

Chapter 3. SUMMARY RESULTS

SURVEY EFFORT

During the SDBBA2, observers made more than 2500 visits and spent more than 7500 hours on Atlas blocks (Table 1). Number of visits and time spent on blocks were not tracked during the first Breeding Bird Atlas. For the second Atlas, 40 volunteers submitted records for 95 blocks, making 578 total block visits. Sixteen paid atlasers recorded data on 399 blocks, with a total of 2,008 visits to blocks. Fifty-eight of the blocks were visited at various times by both volunteers and paid staff.

Table 1. Summary block results for the second South Dakota Breeding Bird Atlas (BBA2) compared to the first South Dakota Breeding Bird Atlas (BBA1)

| | BBA1 | BBA2 |
|---|---------------|-----------------|
| Number of blocks | 433 | 433 |
| Total number of visits to blocks | ? | 2586 |
| Total number of hours on blocks | ? | 7532 |
| Average number of visits per block (Range of values) | ? | 6 (1-45) |
| Average number of hours per block (Range of values) | ? | 17.4 (2-159) |
| Average number species recorded per block , 124 blocks (Range for 124 original blocks) | 49 (20-72) | 57 (19-87) |
| Average number species recorded per block, all blocks (Range of values) | ? | 57 (18-101) |
| Average % species confirmed per block (Range of values) | 23 (0-60%) | 24 (3-62%) |

Second Atlas guidelines recommended that a block should be visited at least three times and receive at least 15 hours of survey time. Only 14 (3%) blocks were visited less than three times, while 19% were visited the recommended three times, and 77% visited four or more times (maximum 41 visits) (Figure 3). For all blocks, 17 (4% of total) received less than 5 hours of total survey effort while 42% received more than the recommended 15 hours of survey effort (Figure 4). Ideally, a block was visited in multiple years, to account for differences in weather and other conditions among years. Eighty-six percent of blocks (373) were surveyed in more than one year (Figure 5). Twelve blocks were visited every year of the atlas.

Although all 433 blocks were surveyed during SDBBA2, eight of these blocks were considered 'unfinished'. In these blocks, too little time was spent there and/or the block species list clearly is missing many species, given the habitat. Atlasers were denied

access to two of these after a first visit, reduced their effort on five grassland blocks suffering from drought, and failed to make multiple visits to one block because of a clerical error.

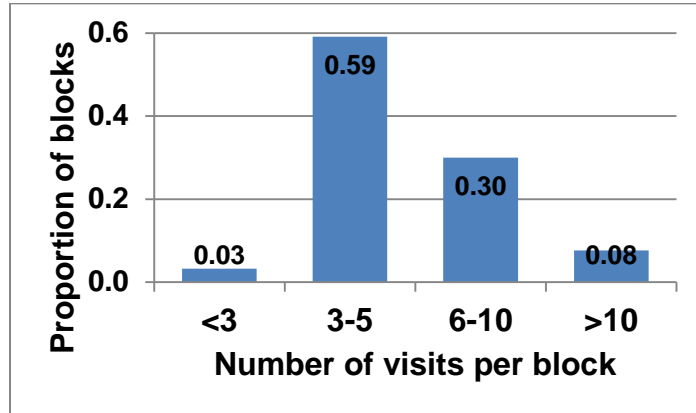


Figure 3. Frequency distribution of total number of survey visits per atlas block.

