

## SEPTEMBER 2022 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 and October 2022. 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 Quest Kodiak for a portion of the survey. Aerial and ground surveys were conducted by personnel from respective state agencies, FWS and volunteers (participants listed in Table 1).

We counted **18,632** RMP cranes at 87 survey areas with 36.9% in Montana, 21.4% in Wyoming, 20.9% in Idaho, 12.6% in Utah, and 8.2% in Colorado (Table 1). The total estimate was the lowest since 2012 (Table 2). There were five areas with estimates between 500 and 999 cranes and five areas with estimates of 1,000 or more cranes (Figure 1).

Like 2021, the 2022 survey was conducted during the last week in September to improve the overall likelihood that cranes would be in the survey area (Bunting et al., 2022). The majority (83.9%) of survey areas were counted during the designated survey week (27 September - 1 October) with 68.9% of the areas surveyed during the three-day target period (22-24 September) (Table 1). Coverage during the survey week in 2022 was 16% lower than 2021. Because this is a premigration survey, it is critical to get all areas surveyed within the small window of time allotted for the survey. Weather delays and personnel availability can cause some areas to be completed outside the window, but this typically affects only a few areas each year. There were 14 areas this year that were counted outside the survey week, ranging from only a couple days outside of the survey window to 12 days after the survey week. How this affected the overall estimate is difficult to speculate on and is confounded by new observers in many of the survey areas. Some of the areas surveyed outside the survey window were not noticeably different than the average for those areas, a few were roughly 400 birds lower than the average, and one was about 225 higher than the area average. In 2022 we had 29 of 31 functioning telemetered cranes all within the survey area during the week of the survey.

The San Luis Valley (SLV), Colorado had an estimate of 1,222, the second highest in the history of the survey (2021 was the highest) (10-year average = 317). The drop in the SLV covers the difference in the total estimate for Colorado. Local counts on breeding areas in the state were similar to last year. This high count still suggests some migration from the northern breeding areas may have occurred. Idaho was the only state that had an increase in birds from 2021 the remaining states all were down from 2021 and compared to their 3-yr averages.

To be consistent with previous reports, we used average-high temperatures based on NOAA's 128-years of record keeping for each state in the RMP survey area. June across the RMP survey states was characterized by average-high temperatures. For the remainder of the summer and early fall, the region experienced average-high temperatures that were near record high to record setting. Idaho set a record average-high temperature in August and Wyoming set a similar record in September. The other states were ranked in the top five for warmest on record and was the warmest region in the United States.

Precipitation was variable across the region, while some states were drier than normal during a specific month, other states were wetter than normal during the same month. Overall, the RMP crane survey states had average to above-average precipitation during the summer and early fall. Despite the needed precipitation, the region was still classified as in a moderate to severe drought according to the U.S. drought monitor. Most of Utah and smaller areas in eastern Idaho, western Wyoming and parts of Montana had areas classified as exceptional drought through the summer.

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 2022 survey.

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

Another sad year within the sandhill crane survey community. Jim Hansen, wildlife biologist for Montana Fish, Wildlife and Parks passed away on October 1, 2022. Jim was the Central Flyway migratory bird coordinator for the state of Montana and coordinated this survey for Montana. Ensuring all survey areas were covered by a survey crew and after the survey gathering all the estimates and sending them to me. I was fortunate to get to know Jim from my attendance at Central Flyway Technical meetings over the years, he was a kind and knowledgeable person and dedicated to the resource he loved. He will be missed.



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

Table 1. Counts in September and October 2022 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 23 September to 12 October.

