# South Dakota Breeding Bird Atlas II
# 2011 Field Season Report


**December 31, 2011**

**Rocky Mountain Bird Observatory**
Tech. Report # M-SDBBA2-05

# 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:***

- ***Partnering** with state and federal natural resource agencies, private landowners, schools, and other nonprofits for conservation.*
- ***Studying** bird responses to habitat conditions, ecological processes, and management actions to provide scientific information that guides bird conservation efforts.*
- ***Monitoring** long-term trends in bird populations for our region.*
- ***Providing** active, experiential, education programs that create an awareness and appreciation for birds.*
- ***Sharing** the latest information in land management and bird conservation practices.*
- ***Developing** voluntary, working partnerships with landowners to engage them in conservation.*
- ***Working** across political and jurisdictional boundaries including, counties, states, regions, and national boundaries. Our conservation work emphasizes the Western United States, including the Great Plains, as well as Latin America.*
- ***Creating** informed publics and building consensus for bird conservation needs.*

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***Contact Information:***

Nancy Drilling (nancy.drilling@rmbo.org)
Rocky Mountain Bird Observatory
3222 Kirkwood Drive
Rapid City, SD 5770
605-791-0459

# EXECUTIVE SUMMARY

The Breeding Bird Atlas is a relatively simple, repeatable, probabilistic grid-based survey that aims to monitor and document changes in the distribution of breeding birds on a large scale. Results of the first South Dakota Breeding Bird Atlas, conducted from 1988-1992, were extremely valuable in describing the status and distribution of South Dakota's breeding birds and established a baseline against which future changes in breeding bird populations will be measured. Since the first Breeding Bird Atlas, South Dakota's landscape has changed, and most likely, these changes are impacting South Dakota's breeding birds. The second South Dakota Breeding Bird Atlas is scheduled for 2008 - 2012 and aims to survey 433 3mi x 3mi blocks. The goal of SDBBA2 is to document the current distribution of every bird species that nests in South Dakota and to compare these distributions to those of the first South Dakota Breeding Bird Atlas. These data will support the efforts of land-use planners, decision-makers, researchers, educators, students, and bird enthusiasts to maintain healthy bird populations and conserve avian diversity within the state.

During the first four years of the project, volunteers and paid staff have visited 413 blocks at least once (95% of all blocks), with a total of 1,798 visits. Observers have spent 5,828 hours on blocks and submitted 26,784 individual bird records. On 270 'finished' blocks observers found an average of 59 species (range 19-100 species). Blocks in the prairie pothole and coteau regions of the state have the highest number of species while southwestern grassland blocks have the lowest.

With four years of data collection, SDBBA2 (251 species, 224 confirmed breeding) already has 32 more species than recorded 20 years ago during the first atlas (219 species, 212 confirmed). Six additional species either are non-breeding summer residents or are currently awaiting verification from the state Rare Bird Committee. Mallard is the most frequently reported species (465 records), Brown-headed Cowbird and Mourning Dove have been reported within the highest percentage of blocks (93%), and 19 species have been reported from all 66 counties. Eighteen species have been recorded during SDBBA2 that were not reported during the first South Dakota Atlas and atlasers have confirmed breeding by 13 of these: Common Loon, Sandhill Crane, Herring Gull, Snowy Plover, Black-necked Stilt, Black Rail, Eurasian Collared-dove, Prothonotary Warbler, Chestnut-sided Warbler, Virginia's Warbler, Great-tailed Grackle, Cassin's Sparrow, and Lesser Goldfinch.

Summer 2012 will be the last scheduled field season for the second South Dakota Breeding Bird Atlas. The first major challenge will be to finish surveys on all unfinished atlas blocks. Many of the remaining blocks only need one more visit while other blocks still need a considerable amount of work. We will need to replace at least four blocks, and possibly up to 14 blocks, and complete surveys

on these in one season. Our strategy will be to begin the field season targeting blocks with few or no visits, or those that have never been visited before June. As the summer progresses and these blocks are finished, we then will go to blocks that need a moderate amount of work, and finally, to those that need just one visit. The second major challenge will be to increase the number of observations of rarer species so that their maps will more accurately reflect their true breeding distribution within the state. This can be accomplished by spending more time on blocks, challenging birders to search for a targeted list of species, and obtaining more data from outside sources, such as university research projects or bird surveys by other agencies and organizations.

# ACKNOWLEDGEMENTS

The second South Dakota Breeding Bird Atlas (SDBBA2) is a team effort, both organizationally and financially.

Coordination and organization:

- Eileen Dowd-Stukel, SDGFP, Wildlife Diversity Program
- Nancy Drilling, Rocky Mountain Bird Observatory (RMBO)

Technical Committee:

- Doug Backlund, SDGFP, Wildlife Diversity Program
- Kristel Bakker, Dakota State University
- Silka Kempema, SDGFP, Wildlife Diversity Program
- Jeff Palmer, Dakota State University
- Richard Peterson, coordinator of SDBBA 1, Wewela
- Dave Swanson, University of South Dakota

GIS, database, and web site development:

- Rob Sparks, RMBO
- Chandman Sambuu, RMBO

SDBBA2 Logo design: Michael Retter

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We also thank the following people for their contributions to the planning and execution of SDBBA2: Bob Baez, Anna Ball, Jennifer Blakesley, Doug Chapman, Alyssa DeRubeis, Rosemary Draeger, Jacquie Ermer, Jennifer Fowler, Tim Hajda, Eric Hall, David Hanni, Eric Harrold, Chuck Hundertmark, Willy Hyde, Dave Ode, David Pavlacky, Elizabeth Pokrivka, Kelly Preheim, Kyle Rodenberg, Dan Schneekloth, Jim Taulman, Bill Unzen, and Connie Vicuna.

We especially thank the 42 volunteers and numerous observers who have submitted both block and extra observation data. In particular we thank the following for contributing unpublished data: Larry Igl (Northern Prairie Wildlife Research Center), Jason Thiele (South Dakota State University), the Rocky Mountain Bird Observatory (Science Team), and South Dakota Ornithologists' Union (bird database).

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# INTRODUCTION

The Breeding Bird Atlas is a relatively simple, repeatable, grid-based survey that aims to monitor and document changes in the distribution of breeding birds on a large scale (Smith 1990). The first South Dakota Breeding Bird Atlas (SDBBA) began 20 years ago (Peterson 1995). During that ambitious project, 71 volunteers collected data over six years of fieldwork and submitted more than 24,000 breeding records, representing 219 bird species. The resulting resource has been extremely valuable in describing the status and distribution of South Dakota's breeding game and nongame species. The first atlas database also represents a baseline against which future changes in breeding bird populations can be measured.

Since the first Breeding Bird Atlas commenced in 1988, South Dakota's landscape has changed (e.g., Bakker and Higgins, 1998, Higgins *et al*. 2002, Grant *et al*. 2004). In addition, land-use changes in the upcoming few years could be staggering. Increasing CRP conversion, bio-fuels production, wind farm development, and urbanization, are a few landscape alterations of concern to conservation biologists (Stephens et al. 2006, Stubbs 2007). South Dakota's Wildlife Action Plan (SD GFP 2006) explicitly notes the link between habitat quality/quantity and the health of animal populations. Most likely, these landscape-level changes are impacting South Dakota's breeding birds. Regular monitoring of all breeding species on a large scale allows us to detect impacts of such large-scale landscape changes. Repeating the Breeding Bird Atlas approximately every 20 years not only documents bird response to habitat deterioration and loss, but also can improve our understanding of bird response to management actions designed to improve wildlife habitat quality and quantity. In addition, each Breeding Bird Atlas serves as a baseline to which future changes can be compared.

The goal of the second South Dakota Breeding Bird Atlas is to document the current distribution of every bird species that nests in South Dakota and to compare these distributions to those of the first South Dakota Breeding Bird Atlas (1988-1992). These data will support the efforts of land-use planners, conservation decision-makers, researchers, educators, students, and bird enthusiasts to maintain healthy bird populations and conserve avian diversity within the state. Specific objectives include:

1. Document current distribution of all breeding bird species, including under-surveyed species such as owls and secretive marshbirds.
2. Assess changes in distributions of breeding birds since the first SDBBA (1988-1992).
3. Identify habitat associations and requirements for all breeding species.
4. Produce a report and interactive web site with species distribution maps and analyses results.

Scientific questions to be addressed are:

1. What is the current statewide distribution of occurrences and nesting of every breeding bird species?
2. Which species have declined or increased in distribution since 1988-1992?
3. Are non-native bird populations increasing within or throughout the state?
4. What are the habitat associations or requirements of each breeding species?

Expected Benefits include:

1. More complete and up-to-date knowledge of breeding bird species status and distribution.
2. Improved understanding of changes in breeding bird populations over last 20 years.
3. More complete knowledge of bird-habitat associations.
4. Identification of species that have declined in distribution over the past 20 years and may require active management to keep from becoming a Species of Greatest Conservation Need.
5. An established baseline of species distribution for future surveys and atlases.
6. Contribution to a better understanding of regional breeding bird status and distribution, in conjunction with simultaneous atlases being conducted in Minnesota, Iowa, and Nebraska.
7. Provision of a resource for researchers, land managers, land-use planners, students, agency personnel, educators, and others.
8. An increased interest in birds by the general public and an opportunity for knowledgeable birders to engage in citizen science.

One important issue is that not all species are detected, no matter how much effort one puts into the survey (MacKenzie *et al*. 2006). Detectability, the probability that a species is detected when present, is affected by time of day, season, weather, observer abilities, species-specific characteristics, and habitat, among other factors. Failing to record a species that is actually there (false absence) biases the resulting maps and analyses, and makes interpretation of survey results more difficult. When detectability is quantified, we can make statements about the 'completeness' of a distribution map or account for this nuisance error during analyses, especially when comparing first and second atlas results. In addition, estimating detectability allows us to estimate occupancy rates (proportion of an area occupied by a species). In conjunction with a covariate, such as habitat type, estimated occupancy rates allow us to predict where species may occur in areas that are not surveyed. In 2009 and 2010, we collected data to estimate species detection probabilities on atlas blocks. The objectives were to estimate detection probabilities for as many species as possible, and to evaluate whether collecting these sort of data 1) interferes with or detracts from collecting primary atlas data (species presence and breeding confirmation) and 2) contributes to our understanding of species distributions within the state.

# METHODS

## GENERAL METHODS

Data collection for the Breeding Bird Atlas involves visiting pre-selected 3-mile x 3-mile areas ('blocks') and surveying all habitats within each block for bird presence and evidence of breeding for all bird species. Each summer, 2-5 paid full-time technicians survey atlas blocks for 4-10 weeks. The goal is for paid technicians to survey 200 - 250 blocks during the 4 - 5 year atlas period. The remaining 175 - 225 blocks will be surveyed by volunteers, including agency personnel and both novice and experienced birders. A special emphasis is placed on encouraging young people to participate.

Surveys during SDBBA2 follow the standardized protocols as recommended by the North American Ornithological Atlas Committee (Smith 1990) with some minor modifications. Atlasers are encouraged to visit their block during the breeding season at least three times during the day and once in the evening. Visits should be at least 10 days apart and can be spread out over multiple breeding seasons. Atlasers are asked to tabulate the number of person-hours spent surveying their blocks with a minimum effort of at least 20 hours on their block. The entire block does not need to be surveyed; rather, efforts are focused on surveying each habitat type within a block.

The primary focus of surveys is to document all breeding birds within a block. Bird observations are categorized as *Possible* breeding, *Probable* breeding, or *Confirmed* breeding, based upon a series of standardized breeding behavior criteria, within that species' breeding season. To document breeding phenology, emphasis is placed on recording ALL observations, not just the 'highest' breeding category observed for each species. In addition, the habitat each bird is observed in is recorded. Outside of designated blocks, the atlas encourages all interested persons to submit observations of *Confirmed* breeding by any species anywhere within the state.

The SDBBA2 Handbook, available from the Project Coordinator (Nancy Drilling) or at the SDBBA2 web site (http://www.rmbo.org/sdbba2), gives detailed protocol information and breeding status and habitat code descriptions.

## ATLAS BLOCK SELECTION

Number of Blocks The second breeding bird atlas will attempt to completely survey 425 random blocks and eight special blocks (Figure 1). Of these blocks, 124 are the same random blocks covered in the first South Dakota Breeding Bird Atlas. The remaining 301 random blocks are newly selected for the second atlas.

