psi	% CV	n Tran
Broad-tailed Hummingbird	0.332	23	14
<b>Brown-headed Cowbird</b>	0.802	11	32
Bullock's Oriole	0.264	27	11
Bushtit	0.589	29	14
Cactus Wren	0.144	35	7
Canyon Towhee	0.565	17	22
Canyon Wren	0.134	52	4
Cassin's Kingbird	0.605	14	26
Common Nighthawk	0.044	100	1
Cooper's Hawk	0.119	117	1
Curve-billed Thrasher	0.253	46	6
Eastern Meadowlark	0.040	69	2
Gambel's Quail	0.677	11	32
<b>Grace's Warbler</b>	0.101	30	5
Gray Flycatcher	0.602	12	29
<b>Gray Vireo</b>	0.493	15	23
Greater Roadrunner	0.265	33	9
Green-tailed Towhee	0.207	28	10
<b>Hairy Woodpecker</b>	0.201	32	8
Hepatic Tanager	0.310	24	13
Horned Lark	0.103	42	5
<b>Juniper Titmouse</b>	0.553	14	26
Ladder-backed Woodpecker	0.341	36	9
Lark Sparrow	0.366	20	17
Lazuli Bunting	0.068	56	3
Lesser Goldfinch	0.764	9	35
Loggerhead Shrike	0.175	60	3
<b>Lucy's Warbler</b>	0.069	56	3
Northern Rough-winged Swallow	0.037	100	1
<b>Orange-crowned Warbler</b>	0.024	99	1
Phainopepla	0.252	25	12
Pine Siskin	0.084	48	4
<b>Pinyon Jay</b>	0.183	32	8
Plumbeous Vireo	0.271	24	13
<b>Purple Martin</b>	0.028	100	1
<b>Pygmy Nuthatch</b>	0.063	56	3
Red Crossbill	0.022	99	1
Rock Wren	0.416	19	18
Ruby-crowned Kinglet	0.061	56	3
Rufous-crowned Sparrow	0.549	14	26
Scott's Oriole	0.670	11	30

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Species	Prescott NF (S=50)		
	Psi	% CV	n Tran
Sharp-shinned Hawk	0.206	86	2
<b>Spotted Towhee</b>	0.725	9	36
Townsend's Solitaire	0.050	69	2
Vesper Sparrow	0.023	99	1
<b>Virginia's Warbler</b>	0.105	42	5
Warbling Vireo	0.272	24	13
Western Bluebird	0.224	28	10
Western Meadowlark	0.124	38	6
Western Scrub-Jay	0.846	7	40
White-throated Swift	0.025	99	1
White-winged Dove	0.138	39	6
Yellow Warbler	0.044	69	2



**4. US Forest Service Region 4**

We sampled four National Forests in Region 4 in 2010 (Table 164). With the exception of the Bridger-Teton National Forest, these samples were added to supplement state-wide estimates in Colorado and Wyoming and were supported by state and regional partners, not the forests themselves. The Caribou-Targhee National Forest, mostly in Idaho, comprises a small portion of the extreme west side of Wyoming and was originally stratified as Wyoming BCR 9 Region 4 lands. In this case all samples fell within the Caribou-Targhee and are presented hereafter in this context. The Wasatch National Forest covers a small portion of southwest Wyoming, where distinct vegetation communities occur, similar to those found in other portions of Region 4 (Juniper Woodland, etc.). The Manti-La Sal National Forest is a similar situation to the Caribou-Targhee, where the majority of the forest falls within Utah, but we only sample the Colorado portion of this forest.

Table 164. Planned and completed surveys in U.S. Forest Service Region 4, by stratum, 2010.

Strata Name	State	BCR	Strata Code	Area (km <sup>2</sup> )	Planned	Completed	% Completed
Bridger-Teton National Forest – Roaded/Managed	WY	10	BE	3,034	8	8	100%
Bridger-Teton National Forest – Roadless/Wilderness	WY	10	BR	11,364	2	2	100%
Caribou-Targhee National Forest	WY	9	WY	119	2	2	100%
Manti-La Sal National Forest	CO	16	MA	131	3	3	100%
Wasatch National Forest	WY	16	WA	180	2	2	100%
<b>Grand Total</b>					<b>17</b>	<b>17</b>	<b>100%</b>

**a) Bridger-Teton National Forest**

Within this sampling design Bridger-Teton National Forest is split into two strata, front-country, managed areas and designated roadless and wilderness areas. This forest-level stratification distinction was made due to field implementation cost considerations and the desire to focus monitoring on the more highly managed areas while maintaining inference to the entire management unit. In this section of this report these two strata are combined to form the administrative area of Bridger-Teton National Forest.

Field technicians surveyed all 10 planned transects throughout Bridger-Teton National Forest in 2010. Technicians conducted 115 point counts within the 10 transects between 21 June and 15 July 2010. We detected 58 species, including 2 priority species for the Bridger-Teton National Forest (Appendix G).

RMBO estimated densities and population sizes for 55 species, two of which are priority species for Bridger-Teton National Forest (Table 165). The data yielded robust density estimates ( $CV < 50\%$ ) for 15 of these species.

We estimated the proportion of transects occupied ( $P_{si}$ ) by 33 species, two of which are priority species for Bridger-Teton National Forest (Table 166). The data yielded robust occupancy estimates ( $CV < 50\%$ ) for eight of these species.

This monitoring design and current sampling intensity is providing occupancy and density estimates for Brewer's Sparrow; the lone species designated as a Management Indicator for Bridger-Teton National Forest.

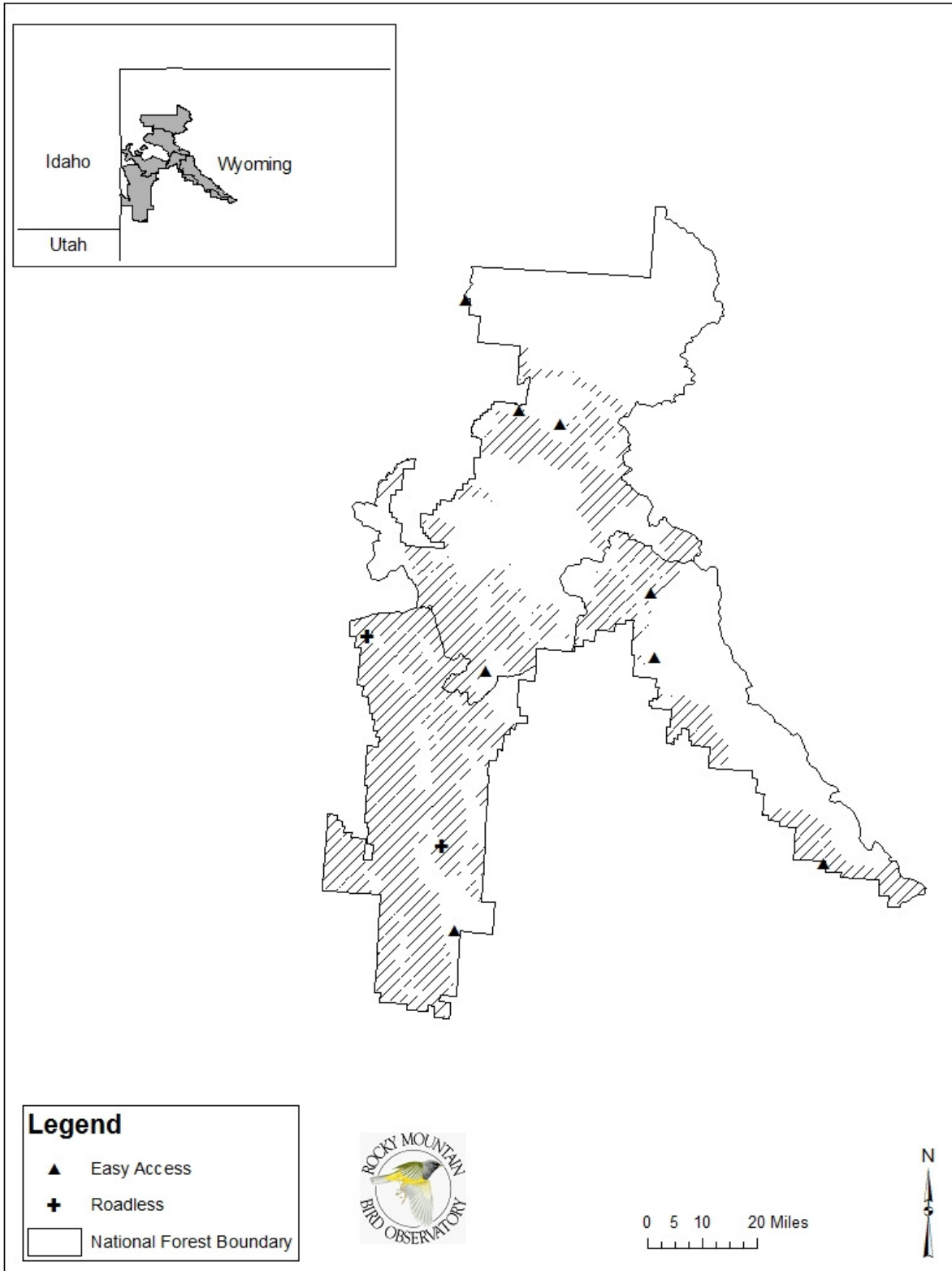


Figure 44. Survey locations in Bridger-Teton National Forest, 2010. Survey locations labeled Easy Access are located in Roded/Managed areas, and those labeled Roadless are located in Roadless/Wilderness areas.

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Table 165. Estimated densities per km<sup>2</sup> (D), population sizes (N), percent coefficient of variation of estimates (% CV) and number of independent detections (n) of breeding bird species in Bridger-Teton National Forest, 2010. S indicates the number of transects used in analyses. Priority species are bolded.

