

SEPTEMBER 2017 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 2017. 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 **19,592** RMP cranes at 79 survey areas with 36.5% in Montana, 20.8% in Idaho, 19.0% in Wyoming, 15.3% in Utah, and 8.5% in Colorado (Figure 1; Tables 2). All normally surveyed areas were covered except for the Delta, CO area and the Carey Lake, ID area. Both areas have traditionally had low counts (zero for Carey Lake for the last 14 years), although the Delta area can be a good area to use as an indicator of migration progress. The majority (98%) of the survey areas were counted during the designated survey week (11-15 September) with 67% of the areas surveyed during the three-day target period (12-14 September) (Table 1).

Three pre-migration staging areas had concentrations exceeding 1,000 cranes: 1) Dillon-Twin Bridges, MT – 2,951; 2) Farson, WY – 1,578; and 3) the contiguous tri-state Upper Bear River Valley in ID, UT, and WY – 1,380. Over 500 cranes were recorded at seven other pre-migration sites: 1) Yampa River, CO – 878; 2) Ashton-St. Anthony, ID – 806; 3) Teton Basin, ID – 801; 4) Clark Fork of the Yellowstone, MT – 641; 5) Box Elder Co, UT – 626; 6) Cache County, UT – 594; and 7) Toston-Townsend, MT – 593 (Table 1). The migration stopover near Jensen, UT on the Green River had 832 cranes (Table 1, Figure 1). These 11 areas accounted for ~60% of all cranes recorded.

A total of 485 sandhill cranes was counted in Millard (3), Piute (16), Sevier (14), Sanpete (282), Utah (144) and Wayne (26) counties in Utah. Sanpete and Utah counties were added to the count this year. These are all in traditional Lower Colorado River Valley sandhill crane population (LCRV) (Manes et al., 1988) areas and are not included in the RMP sandhill crane totals. To date, there has not been strong evidence to indicate that these cranes are part of the RMP, but research is ongoing.

The Jensen and Pelican Lake area, UT, primarily a migration stopover site on the Green River in Uintah County, had estimates of 832 and 98 cranes recorded during the survey week (Table 1). Both of these estimates were below their respective 10-year averages (1,127 and 132) and suggest that large scale crane movement was probably not a factor during the survey week. In the San Luis

Valley, CO 370 cranes were counted and that is also slightly below the 10-year average of 398 cranes, also suggesting that the majority of RMP cranes were still on the breeding grounds during the survey week.

Overall U. S. average temperatures for the period from January through September 2017 were the second warmest on record just behind 2016, the warmest year on record. The winter (December to February) of 2016-2017 across the RMP sandhill crane breeding range was characterized by above average temperatures and near record precipitation. The trend of warmer temperatures and above average precipitation continued throughout the breeding range into early spring (March and April). Late spring and throughout the summer the northern breeding states (Montana, Idaho and Wyoming) remained warmer than normal, but precipitation stopped and remained well-below average from May through the survey in September. Average June temperatures in all breeding range states were above average with below average precipitation. Montana and Idaho had near record average temperatures (2nd and 3rd highest, respectively) and Wyoming and Utah had above average temperatures during July. Despite the well-below average precipitation during the summer, much of the region's water table remained high as a result of the above average precipitation during the winter and spring and area reservoirs were near capacity. The higher water table allowed springs to continue to flow and many of the wet meadows over the survey area were in good condition for crane use.

