

SEPTEMBER 2021 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 2021. 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 **23,963** RMP cranes at 87 survey areas with 32.5% in Montana, 25.3% in Wyoming, 16.2% in Utah, 13.1% in Colorado and 12.9% in Idaho (Table 1). The total estimate was the second highest for the survey (Table 2). The majority (99.9%) of survey areas were counted during the designated survey week (27 September - 1 October) with 65.5% of the areas surveyed during the three-day target period (22-24 September)(Table 1). There were six areas with estimates of 1,000 or more cranes and eight areas with estimates between 500 and 999 cranes (Figure 1). The six areas of 1,000 or more cranes accounted for 51% of the total estimate. All 15 areas combined accounted for 75% of all cranes recorded during the survey (Table 3).

Although the 2021 survey was conducted 15 days later than the long-term average, there was little difference in proportional distributions. Exceptions included the San Luis Valley that saw a record high count of 2,874 (10-year average = 317). While this count suggests some migration from the tri-state area, birds were still abundant in survey locations given the overall count that was the second highest on record. Surveys in Colorado were also the highest on record with second highest counts recorded in Utah and Wyoming. Declining counts in Idaho continued, but it was unclear if the later timing of the survey and potential bird movements were a factor. Birds marked with GPS tags were still proximal to northern breeding locations at the time of the survey, suggesting most large-scale movements had not occurred. Severe drought throughout the breeding range may have also influenced bird movement and distributions, but it did not appear to impact counts and may have helped concentrate birds in survey areas.

According to the flyway management plan for the RMP of sandhill cranes, new survey areas can be added to the official report table after they meet criteria of three consecutive years of surveying and have appropriate Flyway sandhill crane subcommittees approval to add these areas. The Paradise-Shields Valley survey area has met these criteria and is now included in the Montana estimate (Table 1).

Generally, temperatures were average to well-above average across all RMP states from April through September 2021. Average June temperatures in Idaho and Utah were the warmest in the 127 years of record keeping while Montana and Wyoming were second warmest and Colorado had the sixth warmest average temperature on record. The record heat continued into July with Idaho reporting the second warmest, Montana reporting the third warmest and both Utah and Wyoming reporting the fourth warmest average temperatures on record. August and September followed the warming trend with above-average warm temperatures across the RMP states.

All states received below to much-below average precipitation from April to July. July and August brought some drought relief to the western United States with average to much-above average precipitation across the RMP states, but precipitation amounts were not enough to change the areas severe to exceptional drought status. The dry trend returned in September and the region was characterized by average to below-average precipitation.

Weather conditions for the FWS aerial survey were good for crane detection. Cranes were in larger groups and we observed very few scattered pairs and family groups, which are easier to miss during the survey. Other survey participants reported similar survey weather conditions for counting cranes. We believe that ideal weather for crane counting and sandhill crane groupings in traditional survey areas resulted in a reliable crane count for the 2021 survey.

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

Finally, I want to mention the passing of Rod Drewien this past July. Rod worked with ducks, geese, and swans over his long career, most of it spent with the Hornocker Wildlife Institute. Cranes were his passion though, and Rod dedicated most of his career to researching sandhill cranes, specifically the RMP population. His research took him from the Canadian arctic south through Mexico. He was instrumental in moving the RMP crane survey to their breeding grounds, away from the San Luis Valley where we found both mid-continent and RMP cranes mixing, which resulted in unreliable annual population estimates for the RMP population. He designed and participated in the new pre-migration survey and was the USFWS contract observer from 1992 until 2010. I was fortunate to fly with Rod for 13 of those 18 years. I was a willing audience in the cockpit listening to Rod's stories about his early waterfowl days in South Dakota, hunting pintails as a kid at his uncle's ranch in Sinaloa, jumping out of helicopters to gather whooping crane eggs in the Northwest Territories (to be used in the foster whooping crane project in Idaho) and, of course, stories about RMP cranes. Rod was a true naturalist. I'm grateful for the time we had together and his subtle, but impressionable mentorship.



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).

Table 1. Counts in September 2021 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 24 September to 1 October.