Species	Bridger-Teton NF (S=10)			
	D	N	% CV	n
American Robin	33.28	479,123	50	38
<b>American Three-toed Woodpecker</b>	0.29	4,144	91	1
Black-headed Grosbeak	0.38	5,470	83	4
Brewer's Blackbird	0.36	5,127	83	2
<b>Brewer's Sparrow</b>	0.88	12,741	89	6
Broad-tailed Hummingbird	18.89	271,958	100	1
Brown Creeper	2.92	42,110	36	6
Cassin's Finch	9.07	130,522	8	4
Chipping Sparrow	81.39	1,171,801	6	26
Clark's Nutcracker	6.75	97,156	92	12
Common Raven	0.06	906	70	3
Cordilleran Flycatcher	5.61	80,730	100	1
Dark-eyed Junco	40.46	582,513	77	48
Downy Woodpecker	0.28	3,993	91	1
Dusky Flycatcher	1.71	24,582	32	9
Golden-crowned Kinglet	2.34	33,644	95	3
Gray Jay	0.92	13,283	88	3
Green-tailed Towhee	26.58	382,715	96	15
Hairy Woodpecker	1.36	19,569	40	7
Hammond's Flycatcher	6.72	96,697	100	1
Hermit Thrush	5.89	84,868	87	18
House Wren	1.44	20,725	66	8
Killdeer	0.51	7,362	84	4
Lazuli Bunting	0.11	1,619	83	1
Lincoln's Sparrow	5.06	72,853	38	19
MacGillivray's Warbler	18.22	262,367	99	4
Mountain Bluebird	15.48	222,874	99	3
Mountain Chickadee	28.76	414,032	40	46
Northern Flicker	0.38	5,400	45	7
Olive-sided Flycatcher	0.06	843	90	1
Pine Grosbeak	0.92	13,291	50	4
Pine Siskin	5.62	80,942	36	19
Red Crossbill	1.95	28,022	34	7
Red-breasted Nuthatch	1.96	28,197	32	12
Red-naped Sapsucker	1.74	25,012	77	7
Red-tailed Hawk	0.17	2,406	60	4
Red-winged Blackbird	0.19	2,686	84	2

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Species	Bridger-Teton NF (S=10)			
	D	N	% CV	n
Rock Pigeon	0.22	3,179	86	1
Rock Wren	3.22	46,344	34	3
Ruby-crowned Kinglet	9.96	143,385	51	33
Savannah Sparrow	0.15	2,133	84	1
Steller's Jay	0.08	1,114	83	1
Swainson's Thrush	21.52	309,801	100	16
Townsend's Solitaire	16.04	230,978	50	7
Tree Swallow	0.56	8,100	84	1
Vesper Sparrow	0.39	5,571	53	5
Violet-green Swallow	1.62	23,314	57	5
Warbling Vireo	20.26	291,682	91	22
Western Tanager	2.89	41,679	45	27
White-breasted Nuthatch	19.96	287,389	96	8
White-crowned Sparrow	8.09	116,459	63	23
Wilson's Warbler	43.89	631,922	114	3
Yellow Warbler	0.92	13,273	100	4
Yellow-rumped Warbler	6.09	87,652	34	35

Table 166. Estimated proportion of sample units occupied (Psi), percent coefficient of variation of Psi (% CV) and number of transects with one or more detections (n Tran) of breeding bird species in Bridger-Teton National Forest, 2010. Dashes indicate the data were insufficient for estimating site occupancy. A Psi estimate equal to 1 indicates the species was detected on all transects surveyed. S indicates the number of transects used in analyses. Priority species are bolded.

Species	Bridger-Teton NF (S=10)		
	Psi	% CV	n Tran
<b>American Three-toed Woodpecker</b>	0.038	94	1
<b>Brewer's Sparrow</b>	0.026	94	1
Broad-tailed Hummingbird	0.561	71	1
Brown Creeper	0.172	28	5
Cassin's Finch	0.820	4	3
Clark's Nutcracker	0.715	59	5
Cordilleran Flycatcher	0.732	71	1
Downy Woodpecker	0.042	94	1
Dusky Flycatcher	0.137	27	5
Dusky Grouse	0.078	100	1
Golden-crowned Kinglet	0.033	94	1
Gray Jay	0.030	94	1
Green-tailed Towhee	0.507	60	4
Hairy Woodpecker	0.127	35	4
Hammond's Flycatcher	0.636	68	2

Species	Bridger-Teton NF (S=10)		
	Psi	% CV	n Tran
Lazuli Bunting	0.028	94	1
Lincoln's Sparrow	0.145	27	5
MacGillivray's Warbler	0.517	67	2
Mountain Bluebird	0.557	67	2
Olive-sided Flycatcher	0.033	94	1
Pine Grosbeak	0.060	61	2
Pine Siskin	0.606	52	7
Red Crossbill	0.142	27	5
Red-naped Sapsucker	0.060	61	2
Rock Wren	--	--	2
Ruby-crowned Kinglet	0.631	47	9
Savannah Sparrow	0.027	94	1
Swainson's Thrush	0.502	60	4
Townsend's Solitaire	0.819	3	3
Tree Swallow	0.029	94	1
Vesper Sparrow	0.053	61	2
Warbling Vireo	0.546	57	5
Wilson's Warbler	0.713	65	3
Yellow Warbler	0.028	94	1

**b) Caribou-Targhee National Forest**

Currently only the Wyoming portion of the forest is being sampled. It is recognized that the current low sampling intensity on this unit has limited value to unit specific estimates for Caribou-Targhee National Forest, however this is being implemented to achieve the Wyoming goal of state-wide population estimates and this requires sampling within each stratum in the state.

Field technicians surveyed two planned transects throughout the Wyoming portion of Caribou-Targhee National Forest in 2010. Technicians conducted 19 point counts within 2 transects between 15 June and 23 June 2010. We detected 31 species in Caribou-Targhee National Forest.

We do not present density or occupancy results for this section, because results from strata with only two samples are not informative. However, this data is incorporated into larger scale estimates.

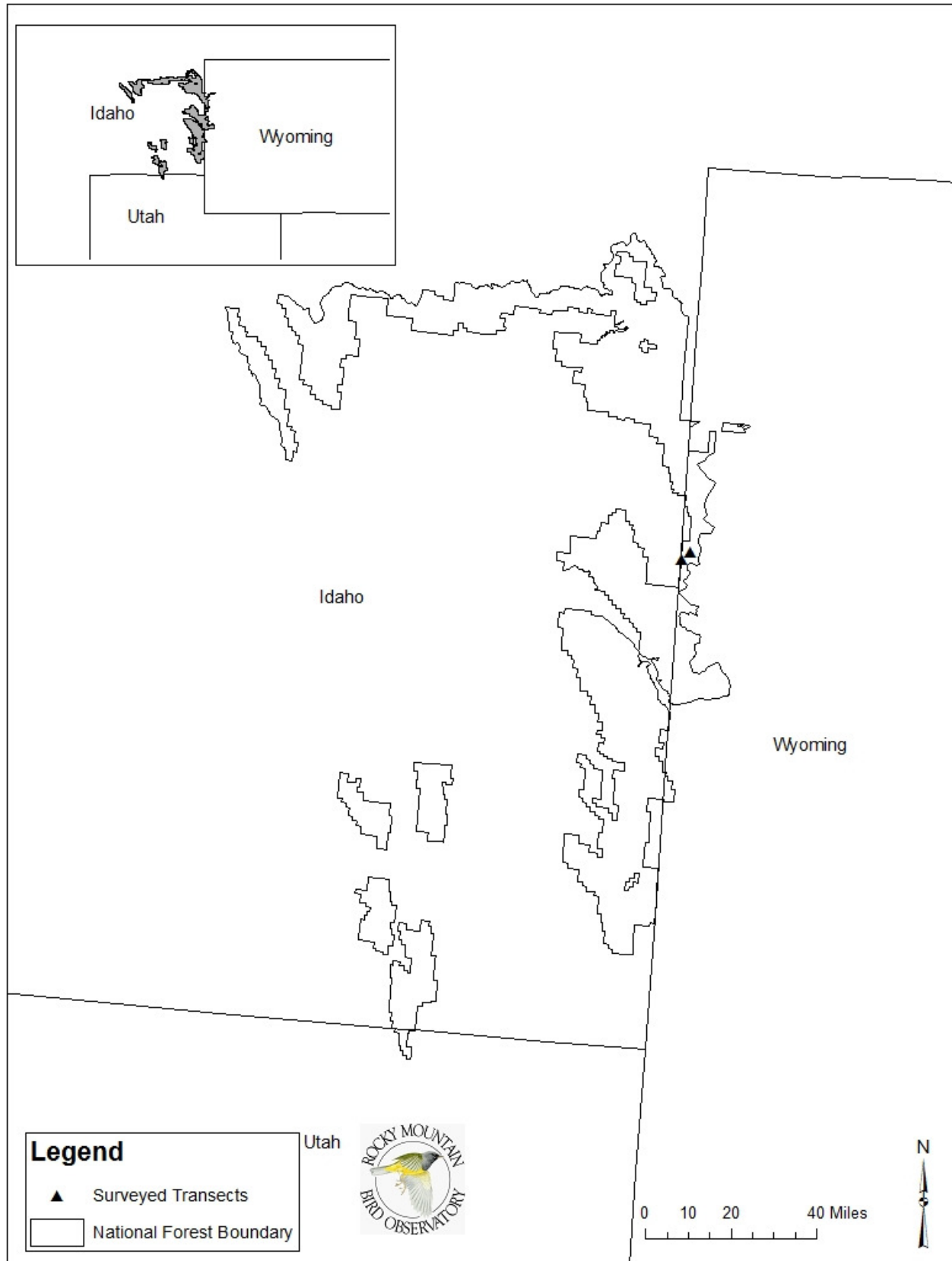


Figure 45. Survey locations in Caribou-Targhee National Forest, 2010.

