

## SEPTEMBER 2024 SURVEY OF THE ROCKY MOUNTAIN POPULATION OF GREATER SANDHILL CRANES

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Greater sandhill cranes of the Rocky Mountain Population (RMP) were counted at fall pre-migration staging areas in Colorado, Idaho, Montana, Utah, and Wyoming during September 2024. Migrants that had arrived at RMP migration stopover areas near Jensen, Utah and in the San Luis Valley, Colorado were also recorded. The cooperative survey was organized by the Pacific Flyway Subcommittee on RMP of Greater Sandhill Cranes and the U.S. Fish and Wildlife Service (FWS). The FWS, Division of Migratory Bird Management (DMBM), Denver, provided a Daher Kodiak aircraft for a portion of the survey. Aerial and ground surveys were conducted by personnel from respective state agencies, FWS and volunteers (Table 1).

The survey was conducted during the last week in September to improve the likelihood that cranes would be in the survey area (Bunting et al., 2022; VonBank et al. 2023). It is important to note that this is a regional survey to get a population estimate of RMP sandhill cranes and individual state estimates may not reflect peak crane counts for each state during the selected survey week.

We counted **24,909** RMP cranes at 85 survey areas with 29.2% in Montana, 23.9% in Wyoming, 21.8% in Idaho, 19.4% in Utah, and 5.7% in Colorado (Table 1). The total estimate was the third highest recorded for the survey (Table 2). There were seven areas with estimates between 500 and 999 cranes and seven areas with estimates of 1,000 or more cranes (Figure 1, Table 3). The majority (96.5%) of survey areas were counted during the designated survey week (23-27 September) with 75.3% of the areas surveyed during the three-day target period (24-26 September) (Table 1).

We used average-high temperatures based on NOAA's 130-years of record keeping for each RMP survey state. June temperatures across the RMP survey area were above average. Above average temperatures continued through the remainder of the summer in all the RMP survey states culminating in September's record high temperatures in Wyoming and near record highs in Montana, Utah, Idaho and Colorado.

During the summer of 2024 drought conditions spread across the RMP survey states in coverage and intensity. June, an important month for nesting sandhill cranes, was dry in southwest Montana but normal precipitation occurred across the remainder of the RMP survey states. The drought expanded into Idaho and most of Wyoming in July and by September all of the RMP survey states were experiencing moderate- to severe-drought conditions. Despite receiving above-average precipitation across the RMP survey states in August and September, the record heat during those same months offset any precipitation benefits and maintained the drought conditions across the Intermountain West.

Weather conditions for the FWS aerial survey were ideal for counting cranes (i.e., clear skies and calm winds) and we were able to complete the survey within the survey week. Other survey participants reported similar survey weather conditions for counting cranes. We believe that ideal weather for counting and sandhill crane groupings in traditional survey areas resulted in a reliable crane count for the 2024 survey.

We thank all who participated in the survey and especially appreciate efforts made to complete counts during the designated period.

Bunting, D. P., M. A. Boggie, D. P. Collins, P. P. Thorpe, and J. P. Donnelly. 2022. "Linking Ecological Processes and Animal Movements to Inform Timing of Long-term Surveys of a Migratory Game Bird." *Ecosphere*. 2022;13:e4298 <https://doi.org/10.1002/ecs2.4298>

VonBank, J.A., D.P. Collins, K.S. Ellis, J.P. Donnelly, and J.M. Knetter. 2023. Movement dynamics influence population monitoring and adaptive harvest management strategies in migratory birds. *Global Ecology and Conservation* 48: e02715 <https://doi.org/10.1016/j.gecco.2023.e02715>

Table 1. Counts in September 2024 of the Rocky Mountain Population of greater sandhill cranes at premigration staging and migration stopover areas in Colorado, Idaho, Montana, Utah, and Wyoming (Figure 1). Surveys were conducted by air (a) and ground (g) between 20-28 September.