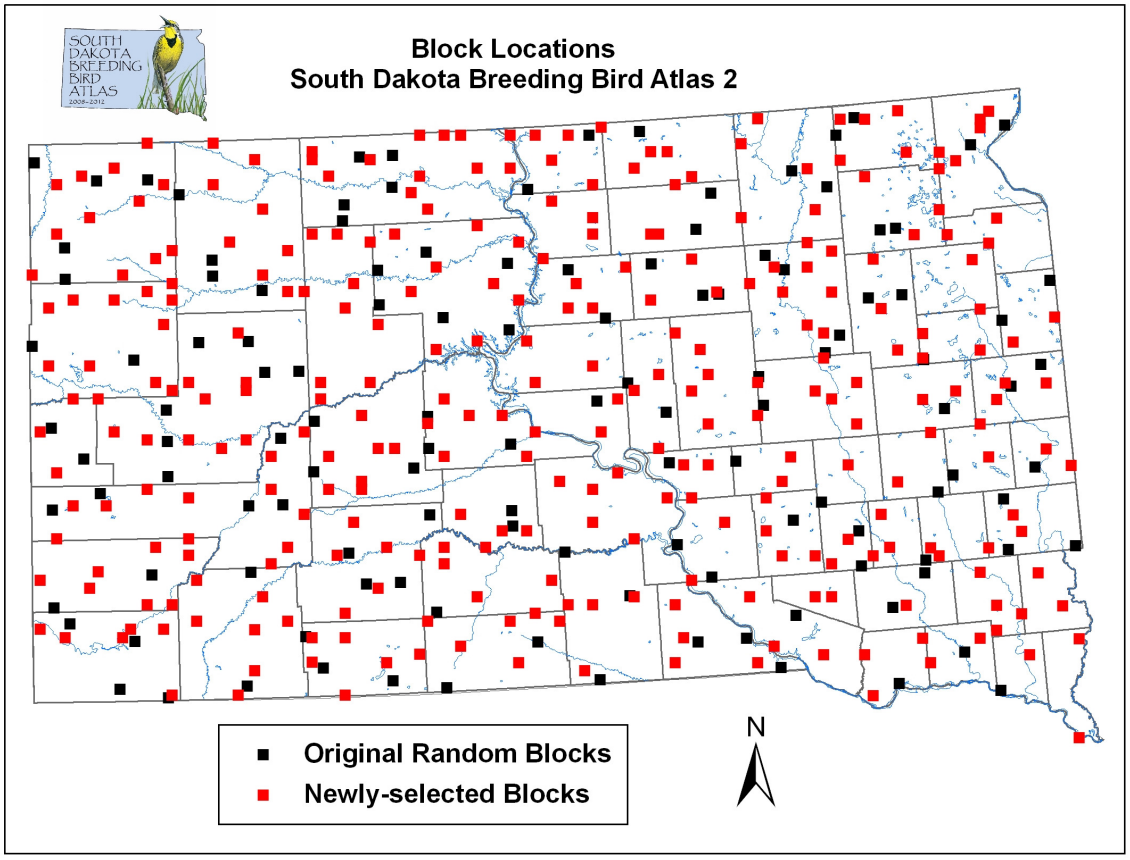


**Figure 1**. Location of blocks to be surveyed during the second South Dakota Breeding Bird Atlas. Note that block size is enlarged and not to scale.

Eight special blocks were added because they contain rare habitats that are not represented in the randomly-chosen blocks. These blocks include forested buttes in Harding County (3 blocks), mountain mahogany shrubland in Custer County (1 block), bluffs of the Missouri River (1 block), southwest sage grassland-sage shrubland in Fall River (2 blocks) and coteau forested ravines in Roberts County (1 block).

Block size and grid system. All blocks are 3 miles x 3 miles in size. Blocks selected in the two different atlases are based on different grid systems. The original blocks comprise nine Public Land Survey System (PLSS) sections. The SDBBA2 blocks are based on a uniform 3x3 mile grid placed over the entire state rather than on the PLSS sections.

Selection of original random blocks. The original 124 blocks were selected in 1988 for the first Breeding Bird Atlas. The state was divided into 62 equal-sized 'superblocks' and two 3-section x 3-section blocks were randomly selected within each superblock.

Selection of new blocks. The 301 new blocks were selected using a spatially-balanced sampling design (Stevens *et al*. 2004, Theobald *et al*. 2007). This probabilistic sampling design accounts for the fact that sites close together probably are more similar and produces a more spread out sample distribution. In ArcGIS v.9.0, a uniform grid of 8,819 3-mile x 3-mile blocks was placed over the entire state. Eight hundred blocks were randomly selected using the RRQRR algorithm developed by David Theobald at Colorado State University (Theobald *et al*. 2007). The first 301 samples 'drawn' in this procedure represented the new blocks to be surveyed during the second atlas. The center points of seven selected blocks fell outside the state border and were replaced by the next seven samples in the 800 sample list. One important assumption of spatially-balanced sampling is that blocks are surveyed in the order in which they are drawn. If they are not, the resulting design is not spatially balanced nor is it random. Thus, results from block # 276 only can be used if blocks 1-275 are also surveyed.

## SPECIES DETECTION PROBABILITIES

In 2009 and 2010, paid staff collected data to estimate species detection probabilities using occupancy modeling (MacKenzie *et al*. 2006). Of the 433 atlas blocks, 130 were randomly chosen to receive special surveys that will allow us to calculate species detectability and occupancy.

Each block targeted for the special surveys was visited three times within a four-week period. These blocks could be surveyed on three consecutive days, three consecutive weeks, or at irregular intervals. Each survey lasted four hours and was finished by 10:00 AM CDT. The survey was conducted along the exact same route in each of the three visits. Observers were not required to survey the entire block or visit every habitat during the four-hour survey. If some portions of the block or certain habitats were missed during the four hours, they were to be surveyed at another time; these data are used as general atlas data but not used in estimating detection probabilities. During the survey, observers recorded the same data as in a regular Atlas survey (species, breeding status, habitat code, and location). Observers also estimated the percentage of the block surveyed during the four hours. These data were recorded on separate forms and entered in a separate database for analyses but were also are included in the general atlas database of species occurrence and breeding status.

We use program PRESENCE v. 2.4 (Hines 2006) to estimate the probability of detecting a species given its presence on a block ($D_p$) and the proportion of atlas blocks occupied by a species ($P_{si}$) (Mackenzie *et al*. 2002). The occupancy model uses the detection probability to account for species that were present but undetected and adjusts the estimated proportion of blocks occupied accordingly. For the breeding bird atlas analyses, we used a single season, constant P model. We evaluated the fit of each species' occupancy model using Pearson $\chi^2$ goodness of fit test with 1,000 bootstrap iterations (MacKenzie and Bailey 2004).

When probability of the $\chi^2$ statistic was less than 0.20, we multiplied the $D_p$ standard errors by the square root of ĉ (test statistic/average test statistic) (MacKenzie and Bailey 2004). Because the estimator is unstable when a species is too rare or too common (Mackenzie *et al*. 2006), only species which were detected on more than 10% of blocks and less than 90% of blocks are included in the analyses.

To determine whether detection probabilities differed between years for each species, we combined 2009-2010 data and compared a NULL model to a YEAR model using Akaike's Criteria (AIC) in program PRESENCE. The NULL model assumed equal probabilities between years while the YEAR model incorporated a year effect. The two models were considered equally likely when delta AIC was less than 2. For species in which the NULL model either was superior to the YEAR model or the two models were equal, data from 2009 and 2010 were combined to calculate an overall detection probability. For species which showed a year effect (i.e., YEAR model less than 2 delta AIC compared to NULL model), we report the individual detection probabilities per year.

## PROJECT ORGANIZATION

The second South Dakota Breeding Bird Atlas is administered by two committees - a Steering Committee and a Technical Committee. The Steering Committee is responsible for overall guidance of project planning and implementation, as well as publicity and fund-raising. Members of the Steering Committee include a Project Director, Project Coordinator, representatives of federal, state, and tribal agencies, representatives of scientific and ornithological organizations and universities, and at-large and youth representatives. The Project Coordinator is in charge of actual planning, implementation, and coordination of all aspects of the Atlas. The Technical Committee is responsible for providing guidance on all scientific issues, such as appropriate methods of block selection and data collection, and data analyses and presentation. Members of the Technical Committee include the Project Coordinator, SD GFP Wildlife Diversity scientists, and three University scientists.

# RESULTS

## PERSONNEL

Thus far, 42 volunteers have submitted records for 94 blocks. In the summer of 2011, 21 of these volunteers spent 417 hours conducting surveys on 42 blocks during 135 visits. Five paid staff spent 1,356 hours on 234 blocks during 498 visits. In 2011, atlasers submitted 11,357 records from blocks and an additional 1,673 Extra Observations.

## BLOCKS

During the first four years of the survey, atlasers visited 413 random and special blocks at least once (95% of all blocks) (Table 1, Figure 2). Of these, 270 blocks are considered 'finished' - enough hours and species detected so that future visits probably would not result in many new species' discoveries. Surveyors were denied access to four of the remaining 20 unvisited blocks. These four will be deleted and replaced with newly-chosen blocks. Atlasers still are trying to obtain access permission for 14 of the unvisited blocks.

**Table 1** . Summary of annual and total block results of the South Dakota Breeding Bird Atlas II.

| | 2008 | 2009 | 2010 | 2011 | Total |
|---|---|---|---|---|---|
| Num. blocks visited at least once | 101 | 162 | 257 | 271 | **413** |
| Total num. visits to blocks | 205 | 448 | 672 | 609 | **1936** |
| Num. counties visited | 32 | 53 | 57 | 58 | **66** |
| Num. blocks 'finished' | 7 | 38 | 90 | 135 | **270** |
| Total num. hours on blocks | 1020 | 1512 | 2042 | 1781 | **6356** |

Only 5% of visited blocks have been visited just once during 2008-2011, while 13% have been visited twice, 21% visited three times, and 61% visited four or more times (maximum 29 visits). Only 13% of visited blocks have received less than 5 hours of total survey effort (and some of these are 'finished) while 38% have received more than the recommended 15 hours of survey effort (Figure 3).

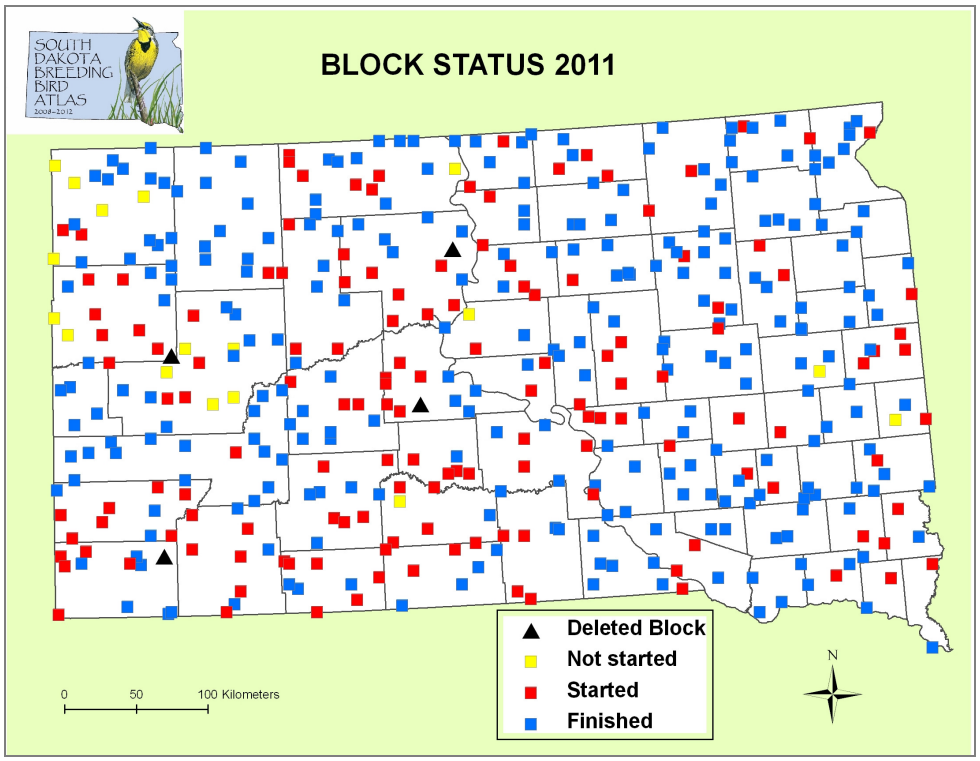


**Figure 2**. Survey status of atlas blocks at the end of 2011. Yellow blocks have not been visited yet, red blocks have been visited at least once and blue blocks are finished. Four blocks that have been deleted because of no access are indicated by black triangles. Note that block size is enlarged and not to scale.