**b) Manti-La Sal National Forest**

Manti-La Sal National Forest is divided into two strata due to the hierarchical design of the IMBCR program. Currently only the Colorado portion of the management unit is being sampled. It is recognized that the current low sampling intensity on this unit has limited value to unit specific estimates for Manti-La Sal National Forest, however this is being implemented to achieve the Colorado goal of state-wide population estimates and this requires sampling within each stratum in the state.

Field technicians surveyed all three planned transects throughout Manti-La Sal National Forest in 2010. Technicians conducted 25 point counts within the 3 transects between 2 June and 4 June 2010. We detected 52 species.

RMBO estimated densities and population sizes for 47 species for Manti-La Sal National Forest (Table 167). The data yielded robust density estimates (CV < 50%) for two of these species.

We estimated the proportion of transects occupied (Psi) by 29 species for Manti-La Sal National Forest (Table 168). The data yielded robust occupancy estimates (CV < 50%) for 10 of these species.



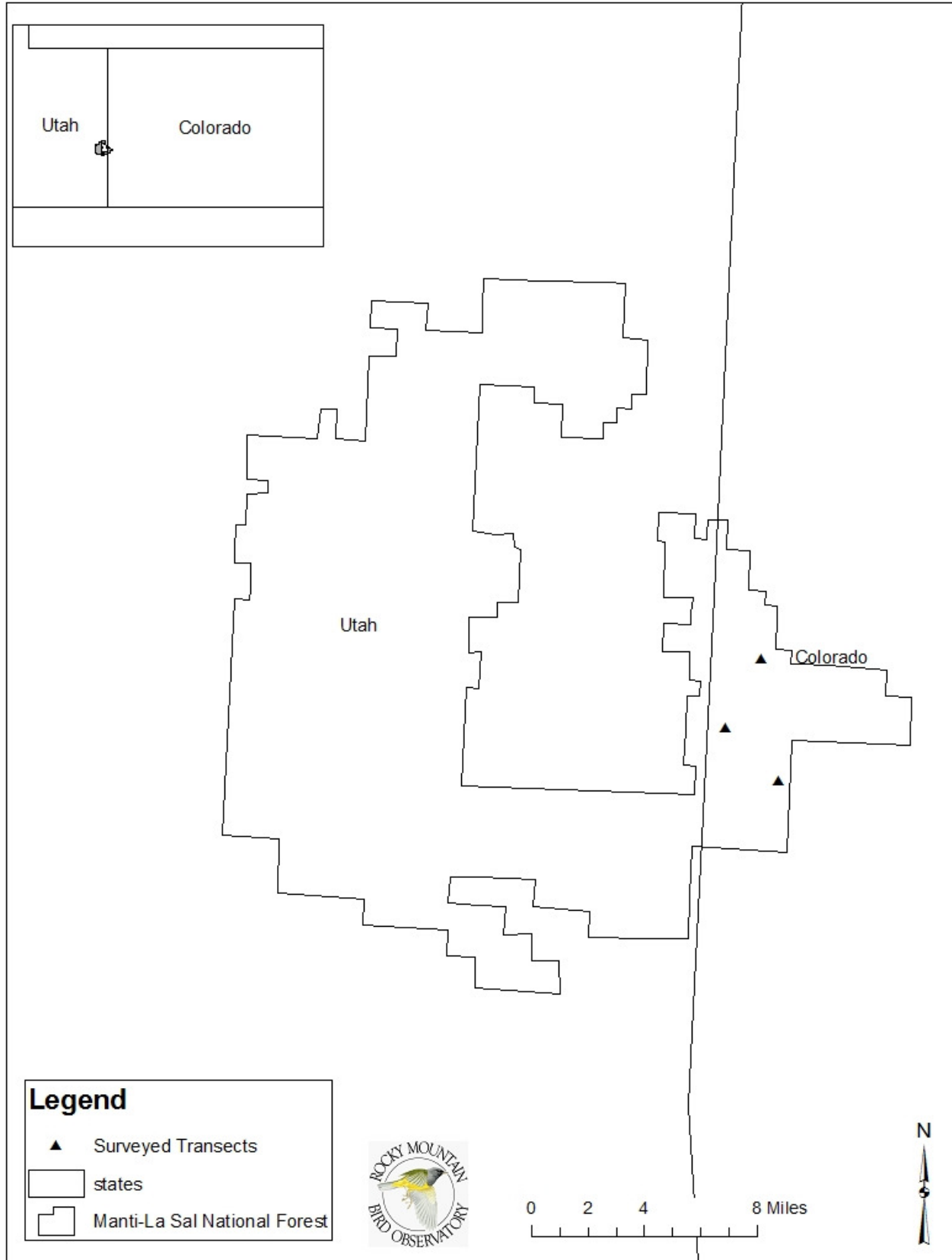


Figure 46. Survey locations in Manti-La Sal National Forest, 2010.

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Table 167. Estimated densities per km<sup>2</sup> (D), population sizes (N), percent coefficient of variation of estimates (% CV) and number of independent detections (n) of breeding bird species in Manti-La Sal National Forest, 2010. S indicates the number of transects used in analyses. Priority species are bolded.

<b>Species</b>	<b>Manti-La Sal NF (S=3)</b>			
	<b>D</b>	<b>N</b>	<b>% CV</b>	<b>n</b>
American Robin	23.51	3,079	100	7
Ash-throated Flycatcher	3.30	432	100	2
Bewick's Wren	9.00	1,178	77	3
Black-headed Grosbeak	11.14	1,460	63	6
Black-throated Gray Warbler	42.25	5,535	102	15
Blue-gray Gnatcatcher	16.36	2,143	100	3
Broad-tailed Hummingbird	45.95	6,019	83	4
Bushtit	6.85	897	108	1
Cassin's Finch	5.35	700	100	2
Chipping Sparrow	74.08	9,704	73	10
Clark's Nutcracker	2.50	328	101	2
Common Raven	2.05	269	57	5
Cordilleran Flycatcher	10.23	1,340	100	3
Dark-eyed Junco	39.15	5,128	105	7
Dusky Flycatcher	11.13	1,458	100	3
Green-tailed Towhee	23.17	3,035	74	9
Hairy Woodpecker	7.59	995	100	2
Hermit Thrush	10.34	1,355	53	10
House Wren	24.63	3,226	105	7
Juniper Titmouse	20.22	2,649	120	2
Lazuli Bunting	15.39	2,016	101	7
Mallard	5.23	685	102	5
Mountain Bluebird	37.08	4,857	72	8
Mourning Dove	16.95	2,221	38	12
Northern Flicker	3.14	412	13	3
Northern Mockingbird	0.76	99	102	1
Olive-sided Flycatcher	4.58	600	101	4
Pine Siskin	115.70	15,157	79	20
Pinyon Jay	1.19	156	101	2
Plumbeous Vireo	9.21	1,207	73	5
Red Crossbill	5.44	712	101	1
Red-breasted Nuthatch	6.38	836	115	2
Rock Wren	7.83	1,026	100	12
Ruby-crowned Kinglet	18.21	2,386	100	6
Say's Phoebe	0.78	102	100	1
Spotted Towhee	56.24	7,367	65	19
Steller's Jay	3.02	396	114	2

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<b>Species</b>	<b>Manti-La Sal NF (S=3)</b>			
	<b>D</b>	<b>N</b>	<b>% CV</b>	<b>n</b>
Townsend's Solitaire	21.45	2,810	71	9
Violet-green Swallow	50.65	6,636	83	8
Virginia's Warbler	39.94	5,232	80	9
Western Bluebird	44.22	5,793	89	6
Western Scrub-Jay	2.45	321	102	2
Western Tanager	29.35	3,844	90	14
Western Wood-Pewee	8.03	1,053	63	5
White-breasted Nuthatch	7.69	1,008	101	2
White-throated Swift	1.05	138	100	1
Yellow-rumped Warbler	54.41	7,128	91	16

Table 168. Estimated proportion of sample units occupied (Psi), percent coefficient of variation of Psi (% CV) and number of transects with one or more detections (n Tran) of breeding bird species in Manti-La Sal National Forest, 2010. Dashes indicate the data were insufficient for estimating site occupancy. A Psi estimate equal to 1 indicates the species was detected on all transects surveyed. S indicates the number of transects used in analyses. Priority species are bolded.

<b>Species</b>	<b>Manti-La Sal NF (S=3)</b>		
	<b>Psi</b>	<b>% CV</b>	<b>n Tran</b>
Ash-throated Flycatcher	0.344	82	1
Bewick's Wren	0.771	41	2
Black-chinned Hummingbird	0.440	82	1
Black-throated Gray Warbler	0.336	82	1
Blue-gray Gnatcatcher	0.350	82	1
Broad-tailed Hummingbird	0.795	41	2
Bushtit	0.854	84	1
Cassin's Finch	0.489	82	1
Clark's Nutcracker	0.438	82	1
Cordilleran Flycatcher	0.519	82	1
Dusky Flycatcher	0.717	41	2
Grace's Warbler	0.333	58	1
Green-tailed Towhee	0.681	41	2
Hairy Woodpecker	0.992	41	2
Juniper Titmouse	0.355	82	1
Lazuli Bunting	0.379	82	1
Lesser Goldfinch	0.370	82	1
Mountain Bluebird	0.765	41	2
Olive-sided Flycatcher	0.512	82	1
Pine Siskin	0.726	41	2
Pinyon Jay	0.380	82	1
Plumbeous Vireo	0.717	41	2

Species	Manti-La Sal NF (S=3)		
	Psi	% CV	n Tran
Red Crossbill	0.390	82	1
Rock Wren	0.389	82	1
Ruby-crowned Kinglet	0.342	82	1
Spotted Towhee	1	--	3
Townsend's Solitaire	0.956	41	2
Virginia's Warbler	1	--	3
Western Bluebird	0.754	41	2
Western Scrub-Jay	0.365	82	1
White-throated Swift	0.454	82	1

**c) Wasatch National Forest**

Wasatch National Forest is divided into two strata due to the hierarchal design of the IMBCR program. Currently only the Wyoming portion of the management unit is being sampled. It is recognized that the current low sampling intensity on this unit has limited value to unit specific estimates for Wasatch National Forest, however this is being implemented to achieve the Wyoming goal of state-wide population estimates and this requires sampling within each stratum in the state.