| Map No. & Location                         | No. Cranes       | Date                   | Source  |
|--|------------------|------------------------|---|
| <b><u>COLORADO</u></b>                     |                  |                        |   |
| <b>1 Yampa River</b>                       | <b>310</b>       |                        |   |
| <i>Axial Basin</i>                         | <b>no survey</b> |                        |   |
| <i>County Line grain fields</i>            | 0                | 9/23 (g)               | L. Miller, CPW, A. Reishus, CPW Vol               |
| <i>Craig vicinity fields</i>               | 101              | 9/23 (g)               | B. Holmes, S. Schwolert, CPW, A. Reishus, CPW Vol |
| <i>Hayden airport/racetrack</i>            | 70               | 9/23 (g)               | J. Pollock, CPW                                   |
| <i>Morgan Bottoms</i>                      | 86               | 9/23 (g)               | L. Rossi, CPW                                     |
| <i>Yampa River SWA</i>                     | 53               | 9/26 (g)               | L. Miller, CPW                                    |
| <b>2 Elk River</b>                         | <b>0</b>         |                        |   |
| <i>Selby's grain fields</i>                | 0                | 9/23 (g)               | A. Spiker, CPW                                    |
| <b>3 White River</b>                       | <b>169</b>       |                        |   |
| <i>West of Meeker - Powell Park</i>        | 0                | 9/23 (g)               | B. Holmes, CPW                                    |
| <i>E. of Meeker - Irish Mesa/Agency Pt</i> | 169              | 9/23 (g)               | R. McGee, CPW                                     |
| <b>4 Williams Fork River</b>               |                  |                        |   |
| <i>East of Hamilton</i>                    | <b>no survey</b> |                        |   |
| <b>5 Little Snake River</b>                | <b>0</b>         |                        |   |
| <i>Slater</i>                              | <b>no survey</b> |                        |   |
| <i>Two Bar Ranch</i>                       | 0                | 9/23 (g)               | R. deVergie, CPW                                  |
| <b>6 Delta Co.</b>                         | <b>39</b>        |                        |   |
| <i>Harts Basin/Fruitgrowers Vicinity</i>   | 39               | 9/25 (g)               | E. Phillips, CPW                                  |
| <b>7 San Luis Valley</b>                   | <b>903</b>       | 9/24-26 (g)            | S. Miller, FWS                                    |
| Subtotal                                   | <b>1,421</b>     | 5.7% of total estimate |   |
| <b><u>IDAHO</u></b>                        |                  |                        |   |
| <b>1 American Falls Res.</b>               | <b>199</b>       | 9/23 (a)               | FWS survey <sup>a</sup>                           |
| <b>2 Ashton-St. Anthony</b>                | <b>202</b>       | 9/25 (a)               | " "   |
| <b>3 Bear River Valley</b>                 | <b>1,161</b>     |                        |   |
| <i>Bear Lake Valley</i>                    | 664              | 9/24 (g)               | D. Lachman, N. Bonner, J. Jirak, C. Breen, FWS    |
| <i>Border-Pegram</i>                       | 27               | 9/23 (a)               | FWS survey  |
| <i>Bennington-Soda Spr.</i>                | 83               | 9/23 (a)               | " "   |
| <i>Grace-Thatcher</i>                      | 68               | 9/23 (a)               | " "   |
| <i>Thomas Fork</i>                         | 319              | 9/23 (a)               | " "   |
| <b>4 Blackfoot Res.</b>                    | <b>237</b>       | 9/24 (a)               | " "   |
| <b>5 Camas NWR</b>                         | <b>568</b>       | 9/26 (g)               | A. Kristof, FWS, E. Wanner, Americorp             |
| <b>6 Camas Prairie</b>                     | <b>No Survey</b> |                        |   |
| <b>7 Carey Lake area</b>                   | <b>No Survey</b> |                        |   |
| <b>8 Chesterfield Res.</b>                 | <b>15</b>        | 9/23 (a)               | FWS survey  |
| <b>9 Grays Lake NWR</b>                    | <b>0</b>         | 9/24 (a)               | " "   |
| <b>10 Henrys Lake Flats</b>                | <b>0</b>         | 9/26 (a)               | " "   |
| <b>11 Henry's Fork/Snake R. confluence</b> | <b>522</b>       | 9/25 (g)               | J. Rydalch, IDFG                                  |