Map No. & Location	No. Cranes	Date	Source
<u>COLORADO</u>			
1 Yampa River	210		
<i>Axial Basin</i>	0	9/29	(g) B. Holmes, CPW
<i>County Line grain fields</i>	26	9/29	(g) A. Reishus, CPW
<i>Craig vicinity fields</i>	48	9/29	(g) E. Jones, J. Lambert, B. Holmes, CPW
<i>Hayden airport/racetrack</i>	92	9/29	(g) L. Rossi, L. Miller, CPW
<i>Morgan Bottoms</i>	44	9/29	(g) E. Gelling, CCCC
<i>Yampa River SWA</i>	0	9/29	(g) J. Pollock, CPW
2 Elk River	0		
<i>Selby's grain fields</i>	0	9/29	(g) B. Kaplan, CCCC
3 White River	7		
West of Meeker - Powell Park	2	9/29	(g) B. Holmes, CPW
East of Meeker - Irish Mesa/Agency Park	5	9/29	(g) C. Bullen, B. Holmes, R. McGee, CPW
4 Williams Fork River			
<i>East of Hamilton</i>	<i>no survey</i>		
5 Little Snake River	4		
<i>Slater</i>	0	9/29	(g) J. Lambert, CPW
<i>Two Bar Ranch</i>	4	9/29	(g) J. Goncalves, CPW
6 Delta Co.	46		
<i>Harts Basin/Fruitgrowers Vicinity</i>	46	9/30	(g) E. Phillips, A. Kircher, C. Purcell, CPW
7 San Luis Valley	2,874	9/27,28,29	(g) S. Miller, FWS
Subtotal	3,141		13.1% of total estimate
<u>IDAHO</u>			
1 American Falls Res.	38	9/30	(a) FWS survey ^a
2 Ashton-St. Anthony	40	9/28	(a) " "
3 Bear River Valley	537		
<i>Bear Lake Valley</i>	169	9/29	(g) D. Lachman, H. Henderson, FWS
<i>Border-Pegram</i>	0	9/28	(a) FWS survey
<i>Bennington-Soda Spr.</i>	31	9/27	(a) " "
<i>Grace-Thatcher</i>	17	9/27	(a) " "
<i>Thomas Fork</i>	320	9/28	(a) " "
4 Blackfoot Res.	64	9/27	(a) " "
5 Camas NWR	72	9/29	(g) A. Kristof, J. Losinski, J. Haack, J. Melgaard, FWS
6 Camas Prairie	0	9/29	(g) T. Meadows, IDFG
7 Carey Lake area	no survey		
8 Chesterfield Res.	59	9/27	(a) FWS survey
9 Grays Lake NWR	3	9/30	(a) " "
10 Henrys Lake Flats	0	9/29	(a) " "
11 Island Park Res.	0	9/29	(a) " "

Table 1 (continued)

Map No. & Location	No. Cranes	Date	Source
12 Kilgore	no survey		
13 Market Lake WMA	0	9/28	(g) B. Gullett, IDFG
14 Marsh Valley	46	9/27	(a) FWS survey
15 Mud Lake WMA	9	9/29	(g) B. Panting, IDFG
16 Oxford Slough-Swan Lake	163	9/27	(a) FWS survey
17 Silver Creek	176	9/29	(g) S. Robotcek, B. Hurd, IDFG
18 Teton Basin	1,394	9/30	(a) FWS survey
19 Malad River	490	9/27	(g) B. Stringham, UDWR
Subtotal	3,091		12.9% of total estimate
<u>MONTANA</u>			
1 Blackfoot/Ovando Valley	no survey		
2 Cascade-Ulm	309	9/27	(a) S. Hilty, MFWP
3 Centennial Valley	0	9/27	(g) E. Fullerton, M. Odden, FWS
4 Clark Fork of the Yellowstone	734	9/24	(a) S. Stewart, MFWP
5 Deadman's Basin	0	10/1	(a) S. Mitchell, MFWP
6 Dillon-Twin Bridges	2,837	9/29	(a) FWS survey
7 Gallatin Valley	267	9/30	(g) J. Cunningham, C. Gower, MFWP
8 Helena Valley	98	9/30	(a) S. Wells, MFWP
9 Paradise-Shields Valleys	344	9/30	(a) M. Yarnell, MFWP
10 Melville	0	9/29	(a) R. Seykora, MFWP
11 Musselshell River	616	10/1	(a) S. Mitchell, MFWP
12 Otter Creek	315	9/29	(a) R. Seykora, MFWP
13 Teton River-Eureka Res.	327	9/27	(a) S. Hilty, MFWP
14 Toston-Townsend	642	9/30	(a) A. Grove, MFWP
15 Upper Madison Valley	319	9/29	(a) FWS survey
16 Warm Springs	467	9/29	(g) B. Shortman, MFWP
17 White Sulphur Spr.	445	9/28	(a) J. Kolbe, MFWP
18 Whitehall	63	9/29	(a) FWS survey
Subtotal	7,783		32.5% of total estimate
<u>UTAH</u>			
1 Cache Co.	258	9/30	(a) B. Stringham, UDWR
<u>Great Salt Lake Basin</u>			
2 Box Elder Co.	800	9/30	(a) B. Stringham, UDWR
3 Davis Co.	20	9/30	(a) " "
4 Weber Co.	45	9/30	(g) " "
5 Morgan Co.	86	9/28	(g) " "
<u>Rich Co.</u>			
6 Bear River Valley	610	9/29	(a) B. Stringham, UDWR
7 Round Valley	68	9/29	(a) " "
8 Summit Co.	22	9/28	(g) " "
<u>Uintah Co.</u>			
9 Jensen	1,180	9/27	(a) B. Stringham, UDWR