Field technicians surveyed two planned transects throughout the Wyoming, portion of Wasatch National Forest in 2010. Technicians conducted 32 point counts within the 2 transects between 25 June and 26 June 2010. We detected 18 species.

We do not present density or occupancy results for this section, because results from strata with only two samples are not informative. However, this data is incorporated into larger scale estimates and helps achieve the Wyoming partnership goal of obtaining a state-wide population estimate.

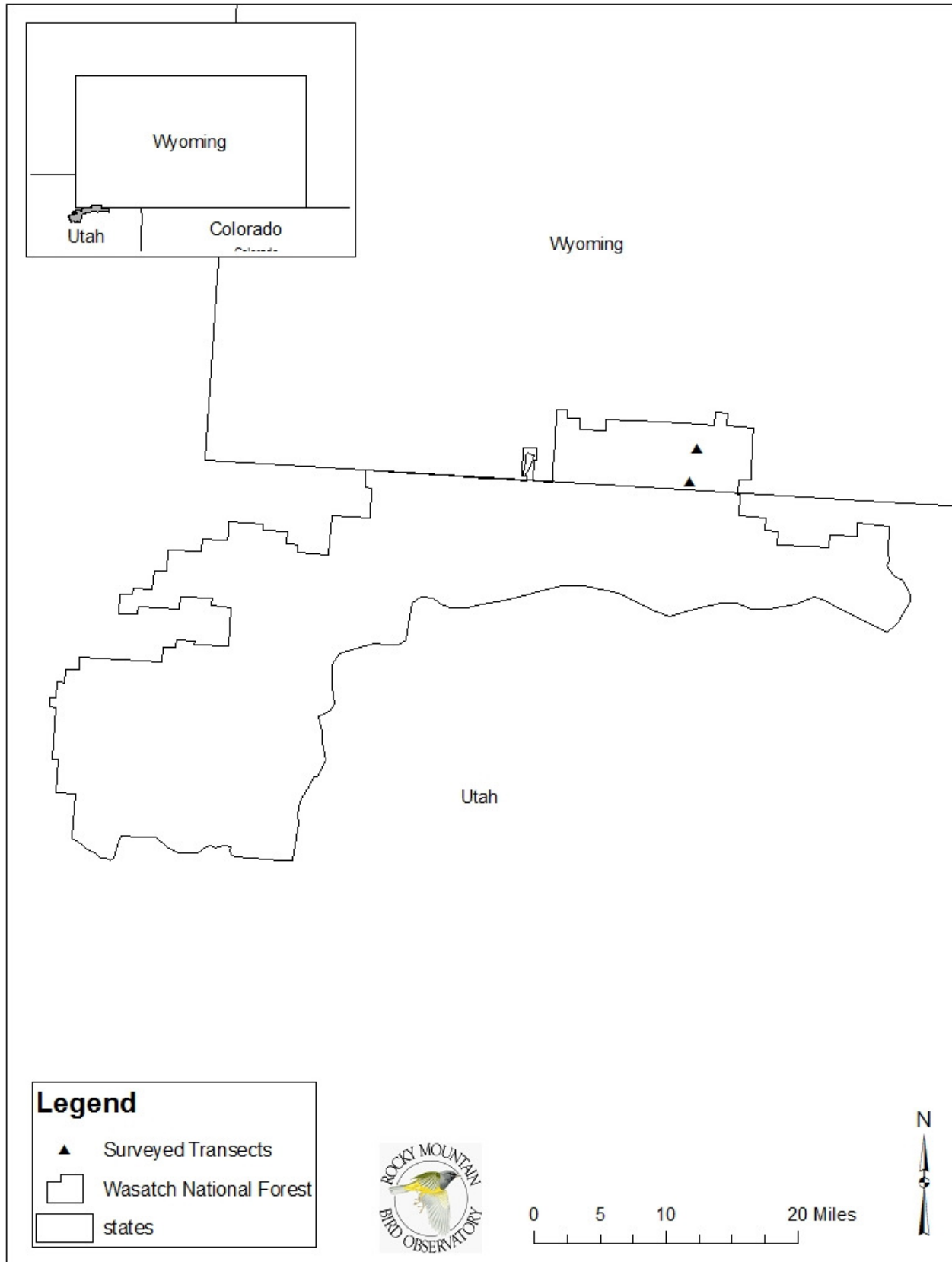


Figure 47. Survey locations in Wasatch National Forest, 2010.

## DISCUSSION

The consideration of scale has become an important aspect of ecological monitoring, with important consequences for conservation and management (Schneider 2001). For example, apparent avian population declines at small scales may not translate into regional declines at the scale of a species' geographic range (Wiens 1989). In addition, management actions and environmental factors may affect bird populations differently at different scales and may only impact certain species at particular scales (Wiens 1989). Because population responses are scale dependent, the management of wildlife habitats must also be implemented at multiple spatial scales (Block et al. 2001, George and Zack 2001). One advantage of the IMBCR approach is the flexibility to generate valid population estimates at scales relevant to land management agencies, as well as support conservation efforts at both local and regional scales.

This year we collectively analyzed data across the entire IMBCR sampling frame. Increasing the spatial extent of the analysis enabled us to quantify important geographic variation in detection probabilities and increased the precision of occupancy estimates. This approach also allowed us to estimate common detection probabilities for species that would have otherwise had an insufficient number of detections. By utilizing a larger data set we obtained more precise estimates of density, population size and occupancy for regions where sampling intensity was low. In addition, incorporating data collected at small scales to estimate parameters at larger scales allows this design to address the need for large-scale monitoring and research, which has been emphasized in recent bird conservation initiatives (Ruth et al. 2003). The region-wide population estimates presented in this report can assist managers in understanding the causes for declining landbird populations at larger scales than in the past (US North American Bird Conservation Initiative Committee 2009).

Simulations using 10 years of data from a similar avian monitoring program (J. Blakesley, RMBO, unpublished) indicated that it would be possible to detect an average annual 3% decline in the population of a species within 25 years with 80% power and  $CV \leq 40\%$ . A similar trend could be detected within 30 years with  $CV \leq 50\%$ . It is important to note that the ability to detect population trends for any species is a function of the sampling effort, abundance and annual variation of abundance for individual species. Some grassland bird species such as Lark Bunting (*Calamospiza melanocorys*) shift their breeding ranges from year to year based on environmental conditions (Shane 2000) resulting in abundance estimates that fluctuate significantly among years. More precise density estimates will be required to monitor population trends within 25-30 years for species exhibiting this degree of annual variation in density and abundance.

The population size estimates presented in this report were produced from density estimates that account for spatial variation and incomplete detection, which allowed the population estimates to be extended over the entire area of interest (Pollock et al. 2002, Thompson 2002, Nichols et al. 2009a). Avian population size estimates at the BCR level can also be found in the Partners in Flight (PIF) Population Estimates Database ([http://rmbo.org/pif\\_db/laped/](http://rmbo.org/pif_db/laped/)). Initial comparisons between IMBCR and PIF population size estimates for several species showed substantial differences. For example, the PIF population size estimates for Brewer's Sparrow (*Spizella breweri*) and Horned Lark (*Eremophila alpestris*) within BCR 17 were 670,000 and 8 million, while the IMBCR estimates were greater than 5 million and less than 6 million, respectively (Table 17). The population size estimates presented by PIF were extrapolated to the BCR level from the road-based Breeding Bird Survey (BBS) after applying several *post hoc* correction factors in attempt to account for incomplete detection (Blancher et al. 2007). While

changes in population indices may or may not correspond to true trends in bird population sizes, direct inference about absolute population sizes are limited by non-random sampling with respect to roads and lack of information about detection probabilities (Pollock et al. 2002, Nichols et al. 2009b). The large differences between the IMBCR and PIF population estimates suggests the effects of non-random sampling and estimating detection probabilities are areas of further research.

This year we estimated the proportion of sites occupied for species with insufficient data to estimate density and/or that are designated as priority species by our partners. By evaluating the strength of evidence for four occupancy estimation models, we effectively accounted for regional variation in detection and availability, resulting in robust estimates of the proportion of occupied sites on the landscape. Occupancy estimation increases the number of bird species that we are able to effectively monitor and provides managers with information about populations of rare and uncommon species (MacKenzie et al. 2005). By aggregating BCRs in the occupancy analyses, we were able to estimate site occupancy for a wider range of strata and regions that individually had an insufficient number of samples and detections (MacKenzie and Royle 2005). We also transitioned from five minute to six minute counts this year to facilitate analysis of occupancy rates, incorporating the removal-in-time method. Unfortunately, because of this alteration in protocol we were only able to utilize data collected in 2010 for occupancy analyses. Future analyses will incorporate data collected over multiple seasons thereby increasing the precision of our occupancy estimates.

The data for avian density and occupancy and vegetation collected with the IMBCR design can be used to develop habitat models to support conservation and management. For example, we can post-stratify the data using vegetation variables collected at each point to generate habitat-specific density estimates. Analytic methods for modeling covariate effects on density using Distance sampling theory may be particularly useful for evaluating population responses to habitat management (Royle et al. 2004). The multi-scale occupancy model can also be extended to investigate habitat relationships for species of conservation concern. This approach may especially useful for guiding habitat management and evaluating population responses to habitat conditions at both local and regional scales. Habitat modeling may ultimately reveal spatial trends related to land use or habitat loss that are symptomatic of population declines and suggest land management strategies for species recovery.