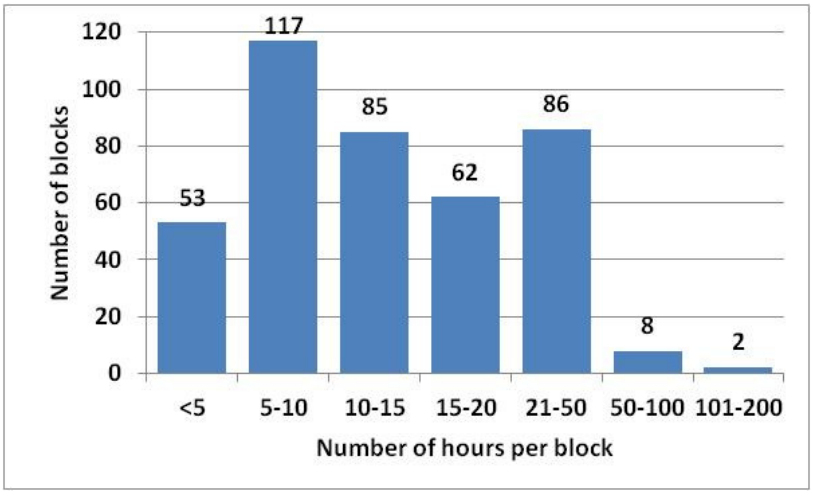


**Figure 3**. Frequency distribution of total number of survey hours per atlas block during 2008-2011

Atlasers have recorded 80 or more species (excluding non-breeding species) on 15 atlas blocks thus far (Appendix A). Another 31 blocks have 73-79 recorded species. Species totals on the 270 finished blocks ranged from 19-100 species (Figure 4, Table 2). Blocks with higher species richness are located in the prairie pothole and prairie coteau regions of the east, along the Missouri River, and along wooded rivers and creeks in the west (Figure 5, Appendix 2). Blocks with lower species richness occur in the James River Valley, higher elevations or burn areas of the Black Hills, and grassland blocks throughout the western part of the state (Figure 5, Appendix 3).

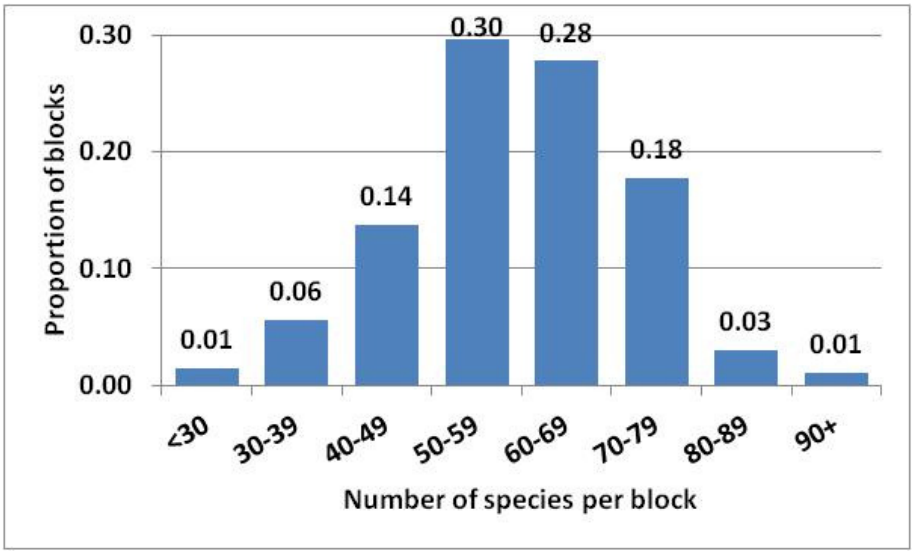


**Figure 4**. Frequency distribution of the number of species per finished block (*n*=270)

**Table 2**. Summary statistics for blocks considered finished at the end of 2011.

| | |
|---|---|
| Number 'finished' blocks | 270 |
| Average num. visits per block (range) | 6 (2-29) |
| Average num. hours per block (range) | 18.6 (3.5-193) |
| Average num. species recorded per block (range) | 59 (19-100) |
| Average % species confirmed per block (range) | 25 (4-62%) |

Atlas blocks have been surveyed in all 66 counties. Thus far, Pennington, Roberts, Fall River and Harding counties have the highest species counts in the state. (Appendix C).

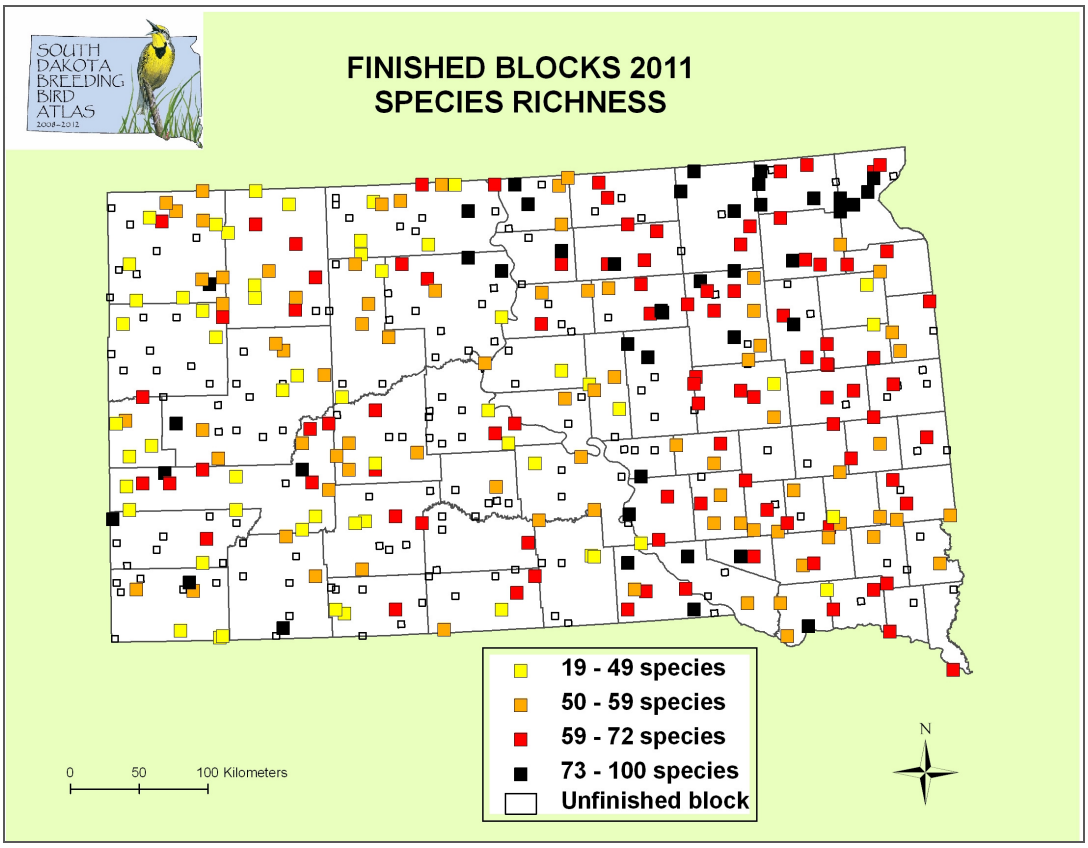


**Figure 5**. Spatial distribution of 270 breeding bird atlas blocks on which surveys are deemed finished, and total number of species recorded on those blocks. Note that block size is not to scale.

## SPECIES

Based on 26,784 records submitted during 2008-2011, 251 species have been recorded at least once in the state (Appendix D). Of these, 224 (89%) have been confirmed as breeding, 20 (8%) are 'probable' breeders, and 7 (3%) are 'observed' or 'possible' breeders. This tally does not include three species (Williamson's Sapsucker, Bewick's Wren, Green-tailed Towhee) that are awaiting verification from the SD Rare Bird Committee, one hybrid (Indigo-Lazuli Bunting), or two non-breeding summer residents (Snow Goose and Orange-billed Nightingale-Thrush).

Between 2008 and 2011, 242 species were recorded at least once on blocks while nine species were only reported as extra observations (Table 3). In addition, 14 species that were confirmed breeding during the first atlas have been reported but not confirmed breeding during the second atlas (Table 4).

**Table 3**. Species only recorded as extra observations during 2008-2011.

| Species | # Extra Observat. | # Extra Obs Confirmed | # County Detected | # County Confirmed |
|---|---|---|---|---|
| Greater Sandhill Crane | 1 | 1 | 1 | 1 |
| Snowy Plover | 1 | 1 | 1 | 1 |
| Common Moorhen | 1 | 1 | 1 | 1 |
| Black Rail | 1 | 1 | 1 | 1 |
| Chuck-will's Widow | 1 | 0 | 1 | 0 |
| American Dipper | 6 | 6 | 1 | 1 |
| Hermit Thrush | 1 | 0 | 1 | 0 |
| Prothonotary Warbler | 1 | 1 | 1 | 1 |
| McCown's Longspur | 2 | 0 | 2 | 0 |

**Table 4**. Species confirmed breeding during the first breeding bird atlas that have not yet been confirmed breeding during the second atlas.

| | |
|---|---|
| 1. Sharp-shinned Hawk | 2. Least Bittern |
| 3. Northern Bobwhite | 4. Whip-poor-will |
| 5. American Woodcock | 6. Cassin's Kingbird |
| 7. Pinyon Jay | 8. Winter/Pacific Wren |
| 9. Brown Creeper | 10. Golden-crowned Kinglet |
| 11. Sage Thrasher | 12. Veery |
| 13. Nelson's Sparrow | 14. Cassin's Finch |

Combining 2008-2011 data, Mallard is the most frequently reported species, Brown-headed Cowbird and Mourning Dove have been reported from the highest percentage of blocks, and 19 species have been reported from all 66 counties (Table 5).

**Table 5**. Most common species reported during 2008-2011, defined as those with at least 390 records, in at least 80% of all blocks, or in all 66 counties.

| Species | Total # Records | % Blocks Detected | # County Detected |
|---|---|---|---|
| Mallard | 465 | 80 | 66 |
| Brown-headed Cowbird | 429 | 93 | 66 |
| Mourning Dove | 434 | 93 | 66 |
| Western Meadowlark | 449 | 92 | 66 |
| Red-winged Blackbird | 436 | 90 | 66 |
| Eastern Kingbird | 399 | 88 | 65 |
| Killdeer | 400 | 87 | 66 |
| Barn Swallow | 399 | 85 | 65 |
| American Robin | 388 | 81 | 66 |
| Common Grackle | 385 | 81 | 66 |
| Grasshopper Sparrow | 365 | 81 | 66 |
| Horned Lark | 360 | 82 | 66 |
| Brown Thrasher | 343 | 74 | 66 |
| European Starling | 336 | 73 | 66 |
| Yellow Warbler | 332 | 72 | 66 |
| American Goldfinch | 320 | 72 | 66 |
| Northern Flicker | 317 | 71 | 66 |
| Dickcissel | 300 | 68 | 66 |
| Common Yellowthroat | 289 | 65 | 66 |
| Warbling Vireo | 235 | 52 | 66 |
| Rock Pigeon | 219 | 49 | 66 |

Eighteen species have been detected during SDBBA2 that were not reported during the first South Dakota Breeding Bird Atlas (Table 6). In addition, 11 species (American Black Duck, Barred Owl, Common Moorhen, Horned Grebe, American Black Duck, Caspian Tern, Broad-tailed Hummingbird, Canyon Wren, Clark's Nutcracker, Sprague's Pipit, and LeConte's Sparrow) were reported but never confirmed nesting during the first atlas but have been confirmed breeding during the current atlas.

## SPECIES DETECTION PROBABILITIES

Paid staff have collected species detection probability data on 122 of 131 randomly-selected atlas blocks; 43 were surveyed in 2009, 42 in 2010, and 37 in 2011 (Figure 6). Of the remaining nine, two blocks will be deleted because of no

access and another two potentially may not be accessible. These blocks will be replaced with new blocks. We will calculate species-specific detection probabilities after these blocks are finished.