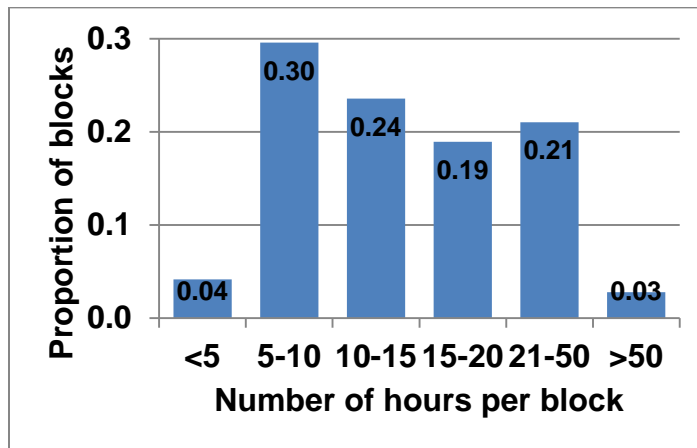


Figure 4. Frequency distribution of total number of survey hours per atlas block.

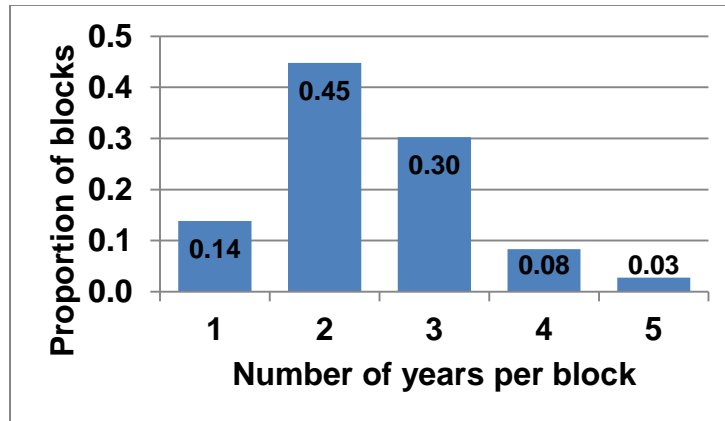


Figure 5. Frequency distribution of number of years of survey visits per atlas block.

BLOCK RESULTS

Species totals per block ranged from 18 - 101 species during the SDBBA2, and averaged 57 species per block (Figure 6, Table 1, Appendix I). The highest block total during the first Atlas was 81 species. Atlasers recorded 80 or more species (excluding non-breeding species) on 21 (4.8%) SDBBA2 blocks. Another 42 blocks (9.7%) had 73 to 79 recorded species during the second Atlas. Considering just the 124 blocks surveyed during both Atlases, atlasers during the second Atlas documented an average of 57 species per block, while the first Atlas recorded 49 species per block (Table 1). Without knowing the amount of effort put into surveys during the first Atlas, the reason for the discrepancy is unknown. However, moisture conditions likely were a contributing factor. The first Atlas was conducted during a drier period than was the second Atlas, which reduced the distribution and abundance of wetland-associated birds. See individual species accounts for details.

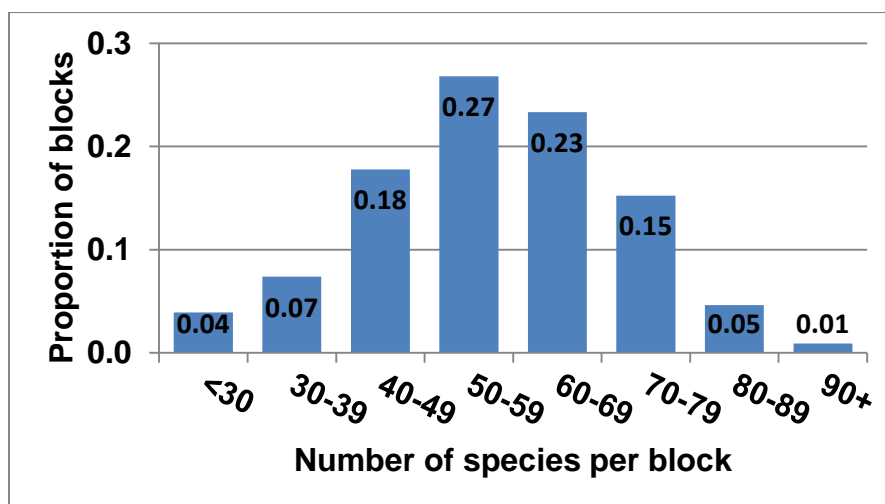


Figure 6. Frequency distribution of the number of species per block.