The primary limitation to estimating avian population parameters using the IMBCR approach is sample size within strata. The minimum number of samples per stratum necessary to estimate regional density and occupancy is two samples. However, reliable stratum-level inferences require larger samples sizes, with perhaps a minimum of ten samples per stratum recommended for occupancy estimation. Furthermore, additional samples may be required for strata comprising large geographic areas. Because we estimate regional site occupancy using a weighted mean indexed by stratum area and estimate regional density using a similar weighting scheme, biased estimates can result when small-sample estimates from large strata receive more weight than large-sample estimates from small strata. For example, the occupancy estimate for Long-Billed Curlew in All Other Lands in Montana Bird Conservation Region 10 is 0.89, likely an artificially high estimate resulting from a low sample size. Because of the large geographic area this artificially high estimate will receive considerable weight for state-wide and regional estimates due to the large geographic area encompassed by this stratum. Although the importance of long-term and intensive population monitoring is well known, it is expensive, with costs typically determining the sampling effort. The IMBCR design reduces costs through multiple partner coordination; one of the stated the goals of effective collaboration and coordinated bird monitoring (US North American Bird Conservation Initiative

Monitoring Subcommittee 2007). Partners and managers can also investigate other priority species and taxa with only slight modifications to the IMBCR design, further reducing costs associated with developing new studies and monitoring programs. Ideally, these cost savings can be applied to increasing sample efforts, particularly in under-sampled strata.

The IMBCR design allows sampling of all habitats, allowing managers to relate changes in bird populations to changes on the landscape over time. Because all vegetation classes are available for sampling and samples are spatially balanced, rare habitats are sampled less frequently than others, but appear to be sampled in proportion to land cover classifications. For example, within Colorado in 2010, 4.6% of all points surveyed were primarily riparian habitat, compared to 3% overall riparian land cover throughout the state (Lowry et al. 2005). The slight difference may be attributed to strata classifications by river system in Colorado, such as Arkansas River and tributaries (AR) and the Platte River and tributaries (PT), where points fall close to major rivers (Figure 2). Further explorations of sampled habitat types can be done through post-stratification of the data by vegetation cover type and primary habitat to determine if certain species are under-sampled. Additional analyses of avian-habitat relationships using our vegetation data can help guide future conservation and management.

The IMBCR design serves as a model for other long-term monitoring efforts because of its ability to address the conservation and management needs of a wide range of stakeholders, landowners and government entities at both local and regional scales. IMBCR monitoring represents one method for achieving effective collaboration in North American bird monitoring and could be applied to other BCRs and regions across the continent.



## LITERATURE CITED

- Alexander, J. D., J. L. Stevens, G. R. Geupel, and T. C. Will. Decision support tools: bridging the gap between science and management. 13 February-16 February, 2008 2008.
- Baron, J. S., S. H. Julius, J. M. West, L. A. Joyce, G. Blate, C. H. Peterson, M. Palmer, B. D. Keller, P. Kareiva, J. M. Scott, and B. Griffith. 2008. Some guidelines for helping natural resources adapt to climate change. International Human Dimensions Programme on Global Environmental Change Update 2:46-52.
- Blakesley, J. A., and D. J. Hanni. 2009. Monitoring Colorado's Birds, 2008. Technical Report M-MCB08-01. Rocky Mountain Bird Observatory, Brighton, Colorado, USA.
- Block, W. A., A. B. Franklin, J. P. Ward, J. L. Ganey, and G. C. White. 2001. Design and implementation of monitoring studies to evaluate the success of ecological restoration on wildlife. *Restoration Ecology* 9:293-303.
- Buckland, S. T., D. R. Anderson, K. P. Burnham, J. L. Laake, D. L. Borchers, and L. Thomas. 2001. Introduction to distance sampling: estimating abundance of biological populations. Oxford University Press, Oxford, UK.
- Burnham, K. P., and D. R. Anderson. 2002. Model selection and multimodel inference: a practical information-theoretic approach. Springer-Verlag, New York, New York, USA.
- Colorado Division of Wildlife (CDOW). 2006. Colorado's Comprehensive Wildlife Conservation Strategy and Wildlife Action Plans.
- Colorado Division of Wildlife (CDOW). 2007. Threatened & Endangered List.
- Dreitz, V. J., P. M. Lukacs, and F. L. Knopf. 2006. Monitoring low density avian populations: An example using Mountain Plovers. *Condor* 108:700-706.
- Environmental Systems Research Institute. 2006. ArcGIS, version 9.2. Environmental Systems Research Institute, Incorporated, Redlands, California, USA.
- Farnsworth, G. L., K. H. Pollock, J. D. Nichols, T. R. Simons, J. E. Hines, and J. R. Sauer. 2002. A removal model for estimating detection probabilities from point-count surveys. *Auk* 119:414-425.
- George, T. L., and S. Zack. 2001. Spatial and temporal considerations in restoring habitat for wildlife. *Restoration Ecology* 9:272-279.
- Hagen, S. K., P. T. Isakson, and S. R. Dyke. 2005. North Dakota Comprehensive Wildlife Conservation Strategy. North Dakota Game and Fish Department., Bismarck, North Dakota, USA.
- Hanni, D. J., C. M. White, J. A. Blakesley, G. J. Levandoski, and J. J. Birek. 2009. Field protocol for spatially-balanced sampling of landbird populations. Unpublished report. Rocky Mountain Bird Observatory, Brighton, Colorado, USA.

Integrated Monitoring in Bird Conservation Regions: 2010 Annual Report

- Kincaid, T. 2008. Unpublished report. United States Environmental Protection Agency, Washington, D. C., USA.
- Lindenmayer, D. B., and G. E. Likens. 2009. Adaptive monitoring: a new paradigm for long-term research and monitoring. *Trends in Ecology and Evolution* 24:482-486.
- Lowry, J. H., Jr., R. D. Ramsey, K. Boykin, D. Bradford, P. Comer, S. Falzarano, W. Kepner, J. Kirby, L. Langs, J. Prior-Magee, G. Manis, L. O'Brien, T. Sajwaj, K. A. Thomas, W. Rieth, S. Schrader, D. Schrupp, K. Schulz, B. Thompson, C. Velasquez, C. Wallace, E. Waller, and B. Wolk. 2005. Southwest Regional Gap Analysis Project: Final Report on Land Cover Mapping Methods. Logan, UT, USA.
- Lyons, J. E., M. C. Runge, H. P. Laskowski, and W. L. Kendall. 2008. Monitoring in the context of structured decision-making and adaptive management. *Journal of Wildlife Management* 72:1683-1692.
- Mackenzie, D. I., J. D. Nichols, G. B. Lachman, S. Droege, J. A. Royle, and C. A. Langtimm. 2002. Estimating site occupancy rates when detection probabilities are less than one. *Ecology* 83:2248-2255.
- Mackenzie, D. I., J. D. Nichols, J. A. Royle, K. H. Pollock, L. L. Bailey, and J. E. Hines. 2006. Occupancy estimation and modeling: inferring patterns and dynamics of species occurrence. Elsevier, Burlington, Massachusetts, USA.
- Mackenzie, D. I., J. D. Nichols, N. Sutton, K. Kawanishi, and L. L. Bailey. 2005. Improving inferences in population studies of rare species that are detected imperfectly. *Ecology* 86:1101-1113.
- Mackenzie, D. I., and J. A. Royle. 2005. Designing occupancy studies: general advice and allocating survey effort. *Journal of Applied Ecology* 42:1105-1114.
- Manley, P. N., M. D. Schlesinger, J. K. Roth, and B. Van Horne. 2005. A field-based evaluation of a presence-absence protocol for monitoring ecoregional-scale biodiversity. *Journal of Wildlife Management* 69:950-966.
- Manley, P. N., W. M. Block, F. R. Thompson, G. S. Butcher, C. Paige, L. H. Suring, D.S. Winn, D. Roth, C. J. Ralph, E. Morris, C. H. Flather, and K. Byford. 1993. Guidelines for monitoring populations of Neotropical migratory birds on National Forest system lands. USDA Forest Service Monitoring Task Group Report, Washington, D. C., USA.
- Marsh, D. M., and P. C. Trenham. 2008. Current trends in plant and animal population monitoring. *Conservation Biology* 22:647-655.
- Montana Natural Heritage Program (MTNHP) and Montana Fish Wildlife and Parks (MTFWP). 2009. Montana Animal Species of Concern.
- Nichols, J. D., L. L. Bailey, A. F. O'Connell, N. W. Talancy, E. H. C. Grant, A. T. Gilbert, E. M. Annand, T. P. Husband, and J. E. Hines. 2008. Multi-scale occupancy estimation and modelling using multiple detection methods. *Journal of Applied Ecology* 45:1321-1329.

## Integrated Monitoring in Bird Conservation Regions: 2010 Annual Report

- Nichols, J. D., L. Thomas, and P. B. Conn. 2009a. Inferences about landbird abundance from count data: recent advances and future directions. Pages 1131 *in* D. L. Thomson, E. G. Cooch, and M. J. Conroy, editors. Modeling demographic processes in marked populations. Conn Springer, New York, USA.
- Nichols, J. D., L. Thomas, and P. B. Conn. 2009b. Inferences about landbird abundance from count data: recent advances and future directions. Pages 1131 *in* D. L. Thomson, E. G. Cooch, and M. J. Conroy, editors. Modeling demographic processes in marked populations. Springer, New York.
- Parrish, J. R., F. P. Howe, and R. E. Norvell. 2002. Utah Partners in Flight Avian Conservation Strategy. Version 2.0., Utah Partners in Flight Program, Utah Division of Wildlife Resources, Salt Lake City, Utah, USA.
- Partners in Flight. 2000. Draft Bird Conservation Plan: Montana. Kalispell, Montana, USA.
- Playa Lakes Joint Venture Landbird Team. 2007. Playa Lakes Joint Venture Landbird Team Report. Version 2.0.
- Pollock, K. H. 1982. A capture-recapture design robust to unequal probability of capture. *Journal of Wildlife Management* 46:752-757.
- Pollock, K. H., J. D. Nichols, T. R. Simons, G. L. Farnsworth, L. L. Bailey, and J. R. Sauer. 2002. Large scale wildlife monitoring studies: statistical methods for design and analysis. *Environmetrics* 13:105-119.
- Powell, L. A. 2007. Approximating variance of demographic parameters using the delta method: a reference for avian biologists. *Condor* 109:949-954.
- Prairie Pothole Joint Venture. 2005. Prairie Pothole Joint Venture Implementation Plan: Introduction.
- R Development Core Team. 2008. R: a language and environment for statistical computing. R Foundation for Statistical Computing, Vienna, Austria.
- Rich, T. D., C. J. Beardmore, H. Berlanga, P. J. Blancher, M. S. W. Bradstreet, G. S. Butcher, D. W. Demarest, E. H. Dunn, W. C. Hunter, E. E. Iñigo-Elias, J. A. Kennedy, A. M. Martell, A. O. Panjabi, D. N. Pashley, K. V. Rosenberg, C. M. Rustay, J. S. Wendt, and T. C. Will. 2004. Partners in Flight North American landbird conservation plan. Cornell Lab of Ornithology, Ithaca, New York, USA.
- Rosenstock, S. S., D. R. Anderson, K. M. Giesen, T. Leukering, and M. F. Carter. 2002. Landbird counting techniques: current practices and an alternative. *Auk* 119:46-53.
- Royle, J. A., D. K. Dawson, and S. Bates. 2004. Modeling abundance effects in distance sampling. *Ecology* 85:1591-1597.
- Ruggiero, L. F., G. D. Hayward, and J. R. Squires. 1994. Viability Analysis in Biological Evaluations: Concepts of Population Viability Analysis, Biological Population, and Ecological Scale. *Conservation Biology* 8:364-372.