Map No. & Location	No. Cranes	Date	Source
<b><u>COLORADO</u></b>			
<b>1 Yampa River</b>	<b>200</b>		
<i>Axial Basin</i>	0	9/28	(g) B. Holmes, CPW
<i>County Line grain fields</i>	27	9/28	(g) M. Swaro, L. Miller, CPW
<i>Craig vicinity fields</i>	76	9/28	(g) E. Jones, J. Lambert, B. Holmes, CPW
<i>Hayden airport/racetrack</i>	0	9/28	(g) J. Pollock, CPW
<i>Morgan Bottoms</i>	92	9/28	(g) L. Rossi, CPW
<i>Yampa River SWA</i>	5	9/28	(g) L. Miller, CPW
<b>2 Elk River</b>	<b>0</b>		
<i>Selby's grain fields</i>	0	9/28	(g) E. Vannatta, CPW
<b>3 White River</b>	<b>79</b>		
West of Meeker - Powell Park	3	9/28	(g) B. Holmes, CPW
East of Meeker - Irish Mesa/Agency Park	76	9/28	(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>4</b>		
<i>Slater</i>	<b>no survey</b>		
<i>Two Bar Ranch</i>	4	9/28	(g) J. Goncalves, CPW
<b>6 Delta Co.</b>	<b>21</b>		
<i>Harts Basin/Fruitgrowers Vicinity</i>	21	9/27	(g) S. Sinclair, M. Ortega, C. Inloes-Williams et al, CPW
<b>7 San Luis Valley</b>	<b>1,222</b>	9/27,28,29	(g) S. Miller, FWS
Subtotal	<b>1,526</b>		8.2% of total estimate
<b><u>IDAHO</u></b>			
<b>1 American Falls Res.</b>	<b>296</b>	9/26	(a) FWS survey <sup>a</sup>
<b>2 Ashton-St. Anthony</b>	<b>372</b>	9/28	(a) " "
<b>3 Bear River Valley</b>	<b>543</b>		
<i>Bear Lake Valley</i>	23	9/26	(g) D. Lachman, FWS
<i>Border-Pegram</i>	0	9/28	(a) FWS survey
<i>Bennington-Soda Spr.</i>	112	9/26	(a) " "
<i>Grace-Thatcher</i>	42	9/26	(a) " "
<i>Thomas Fork</i>	366	9/28	(a) " "
<b>4 Blackfoot Res.</b>	<b>282</b>	9/27	(a) " "
<b>5 Camas NWR</b>	<b>302</b>	9/28	(g) A. Kristof, M. Geisser, A. Nowicki, FWS
<b>6 Camas Prairie</b>	<b>0</b>	9/27	(g) S. Robatcek, IDFG
<b>7 Carey Lake area</b>	<b>no survey</b>		
<b>8 Chesterfield Res.</b>	<b>51</b>	9/26	(a) FWS survey
<b>9 Grays Lake NWR</b>	<b>0</b>	9/28	(a) " "
<b>10 Henrys Lake Flats</b>	<b>0</b>	9/29	(a) " "
<b>11 Island Park Res.</b>	<b>0</b>	9/26	(a) " "

Table 1 (continued)

Map No. & Location	No. Cranes	Date	Source
12 Kilgore	<b>no survey</b>		
13 Market Lake WMA	<b>3</b>	9/28	(g) B. Gullett, IDFG
14 Marsh Valley	<b>112</b>	9/26	(a) FWS survey
15 Mud Lake WMA	<b>103</b>	9/28	(g) B. Panting, N. Marlin IDFG
16 Oxford Slough-Swan Lake	<b>184</b>	9/26	(a) FWS survey
17 Silver Creek	<b>290</b>	9/28	(g) J. Knetter, M. Wampler, IDFG
18 Teton Basin	<b>1,029</b>	9/29	(g) T. Sperber, E. Reynaud, K. Smith, R. Hiebert, Teton Land Trust
19 Malad River	<b>390</b>	9/30	(g) B. Stringham, UDWR
Subtotal	<b>3,957</b>	21.2% of total estimate	

**MONTANA**

1 Blackfoot/OvandoValley	<b>0</b>	9/28	M. Ebinger, MFWP
2 Cascade-Ulm	<b>309</b>	9/27	(a) M. Evans, MFWP
3 Centennial Valley	<b>7</b>	9/27	(g) E. Fullerton, M. Odden, FWS
4 Clark Fork of the Yellowstone	<b>421</b>	9/25	(a) S. Stewart, MFWP
5 Deadman's Basin	<b>41</b>	9/27	(a) R. Seykora, MFWP
6 Dillon-Twin Bridges	<b>2,644</b>	9/27	(a) FWS survey
7 Gallatin Valley	<b>283</b>	9/23	(g) J. Cunningham, C. Gower, MFWP
8 Helena Valley	<b>40</b>	9/28	(g) J. Sika, MFWP
9 Paradise-Shields Valleys	<b>537</b>	9/28	(a) M. Yarnell, MFWP
10 Melville	<b>7</b>	9/27	(a) R. Seykora, MFWP
11 Musselshell River	<b>624</b>	9/27	(a) R. Seykora, MFWP
12 Otter Creek	<b>207</b>	9/27	(a) R. Seykora, MFWP
13 Teton River-Eureka Res.	<b>369</b>	9/27	(a) M. Evans, MFWP
14 Toston-Townsend	<b>567</b>	9/27	(a) A. Grove, MFWP
15 Upper Madison Valley	<b>347</b>	9/27	(a) FWS survey
16 Warm Springs	<b>148</b>	9/28	(g) B. Shortman, K. Yeager, MFWP
17 White Sulphur Spr.	<b>271</b>	9/27	(a) J. Kolbe, MFWP
18 Whitehall	<b>22</b>	9/27	(a) FWS survey
Subtotal	<b>6,844</b>	36.7% of total estimate	