**Table 6**. Species reported during 2008-2011 that were not detected during the first breeding bird atlas.

| Confirmed during 2nd atlas | Reported but not confirmed |
|---|---|
| Sandhill Crane | Glossy Ibis |
| Common Loon | Chuck-will's-widow |
| Herring Gull | Hermit Thrush |
| Snowy Plover | Blue-winged Warbler |
| Black-necked Stilt | Henslow's Sparrow |
| Black Rail | |
| Eurasian Collared-Dove | |
| Chestnut-sided Warbler | |
| Prothonotary Warbler | |
| Virginia's Warbler | |
| Great-tailed Grackle | |
| Cassin's Sparrow | |
| Lesser Goldfinch | |

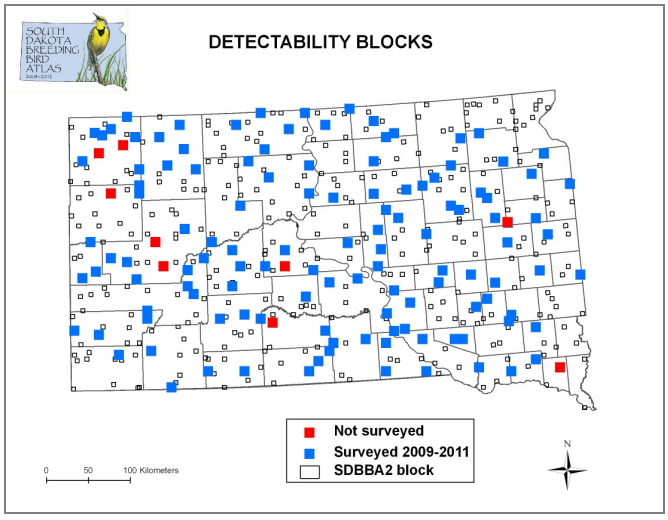


**Figure 6**. Location of breeding bird atlas blocks randomly selected for collecting species detectability data. Blue squares indicate locations of blocks where surveys have been completed; red squares indicate locations of blocks not done yet, open squares are blocks that were not selected.

# DISCUSSION

In 2011, atlasers made significant progress towards achieving our goal of finishing field work within five years. In 2010, 354 blocks had been visited at least once and 135 were 'finished' while now, 413 blocks have been visited at least once and 270 are 'finished'. In addition, 30% of visited blocks had received less than five hours of effort at the end of 2010, while now, just 13% have received less than five hours. Of the 143 unfinished blocks, about 70 need just one good visit to be finished. Twenty blocks have not been visited. Four definitely will be replaced because of lack of access. Atlasers still are trying to obtain access permission for 14 of the unvisited blocks. Replacement blocks will be chosen before the 2012 season for these 14 blocks, in case we do not obtain permission in a timely manner. We estimate that it will take about 325 visits to finish all of the unstarted and started-but-not-finished blocks. As atlasers have been completing about 500-600 visits per summer, we feel that we should be able to finish all blocks during the 2012 field season.

During the first atlas, an average of 49 species were recorded per random block (Peterson 1996) while in this atlas, an average of 59 species have been recorded on finished blocks. In addition, SDBBA2 already has 49 blocks with more than 72 species, the maximum number of species recorded on first atlas random blocks. Because we do not know how much effort, in terms of hours, was spent per block during the first atlas, we can only speculate on whether difference in effort explains higher species totals during the current atlas. One difference between the two atlases is that the second atlas is utilizing paid staff while all first-atlas surveyors were volunteers. Paid atlasers are expert at bird-identification, while some volunteers are not. In addition, paid staff spend eight hours or more a day, six weeks a summer on atlas blocks. Volunteers, who usually have other jobs and responsibilities, are not able to spend so much time on blocks, no matter how excellent they are at atlasing. Thus, it is possible that the use of paid atlasers is a factor in higher overall species totals. Another likely contributing factor is that atlasers have focused on more ‘interesting’ blocks - those with considerable amounts of natural habitat or in areas of the state with higher bird diversity or density. This has pushed species totals upward. Many of the remaining blocks have a preponderance of row crops or pasture, which typically host fewer species. As these blocks are finished, the overall average should revert towards the average recorded during the first atlas.

Enough data has been collected for the second atlas that we can begin to examine patterns of bird species diversity across the state and possible reasons for those patterns (Figure 5). Habitat in many of the low diversity blocks are grassland-pasture or grassland-pasture-wheat field habitats with little to no water or trees. Low-diversity blocks in the Black Hills consist of monoculture, even-aged ponderosa pine stands where atlasers struggled to find any other habitats (riparian, shrubby, deciduous, or spruce) which would host additional bird species.

The fact that an adjacent block can have double the number of species highlights the importance of land management on bird species diversity. High bird diversity blocks are characterized by having several types of good-quality semi-natural habitat, such as ponds of various depths and sizes, large dense shelterbelts, pastures and grasslands with different grazing regimes, and very little row crop or residential habitats.

With four years of data collection, SDBBA2 (251 species, 224 confirmed breeding) already has 32 more species than recorded 20 years ago during the first atlas (219 species, 212 confirmed). The current list includes two 'new' species which have been split from Rufous-sided Towhee (now Spotted and Eastern Towhee) and Northern Oriole (now Bullock's and Baltimore Oriole) since the first atlas. The South Dakota breeding bird species total is similar to totals recorded in states of similar size but with thousands of atlasers, such as Pennsylvania (6 years, 3282 atlasers, 217 species, 189 confirmed) and New York (5 years, 1187 atlasers, 242 species, 240 confirmed). Hopefully we will be able to add to the species total and confirm more species during the final year. The challenge now is to obtain enough records to be able to define each species' distribution accurately. This is being done by spending more time on blocks, challenging birders to search for a targeted list of species, and obtaining more data from outside sources (i.e., other research projects, RMBO monitoring database, state and federal survey results, etc.).

For common species, first and second atlas results are similar. The following were most frequently reported species on first atlas random blocks (in decreasing order of frequency): Mourning Dove, Western Meadowlark, Brown-headed Cowbird, Killdeer, Red-winged Blackbird, Eastern Kingbird, Barn Swallow, Common Grackle, American Robin, and Mallard (Peterson 1995). This list is identical to the SDBBA2 data (Table 4).

Breeding bird highlights of 2011 were scattered throughout the state as atlasers surveyed in areas where little bird survey work has been done. These areas included the West River tribal lands, extreme northeast South Dakota, and the northwestern counties of Perkins, Harding, Meade, and northeast Pennington. From these surveys, we learned that many of these areas host high or the highest species richness in the state (Figure 6). Some volunteers made an effort to document and confirm breeding by rarer species, resulting in a jump of seven confirmed species since last year. These include confirmation of breeding by Northern Mockingbird, Scarlet Tanager, Great-tailed Grackle, Eastern Meadowlark, and Pygmy Nuthatch, among others. If accepted by the state Rare Bird Committee, observations of breeding American Black Duck and Common Loon will be first state records.

Summer 2012 will be the last scheduled field season for the second South Dakota Breeding Bird Atlas. The first major challenge will be to finish surveys on all unfinished atlas blocks. Many of the remaining blocks only need one more visit

while other blocks still need a considerable amount of work. We will need to replace at least four blocks, and possibly up to 14 blocks, and complete surveys on these in one season. Our strategy will be to begin the field season targeting blocks with few or no visits, or those that have never been visited before June. As the summer progresses and these blocks are finished, we then will go to blocks that need a moderate amount of work, and finally, to those that need just one visit. With this strategy, if for some reason we get behind schedule, we will have had reasonable coverage of all blocks, even if some would benefit from more visits.

The second major challenge will be to increase the number of observations of rarer species so that their maps will more accurately reflect their true breeding distribution within the state. Of the 251 reported species, 50 have fewer than 10 observations and 26 have fewer than five. Some of these species only occur in a handful of places. Many other species are localized in the Black Hills and a group of birders has already committed to increasing the number of observations of Black Hills 'special' species. As we finish blocks in other areas, we undoubtedly will add to the number of observations also.

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# APPENDIX A. BLOCKS WITH HIGHEST SPECIES RICHNESS

Breeding Bird Atlas blocks with at least 80 recorded species,
excluding observed (non-breeding) species.

| Block ID | Block Name | County | Num. Species | 1st Atlas Results | Finished? |
|---|---|---|---|---|---|
| 2R0203 | Dayton Twp. | Marshall | 100 | N/A | Yes |
| 2R0236 | SW Drywood Lake | Roberts | 99 | N/A | Yes |
| 2S0001 | Sica Hollow | Roberts | 98 | N/A | No |
| 2R0168 | Whitestone Lake | Roberts | 92 | N/A | Yes |
| 1R1107 | Boyer GPA | Brule | 87 | 49 spp | Yes |
| 2R0212 | VenJohn WPA | Hand | 87 | NA | Yes |
| 2R0270 | Sheep Creek | Harding | 85 | N/A | Yes |
| 2R0057 | Spring Lake | Walworth | 85 | N/A | Yes |
| 1R1303 | Mansfield WPA | Spink | 84 | 63 spp | Yes |
| 2R0147 | Blackfoot | Dewey | 83 | N/A | Yes |
| 2R0301 | Jct. Hwy 10/45-112 St. | McPherson | 82 | N/A | No |
| 1R0505 | No Flesh Creek | Bennett | 82 | 53 spp | No |
| 1R0203 | Silver City | Pennington | 82 | 58 spp | Yes |
| 2R0151 | South Clark | Clark | 81 | N/A | Yes |
| 2R0036 | Goodwill Township | Roberts | 80 | N/A | Yes |

# APPENDIX B. BLOCKS WITH LOWEST SPECIES RICHNESS

Finished Breeding Bird Atlas blocks with less than 40 recorded species, excluding observed (non-breeding) species.

| Block ID | Block Name | County | Num. Species | 1st Atlas Results |
|---|---|---|---|---|
| 1R0507 | Madera Creek* | Fall River | 19 | 31 spp |
| 2R0056 | SE Fall River County* | Fall River | 22 | N/A |
| 1R0506 | Swett | Bennett | 28 | 26 spp |
| 2R0133 | Granger Creek | Harding | 29 | N/A |
| 2R0174 | Lame Johnny Creek | Custer | 30 | N/A |
| 2R0219 | Conata Basin Road | Pennington | 32 | N/A |
| 2R0210 | FR 283 | Pennington | 33 | N/A |
| 1R0708 | Pleasant Valley Twp** | Tripp | 33 | 40 spp |
| 1R0204 | South Fork Castle Creek | Pennington | 34 | 31 spp |
| 2R0094 | West side Twin Buttes | Brule | 35 | N/A |
| 2R0216 | E. Branch Stove Crk Bay | Dewey | 36 | N/A |
| 2R0121 | Harvey Springs | Lawrence | 36 | N/A |
| 2R0033 | W. Side Rattlesnake Butte** | Tripp | 36 | N/A |
| 2R0030 | Camp Crook Road | Butte | 38 | N/A |
| 2R0159 | Appleby | Codington | 38 | N/A |
| 1R0303 | Red Willow Creek | Corson | 38 | 32 spp |
| 2R0228 | Mahoney Creek | Codington | 39 | N/A |
| 2R0190 | 114 St. | Todd | 39 | N/A |

*Madera Creek and SE Fall River County blocks overlap each other

**Pleasant Valley Twp. and W. Side Rattlesnake Butte blocks overlap each other

# APPENDIX C. COUNTY SUMMARY STATISTICS

Summary statistics by county, counties ordered from highest to lowest species totals. Columns include total number of species recorded in the county (Num Species), total number (Num CO) and percent (% CO) of species confirmed breeding, number of atlas blocks in the county (Num Blocks), number (# Blks Visited) of atlas blocks visited through 2011, total number of visits (Num Visits) and total number of hours (Total Hours) spent on all blocks in the county.