## Integrated Monitoring in Bird Conservation Regions: 2010 Annual Report

- Ruth, J. M., D. R. Petit, J. R. Sauer, M. D. Samuel, F. A. Johnson, M. D. Fornwall, C. E. Korschgen, and J. P. Bennett. 2003. Science for avian conservation: Priorities for the new millennium. *Auk* 120:204-211.
- SAS Institute. 2008. SAS/STAT. Version 9.2. SAS Institute, Incorporated, Cary, North Carolina, USA.
- Sauer, J. R. Monitoring Goals and Programs of the U.S. Fish and Wildlife Service. Finch, D. M., and P.W. Stangel, 21 September-25 September, 1993 1993.
- Sauer, J. R., and M. G. Knutson. 2008. Objectives and metrics for wildlife monitoring. *Journal of Wildlife Management* 72:1663-1664.
- Schneider, D. C. 2001. The rise of the concept of scale in ecology. *BioScience* 51:545-553.
- Shane, T. G. 2000. Lark Bunting (*Calamospiza melanocorys*). *in* The Birds of North America Online (A. Poole, Ed.). Cornell Lab of Ornithology, Ithaca, New York, USA.
- Skorkowsky, R. C., and B. A. Hahn. 2010. USFS Northern Region Terrestrial Wildlife Prioritization Framework for Identifying Inventory, Monitoring, Assessment, and Modeling Work Needs. Internal report. U.S. Forest Service.
- South Dakota Department of Game Fish and Parks (SDGFP). 2006. South Dakota Comprehensive Wildlife Conservation Plan. South Dakota Dept. of Game Fish and Parks. Wildlife Division Report 2006-2008.
- South Dakota Department of Game Fish and Parks (SDGFP). 2008. Threatened, Endangered, and Candidate Species of South Dakota.
- Sparks, R. A., and D. J. Hanni. 2011. Monitoring of Grassland Birds on Little Missouri, Sheyenne and Grand River National Grasslands. Tech. Report # M-SS-DAKPG08-02. The Rocky Mountain Bird Observatory, Brighton, Colorado, USA.
- Stevens, D. L., Jr., and A. R. Olsen. 2004. Spatially balanced sampling of natural resources. *Journal of the American Statistical Association* 99:262-278.
- Thomas, L., S. T. Buckland, E. A. Rexstad, J. L. Laake, S. Strindberg, S. L. Hedley, J. R. B. Bishop, T. A. Marques, and K. P. Burnham. 2010. Distance software: design and analysis of distance sampling surveys for estimating population size. *Journal of Applied Ecology* 47:5-14.
- Thompson, W. L. 2002. Towards reliable bird surveys: accounting for individuals present but not detected. *Auk* 119:18-25.
- Thompson, W. L., G. C. White, and C. Gowan. 1998. Monitoring vertebrate populations. Academic Press, San Diego, California, USA.
- U.S. Forest Service. 2008a. Intermountain Region Proposed Threatened Endangered and Sensitive Species.
- U.S. Forest Service. 2008b. Region 2 Regional Forester's Sensitive Species.

## Integrated Monitoring in Bird Conservation Regions: 2010 Annual Report

- US North American Bird Conservation Initiative Committee. 2000. Bird Conservation Regions descriptions: a supplement to the North American Bird Conservation Initiative: Bird Conservation Regions map. US Fish and Wildlife Service, Arlington, Virginia, USA.
- US North American Bird Conservation Initiative Committee. 2009. The State of the Birds, United States of America, 2009. U.S. Department of Interior, Washington, D.C., USA.
- US North American Bird Conservation Initiative Monitoring Subcommittee. 2007. Opportunities for improving avian monitoring. Division of Migratory Bird Management, U.S. Fish and Wildlife Service, Arlington, Virginia, USA.
- White, G. C., and K. P. Burnham. 1999. Program MARK: survival estimation from populations of marked animals. *Bird Study* 46:120-139.
- Wiens, J. A. 1989. *The Ecology of Bird Communities*. Cambridge University Press, New York, New York, USA.
- Witmer, G. W. 2005. Wildlife population monitoring: some practical considerations. *Wildlife Research* 32:259-263.
- Wyoming Game and Fish Department (WGFD). 2005. *A Comprehensive Wildlife Conservation Strategy for Wyoming*. Cheyenne, WY, USA.

## APPENDIX A

Priority species detected in Badlands and Prairies Bird Conservation Region (BCR 17) as designated by Partners in Flight (PIF).

Species	PIF*	Occupancy Estimated	Density Estimated
	BCR17		
Baird's Sparrow	CC,RC	X	X
Black-backed Woodpecker	RC		
Black-billed Cuckoo	RC		
Black-billed Magpie	RC	X	X
Brewer's Sparrow	CC,RC	X	X
Burrowing Owl	RC		
Chestnut-collared Longspur	RC,CS,RS	X	X
Dickcissel	CC,RC		
Ferruginous Hawk	RC,RS		
Golden Eagle	RC		
Grasshopper Sparrow	RC,CS,RS	X	X
Greater Prairie-Chicken	CC,RC		
Greater Sage-Grouse	CC,RC,CS,RS		
Lark Bunting	RC,CS,RS	X	X
Lewis's Woodpecker	CC,RC	X	
Loggerhead Shrike	RC		X
McCown's Longspur	CC,RC,CS,RS		
Mountain Bluebird	RC	X	X
Northern Goshawk	RC		
Northern Harrier	RC		X
Northern Rough-winged Swallow	RC		X
Pinyon Jay	CC,RC	X	X
Red-headed Woodpecker	CC,RC		X
Sage Thrasher	RC	X	X
Say's Phoebe	RS		X
Sharp-tailed Grouse	CS,RS		
Short-eared Owl	CC,RC		
Sprague's Pipit	CC,RC	X	X
Swainson's Hawk	CC	X	X
Vesper Sparrow	RC,RS	X	X
Western Meadowlark	RS	X	
White-throated Swift	CC	X	
Willow Flycatcher	CC	X	

\*CC = Continental Concern Species; RC = Regional Concern Species; CS = Continental Stewardship Species; RS = Regional Stewardship Species (PIF 2005).

## APPENDIX B

Priority species detected in all states, with management designations as designated by state agencies. Agencies included: Colorado Division of Wildlife (CDOW), Montana Fish, Wildlife and Parks (MTFWP), North Dakota Game and Fish Department (NDGFD), Nebraska Game and Parks Commission (NGPC), South Dakota Game, Fish and Parks (SDGFP) and Wyoming Game and Fish Department (WGFD).

Species	State Wildlife Agencies*						Occupancy Estimated	Density Estimated
	CDOW	MTFWP	NDGFD	NGPC	SDGFP	WGFD		
Alder Flycatcher		S3B						
American Bittern	SGCN	S3B	SoCP LI	Tier II		SGCN		
American Dipper	SGCN				SGCN, ST			
American Three-toed Woodpecker	SGCN				SGCN	SGCN	X	X
American White Pelican	SGCN	S3B	SoCP LI	Tier II	SGCN	SGCN		
Ash-throated Flycatcher						SGCN		
Baird's Sparrow		S3B	SoCP LI		SGCN		X	X
Bald Eagle	SGCN	S3	SoCP LII	Tier I	SGCN, ST	SGCN		
Band-tailed Pigeon	SGCN							
Black Rosy-Finch	SGCN	S2				SGCN	X	
Black Swift	SGCN	S1B						
Black-backed Woodpecker		S3			SGCN	SGCN		
Black-billed Cuckoo		S3B	SoCP LI	Tier II				
Black-chinned Hummingbird	SGCN						X	
Black-throated Gray Warbler	SGCN						X	X
Bobolink	SGCN	S3B	SoCP LII			SGCN	X	X
Brewer's Sparrow	SGCN	S3B	SoCP LIII	Tier I		SGCN	X	X
Broad-tailed Hummingbird	SGCN						X	X
Brown Creeper		S3		Tier II				X
Brown-capped Rosy-Finch	SGCN					SGCN		
Burrowing Owl	SGCN,ST	S3B	SoCP LII	Tier I	SGCN	SGCN		
Caspian Tern		S2B				SGCN		
Cassin's Finch	SGCN	S3					X	X