Blocks with higher species richness were 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 7). Blocks with lower species richness occurred in grassland and wheat field blocks throughout the western part of the state and higher elevations or burn areas of the Black Hills (Figure 7).

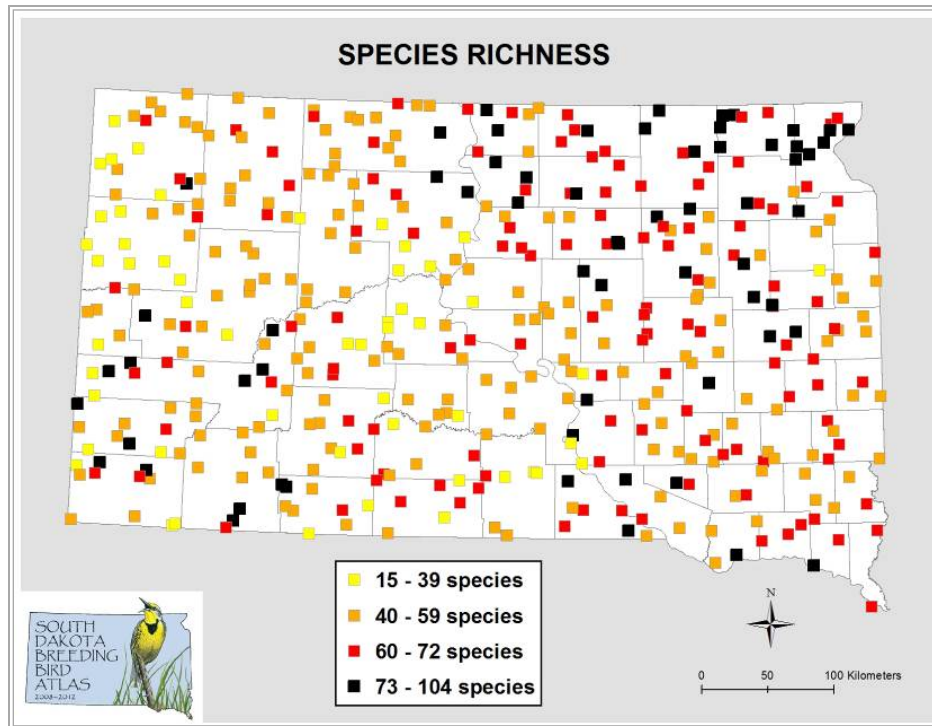


Figure 7. Map of block species richness during SDBBA2. Block size is not to scale.

SPECIES

During SDBBA2, 252 species were recorded at least once in the state (Appendix II). Of these, 239 (95%) were confirmed as breeding, ten (3%) were ‘probable’ breeders, and three (0.1%) were ‘possible’ breeders. This tally does not include two hybrids (Indigo-Lazuli Bunting, Baltimore-Bullock’s Oriole), or three non-breeding summer residents (Snow Goose, Peregrine Falcon and Orange-billed Nightingale-Thrush).

Mallard was the most frequently reported species, while Brown-headed Cowbird, Western Meadowlark and Mourning Dove were reported from the highest percentage of blocks (Table 2, Appendix II). Twenty-eight species were reported from all 66 counties. During the SDBBA2, 238 species were recorded at least once on blocks, while 13 species were only reported as extra observations (Table 3).

The first Atlas confirmed breeding by 212 species and documented another seven species as ‘Probable’ breeders. Twenty species were detected during SDBBA2 that

were not reported during the first Atlas (Table 4). In addition, 13 species (American Black Duck, Cinnamon Teal, Barred Owl, Common Gallinule, Horned Grebe, Little Blue Heron, Caspian Tern, Broad-tailed Hummingbird, Canyon Wren, Clark’s Nutcracker, Sprague’s Pipit, Baird’s Sparrow, and Le Conte’s Sparrow) were reported but never confirmed nesting during the first Atlas but were confirmed breeding during the current atlas.