| Rank | County | Num Species | Num CO | % CO | Num Blocks | Num Blks Visited | Num Visits | Total Hours |
|---|---|---|---|---|---|---|---|---|
| 1 | Pennington | 157 | 90 | 0.57 | 16 | 16 | 137 | 494 |
| 2 | Roberts | 144 | 77 | 0.53 | 9 | 9 | 32 | 96 |
| 3 | Fall River | 139 | 68 | 0.49 | 12 | 11 | 71 | 240 |
| 3 | Harding | 139 | 96 | 0.69 | 20 | 15 | 103 | 480 |
| 5 | Bennett | 138 | 78 | 0.57 | 9 | 9 | 47 | 145 |
| 6 | Custer | 135 | 84 | 0.62 | 11 | 11 | 88 | 306 |
| 7 | Brown | 133 | 68 | 0.51 | 6 | 6 | 39 | 73 |
| 7 | Marshall | 133 | 65 | 0.49 | 7 | 7 | 21 | 65 |
| 7 | Meade | 133 | 67 | 0.50 | 18 | 13 | 58 | 202 |
| 10 | Perkins | 133 | 92 | 0.69 | 13 | 13 | 69 | 183 |
| 11 | Dewey | 127 | 53 | 0.42 | 15 | 14 | 47 | 117 |
| 12 | Spink | 124 | 53 | 0.42 | 13 | 13 | 52 | 173 |
| 12 | Stanley | 124 | 78 | 0.63 | 11 | 10 | 68 | 208 |
| 14 | Shannon | 121 | 36 | 0.30 | 9 | 9 | 34 | 145 |
| 15 | Campbell | 120 | 64 | 0.53 | 8 | 8 | 31 | 102 |
| 16 | Walworth | 119 | 58 | 0.48 | 4 | 4 | 10 | 26 |
| 17 | Brule | 118 | 60 | 0.51 | 4 | 4 | 27 | 98 |
| 17 | Day | 118 | 62 | 0.53 | 5 | 5 | 23 | 65 |
| 17 | McPherson | 118 | 76 | 0.64 | 5 | 5 | 22 | 57 |
| 20 | Ziebach | 115 | 43 | 0.37 | 9 | 9 | 38 | 82 |
| 21 | Corson | 114 | 58 | 0.51 | 17 | 16 | 55 | 125 |
| 22 | Todd | 112 | 36 | 0.32 | 8 | 8 | 30 | 117 |
| 22 | Jackson | 112 | 56 | 0.50 | 10 | 10 | 47 | 162 |
| 22 | Lawrence | 112 | 66 | 0.59 | 5 | 5 | 46 | 138 |
| 25 | Hand | 111 | 43 | 0.39 | 6 | 6 | 26 | 81 |
| 26 | Edmunds | 110 | 45 | 0.41 | 6 | 6 | 23 | 60 |
| 26 | Haakon | 110 | 58 | 0.53 | 10 | 10 | 44 | 145 |
| 28 | Butte | 108 | 59 | 0.55 | 14 | 11 | 31 | 88 |
| 29 | Potter | 107 | 58 | 0.54 | 6 | 6 | 17 | 60 |
| 29 | Minnehaha | 107 | 76 | 0.71 | 6 | 6 | 59 | 166 |
| 31 | Lyman | 105 | 42 | 0.40 | 7 | 7 | 22 | 77 |
| 31 | Gregory | 105 | 50 | 0.48 | 7 | 7 | 41 | 138 |

Appendix C: County Summary Statistics (cont.)

| Rank | County | Num Species | Num CO | % CO | Num Blocks | Num Blks Visited | Num Visits | Total Hours |
|---|---|---|---|---|---|---|---|---|
| 31 | Beadle | 105 | 61 | 0.58 | 8 | 8 | 50 | 130 |
| 34 | Clark | 104 | 47 | 0.45 | 5 | 5 | 25 | 83 |
| 35 | Grant | 103 | 34 | 0.33 | 2 | 2 | 8 | 18 |
| 35 | Buffalo | 103 | 35 | 0.34 | 4 | 4 | 15 | 42 |
| 37 | BonHomme | 101 | 42 | 0.42 | 4 | 4 | 23 | 75 |
| 37 | Charles Mix | 101 | 42 | 0.42 | 4 | 4 | 20 | 63 |
| 39 | Tripp | 99 | 46 | 0.46 | 7 | 7 | 36 | 83 |
| 40 | Faulk | 98 | 46 | 0.47 | 6 | 6 | 37 | 80 |
| 40 | Hughes | 98 | 56 | 0.57 | 3 | 3 | 11 | 39 |
| 42 | Deuel | 95 | 41 | 0.43 | 4 | 4 | 14 | 43 |
| 42 | Brookings | 93 | 41 | 0.44 | 6 | 5 | 17 | 51 |
| 44 | Aurora | 94 | 45 | 0.48 | 5 | 5 | 14 | 42 |
| 45 | Yankton | 93 | 30 | 0.32 | 3 | 3 | 13 | 52 |
| 46 | Jerauld | 92 | 28 | 0.30 | 3 | 3 | 13 | 41 |
| 47 | Sanborn | 89 | 30 | 0.34 | 2 | 2 | 10 | 34 |
| 47 | Sully | 89 | 39 | 0.44 | 4 | 3 | 10 | 34 |
| 49 | Douglas | 88 | 30 | 0.34 | 2 | 2 | 17 | 59 |
| 50 | Hutchinson | 87 | 26 | 0.30 | 3 | 3 | 12 | 28 |
| 50 | Davison | 87 | 28 | 0.32 | 4 | 4 | 12 | 44 |
| 50 | Codington | 87 | 35 | 0.40 | 3 | 3 | 11 | 34 |
| 53 | Lake | 86 | 22 | 0.26 | 2 | 2 | 10 | 39 |
| 53 | Hamlin | 86 | 29 | 0.34 | 4 | 4 | 21 | 70 |
| 55 | Mellette | 85 | 30 | 0.35 | 5 | 4 | 14 | 51 |
| 56 | McCook | 83 | 30 | 0.36 | 3 | 3 | 10 | 37 |
| 57 | Kingsbury | 82 | 28 | 0.34 | 3 | 2 | 9 | 39 |
| 58 | Clay | 81 | 39 | 0.48 | 2 | 2 | 9 | 26 |
| 58 | Hyde | 81 | 46 | 0.57 | 5 | 5 | 19 | 61 |
| 60 | Turner | 80 | 31 | 0.39 | 4 | 4 | 10 | 35 |
| 61 | Hanson | 79 | 22 | 0.28 | 3 | 3 | 10 | 39 |
| 62 | Miner | 78 | 28 | 0.36 | 3 | 3 | 11 | 44 |
| 63 | Lincoln | 77 | 37 | 0.48 | 2 | 2 | 8 | 27 |
| 64 | Union | 76 | 34 | 0.45 | 2 | 2 | 9 | 29 |
| 64 | Jones | 76 | 39 | 0.51 | 6 | 6 | 18 | 41 |
| 66 | Moody | 68 | 26 | 0.38 | 3 | 2 | 9 | 42 |

# APPENDIX D. SPECIES SUMMARIES

Summary of block and extra observations and confirmed breeding by species. Information includes total number of records (Total Recs) and confirmed breeding (Totl Num CO); number of blocks species was reported in (Num Blks), percent of all blocks (% Blks), and number of blocks in which species was confirmed breeding (Num Blks CO); number of extra observations (Num Extra Obs) and extra confirmed breeding observations (Num Extra Obs CO); number of counties in which species was observed (Num Cnty) and confirmed breeding (Num Cnty CO); and the highest reported breeding status.

| Scientific Name | Common Name | Total Recs | Totl Num CO | Num Blks | % Blks | Num Blks Confirm | Num Extra Obs | Num Extra Obs CO | Num Cnty | Num Cnty CO | Highest status |
|---|---|---|---|---|---|---|---|---|---|---|---|
| *Branta canadensis* | Canada Goose | 259 | 160 | 201 | 0.46 | 103 | 58 | 57 | 62 | 50 | confirmed |
| *Cygnus buccinator* | Trumpeter Swan | 14 | 6 | 3 | 0.01 | 0 | 11 | 6 | 9 | 4 | confirmed |
| *Aix sponsa* | Wood Duck | 152 | 55 | 126 | 0.29 | 31 | 26 | 24 | 57 | 29 | confirmed |
| *Anas strepera* | Gadwall | 328 | 145 | 258 | 0.60 | 77 | 70 | 78 | 62 | 39 | confirmed |
| *Anas americana* | American Wigeon | 107 | 18 | 94 | 0.22 | 8 | 13 | 10 | 35 | 10 | confirmed |
| *Anas rubripes* | American Black Duck | 2 | 1 | 1 | 0.00 | 0 | 1 | 1 | 2 | 1 | confirmed |
| *Anas platyrhynchos* | Mallard | 465 | 247 | 346 | 0.80 | 130 | 119 | 117 | 66 | 54 | confirmed |
| *Anas discors* | Blue-winged Teal | 387 | 222 | 294 | 0.68 | 131 | 93 | 91 | 64 | 53 | confirmed |
| *Anas cyanoptera* | Cinnamon Teal | 6 | 0 | 2 | 0.00 | 0 | 4 | 0 | 5 | 0 | probable |
| *Anas clypeata* | Northern Shoveler | 274 | 138 | 204 | 0.47 | 68 | 70 | 70 | 59 | 39 | confirmed |
| *Anas acuta* | Northern Pintail | 254 | 102 | 209 | 0.48 | 58 | 45 | 44 | 55 | 38 | confirmed |
| *Anas crecca* | Green-winged Teal | 120 | 19 | 109 | 0.25 | 9 | 11 | 10 | 48 | 12 | confirmed |
| *Aythya valisineria* | Canvasback | 52 | 15 | 40 | 0.09 | 6 | 12 | 9 | 27 | 10 | confirmed |
| *Aythya americana* | Redhead | 133 | 37 | 116 | 0.27 | 21 | 17 | 16 | 49 | 21 | confirmed |
| *Aythya collaris* | Ring-necked Duck | 38 | 6 | 32 | 0.07 | 0 | 6 | 6 | 21 | 5 | confirmed |
| *Aythya affinis* | Lesser Scaup | 54 | 13 | 39 | 0.09 | 3 | 15 | 10 | 29 | 6 | confirmed |
| *Bucephala albeola* | Bufflehead | 6 | 1 | 5 | 0.01 | 1 | 1 | 0 | 5 | 1 | confirmed |
| *Lophodytes cucullatus* | Hooded Merganser | 22 | 8 | 13 | 0.03 | 3 | 9 | 5 | 17 | 6 | confirmed |
| *Mergus merganser* | Common Merganser | 2 | 1 | 1 | 0.00 | 0 | 1 | 1 | 1 | 1 | confirmed |

| Scientific Name | Common Name | Total Recs | Totl Num CO | Num Blks | % Blks | Num Blks Confirm | Num Extra Obs | Num Extra Obs CO | Num Cnty | Num Cnty CO | Highest status |
|---|---|---|---|---|---|---|---|---|---|---|---|
| *Oxyura jamaicensis* | Ruddy Duck | 112 | 10 | 106 | 0.24 | 7 | 6 | 3 | 42 | 8 | confirmed |
| *Perdix perdix* | Gray Partridge | 59 | 13 | 48 | 0.11 | 8 | 11 | 5 | 34 | 12 | confirmed |
| *Phasianus colchicus* | Ring-necked Pheasant | 337 | 133 | 311 | 0.72 | 109 | 26 | 24 | 65 | 42 | confirmed |
| *Bonasa umbellus* | Ruffed Grouse | 3 | 2 | 1 | 0.00 | 1 | 2 | 1 | 2 | 2 | confirmed |
| *Centrocercus urophasianus* | Greater Sage-Grouse | 3 | 1 | 1 | 0.00 | 0 | 2 | 1 | 2 | 1 | confirmed |
| *Tympanuchus phasianellus* | Sharp-tailed Grouse | 144 | 41 | 120 | 0.28 | 26 | 24 | 15 | 37 | 22 | confirmed |
| *Tympanuchus cupido* | Greater Prairie-chicken | 28 | 4 | 23 | 0.05 | 1 | 5 | 3 | 18 | 4 | confirmed |
| *Meleagris gallopavo* | Wild Turkey | 132 | 38 | 112 | 0.26 | 20 | 20 | 18 | 46 | 25 | confirmed |
| *Colinus virginianus* | Northern Bobwhite | 11 | 0 | 11 | 0.03 | 0 | 0 | 0 | 7 | 0 | probable |
| *Gavia immer* | Common Loon | 3 | 1 | 1 | 0.00 | 1 | 2 | 0 | 4 | 1 | confirmed |
| *Podilymbus podiceps* | Pied-billed Grebe | 212 | 116 | 159 | 0.37 | 67 | 53 | 49 | 61 | 43 | confirmed |
| *Podiceps auritus* | Horned Grebe | 17 | 4 | 4 | 0.01 | 0 | 13 | 4 | 3 | 1 | confirmed |
| *Podiceps grisegena* | Red-necked Grebe | 34 | 16 | 10 | 0.02 | 6 | 24 | 10 | 7 | 5 | confirmed |
| *Podiceps nigricollis* | Eared Grebe | 81 | 43 | 38 | 0.09 | 5 | 43 | 38 | 30 | 18 | confirmed |
| *Aechmophorus occidentalis* | Western Grebe | 83 | 56 | 45 | 0.10 | 19 | 38 | 37 | 37 | 26 | confirmed |
| *Aechmophorus clarkii* | Clark's Grebe | 17 | 4 | 8 | 0.02 | 0 | 9 | 4 | 15 | 4 | confirmed |
| *Grus canadensis* | Greater Sandhill Crane | 1 | 1 | 0 |  | 0 | 1 | 1 | 1 | 1 | confirmed |
| *Pelecanus erythrorhynchos* | American White Pelican | 98 | 4 | 94 | 0.22 | 0 | 4 | 4 | 44 | 2 | confirmed |
| *Phalacrocorax auritus* | Double-crested Cormorant | 173 | 69 | 110 | 0.25 | 6 | 63 | 63 | 52 | 29 | confirmed |
| *Botaurus lentiginosus* | American Bittern | 82 | 1 | 80 | 0.18 | 1 | 2 | 0 | 37 | 1 | confirmed |
| *Ixobrychus exilis* | Least Bittern | 31 | 0 | 20 | 0.05 | 0 | 11 | 0 | 19 | 0 | probable |
| *Ardea herodias* | Great Blue Heron | 292 | 89 | 208 | 0.48 | 8 | 84 | 81 | 65 | 37 | confirmed |
| *Ardea alba* | Great Egret | 56 | 11 | 44 | 0.10 | 0 | 12 | 11 | 29 | 9 | confirmed |
| *Egretta thula* | Snowy Egret | 18 | 3 | 14 | 0.03 | 0 | 4 | 3 | 12 | 3 | confirmed |
| *Egretta caerulea* | Little Blue Heron | 3 | 0 | 2 | 0.00 | 0 | 1 | 0 | 2 | 0 | possible |
| *Bubulcus ibis* | Cattle Egret | 41 | 5 | 34 | 0.08 | 1 | 7 | 4 | 22 | 5 | confirmed |
| *Butorides virescens* | Green Heron | 27 | 4 | 17 | 0.04 | 1 | 10 | 3 | 15 | 3 | confirmed |
| *Nycticorax nycticorax* | Black-crowned Night-heron | 71 | 13 | 58 | 0.13 | 3 | 13 | 10 | 25 | 9 | confirmed |