Table 1 (continued)

Map No. & Location	No. Cranes	Date	Source
10 Pelican Lake area	715	9/27	(a) " "
11 Leland Bench	25	9/27	(a) " "
12 Wasatch Co.	60	9/28	(g) " "
Subtotal	3,889	16.2% of total estimate	
WYOMING			
1 Baggs	4	9/30	(g) P. Damm, WGFD
2 Bear River Valley	1,073	9/28	(a) FWS survey
<u>Big Horn Basin</u>			
3 Greybull River/Otto	5	9/28	(a) M. Packila, Wildlife Air, LLC
4 Shoshone River/Ralston	607	9/28	(a) " "
5 Worland	61	9/28	(a) " "
<u>Green River Basin</u>			
6 Big Piney-Daniel	42	9/27	(a) FWS survey
7 Bridger Valley	78	9/29	(g) A. Deru, WGFD
8 Lonetree	0	9/29	(g) " "
9 Farson	1,715	9/27	(a) FWS survey
10 Hams Fork	10	9/27	(a) " "
11 Pinedale-Cora-Boulder	0	9/27	(a) " "
<u>North Platte River Basin</u>			
12 Saratoga	20	9/29	(g) T. Cufaude, WGFD
13 33 Mile	780	9/27	(a) M. Packila, Wildlife Air, LLC
<u>Powder-Tongue River Basin</u>			
14 Barnum - Middle Fork Powder R.	0	9/27	(a) M. Packila, Wildlife Air, LLC
15 Mayoworth - N. Fork Powder R.	0	9/27	(a) " "
16 Kaycee-Sussex	184	9/27	(a) " "
17 Buffalo	8	9/27	(a) " "
18 Dayton	773	9/27	(a) " "
<u>Snake River Basin</u>			
19 Jackson Hole			
Natl Elk Refuge	0	9/28	(g) E. Cole, FWS
20 Star Valley	145	9/25,29	(a) J. Bohne, WGFD retired
<u>Wind River Basin</u>			
21 Hidden Valley	123	9/28	(a) M. Packila, Wildlife Air, LLC
22 Ocean Lake	17	9/28	(a) " "
23 Riverview Valley	414	9/28	(a) " "
Subtotal	6,059	25.3% of total estimate	
TOTAL	23,963		

^a Fish & Wildlife Service aerial survey flown by P. Thorpe, P. Donnelly, and J. Sands.

Table 2. September pre-migration staging area counts by state of the Rocky Mountain Population of greater sandhill cranes during 1987, 1992, 1995-2005, 2007-2021.

Year	Colorado ^a	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 ^b	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
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

^a Colorado counts include migrants that had arrived at the staging area in the San Luis Valley.

^b 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 ≥ 500 cranes	State	2021	% chg from 2020	2020	2019
Box Elder Co.	UT	800	125%	355	412
33 Mile	WY	780	277%	207	413
Dayton	WY	773	3%	748	558
Clark Fork of the Yellowstone	MT	734	-20%	918	696
Pelican Lake area	UT	715	94%	368	126
Toston-Townsend	MT	642	42%	451	No Survey
Musselshell River	MT	616	-45%	1,117	583
Shoshone River/Ralston	WY	607	26%	482	172
Total		5,667	22%	4,646	2,960