**UTAH**

1 Cache Co.	<b>139</b>	10/12	(a) C. Anderson
<u>Great Salt Lake Basin</u>			
2 Box Elder Co.	<b>728</b>	10/12	(a) C. Anderson
3 Davis Co.	<b>22</b>	10/12	(a) " "
4 Weber Co.	<b>43</b>	10/12	(g) " "
5 Morgan Co.	<b>93</b>	9/27	(g) B. Stringham, UDWR
<u>Rich Co.</u>			
6 Bear River Valley	<b>99</b>	10/12	(a) C. Anderson
7 Round Valley	<b>44</b>	10/12	(a) " "
8 Summit Co.	<b>10</b>	9/27	(g) B. Stringham, UDWR
<u>Uintah Co.</u>			

Table 1 (continued)

Map No. & Location	No. Cranes	Date	Source
9 <b>Jensen</b>	<b>785</b>	9/28	(a) A. Vande Voort
10 <b>Pelican Lake area</b>	<b>322</b>	9/28	(a) " "
11 <b>Leland Bench</b>	<b>0</b>	9/28	(a) " "
12 <b>Wasatch Co.</b>	<b>45</b>	9/27	(g) B. Stringham, UDWR
Subtotal	<b>2,330</b>	12.5% of total estimate	
<b>WYOMING</b>			
1 <b>Baggs</b>	<b>25</b>	9/28	(g) P. Damm, WGFD
2 <b>Bear River Valley</b>	<b>886</b>	9/28	(a) FWS survey
<u>Big Horn Basin</u>			
3 <b>Greybull River/Otto</b>	<b>33</b>	9/29	(a) C. Rudd, WGFD, C. Bonter, Flightline LFS
4 <b>Shoshone River/Ralston</b>	<b>155</b>	9/29	(a) " "
5 <b>Worland</b>	<b>108</b>	9/29	(a) " "
<u>Green River Basin</u>			
6 <b>Big Piney-Daniel</b>	<b>27</b>	9/28	(a) FWS survey
7 <b>Bridger Valley</b>	<b>61</b>	9/26	(g) A. Deru, WGFD
8 <b>Lonetree</b>	<b>0</b>	9/26	(g) " "
9 <b>Farson</b>	<b>1,009</b>	9/28	(a) FWS survey
10 <b>Hams Fork</b>	<b>28</b>	9/28	(a) " "
11 <b>Pinedale-Cora-Boulder</b>	<b>0</b>	9/28	(a) " "
<u>North Platte River Basin</u>			
12 <b>Saratoga</b>	<b>74</b>	9/29	(g) T. Cufaude, WGFD
13 <b>33 Mile</b>	<b>469</b>	10/3	(a) A. Mahoney, WGFD, C. Bonter, Flightline LFS
<u>Powder-Tongue River Basin</u>			
14 <b>Barnum - Middle Fork Powder R.</b>	<b>0</b>	10/3	(a) A. Mahoney, WGFD, C. Bonter, Flightline LFS
15 <b>Mayoworth - N. Fork Powder R.</b>	<b>0</b>	10/3	(a) " "
16 <b>Kaycee-Sussex</b>	<b>0</b>	10/3	(a) " "
17 <b>Buffalo</b>	<b>0</b>	10/3	(a) " "
18 <b>Dayton</b>	<b>439</b>	10/3	(a) " "
<u>Snake River Basin</u>			
19 <b>Jackson Hole</b>			
Natl Elk Refuge	<b>4</b>	9/28	(g) A. Girard
20 <b>Star Valley</b>	<b>179</b>	9/27,29	(a, g) FWS survey, J. Bohne, WGFD retired
<u>Wind River Basin</u>			
21 <b>Hidden Valley</b>	<b>180</b>	9/29	(a) C. Rudd, WGFD, C. Bonter, Flightline LFS
22 <b>Ocean Lake</b>	<b>0</b>	9/28	(a) " "
23 <b>Riverview Valley</b>	<b>298</b>	9/28	(a) " "
Subtotal	<b>3,975</b>	21.3% of total estimate	
<b>TOTAL</b>	<b>18,632</b>		

<sup>a</sup> Fish & Wildlife Service aerial survey flown by P. Thorpe, T. Liddick and D. Fronczak

Table 2. September pre-migration staging area counts by state of the Rocky Mountain Population of greater sandhill cranes during 1987, 1992, 1995-2005, 2007-2022.