Table 1 (continued)

| Map No. & Location                | No. Cranes   | Date                    | Source                 |
|-----------------------------------|--------------|-------------------------|------------------------|
| 12 <b>Island Park Res.</b>        | <b>0</b>     | 9/23                    | (a) FWS survey         |
| 13 <b>Market Lake WMA</b>         | <b>0</b>     | 9/26                    | (g) B. Gullett, IDFG   |
| 14 <b>Marsh Valley</b>            | <b>42</b>    | 9/23                    | (a) FWS survey         |
| 15 <b>Mud Lake WMA</b>            | <b>229</b>   | 9/26                    | (g) B. Panting, IDFG   |
| 16 <b>Oxford Slough-Swan Lake</b> | <b>175</b>   | 9/23                    | (a) FWS survey         |
| 17 <b>Silver Creek</b>            | <b>605</b>   | 9/26                    | (g) E. Van Beek, IDFG  |
| 18 <b>Teton Basin</b>             | <b>1,167</b> | 9/26                    | (a) FWS survey         |
| 19 <b>Malad River</b>             | <b>310</b>   | 9/23                    | (g) B. Stringham, UDWR |
| Subtotal                          | <b>5,432</b> | 21.8% of total estimate |                        |

**MONTANA**

|  |              |                         |                                   |
|--|--------------|-------------------------|-----------------------------------|
| 1 <b>Cascade-Ulm</b>                   | <b>35</b>    | 9/28                    | (a) B. Skone - MFWP               |
| 2 <b>Centennial Valley</b>             | <b>0</b>     | 9/25                    | (g) B. Canning, FWS               |
| 3 <b>Clark Fork of the Yellowstone</b> | <b>482</b>   | 9/22                    | (a) S. Stewart, MFWP              |
| 4 <b>Deadman's Basin</b>               | <b>111</b>   | 9/25                    | (a) D. Harty, MFWP                |
| 5 <b>Dillon-Twin Bridges</b>           | <b>3,248</b> | 9/25                    | (a) FWS survey                    |
| 6 <b>Gallatin Valley</b>               | <b>169</b>   | 9/24                    | (g) J. Cunningham, C. Gower, MFWP |
| 7 <b>Helena Valley</b>                 | <b>392</b>   | 9/25                    | (a) L. Parsons, MFWP              |
| 8 <b>Paradise-Shields Valleys</b>      | <b>432</b>   | 9/24                    | (a) M. Yarnell, MFWP              |
| 9 <b>Melville</b>                      | <b>88</b>    | 9/26                    | (a) D. Harty, MFWP                |
| 10 <b>Musselshell River</b>            | <b>683</b>   | 9/25                    | (a) D. Harty, MFWP                |
| 11 <b>Otter Creek</b>                  | <b>114</b>   | 9/26                    | (a) D. Harty, MFWP                |
| 12 <b>Teton River-Eureka Res.</b>      | <b>125</b>   | 9/28                    | (a) B. Skone - MFWP               |
| 13 <b>Toston-Townsend</b>              | <b>447</b>   | 9/25                    | (a) A. Grove, MFWP                |
| 14 <b>Upper Madison Valley</b>         | <b>175</b>   | 9/25                    | (a) FWS survey                    |
| 15 <b>Warm Springs</b>                 | <b>53</b>    | 9/24-26                 | (g) B. Shortman, K. Yeager, MFWP  |
| 16 <b>White Sulphur Spr.</b>           | <b>481</b>   | 9/24                    | (a) J. Kolbe, MFWP                |
| 17 <b>Whitehall</b>                    | <b>245</b>   | 9/25                    | (a) FWS survey                    |
| Subtotal                               | <b>7,280</b> | 29.2% of total estimate |                                   |