Survey Areas with $\geq 1,000$ cranes	State	2021	% chg from 2020	2020	2019
San Luis Valley	CO	2,874	842%	305	327
Dillon-Twin Bridges	MT	2,837	-7%	3,061	3,431
Bear River Valley, ID, WY, UT	ID, WY, UT	2,220	23%	1,799	1,379
Farson	WY	1,715	-25%	2,285	1,586
Teton Basin	ID	1,394	29%	1,079	764
Jensen	UT	1,180	0%	1,177	1,347
Total		12,220	26%	9,706	8,834

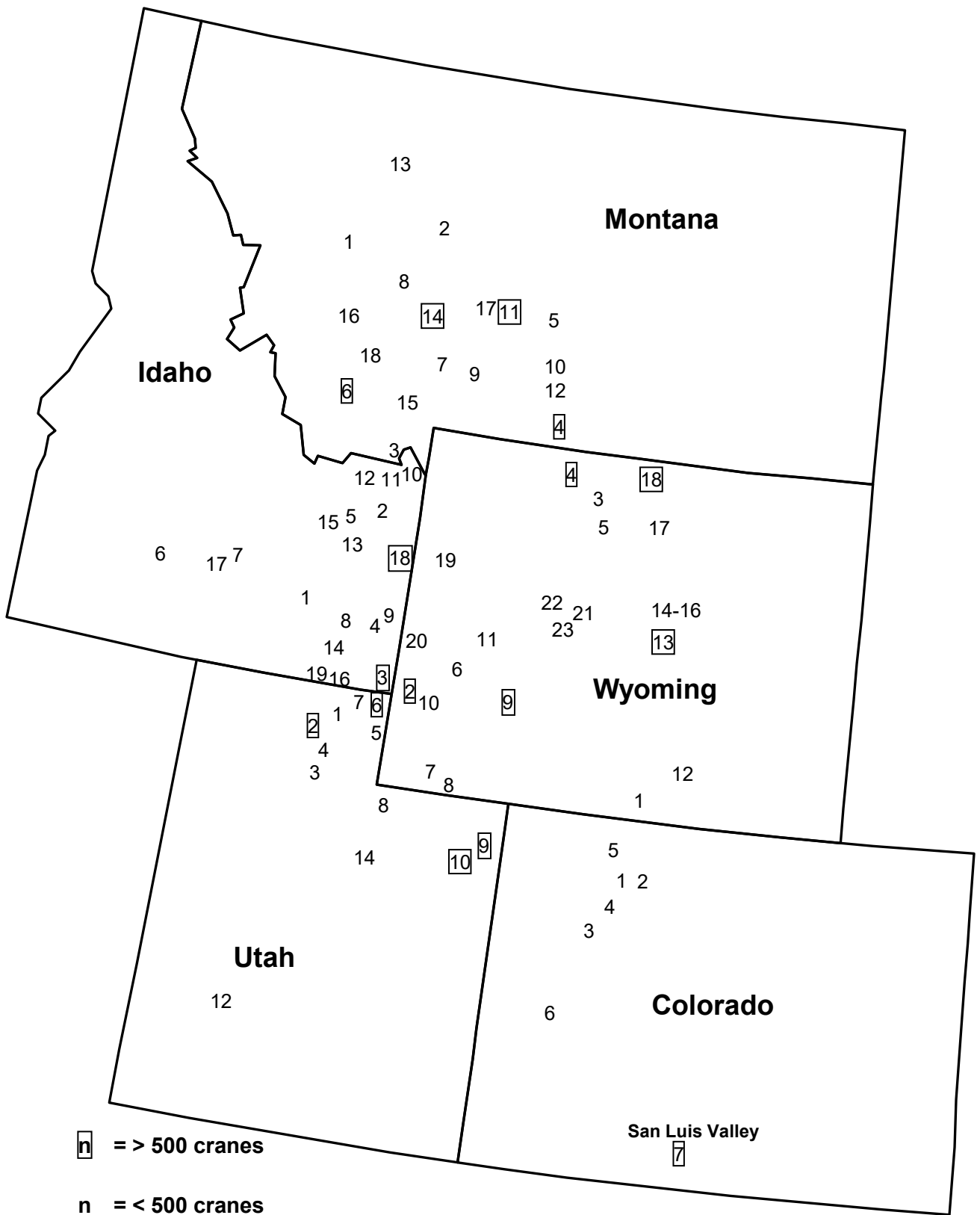


Figure 1. September survey locations for the Rocky Mountain Population of Greater Sandhill Cranes. See Table 1 for location names and numbers.