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
3-yr Mean	2,155	4,205	8,186	3,406	5,678	23,630
All yr Mean	1,427	6,549	5,746	2,559	3,605	19,886

<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	2022	% chg from		
			2021	2021	2020
Jensen	UT	785	-33%	1,180	1,177
Box Elder Co.	UT	728	-9%	800	355
Musselshell River	MT	624	1%	616	1,117
Toston-Townsend	MT	567	-12%	642	451
Paradise-Shields Valleys	MT	537	56%	344	546
Total		3,241	-10%	3,582	3,646

Survey Areas with $\geq 1,000$ cranes	State	2022	% chg from		
			2021	2021	2020
Dillon-Twin Bridges	MT	2,644	-7%	2,837	3,061
Bear River Valley, ID, WY, UT	ID, WY, UT	1,528	-31%	2,220	1,799
San Luis Valley	CO	1,222	-57%	2,874	305
Teton Basin	ID	1,029	-26%	1,394	1,079
Farson	WY	1,009	-41%	1,715	2,285
Total		7,432	-33%	11,040	8,529

This report contains data tables and figures that may be large and complex. Readers that may need help reading and interpreting the data, or that may need data presented in an alternative format to facilitate reading and interpretation, should contact the U.S. Fish and Wildlife Service, Migratory Bird Survey Office ( 303/275-2358).

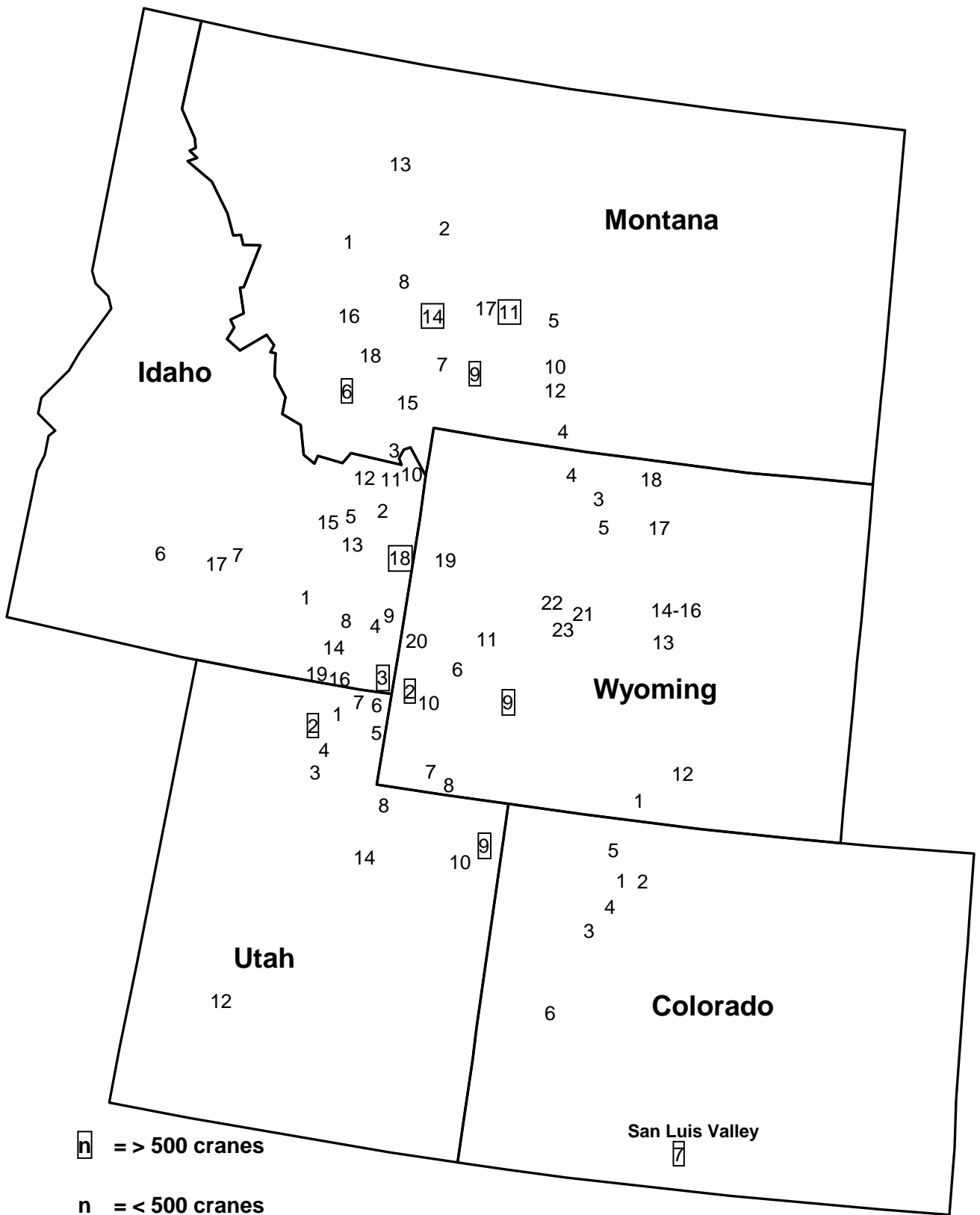


Figure 1. September survey locations for the Rocky Mountain Population of Greater Sandhill Cranes. See Table 1 for location names and numbers.