| Scientific Name | Common Name | Total Recs | Totl Num CO | Num Blks | % Blks | Num Blks Confirm | Num Extra Obs | Num Extra Obs CO | Num Cnty | Num Cnty CO | Highest status |
|---|---|---|---|---|---|---|---|---|---|---|---|
| *Plegadis chihi* | White-faced Ibis | 37 | 8 | 30 | 0.07 | 1 | 7 | 7 | 15 | 6 | confirmed |
| *Cathartes aura* | Turkey Vulture | 187 | 2 | 183 | 0.42 | 0 | 4 | 2 | 51 | 2 | confirmed |
| *Pandion haliaetus* | Osprey | 16 | 9 | 5 | 0.01 | 1 | 11 | 8 | 9 | 3 | confirmed |
| *Haliaeetus leucocephalus* | Bald Eagle | 49 | 18 | 30 | 0.07 | 3 | 19 | 15 | 29 | 14 | confirmed |
| *Circus cyaneus* | Northern Harrier | 230 | 23 | 218 | 0.50 | 14 | 12 | 9 | 56 | 18 | confirmed |
| *Accipiter striatus* | Sharp-shinned Hawk | 5 | 0 | 5 | 0.01 | 0 | 0 | 0 | 4 | 0 | possible |
| *Accipiter cooperii* | Cooper's Hawk | 88 | 16 | 57 | 0.13 | 6 | 31 | 10 | 43 | 13 | confirmed |
| *Accipiter gentilis* | Northern Goshawk | 4 | 2 | 3 | 0.01 | 1 | 1 | 1 | 2 | 2 | confirmed |
| *Buteo platypterus* | Broad-winged Hawk | 12 | 1 | 8 | 0.02 | 1 | 4 | 0 | 5 | 1 | confirmed |
| *Buteo swainsoni* | Swainson's Hawk | 238 | 65 | 194 | 0.45 | 24 | 44 | 41 | 55 | 22 | confirmed |
| *Buteo jamaicensis* | Red-tailed Hawk | 386 | 86 | 338 | 0.78 | 38 | 48 | 48 | 65 | 35 | confirmed |
| *Buteo regalis* | Ferruginous Hawk | 79 | 13 | 49 | 0.11 | 0 | 30 | 13 | 27 | 8 | confirmed |
| *Aquila chrysaetos* | Golden Eagle | 76 | 25 | 54 | 0.12 | 6 | 22 | 19 | 18 | 8 | confirmed |
| *Falco sparverius* | American Kestrel | 196 | 32 | 181 | 0.42 | 23 | 15 | 9 | 55 | 24 | confirmed |
| *Falco columbarius* | Merlin | 7 | 2 | 4 | 0.01 | 1 | 3 | 1 | 5 | 1 | confirmed |
| *Falco peregrinus* | Peregrine Falcon | 2 | 0 | 2 | 0.00 | 0 | 0 | 0 | 2 | 0 | observed |
| *Falco mexicanus* | Prairie Falcon | 26 | 7 | 18 | 0.04 | 3 | 8 | 4 | 11 | 3 | confirmed |
| *Laterralus jamiacensis* | Black Rail | 1 | 1 | 0 | 0.00 | 0 | 1 | 1 | 1 | 1 | confirmed |
| *Rallus limicola* | Virginia Rail | 92 | 18 | 72 | 0.17 | 4 | 20 | 14 | 43 | 14 | confirmed |
| *Porzana carolina* | Sora | 164 | 9 | 151 | 0.35 | 3 | 13 | 6 | 53 | 8 | confirmed |
| *Gallinula chloropus* | Common Moorhen | 1 | 1 | 0 | 0.00 | 0 | 1 | 1 | 1 | 1 | confirmed |
| *Fulica americana* | American Coot | 243 | 165 | 180 | 0.42 | 106 | 63 | 59 | 59 | 49 | confirmed |
| *Charadrius alexandrinus* | Snowy Plover | 1 | 1 | 0 | 0.00 | 0 | 1 | 1 | 1 | 1 | confirmed |
| *Charadrius melodus* | Piping Plover | 12 | 4 | 4 | 0.01 | 0 | 8 | 4 | 8 | 3 | confirmed |
| *Charadrius vociferus* | Killdeer | 400 | 158 | 378 | 0.87 | 136 | 22 | 22 | 66 | 58 | confirmed |
| *Himantopus mexicanus* | Black-necked Stilt | 6 | 2 | 1 | 0.00 | 0 | 5 | 2 | 3 | 2 | confirmed |
| *Recurvirostra americana* | American Avocet | 102 | 55 | 57 | 0.13 | 16 | 45 | 39 | 32 | 21 | confirmed |
| *Catoptrophorus semipalmatus* | Willet | 52 | 12 | 43 | 0.10 | 4 | 9 | 8 | 22 | 8 | confirmed |

| Scientific Name | Common Name | Total Recs | Totl Num CO | Num Blks | % Blks | Num Blks Confirm | Num Extra Obs | Num Extra Obs CO | Num Cnty | Num Cnty CO | Highest status |
|---|---|---|---|---|---|---|---|---|---|---|---|
| *Actitis macularia* | Spotted Sandpiper | 111 | 9 | 99 | 0.23 | 1 | 12 | 8 | 53 | 6 | confirmed |
| *Bartramia longicauda* | Upland Sandpiper | 353 | 54 | 334 | 0.77 | 35 | 19 | 19 | 65 | 27 | confirmed |
| *Numenius americanus* | Long-billed Curlew | 82 | 9 | 45 | 0.10 | 4 | 37 | 5 | 21 | 7 | confirmed |
| *Limosa fedoa* | Marbled Godwit | 144 | 18 | 127 | 0.29 | 7 | 17 | 11 | 41 | 13 | confirmed |
| *Gallinago delicata* | Wilson's Snipe | 97 | 7 | 90 | 0.21 | 5 | 7 | 2 | 38 | 4 | confirmed |
| *Scolopax minor* | American Woodcock | 10 | 0 | 3 | 0.01 | 0 | 7 | 0 | 7 | 0 | probable |
| *Phalaropus tricolor* | Wilson's Phalarope | 175 | 28 | 158 | 0.36 | 16 | 17 | 12 | 46 | 16 | confirmed |
| *Larus pipixcan* | Franklin's Gull | 64 | 6 | 59 | 0.14 | 1 | 5 | 5 | 26 | 4 | confirmed |
| *Larus delawarensis* | Ring-billed Gull | 73 | 6 | 67 | 0.15 | 0 | 6 | 6 | 28 | 6 | confirmed |
| *Larus californicus* | California Gull | 23 | 3 | 20 | 0.05 | 0 | 3 | 3 | 14 | 2 | confirmed |
| *Larus argentatus* | Herring Gull | 2 | 1 | 1 | 0.00 | 0 | 1 | 1 | 2 | 1 | confirmed |
| *Sterna caspia* | Caspian Tern | 3 | 1 | 1 | 0.00 | 0 | 2 | 1 | 2 | 2 | confirmed |
| *Sterna hirundo* | Common Tern | 14 | 6 | 7 | 0.02 | 0 | 7 | 6 | 9 | 4 | confirmed |
| *Sterna forsteri* | Forster's Tern | 41 | 11 | 29 | 0.07 | 2 | 12 | 9 | 18 | 5 | confirmed |
| *Sterna antillarum* | Least Tern | 8 | 1 | 5 | 0.01 | 0 | 3 | 1 | 8 | 1 | confirmed |
| *Chlidonias niger* | Black Tern | 186 | 30 | 89 | 0.21 | 13 | 97 | 17 | 40 | 13 | confirmed |
| *Columba livia* | Rock Pigeon | 219 | 9 | 212 | 0.49 | 5 | 7 | 4 | 66 | 8 | confirmed |
| *Streptopelia decaocto* | Eurasian Collared-dove | 167 | 13 | 61 | 0.14 | 5 | 106 | 8 | 57 | 10 | confirmed |
| *Zenaida macroura* | Mourning Dove | 434 | 172 | 401 | 0.93 | 143 | 33 | 29 | 66 | 60 | confirmed |
| *Coccyzus erythropthalmus* | Black-billed Cuckoo | 67 | 3 | 58 | 0.13 | 3 | 9 | 0 | 33 | 2 | confirmed |
| *Coccyzus americanus* | Yellow-billed Cuckoo | 54 | 8 | 44 | 0.10 | 3 | 10 | 5 | 30 | 8 | confirmed |
| *Tyto alba* | Barn Owl | 30 | 26 | 3 | 0.01 | 1 | 27 | 25 | 14 | 12 | confirmed |
| *Megascops asio* | Eastern Screech-owl | 44 | 6 | 22 | 0.05 | 0 | 22 | 6 | 22 | 3 | confirmed |
| *Bubo virginianus* | Great Horned Owl | 244 | 84 | 170 | 0.39 | 22 | 74 | 62 | 63 | 33 | confirmed |
| *Athene cunicularia* | Burrowing Owl | 264 | 181 | 70 | 0.16 | 19 | 194 | 162 | 36 | 26 | confirmed |
| *Strix varia* | Barred Owl | 5 | 2 | 3 | 0.01 | 0 | 2 | 2 | 4 | 2 | confirmed |
| *Asio otus* | Long-eared Owl | 43 | 23 | 9 | 0.02 | 0 | 34 | 23 | 10 | 5 | confirmed |
| *Asio flammeus* | Short-eared Owl | 48 | 6 | 28 | 0.06 | 2 | 20 | 4 | 21 | 4 | confirmed |