Table 2. Most common species reported during SDBBA2, defined as those with at least 400 records, in at least 80% of all blocks, or in all 66 counties.

| Species | Total # Records | % Blocks Detected | # County Detected |
|----------------------|--------------------|----------------------|----------------------|
| Mallard | 552 | 87 | 66 |
| Red-tailed Hawk | 500 | 90 | 66 |
| Western Meadowlark | 495 | 98 | 66 |
| Brown-headed Cowbird | 489 | 99 | 66 |
| Red-winged Blackbird | 483 | 96 | 66 |
| Mourning Dove | 470 | 98 | 66 |
| Killdeer | 469 | 95 | 66 |
| Blue-winged Teal | 453 | 73 | 65 |
| Barn Swallow | 453 | 94 | 66 |
| Eastern Kingbird | 445 | 96 | 66 |
| American Robin | 443 | 89 | 66 |
| Common Grackle | 429 | 88 | 66 |
| Cliff Swallow | 425 | 66 | 63 |
| Orchard Oriole | 418 | 89 | 66 |
| Grasshopper Sparrow | 416 | 90 | 66 |
| Western Kingbird | 410 | 87 | 66 |
| Upland Sandpiper | 407 | 86 | 66 |
| Horned Lark | 395 | 89 | 66 |
| Brown Thrasher | 395 | 83 | 66 |
| European Starling | 394 | 83 | 66 |
| Yellow Warbler | 382 | 80 | 66 |
| American Goldfinch | 376 | 83 | 66 |
| Dickcissel | 366 | 80 | 66 |
| Northern Flicker | 362 | 78 | 66 |
| House Wren | 367 | 77 | 66 |
| House Sparrow | 331 | 70 | 66 |
| Common Yellowthroat | 328 | 73 | 66 |
| House Sparrow | 331 | 70 | 66 |
| Warbling Vireo | 288 | 63 | 66 |
| Tree Swallow | 293 | 62 | 66 |
| Rock Pigeon | 255 | 57 | 66 |
| Great Horned Owl | 313 | 47 | 66 |

Whip-poor-will is the only species that was confirmed breeding during the first atlas that was not confirmed breeding during SDBBA2. In addition there were four species (King Rail, Chukar, Carolina Wren, Cerulean Warbler) that were classified as ‘Possible’ breeders during the first Atlas but not detected during SDBBA2.

Table 3. Species only recorded as extra observations during SDBBA2.

| Species | Num. Extra Observat. | Num Extra Obs Confirmed | Num County Detected | Num County Confirmed |
|----------------------------|----------------------|-------------------------|---------------------|----------------------|
| American Dipper | 38 | 33 | 2 | 1 |
| Common Gallinule | 5 | 2 | 2 | 1 |
| Snowy Plover | 5 | 4 | 2 | 1 |
| Pacific Wren | 5 | 0 | 2 | 0 |
| Alder Flycatcher | 3 | 0 | 1 | 0 |
| Chestnut-sided Warbler | 3 | 1 | 1 | 1 |
| Blue-winged Warbler | 2 | 0 | 1 | 0 |
| McCown’s Longspur | 2 | 0 | 2 | 0 |
| Sandhill Crane | 1 | 1 | 1 | 1 |
| Tricolored Heron | 1 | 0 | 1 | 0 |
| Yellow-crowned Night-heron | 1 | 0 | 1 | 0 |
| Chuck-will's Widow | 1 | 0 | 1 | 0 |
| Golden-winged Warbler | 1 | 0 | 1 | 0 |
| Prothonotary Warbler | 1 | 1 | 1 | 1 |

Table 4. Species reported during SDBBA2 that were not detected during the first breeding bird atlas.

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