**UTAH**

|                              |            |      |                      |
|------------------------------|------------|------|----------------------|
| 1 <b>Cache Co.</b>           | <b>0</b>   | 9/25 | (a) J. Jones, UDWR   |
| <u>Great Salt Lake Basin</u> |            |      |                      |
| 2 <b>Box Elder Co.</b>       | <b>520</b> | 9/24 | (g) D. Sallee, UDWR  |
| 3 <b>Davis Co.</b>           | <b>0</b>   | 9/25 | (a) J. Jones, UDWR   |
| 4 <b>Weber Co.</b>           | <b>0</b>   | 9/25 | (a) " "              |
| 5 <b>Morgan Co.</b>          | <b>39</b>  | 9/25 | (g) X. Walden, UDWR  |
| <u>Rich Co.</u>              |            |      |                      |
| 6 <b>Bear River Valley</b>   | <b>94</b>  | 9/25 | (a) J. Jones, UDWR   |
| 7 <b>Round Valley</b>        | <b>0</b>   | 9/25 | (a) " "              |
| 8 <b>Summit Co.</b>          | <b>15</b>  | 9/25 | (g) D. Smedley, UDWR |
| <u>Uintah Co.</u>            |            |      |                      |

Table 1 (continued)

| Map No. & Location                | No. Cranes    | Date                    | Source                             |
|-----------------------------------|---------------|-------------------------|------------------------------------|
| 9 Jensen                          | 2,804         | 9/26 (a)                | J. Jones, UDWR                     |
| 10 Pelican Lake area              | 1,173         | 9/26 (a)                | " "                                |
| 11 Leland Bench                   | 0             | 9/26 (a)                | " "                                |
| 12 Wasatch Co.                    | no survey     |                         |                                    |
| 13 Duchesne Co.                   | no survey     |                         |                                    |
| 14 Emery Co.                      | 112           | 9/25 (g)                | J. Christensen                     |
| 15 Wayne Co.                      | 67            | 9/25 (g)                | M. Hinton                          |
| Subtotal                          | 4,824         | 19.4% of total estimate |                                    |
| <b>WYOMING</b>                    |               |                         |                                    |
| 1 Baggs                           | 5             | 9/24 (g)                | P. Damm, WGFD                      |
| 2 Bear River Valley               | 1,900         | 9/24 (a)                | FWS survey                         |
| <u>Big Horn Basin</u>             |               |                         |                                    |
| 3 Greybull River/Otto             | 123           | 9/26 (a)                | C. Rudd, WGFD                      |
| 4 Shoshone River/Ralston          | 321           | 9/26 (a)                | " "                                |
| 5 Worland                         | 75            | 9/26 (a)                | " "                                |
| <u>Green River Basin</u>          |               |                         |                                    |
| 6 Big Piney-Daniel                | 126           | 9/24 (a)                | FWS survey                         |
| 7 Bridger Valley                  | 36            | 9/24 (g)                | A. Deru, WGFD                      |
| 8 Lonetree                        | 0             | 9/24 (g)                | " "                                |
| 9 Farson                          | 1,401         | 9/24 (a)                | FWS survey                         |
| 10 Hams Fork                      | 0             | 9/24 (a)                | " "                                |
| 11 Pinedale-Cora-Boulder          | 0             | 9/24 (a)                | " "                                |
| <u>North Platte River Basin</u>   |               |                         |                                    |
| 12 Saratoga                       | 46            | 9/24,26 (g)             | T. Cufaude, WGFD                   |
| 13 33 Mile                        | 474           | 9/25 (a)                | C. Rudd, WGFD                      |
| <u>Powder-Tongue River Basin</u>  |               |                         |                                    |
| 14 Barnum - Middle Fork Powder R. | 0             | 9/25 (a)                | C. Rudd, WGFD                      |
| 15 Mayoworth - N. Fork Powder R.  | 0             | 9/25 (a)                | " "                                |
| 16 Kaycee-Sussex                  | 3             | 9/25 (a)                | " "                                |
| 17 Buffalo                        | 0             | 9/25 (a)                | " "                                |
| 18 Dayton                         | 596           | 9/25 (a)                | " "                                |
| <u>Snake River Basin</u>          |               |                         |                                    |
| 19 Jackson Hole                   |               |                         |                                    |
| Natl Elk Refuge                   | 5             | 9/25 (g)                | E. Cole, FWS                       |
| 20 Star Valley                    | 168           | 9/24,25 (a, g)          | FWS survey, J. Bohne, WGFD retired |
| <u>Wind River Basin</u>           |               |                         |                                    |
| 21 Hidden Valley                  | 241           | 9/26 (a)                | C. Rudd, WGFD                      |
| 22 Ocean Lake                     | 12            | 9/26 (a)                | " "                                |
| 23 Riverview Valley               | 420           | 9/26 (a)                | " "                                |
| Subtotal                          | 5,952         | 23.9% of total estimate |                                    |
| <b>TOTAL</b>                      | <b>24,909</b> |                         |                                    |