| Scientific Name | Common Name | Total Recs | Totl Num CO | Num Blks | % Blks | Num Blks Confirm | Num Extra Obs | Num Extra Obs CO | Num Cnty | Num Cnty CO | Highest status |
|---|---|---|---|---|---|---|---|---|---|---|---|
| *Aegolius acadicus* | Northern Saw-whet Owl | 60 | 33 | 17 | 0.04 | 4 | 43 | 28 | 6 | 1 | confirmed |
| *Chordeiles minor* | Common Nighthawk | 202 | 7 | 192 | 0.44 | 0 | 10 | 7 | 50 | 7 | confirmed |
| *Phalaenoptilus nuttallii* | Common Poorwill | 21 | 3 | 12 | 0.03 | 1 | 9 | 2 | 8 | 2 | confirmed |
| *Caprimulgus carolinensis* | Chuck-will's Widow | 1 | 0 | 0 | 0.00 | 0 | 1 | 0 | 1 | 0 | probable |
| *Caprimulgus vociferus* | Whip-poor-will | 5 | 0 | 1 | 0.00 | 0 | 4 | 0 | 4 | 0 | probable |
| *Chaetura pelagica* | Chimney Swift | 111 | 4 | 46 | 0.11 | 0 | 65 | 4 | 52 | 4 | confirmed |
| *Aeronautes saxatalis* | White-throated Swift | 12 | 1 | 11 | 0.03 | 1 | 1 | 0 | 8 | 1 | confirmed |
| *Archilochus colubris* | Ruby-throated Hummingbird | 14 | 3 | 5 | 0.01 | 1 | 9 | 2 | 9 | 3 | confirmed |
| *Selasphorus platycercus* | Broad-tailed Hummingbird | 5 | 2 | 3 | 0.01 | 1 | 2 | 1 | 2 | 2 | confirmed |
| *Ceryle alcyon* | Belted Kingfisher | 88 | 16 | 81 | 0.19 | 13 | 7 | 3 | 44 | 12 | confirmed |
| *Melanerpes lewis* | Lewis's Woodpecker | 12 | 7 | 6 | 0.01 | 2 | 6 | 5 | 5 | 2 | confirmed |
| *Melanerpes erythrocephalus* | Red-headed Woodpecker | 199 | 58 | 172 | 0.40 | 36 | 27 | 22 | 62 | 36 | confirmed |
| *Melanerpes carolinus* | Red-bellied Woodpecker | 27 | 5 | 22 | 0.05 | 0 | 5 | 5 | 19 | 5 | confirmed |
| *Sphyrapicus varius* | Yellow-bellied Sapsucker | 11 | 5 | 4 | 0.01 | 0 | 7 | 5 | 5 | 3 | confirmed |
| *Sphyrapicus nuchalis* | Red-naped Sapsucker | 20 | 13 | 11 | 0.03 | 7 | 9 | 6 | 4 | 3 | confirmed |
| *Picoides pubescens* | Downy Woodpecker | 137 | 17 | 129 | 0.30 | 12 | 8 | 5 | 54 | 10 | confirmed |
| *Picoides villosus* | Hairy Woodpecker | 152 | 24 | 137 | 0.32 | 13 | 15 | 11 | 57 | 17 | confirmed |
| *Picoides dorsalis* | A.. Three-toed Woodpecker | 7 | 1 | 2 | 0.00 | 0 | 5 | 1 | 3 | 1 | confirmed |
| *Picoides arcticus* | Black-backed Woodpecker | 9 | 3 | 3 | 0.01 | 1 | 6 | 2 | 3 | 2 | confirmed |
| *Colaptes auratus* | Northern Flicker | 317 | 40 | 307 | 0.71 | 34 | 10 | 6 | 66 | 27 | confirmed |
| *Dryocopus pileatus* | Pileated Woodpecker | 5 | 0 | 3 | 0.01 | 0 | 2 | 0 | 2 | 0 | probable |
| *Contopus cooperi* | Olive-sided Flycatcher | 1 | 0 | 1 | 0.00 | 0 | 0 | 0 | 1 | 0 | observed |
| *Contopus sordidulus* | Western Wood-pewee | 52 | 8 | 48 | 0.11 | 6 | 4 | 2 | 12 | 5 | confirmed |
| *Contopus virens* | Eastern Wood-pewee | 46 | 4 | 40 | 0.09 | 1 | 6 | 3 | 24 | 3 | confirmed |
| *Empidonax traillii* | Willow Flycatcher | 166 | 18 | 161 | 0.37 | 14 | 5 | 4 | 57 | 11 | confirmed |
| *Empidonax minimus* | Least Flycatcher | 123 | 10 | 115 | 0.27 | 4 | 8 | 6 | 49 | 7 | confirmed |
| *Empidonax oberholseri* | Dusky Flycatcher | 15 | 4 | 12 | 0.03 | 1 | 3 | 3 | 4 | 2 | confirmed |
| *Empidonax occidentalis* | Cordilleran Flycatcher | 16 | 5 | 11 | 0.03 | 2 | 5 | 3 | 5 | 3 | confirmed |

| Scientific Name | Common Name | Total Recs | Totl Num CO | Num Blks | % Blks | Num Blks Confirm | Num Extra Obs | Num Extra Obs CO | Num Cnty | Num Cnty CO | Highest status |
|---|---|---|---|---|---|---|---|---|---|---|---|
| *Sayornis phoebe* | Eastern Phoebe | 71 | 16 | 62 | 0.14 | 10 | 9 | 6 | 40 | 13 | confirmed |
| *Sayornis saya* | Say's Phoebe | 110 | 36 | 96 | 0.22 | 27 | 14 | 9 | 30 | 17 | confirmed |
| *Myiarchus crinitus* | Great Crested Flycatcher | 68 | 9 | 59 | 0.14 | 5 | 9 | 4 | 30 | 5 | confirmed |
| *Tyrannus vociferans* | Cassin's Kingbird | 6 | 0 | 2 | 0.00 | 0 | 4 | 0 | 3 | 0 | probable |
| *Tyrannus verticalis* | Western Kingbird | 371 | 152 | 345 | 0.80 | 125 | 26 | 27 | 65 | 49 | confirmed |
| *Tyrannus tyrannus* | Eastern Kingbird | 399 | 164 | 379 | 0.88 | 146 | 20 | 18 | 65 | 61 | confirmed |
| *Lanius ludovicianus* | Loggerhead Shrike | 145 | 44 | 117 | 0.27 | 25 | 28 | 19 | 40 | 22 | confirmed |
| *Vireo bellii* | Bell's Vireo | 80 | 14 | 69 | 0.16 | 7 | 11 | 7 | 32 | 11 | confirmed |
| *Vireo flavifrons* | Yellow-throated Vireo | 13 | 2 | 4 | 0.01 | 1 | 9 | 1 | 9 | 2 | confirmed |
| *Vireo plumbeus* | Plumbeous Vireo | 19 | 6 | 15 | 0.03 | 3 | 4 | 3 | 6 | 4 | confirmed |
| *Vireo gilvus* | Warbling Vireo | 235 | 20 | 225 | 0.52 | 13 | 10 | 7 | 66 | 13 | confirmed |
| *Vireo olivaceus* | Red-eyed Vireo | 82 | 7 | 71 | 0.16 | 3 | 11 | 4 | 39 | 6 | confirmed |
| *Perisoreus canadensis* | Gray Jay | 13 | 2 | 9 | 0.02 | 1 | 4 | 1 | 3 | 2 | confirmed |
| *Cyanocitta cristata* | Blue Jay | 164 | 23 | 152 | 0.35 | 15 | 12 | 8 | 60 | 18 | confirmed |
| *Gymnorhinus cyanocephalus* | Pinyon Jay | 2 | 0 | 1 | 0.00 | 0 | 1 | 0 | 2 | 0 | probable |
| *Nucifraga columbiana* | Clark's Nutcracker | 8 | 1 | 3 | 0.01 | 0 | 5 | 1 | 2 | 1 | confirmed |
| *Pica hudsonia* | Black-billed Magpie | 48 | 3 | 37 | 0.09 | 3 | 11 | 0 | 20 | 6 | confirmed |
| *Corvus brachyrhynchos* | American Crow | 185 | 11 | 179 | 0.41 | 6 | 6 | 5 | 59 | 8 | confirmed |
| *Eremophila alpestris* | Horned Lark | 360 | 50 | 356 | 0.82 | 46 | 4 | 4 | 66 | 22 | confirmed |
| *Progne subis* | Purple Martin | 53 | 36 | 23 | 0.05 | 10 | 30 | 26 | 31 | 23 | confirmed |
| *Tachycineta bicolor* | Tree Swallow | 243 | 85 | 235 | 0.54 | 77 | 8 | 8 | 64 | 38 | confirmed |
| *Tachycineta thalassina* | Violet-green Swallow | 28 | 10 | 24 | 0.06 | 6 | 4 | 4 | 8 | 4 | confirmed |
| *Stelgidopteryx serripennis* | N. Rough-winged Swallow | 148 | 36 | 138 | 0.32 | 27 | 10 | 9 | 51 | 21 | confirmed |
| *Riparia riparia* | Bank Swallow | 127 | 37 | 109 | 0.25 | 19 | 18 | 18 | 45 | 26 | confirmed |
| *Petrochelidon pyrrhonota* | Cliff Swallow | 371 | 230 | 259 | 0.60 | 118 | 112 | 112 | 63 | 57 | confirmed |
| *Hirundo rustica* | Barn Swallow | 399 | 169 | 370 | 0.85 | 141 | 29 | 28 | 65 | 56 | confirmed |
| *Poecile atricapillus* | Black-capped Chickadee | 134 | 25 | 123 | 0.28 | 17 | 11 | 8 | 52 | 15 | confirmed |
| *Sitta canadensis* | Red-breasted Nuthatch | 35 | 10 | 32 | 0.07 | 7 | 3 | 3 | 12 | 4 | confirmed |

| Scientific Name | Common Name | Total Recs | Totl Num CO | Num Blks | % Blks | Num Blks Confirm | Num Extra Obs | Num Extra Obs CO | Num Cnty | Num Cnty CO | Highest status |
|---|---|---|---|---|---|---|---|---|---|---|---|
| *Sitta carolinensis* | White-breasted Nuthatch | 108 | 23 | 95 | 0.22 | 13 | 13 | 10 | 46 | 12 | confirmed |
| *Sitta pygmaea* | Pygmy Nuthatch | 10 | 3 | 5 | 0.01 | 2 | 5 | 1 | 5 | 2 | confirmed |
| *Certhia americana* | Brown Creeper | 10 | 0 | 8 | 0.02 | 0 | 2 | 0 | 4 | 0 | probable |
| *Salpinctes obsoletus* | Rock Wren | 41 | 15 | 28 | 0.06 | 9 | 13 | 6 | 17 | 8 | confirmed |
| *Catherpes mexicanus* | Canyon Wren | 5 | 3 | 2 | 0.00 | 2 | 3 | 1 | 3 | 2 | confirmed |
| *Troglodytes aedon* | House Wren | 332 | 75 | 303 | 0.70 | 50 | 29 | 25 | 65 | 38 | confirmed |
| *Troglodytes troglodytes* | Winter Wren | 2 | 0 | 1 | 0.00 | 0 | 1 | 0 | 1 | 0 | probable |
| *Cistothorus platensis* | Sedge Wren | 142 | 3 | 139 | 0.32 | 2 | 3 | 1 | 43 | 3 | confirmed |
| *Cistothorus palustris* | Marsh Wren | 139 | 11 | 134 | 0.31 | 9 | 5 | 2 | 48 | 7 | confirmed |
| *Cinclus mexicanus* | American Dipper | 6 | 6 | 0 | 0.00 | 0 | 6 | 6 | 1 | 1 | confirmed |
| *Regulus satrapa* | Golden-crowned Kinglet | 5 | 0 | 5 | 0.01 | 0 | 0 | 0 | 5 | 0 | probable |
| *Regulus calendula* | Ruby-crowned Kinglet | 14 | 2 | 8 | 0.02 | 1 | 6 | 1 | 4 | 2 | confirmed |
| *Polioptila caerulea* | Blue-gray Gnatcatcher | 15 | 6 | 7 | 0.02 | 1 | 8 | 5 | 7 | 4 | confirmed |
| *Sialia sialis* | Eastern Bluebird | 124 | 41 | 101 | 0.23 | 25 | 23 | 16 | 53 | 30 | confirmed |
| *Sialia currucoides* | Mountain Bluebird | 49 | 25 | 40 | 0.09 | 18 | 9 | 7 | 12 | 8 | confirmed |
| *Myadestes townsendi* | Townsend's Solitaire | 24 | 8 | 15 | 0.03 | 2 | 9 | 6 | 5 | 4 | confirmed |
| *Catharus fuscescens* | Veery | 6 | 0 | 3 | 0.01 | 0 | 3 | 0 | 4 | 0 | probable |
| *Catharus ustulatus* | Swainson's Thrush | 11 | 2 | 9 | 0.02 | 0 | 2 | 2 | 3 | 1 | confirmed |
| *Catharus guttatus* | Hermit Thrush | 1 | 0 | 0 | 0.00 | 0 | 1 | 0 | 1 | 0 | possible |
| *Hylocichla mustelina* | Wood Thrush | 6 | 2 | 2 | 0.00 | 0 | 4 | 2 | 5 | 2 | confirmed |
| *Turdus migratorius* | American Robin | 388 | 247 | 351 | 0.81 | 211 | 37 | 36 | 66 | 65 | confirmed |
| *Dumetella carolinensis* | Gray Catbird | 150 | 32 | 135 | 0.31 | 21 | 15 | 11 | 59 | 23 | confirmed |
| *Mimus polyglottos* | Northern Mockingbird | 28 | 1 | 18 | 0.04 | 0 | 10 | 1 | 20 | 1 | confirmed |
| *Oreoscoptes montanus* | Sage Thrasher | 4 | 0 | 2 | 0.00 | 0 | 2 | 0 | 2 | 0 | probable |
| *Toxostoma rufum* | Brown Thrasher | 343 | 103 | 322 | 0.74 | 83 | 21 | 20 | 66 | 50 | confirmed |
| *Sturnus vulgaris* | European Starling | 336 | 182 | 315 | 0.73 | 164 | 21 | 18 | 66 | 64 | confirmed |
| *Anthus spragueii* | Sprague's Pipit | 44 | 2 | 11 | 0.03 | 1 | 33 | 1 | 10 | 2 | confirmed |
| *Bombycilla cedrorum* | Cedar Waxwing | 149 | 30 | 136 | 0.31 | 18 | 13 | 12 | 56 | 23 | confirmed |