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Species	State Wildlife Agencies*						Occupancy Estimated	Density Estimated
	CDOW	MTFWP	NDGFD	NGPC	SDGFP	WGFD		
Cassin's Sparrow	SGCN							X
Chestnut-collared Longspur	SGCN	S2B	SoCP LI	Tier II	SGCN	SGCN	X	X
Clark's Nutcracker		S3		Tier II				X
Cordilleran Flycatcher	SGCN			Tier II			X	X
Curve-billed Thrasher	SGCN							
Dickcissel			SoCP LII			SGCN		
Dusky Flycatcher	SGCN						X	X
Dusky Grouse	SGCN						X	
Evening Grosbeak	SGCN						X	X
Ferruginous Hawk	SGCN,SC	S3B	SoCP LI	Tier I	SGCN	SGCN		
Forster's Tern	SGCN	S3B		Tier II		SGCN		
Franklin's Gull		S3B	SoCP LI			SGCN		
Golden Eagle	SGCN	S3	SoCP LII	Tier II				
Grace's Warbler	SGCN						X	
Grasshopper Sparrow		S3B	SoCP LI			SGCN	X	X
Gray Flycatcher	SGCN						X	X
Gray Vireo	SGCN						X	X
Great Blue Heron		S3				SGCN		
Great Gray Owl		S3				SGCN		
Greater Prairie-Chicken	SGCN		SoCP LII	Tier I	SGCN			
Greater Sage-Grouse	SGCN,SC	S2	SoCP LII	Tier II	SGCN	SGCN		
Juniper Titmouse	SGCN					SGCN	X	X
Lark Bunting	SGCN		SoCP LI		SGCN	SGCN	X	X
Lazuli Bunting	SGCN						X	X
Lesser Scaup	SGCN			Tier II		SGCN		
Lewis's Woodpecker	SGCN	S2B		Tier I	SGCN	SGCN	X	
Loggerhead Shrike	SGCN	S3B	SoCP LII	Tier II			X	X
Long-billed Curlew	SGCN,SC	S3B	SoCP LI	Tier I	SGCN	SGCN		X
Marbled Godwit	SGCN		SoCP LI		SGCN		X	



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Species	State Wildlife Agencies*						Occupancy Estimated	Density Estimated
	CDOW	MTFWP	NDGFD	NGPC	SDGFP	WGFD		
McCown's Longspur	SGCN	S3B	SoCP LIII	Tier I		SGCN	X	X
Mountain Plover	SGCN,SC	S2B		Tier I		SGCN	X	
Northern Goshawk	SGCN	S3			SGCN	SGCN		
Northern Harrier	SGCN		SoCP LII	Tier II				X
Northern Pintail	SGCN		SoCP LII			SGCN		
Northern Pygmy-Owl						SGCN		
Olive-sided Flycatcher	SGCN						X	X
Osprey	SGCN				SGCN, ST			
Peregrine Falcon	SGCN,SC	S3	SoCP LIII	Tier II	SGCN, SE	SGCN		
Pileated Woodpecker		S3		Tier II			X	
Pinyon Jay	SGCN	S3		Tier II			X	X
Purple Martin	SGCN						X	
Pygmy Nuthatch	SGCN			Tier II		SGCN	X	X
Red Crossbill	SGCN			Tier II			X	X
Red-headed Woodpecker		S3B	SoCP LII					X
Red-naped Sapsucker	SGCN						X	X
Rufous Hummingbird	SGCN						X	
Sage Sparrow	SGCN	S3B				SGCN	X	X
Sage Thrasher		S3B		Tier II		SGCN	X	X
Sandhill Crane	SGCN,SC			Tier II		SGCN		X
Scaled Quail	SGCN							
Sharp-tailed Grouse			SoCP LII					
Sharp-tailed Grouse (Columbian)	SGCN,SC	S1				SGCN		
Short-eared Owl	SGCN		SoCP LII	Tier I		SGCN		
Sprague's Pipit		S3B	SoCP LI		SGCN		X	X
Swainson's Hawk	SGCN		SoCP LI	Tier II		SGCN	X	X
Trumpeter Swan		S3		Tier I	SGCN	SGCN		
Upland Sandpiper	SGCN		SoCP LI			SGCN	X	X
Veery	SGCN	S3B					X	

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Species	State Wildlife Agencies*						Occupancy Estimated	Density Estimated
	CDOW	MTFWP	NDGFD	NGPC	SDGFP	WGFD		
Vesper Sparrow	SGCN						X	X
Virginia's Warbler	SGCN						X	X
Western Grebe	SGCN			Tier II		SGCN		
White-faced Ibis	SGCN	S3B		Tier II		SGCN		
White-tailed Ptarmigan	SGCN	S3						
White-throated Swift	SGCN			Tier II			X	X
White-winged Junco					SGCN			
Willet			SoCP L1	Tier II	SGCN		X	
Williamson's Sapsucker	SGCN						X	
Willow Flycatcher	SGCN					SGCN	X	
Wilson's Phalarope	SGCN		SoCP L1		SGCN		X	
Winter Wren		S3					X	

\* CDOW: SGCN = Species of Greatest Conservation Need; FE = Federally Endangered; SE = State Endangered; ST = State Threatened; SC = State Candidate (Colorado Division of Wildlife (CDOW) 2006;2007); MTFWP: S1 = Species at high risk because of extremely limited and/or rapidly declining numbers, range and/or habitat; S2 = Species at risk because of very limited and/or declining numbers, range and/or habitat; S3 = Species potentially at risk because of limited and/or declining numbers, range and/or habitat, even though it may be abundant in some areas (Montana Natural Heritage Program (MTNHP) and Montana Fish Wildlife and Parks (MTFWP) 2009); NDGFD: SoCP = Species of Conservation Priority; L1 = Level 1: Species in greatest need of conservation; L2 = Level 2: Species in need of conservation; but that have had support from other wildlife programs (Hagen et al. 2005); NGPC: Tier I = Globally or nationally most at-risk of extinction; Tier II = State Critically Imperiled, State Imperiled or State Vulnerable; SDGFP: SGCN = Species of Greatest Conservation Need; ST = State Threatened Species; SE = State Endangered (South Dakota Department of Game Fish and Parks (SDGFP) 2006;2008); WGFD: SGCN = Species of Greatest Conservation Need (Wyoming Game and Fish Department (WGFD) 2005).

## APPENDIX C

Priority species detected on Bureau of Land Management (BLM) lands, with management designations by state.

Species	BLM*					Occupancy Estimated	Density Estimated
	Colorado	Montana	North Dakota	South Dakota	Wyoming		
American Three-toed Woodpecker		SS	SS	SS		X	X
Baird's Sparrow		SS	SS	SS	SS	X	X
Bobolink		SS	SS	SS		X	X
Brewer's Sparrow		SS	SS	SS	SS	X	X
Chestnut-collared Longspur		SS	SS	SS		X	X
Ferruginous Hawk	SS	SS	SS	SS	SS		
Greater Sage-Grouse	SS	SS	SS	SS	SS		
Loggerhead Shrike		SS	SS	SS	SS		X
Long-billed Curlew	SS	SS	SS	SS	SS	X	X
Marbled Godwit		SS	SS	SS		X	
McCown's Longspur		SS	SS	SS		X	X
Mountain Plover	SS	SS	SS	SS			
Sage Sparrow		SS	SS	SS	SS	X	X
Sage Thrasher		SS	SS	SS	SS	X	X
Sprague's Pipit		SS	SS	SS		X	X
Swainson's Hawk		SS	SS	SS		X	X

\*SS = Sensitive Species; MT, ND, SD (BLM 2009); WY (BLM 2002); CO (BLM 2000).

## APPENDIX D

Priority species detected on U.S. Forest Service lands in Region 1, with management designations by region and unit. Codes for Region/Units: Beaverhead/Deerlodge NF (BDNF), Bitterroot NF (BINF), Clearwater NF (CLNF), Custer NF (CUNF), Flathead NF (FLNF), Gallatin NF (GANF), Helena NF (HENF).

Species	USFS Region 1*								Occupancy	Density
	Region 1	BDNF	BINF	CLNF	CUNF	FLNF	GANF	HENF	Estimated	Estimated
American Three-toed Woodpecker									X	X
Baird's Sparrow	R1SS								X	X
Bald Eagle	R1SS		MIS	MIS	MIS	MIS	MIS	MIS		
Black Rosy-finch	Other								X	
Black Swift	R1SS									
Black-backed Woodpecker	R1SS					MIS				
Boreal Chickadee	Other									
Boreal Owl	Other									
Brewer's Sparrow					MIS				X	X
Broad-tailed Hummingbird	Other								X	X
Bullock's Oriole					MIS				X	X
Clark's Nutcracker	Other									X
Grasshopper Sparrow	Other								X	X
Gray Jay	Other								X	X
Great Gray Owl	Other									
Hairy Woodpecker								MIS	X	X
Lark Sparrow					MIS				X	X
Lewis's Woodpecker	Other								X	
Loggerhead Shrike	R1SS								X	X
Long-billed Curlew	R1SS									X
Merlin					MIS					
Northern Goshawk				MIS	MIS		MIS	MIS		
Northern Harrier	Other								X	X
Olive-sided Flycatcher	Other									X

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Species	USFS Region 1*								Occupancy Estimated	Density Estimated
	Region 1	BDNF	BINF	CLNF	CUNF	FLNF	GANF	HENF		
Osprey	Other									
Ovenbird					MIS				X	X
Pileated Woodpecker			MIS	MIS				MIS	X	
Pygmy Nuthatch	R1SS								X	X
Red-headed Woodpecker	Other									X
Red-naped Sapsucker	Other								X	X
Sage Thrasher	Other									
Sandhill Crane	Other									X
Sharp-tailed Grouse (plains)					MIS					
Sprague's Pipit	R1SS								X	X
Swainson's Hawk	Other									
Western Kingbird					MIS					X
Williamson's Sapsucker	Other								X	
Yellow Warbler					MIS				X	X

\*R1SS = Region 1 sensitive species; Other = Other Priority Species in Region 1; MIS = management indicator species (Skorkowsky and Hahn 2010).

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**Appendix D continued.** Codes for Region/Units: Idaho Panhandle NF (IPNF), Kootenai NF (KONF), Lewis and Clark NF (LCNF), Lolo NF (LONF) and Nez Perce NF (NPNF), Cedar River National Grassland (CRNG), Grand River National Grassland (GRNG), Little Missouri National Grassland (LMNG).