<sup>a</sup> Fish & Wildlife Service aerial survey flown by P. Thorpe, C. Cain and S. Catino

Table 2. September pre-migration staging area counts by state of the Rocky Mountain Population of greater sandhill cranes during 1987, 1992, 1995-2005, 2007-2023.

| Year              | Colorado <sup>a</sup> | Idaho  | Montana | Utah  | Wyoming | Total  |
|-------------------|-----------------------|--------|---------|-------|---------|--------|
| 1987              | 1,443                 | 10,686 | 1,447   | 1,578 | 2,327   | 17,481 |
| 1992              | 3,181                 | 5,801  | 5,264   | 2,810 | 2,248   | 19,304 |
| 1995              | 2,284                 | 6,864  | 3,681   | 1,528 | 1,671   | 16,028 |
| 1996              | 1,255                 | 8,334  | 2,974   | 1,849 | 2,526   | 16,938 |
| 1997              | 1,604                 | 8,132  | 3,595   | 2,450 | 2,255   | 18,036 |
| 1998              | 1,273                 | 8,067  | 3,415   | 2,185 | 3,162   | 18,102 |
| 1999              | 1,102                 | 8,761  | 3,141   | 2,292 | 4,205   | 19,501 |
| 2000              | 749                   | 9,337  | 3,598   | 2,416 | 3,890   | 19,990 |
| 2001              | 666                   | 7,160  | 4,585   | 1,522 | 2,626   | 16,559 |
| 2002              | 1,355                 | 7,698  | 4,843   | 1,869 | 3,038   | 18,803 |
| 2003              | 745                   | 7,822  | 4,964   | 2,546 | 3,446   | 19,523 |
| 2004              | 1,410                 | 7,152  | 4,637   | 2,239 | 3,072   | 18,510 |
| 2005              | 1,052                 | 7,668  | 5,588   | 2,646 | 3,911   | 20,865 |
| 2007              | 1,743                 | 8,262  | 6,509   | 2,401 | 3,907   | 22,822 |
| 2008              | 1,080                 | 6,123  | 6,419   | 3,708 | 3,826   | 21,156 |
| 2009              | 1,162                 | 6,934  | 6,329   | 2,283 | 3,613   | 20,321 |
| 2010              | 985                   | 5,776  | 7,335   | 3,242 | 3,726   | 21,064 |
| 2011              | 1,347                 | 5,029  | 6,642   | 1,498 | 2,978   | 17,494 |
| 2012              | 413                   | 3,432  | 5,876   | 2,109 | 3,587   | 15,417 |
| 2013              | 1,594                 | 5,228  | 7,218   | 2,732 | 3,588   | 20,360 |
| 2014              | 1,258                 | 6,064  | 6,555   | 2,783 | 3,008   | 19,668 |
| 2015              | 1,089                 | 6,454  | 9,493   | 3,698 | 3,596   | 24,330 |
| 2016 <sup>b</sup> | 1,135                 | 5,445  | 7,507   | 3,298 | 4,879   | 22,264 |
| 2017              | 1,658                 | 4,066  | 7,149   | 2,994 | 3,725   | 19,592 |
| 2018              | 1,908                 | 4,469  | 7,553   | 2,770 | 5,101   | 21,801 |
| 2019              | 1,879                 | 4,428  | 7,511   | 3,106 | 4,366   | 21,290 |
| 2020              | 1,446                 | 5,096  | 9,264   | 3,222 | 6,608   | 25,636 |
| 2021              | 3,141                 | 3,091  | 7,783   | 3,889 | 6,059   | 23,963 |
| 2022              | 1,526                 | 3,957  | 6,844   | 2,330 | 3,975   | 18,632 |
| 2023              | 1,740                 | 4,200  | 10,169  | 5,631 | 5,527   | 27,267 |
| 2024              | 1,421                 | 5,432  | 7,280   | 4,824 | 5,952   | 24,909 |
| 3-yr Mean         | 2,136                 | 3,749  | 8,265   | 3,950 | 5,187   | 23,287 |
| All yr Mean       | 1,441                 | 6,385  | 5,930   | 2,654 | 3,682   | 20,091 |