| Scientific Name | Common Name | Total Recs | Totl Num CO | Num Blks | % Blks | Num Blks Confirm | Num Extra Obs | Num Extra Obs CO | Num Cnty | Num Cnty CO | Highest status |
|---|---|---|---|---|---|---|---|---|---|---|---|
| *Vermivora pinus* | Blue-winged Warbler | 2 | 0 | 1 | 0.00 | 0 | 1 | 0 | 2 | 0 | probable |
| *Vermivora virginiae* | Virginia's Warbler | 6 | 2 | 2 | 0.00 | 1 | 4 | 1 | 2 | 1 | confirmed |
| *Dendroica petechia* | Yellow Warbler | 332 | 71 | 310 | 0.72 | 51 | 22 | 20 | 66 | 35 | confirmed |
| *Dendroica pensylvanica* | Chestnut-sided Warbler | 1 | 1 | 0 | 0.00 | 0 | 1 | 1 | 1 | 1 | confirmed |
| *Dendroica coronata* | Yellow-rumped Warbler | 29 | 16 | 26 | 0.06 | 13 | 3 | 3 | 9 | 6 | confirmed |
| *Mniotilta varia* | Black-and-White Warbler | 11 | 1 | 6 | 0.01 | 1 | 5 | 0 | 7 | 1 | confirmed |
| *Setophaga ruticilla* | American Redstart | 48 | 6 | 39 | 0.09 | 2 | 9 | 4 | 24 | 4 | confirmed |
| *Protonotaria citrea* | Prothonotory Warbler | 1 | 1 | 0 | 0.00 | 0 | 1 | 1 | 1 | 1 | confirmed |
| *Seiurus aurocapilla* | Ovenbird | 33 | 7 | 25 | 0.06 | 4 | 8 | 3 | 12 | 5 | confirmed |
| *Oporornis tolmiei* | MacGillivray's Warbler | 11 | 2 | 9 | 0.02 | 1 | 2 | 1 | 4 | 2 | confirmed |
| *Geothlypis trichas* | Common Yellowthroat | 289 | 15 | 283 | 0.65 | 12 | 6 | 3 | 66 | 14 | confirmed |
| *Icteria virens* | Yellow-breasted Chat | 75 | 11 | 64 | 0.15 | 6 | 11 | 5 | 26 | 9 | confirmed |
| *Piranga olivacea* | Scarlet Tanager | 10 | 4 | 4 | 0.01 | 2 | 6 | 2 | 6 | 3 | confirmed |
| *Piranga ludoviciana* | Western Tanager | 30 | 10 | 23 | 0.05 | 7 | 7 | 3 | 8 | 6 | confirmed |
| *Pipilo maculatus* | Spotted Towhee | 120 | 23 | 111 | 0.26 | 19 | 9 | 4 | 32 | 13 | confirmed |
| *Pipilo erythrophthalmus* | Eastern Towhee | 12 | 2 | 9 | 0.02 | 0 | 3 | 2 | 8 | 2 | confirmed |
| *Aimophila cassinii* | Cassin's Sparrow | 6 | 1 | 2 | 0.00 | 0 | 4 | 1 | 3 | 1 | confirmed |
| *Spizella passerina* | Chipping Sparrow | 275 | 78 | 256 | 0.59 | 61 | 19 | 17 | 64 | 41 | confirmed |
| *Spizella pallida* | Clay-colored Sparrow | 130 | 22 | 113 | 0.26 | 7 | 17 | 15 | 36 | 9 | confirmed |
| *Spizella breweri* | Brewer's Sparrow | 18 | 7 | 11 | 0.03 | 5 | 7 | 2 | 4 | 2 | confirmed |
| *Spizella pusilla* | Field Sparrow | 115 | 28 | 105 | 0.24 | 20 | 10 | 8 | 48 | 21 | confirmed |
| *Pooecetes gramineus* | Vesper Sparrow | 243 | 24 | 238 | 0.55 | 21 | 5 | 3 | 61 | 14 | confirmed |
| *Chondestes grammacus* | Lark Sparrow | 238 | 92 | 215 | 0.50 | 71 | 23 | 21 | 57 | 36 | confirmed |
| *Calamospiza melanocorys* | Lark Bunting | 206 | 71 | 185 | 0.43 | 53 | 21 | 18 | 40 | 17 | confirmed |
| *Passerculus sandwichensis* | Savannah Sparrow | 165 | 8 | 162 | 0.37 | 6 | 3 | 2 | 45 | 6 | confirmed |
| *Ammodramus savannarum* | Grasshopper Sparrow | 365 | 84 | 350 | 0.81 | 71 | 15 | 13 | 66 | 36 | confirmed |
| *Ammodramus bairdii* | Baird's Sparrow | 71 | 0 | 22 | 0.05 | 0 | 49 | 0 | 12 | 0 | probable |
| *Ammodramus henslowii* | Henslow's Sparrow | 7 | 0 | 6 | 0.01 | 0 | 1 | 0 | 7 | 0 | probable |

| Scientific Name | Common Name | Total Recs | Totl Num CO | Num Blks | % Blks | Num Blks Confirm | Num Extra Obs | Num Extra Obs CO | Num Cnty | Num Cnty CO | Highest status |
|---|---|---|---|---|---|---|---|---|---|---|---|
| *Ammodramus leconteii* | Le Conte's Sparrow | 82 | 3 | 28 | 0.06 | 0 | 54 | 3 | 14 | 2 | confirmed |
| *Ammodramus nelsoni* | Nelson's Sparrow | 61 | 0 | 21 | 0.05 | 0 | 40 | 0 | 15 | 0 | probable |
| *Melospiza melodia* | Song Sparrow | 228 | 36 | 225 | 0.52 | 33 | 3 | 3 | 60 | 25 | confirmed |
| *Melospiza georgiana* | Swamp Sparrow | 48 | 2 | 45 | 0.10 | 1 | 3 | 1 | 18 | 2 | confirmed |
| *Junco hyemalis aikeni* | Dark-eyed Junco | 16 | 12 | 14 | 0.03 | 1 | 2 | 11 | 5 | 4 | confirmed |
| *Calcarius mccownii* | McCown's Longspur | 2 | 0 | 0 | 0.00 | 0 | 2 | 0 | 2 | 0 | possible |
| *Calcarius ornatus* | Chestnut-collared Longspur | 154 | 44 | 134 | 0.31 | 27 | 20 | 17 | 39 | 19 | confirmed |
| *Cardinalis cardinalis* | Northern Cardinal | 53 | 14 | 33 | 0.08 | 2 | 20 | 12 | 26 | 9 | confirmed |
| *Pheucticus ludovicianus* | Rose-breasted Grosbeak | 78 | 9 | 68 | 0.16 | 5 | 10 | 4 | 34 | 8 | confirmed |
| *Pheucticus melanocephalus* | Black-headed Grosbeak | 88 | 18 | 77 | 0.18 | 10 | 11 | 8 | 25 | 11 | confirmed |
| *Passerina caerulea* | Blue Grosbeak | 137 | 15 | 125 | 0.29 | 7 | 12 | 8 | 51 | 12 | confirmed |
| *Passerina amoena* | Lazuli Bunting | 42 | 4 | 39 | 0.09 | 2 | 3 | 2 | 17 | 4 | confirmed |
| *Passerina cyanea* | Indigo Bunting | 83 | 5 | 72 | 0.17 | 3 | 11 | 2 | 44 | 3 | confirmed |
| *Spiza americana* | Dickcissel | 300 | 27 | 296 | 0.68 | 25 | 4 | 2 | 66 | 21 | confirmed |
| *Dolichonyx oryzivorus* | Bobolink | 289 | 37 | 278 | 0.64 | 30 | 11 | 7 | 64 | 25 | confirmed |
| *Agelaius phoeniceus* | Red-winged Blackbird | 436 | 236 | 388 | 0.90 | 189 | 48 | 47 | 66 | 64 | confirmed |
| *Sturnella magna* | Eastern Meadowlark | 7 | 1 | 4 | 0.01 | 0 | 3 | 1 | 5 | 1 | confirmed |
| *Sturnella neglecta* | Western Meadowlark | 449 | 279 | 399 | 0.92 | 230 | 50 | 49 | 66 | 59 | confirmed |
| *Xanthocephalus xanthocephalus* | Yellow-headed Blackbird | 254 | 106 | 222 | 0.51 | 79 | 32 | 27 | 64 | 45 | confirmed |
| *Euphagus cyanocephalus* | Brewer's Blackbird | 87 | 26 | 75 | 0.17 | 18 | 12 | 8 | 26 | 13 | confirmed |
| *Quiscalus quiscula* | Common Grackle | 385 | 259 | 350 | 0.81 | 224 | 35 | 35 | 66 | 64 | confirmed |
| *Quiscalus mexicanus* | Great-tailed Grackle | 17 | 1 | 13 | 0.03 | 0 | 4 | 1 | 12 | 1 | confirmed |
| *Molothrus ater* | Brown-headed Cowbird | 429 | 77 | 401 | 0.93 | 52 | 28 | 25 | 66 | 41 | confirmed |
| *Icterus spurius* | Orchard Oriole | 376 | 128 | 351 | 0.81 | 107 | 25 | 21 | 65 | 54 | confirmed |
| *Icterus bullockii* | Bullock's Oriole | 35 | 8 | 33 | 0.08 | 6 | 2 | 2 | 12 | 5 | confirmed |
| *Icterus galbula* | Baltimore Oriole | 198 | 65 | 178 | 0.41 | 49 | 20 | 16 | 54 | 35 | confirmed |
| *Carpodacus cassinii* | Cassin's Finch | 6 | 0 | 2 | 0.00 | 0 | 4 | 0 | 4 | 0 | probable |
| *Carpodacus mexicanus* | House Finch | 109 | 15 | 43 | 0.10 | 4 | 66 | 11 | 53 | 12 | confirmed |

| Scientific Name | Common Name | Total Recs | Totl Num CO | Num Blks | % Blks | Num Blks Confirm | Num Extra Obs | Num Extra Obs CO | Num Cnty | Num Cnty CO | Highest status |
|---|---|---|---|---|---|---|---|---|---|---|---|
| *Loxia curvirostra* | Red Crossbill | 32 | 6 | 29 | 0.07 | 5 | 3 | 1 | 9 | 2 | confirmed |
| *Loxia leucoptera* | White-winged Crossbill | 1 | 0 | 1 | 0.00 | 0 | 0 | 0 | 1 | 0 | probable |
| *Carduelis pinus* | Pine Siskin | 23 | 6 | 15 | 0.03 | 3 | 8 | 3 | 14 | 6 | confirmed |
| *Carduelis psaltria* | Lesser Goldfinch | 2 | 1 | 2 | 0.00 | 0 | 0 | 1 | 1 | 1 | confirmed |
| *Carduelis tristis* | American Goldfinch | 320 | 32 | 313 | 0.72 | 27 | 7 | 5 | 66 | 23 | confirmed |
| *Coccothraustes vespertinus* | Evening Grosbeak | 3 | 1 | 1 | 0.00 | 0 | 2 | 1 | 1 | 1 | confirmed |
| *Passer domesticus* | House Sparrow | 288 | 134 | 264 | 0.61 | 111 | 24 | 23 | 65 | 52 | confirmed |