Species	USFS Region 1*									Occupancy Estimated	Density Estimated
	Region 1	IPNF	KONF	LCNF	LONF	NPNF	CRNG	GRNG	LMNC		
Alder Flycatcher	Other										
American Dipper	Other										
American Three-toed Woodpecker				MIS						X	X
Baird's Sparrow	R1SS									X	X
Bald Eagle	R1SS	MIS	MIS	MIS	MIS	MIS					
Black Rosy-finch	Other									X	
Black Swift	R1SS										
Black-backed Woodpecker	R1SS										
Boreal Chickadee	Other										
Boreal Owl	Other										
Brewer's Sparrow										X	X
Broad-tailed Hummingbird	Other									X	X
Bullock's Oriole										X	X
Clark's Nutcracker	Other										X
Grasshopper Sparrow	Other									X	X
Gray Jay	Other									X	X
Great Gray Owl	Other										
Hairy Woodpecker										X	X
Lark Sparrow										X	X
Lewis's Woodpecker	Other									X	
Loggerhead Shrike	R1SS									X	X
Long-billed Curlew	R1SS										X
Merlin											
Northern Goshawk		MIS		MIS	MIS	MIS					
Northern Harrier	Other									X	X
Olive-sided Flycatcher	Other										X

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Species	USFS Region 1*									Occupancy Estimated	Density Estimated
	Region 1	IPNF	KONF	LCNF	LONF	NPNF	CRNG	GRNG	LMNC		
Osprey	Other										
Ovenbird										X	X
Pileated Woodpecker		MIS	MIS		MIS	MIS				X	
Pygmy Nuthatch	R1SS									X	X
Red-headed Woodpecker	Other										X
Red-naped Sapsucker	Other									X	X
Sage Thrasher	Other										
Sandhill Crane	Other										X
Sharp-tailed Grouse (plains)							MIS	MIS	MIS		
Sprague's Pipit	R1SS									X	X
Swainson's Hawk	Other										
Western Kingbird											X
Williamson's Sapsucker	Other									X	
Yellow Warbler										X	X

\*R1SS = Region 1 sensitive species; Other = Other Priority Species in Region 1; MIS = management indicator species (Skorkowsky and Hahn 2010).

## APPENDIX E

Priority species detected on U.S. Forest Service lands in Region 2, with management designations by region and unit. Codes for Region/Units: Arapahoe/Roosevelt NF (ARNF), Bighorn NF (BINF), Black Hills NF (BHNF), Grand Mesa/Uncompaghre/Gunnison NF (GMUG), Medicine Bow National Forest NF (MBNF), Pike/San Isabel NF (PSINF), Rio Grande NF (RGNF).

Species	USFS Region 2*								Occupancy Estimated	Density Estimated
	Region 2	ARNF	BINF	BHNF	GMUG	MBNF	PSINF	RGNF		
American Pipit									X	X
American Three-toed Woodpecker	R2SS	MIS				MIS			X	X
Black-and-White Warbler				SOLC					X	
Black-backed Woodpecker	R2SS			MIS						
Brewer's Sparrow	R2SS		MIS		MIS				X	X
Broad-winged Hawk				SOLC						
Brown Creeper				MIS			MIS		X	X
Bullock's Oriole									X	X
Burrowing Owl	R2SS									
Cassin's Sparrow	R2SS								X	X
Cooper's Hawk				SOLC						
Ferruginous Hawk	R2SS									
Golden-crowned Kinglet		MIS	SOLC	MIS		MIS			X	X
Grasshopper Sparrow	R2SS			MIS					X	X
Greater Prairie -chicken										
Greater Sage-Grouse	R2SS									
Green-tailed Towhee									X	X
Hairy Woodpecker		MIS			MIS				X	X
Hermit Thrush							MIS			X
Lark Bunting									X	X
Lewis's Woodpecker	R2SS								X	
Lincoln's Sparrow						MIS		MIS	X	X
Loggerhead Shrike	R2SS								X	X
Long-billed Curlew	R2SS								X	X



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Species	USFS Region 2*								Occupancy	Density
	Region 2	ARNF	BINF	BHNF	GMUG	MBNF	PSINF	RGNF	Estimated	Estimated
McCown's Longspur	R2SS								X	X
Mountain Bluebird		MIS							X	X
Mountain Plover	R2SS								X	
Northern Goshawk	R2SS				MIS	MIS				
Northern Harrier	R2SS								X	X
Olive-sided Flycatcher	R2SS								X	X
Peregrine Falcon	R2SS				MIS					
Purple Martin	R2SS									
Pygmy Nuthatch		MIS	SOLC	SOLC				MIS	X	X
Red Crossbill					MIS				X	X
Red-breasted Nuthatch			MIS							X
Ruffed Grouse				MIS						
Song Sparrow				MIS					X	X
Vesper Sparrow								MIS	X	X
Warbling Vireo		MIS							X	X
White-tailed Ptarmigan	R2SS									
Wilson's Warbler		MIS				MIS		MIS	X	X

\*R2SS = Region 2 sensitive species (U.S. Forest Service 2008b); MIS = management indicator species; SOLC = species of local concern; SOC = species of concern; SOVC = species of viability concern; SOSC = species of special concern.

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**Appendix E continued.** Codes for Region/Units: Routt NF (RONF), San Juan NF (SJNF), Shoshone NF (SHNF) and White River NF (WRNF), Comanche National Grassland (CONG), Pawnee National Grassland (PANG), Thunder Basin National Grassland (TBNG), Nebraska National Grassland (NBNG).

Species	USFS Region 2*									Occupancy Estimated	Density Estimated
	Region 2	RONF	SJNF	SHNF	WRNF	CONG	PANG	TBNG	NBNG		
American Pipit					MIS					X	X
American Three-toed Woodpecker	R2SS									X	X
Black-and-White Warbler										X	
Black-backed Woodpecker	R2SS										
Brewer's Sparrow	R2SS			MIS	MIS					X	X
Broad-winged Hawk											
Brown Creeper										X	X
Bullock's Oriole						MIS				X	X
Burrowing Owl	R2SS						MIS				
Cassin's Sparrow	R2SS									X	X
Cooper's Hawk											
Ferruginous Hawk	R2SS						MIS				
Golden-crowned Kinglet		MIS								X	X
Grasshopper Sparrow	R2SS									X	X
Greater Prairie-chicken									MIS		
Greater Sage-Grouse	R2SS							MIS			
Green-tailed Towhee			MIS							X	X
Hairy Woodpecker			MIS	MIS						X	X
Hermit Thrush											X
Lark Bunting							MIS			X	X
Lewis's Woodpecker	R2SS									X	
Lincoln's Sparrow										X	X
Loggerhead Shrike	R2SS									X	X
Long-billed Curlew	R2SS					MIS				X	X
McCown's Longspur	R2SS									X	X
Mountain Bluebird			MIS							X	X

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Species	USFS Region 2*									Occupancy	Density
	Region 2	RONF	SJNF	SHNF	WRNF	CONG	PANG	TBNG	NBNG	Estimated	Estimated
Mountain Plover	R2SS						MIS			X	
Northern Goshawk	R2SS	MIS	MIS	MIS							
Northern Harrier	R2SS									X	X
Olive-sided Flycatcher	R2SS									X	X
Peregrine Falcon	R2SS			MIS	SOC						
Purple Martin	R2SS										
Pygmy Nuthatch					SOVC					X	X
Red Crossbill											
Red-Breasted Nuthatch											X
Ruffed Grouse				MIS							
Song Sparrow										X	X
Vesper Sparrow		MIS								X	X
Warbling Vireo										X	X
White-tailed Ptarmigan	R2SS										
Wilson's Warbler		MIS								X	X

\*R2SS = Region 2 sensitive species (U.S. Forest Service 2008b); MIS = management indicator species; SOLC = species of local concern; SOC = species of concern; SOVC = species of viability concern; SOSC = species of special concern.

## APPENDIX F

Priority species detected on U.S. Forest Service lands in Region 3, with management designations by region and unit.

Species	USFS Region 3*				Occupancy Estimated	Density Estimated
	Region 3	Coconino NF	Kaibab NF	Prescott NF		
Brown-headed Cowbird				SOC	X	X
Cordilleran Flycatcher				SOC		
Costa's Hummingbird	R3SS					
Crissal Thrasher				SOC		
Grace's Warbler				SOC	X	X
Gray Vireo	R3SS			SOC	X	X
Hairy Woodpecker		MIS	MIS	SOC	X	X
Juniper Titmouse		MIS	MIS	SOC	X	X
Loggerhead Shrike	R3SS				X	
Lucy's Warbler		MIS	MIS	SOC	X	
MacGillivray's Warbler				SOC		
Northern Goshawk	R3SS	MIS	MIS	SOC		
Orange-crowned Warbler				SOC	X	
Peregrine Falcon	R3SS			SOC		
Pinyon Jay				SOC	X	X
Purple Martin				SOC	X	
Pygmy Nuthatch		MIS	MIS	SOC	X	X
Spotted Towhee				SOC	X	X
Virginia's Warbler				SOC	X	X
Wild Turkey	R3SS	MIS	MIS	SOC	X	
Zone-tailed Hawk	R3SS					

\*R3SS = USFS Region 3 sensitive species; MIS = management indicator species; SOC = species of concern.

## APPENDIX G

Priority species detected on U.S. Forest Service lands in Region 4, with management designations by region and unit.

Species	USFS Region 4*					Occupancy	Density
	Region 4	Bridger-Teton NF	Manti-La Sal NF	Caribou-Targhee NF	Wasatch NF	Estimated	Estimated
American Three-toed Woodpecker	R4SS				SS	X	X
Brewer's Sparrow		MIS			SS	X	X

\*R4SS = region 4 sensitive species (U.S. Forest Service 2008a); MIS = management indicator species; SS = sensitive species.