<sup>a</sup> Colorado counts include migrants that had arrived at the staging area in the San Luis Valley.

<sup>b</sup> Wyoming added six new survey areas per management plan guidelines.

Table 3. Survey areas with sandhill crane estimates of 500 to 999 and  $\geq 1,000$  and percent change from previous year.

| Survey Areas with $\geq 500$ cranes | State | 2024  | % chg from |       |           |
|-------------------------------------|-------|-------|------------|-------|-----------|
|                                     |       |       | 2023       | 2023  | 2022      |
| San Luis Valley                     | CO    | 903   | -17%       | 1,091 | 1,222     |
| Musselshell River                   | MT    | 683   | 152%       | 271   | 624       |
| Silver Creek                        | ID    | 605   | 16%        | 520   | 290       |
| Dayton                              | WY    | 596   | 35%        | 441   | 439       |
| Camas NWR                           | ID    | 568   | 303%       | 141   | 302       |
| Henry's Fork/Snake R. confluence    | ID    | 522   | 63%        | 321   | no survey |
| Box Elder Co.                       | UT    | 520   | 160%       | 200   | 728       |
| Total                               |       | 2,206 | 100%       | 1,103 | 1,469     |

| Survey Areas with $\geq 1,000$ cranes | State | 2024   | % chg from |        |       |
|---------------------------------------|-------|--------|------------|--------|-------|
|                                       |       |        | 2023       | 2023   | 2022  |
| Dillon-Twin Bridges                   | MT    | 3,248  | -12%       | 3,697  | 2,644 |
| Jensen                                | UT    | 2,804  | 40%        | 2,010  | 785   |
| Bear River Valley                     | WY    | 1,900  | 93%        | 982    | 886   |
| Farson                                | WY    | 1,401  | 34%        | 1,045  | 1,009 |
| Pelican Lake Area                     | UT    | 1,173  | -58%       | 2,810  | 322   |
| Teton Basin                           | ID    | 1,167  | -7%        | 1,253  | 1,029 |
| Bear River Valley                     | ID    | 1,161  | 180%       | 414    | 543   |
| Total                                 |       | 12,854 | 5%         | 12,211 | 7,218 |

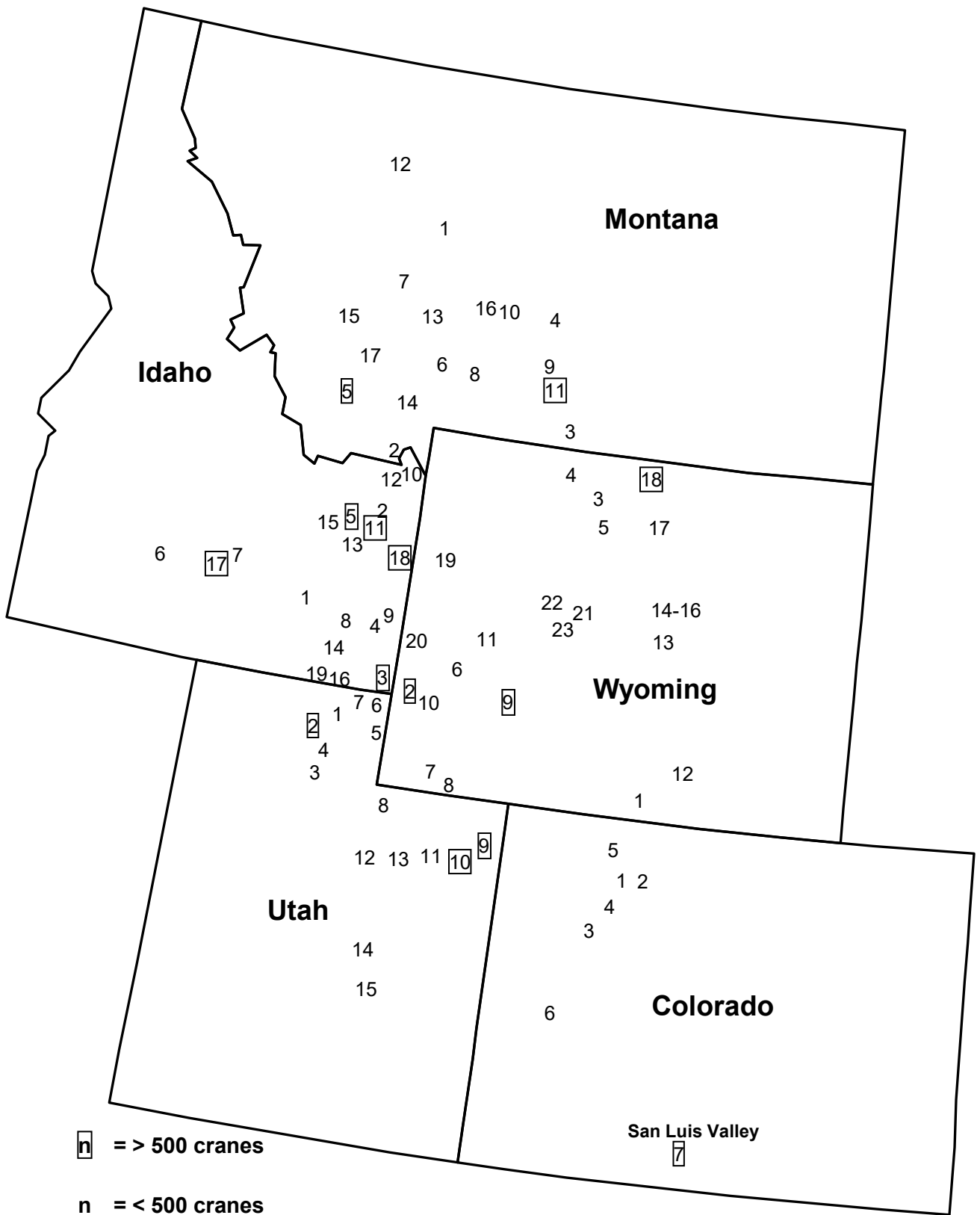


Figure 1. September survey locations for the Rocky Mountain Population of Greater Sandhill Cranes. See Table 1 for location names.