Weather conditions for the FWS aerial survey were warmer than average for mid-September with temperatures in the 80s and predominantly clear skies for the duration of the survey. A strong cold front moved in on Friday of the survey week (11-15 September), post completion of all FWS aerial surveys. Other survey participants reported similar survey weather conditions for counting cranes with most complete prior to Friday's weather change. Ideal weather conditions for the majority of the survey period maximized bird detection rates. The majority of survey crews observed higher than usual bird dispersal patterns within pre-migration staging areas; possibly due to warmer temperatures and continued abundance of summer food (e.g. arthropods) resources. Late summer weather conditions are likely to have extended productivity of habitats proximal to breeding locations that altered the timing and movement patterns of birds. To estimate alignment of migration and survey timing, a small sample of higher elevation breeding locations are counted annually across the RMP range. Higher crane counts in these areas indicate survey timing may be early because birds remaining close to their nesting areas indicate that migration chronology has not completely transitioned to traditional lower elevation pre-migration staging locations. When lower to zero crane counts occur on these higher elevation breeding sites, timing of the survey is thought to be aligned with bird concentrations in pre-migration staging sites. The survey may also be considered late if pre-migration staging counts are low and migration stop-over sites in the SLV or areas in western Colorado or eastern Utah receive higher than usual counts. This year above average crane numbers did occur in higher elevation breeding areas with below average counts occurring in the migration stop-over sites. Cranes were observed by most survey crews in smaller groups and were well dispersed across survey areas indicating that the timing of the survey was early. The decision to select the specific survey week was based primarily on drought conditions happening over the breeding range and past experience with cranes migrating earlier when conditions are dry. Selecting the survey week can be difficult logistically as participants need to be notified early to ensure their participation. In summary; bird distribution patterns indicated the 2017 RMP survey was likely 5-10 days early, however, ideal weather conditions maximized bird visibility and offset the potential of reduced detection.

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

Manes, S. S., R. C. Drewien, J. D. Huener, T. W. Aldrich, and W M. Brown. 1992. Distribution of color-marked greater sandhill cranes banded in Utah. Pages 55-60 *in* D. A. Wood, editor. Proceedings of the 1988 North American Crane Workshop. Florida Game and Fresh Water Fish Commission Nongame Wildlife Program Technical Report 12.

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 2017 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 11 -16 September.

Map No. & Location(a/g) Date	No. Cranes	Source
<u>COLORADO</u>		
1 Yampa River (g) 9/13	878	
Axial Basin (g) 9/13	23	B. Holmes, CSTG Crew, CPW
County Line grain fields (g) 9/13	52	A. Reishus, M. Duzik, CPW
Craig vicinity fields (g) 9/13	112	E. Jones, J. Goncalves, CPW
Hayden airport/racetrack (g) 9/13	54	L. Rossi, J. Yost, CPW
Morgan Bottoms (g) 9/13	581	J. Pollock, L. Rossi, CPW
Yampa River SWA (g) 9/13	56	J. Yost, CPW
2 Elk River	145	
Selby's grain fields (g) 9/13	145	T. Jacox, J. Taylor, CPW
3 White River	265	
East of Meeker - Agency Park (g) 9/13	157	R. McGee, CPW
Little Beaver-Irish Mesa (g) 9/13	108	" "
4 Williams Fork River	0	
East of Hamilton (g) 9/13	0	E. Jones, CPW
5 Little Snake River (g) 9/13	0	
Slater (g) 9/13	0	CSTG crew
Two Bar Ranch (g) 9/13	0	" "
6 Delta Co., Harts Basin	no survey	
7 San Luis Valley (g) 9/11-13	370	D. Wilder, FWS
Subtotal	1,658	8.5%
<u>IDAHO</u>		
1 Amer. Falls Res. (a) 9/13	91	FWS survey ^a
2 Ashton-St. Anthony (a) 9/13	806	" "
3 Bear River Valley	681	
Bear Lake Valley (g) 9/16	344	B. Wishnek, FWS
Border-Pegram (a) 9/11	148	FWS survey
Bennington-Soda Spr. (a) 9/11	37	" "
Grace-Thatcher (a) 9/11	88	" "
Thomas Fork (a) 9/11	64	" "
4 Blackfoot Res. (a) 9/11	187	" "
5 Camas NWR (g) 9/12	107	A. Kristof, F. Downs, L. Botelho, FWS
6 Camas Prairie (g) 9/13	3	D. Meints, IDFG
7 Carey Lake area (g)	NS	
8 Chesterfield Res. (a) 9/11	59	FWS survey
9 Grays Lake NWR (a) 9/13	466	" "
10 Henrys Lake Flats (a) 9/12	8	" "
11 Island Park Res. (a) 9/12	15	FWS survey

Table 1 (continued)

Map No. Location(a/g) Date	No. Cranes	Source
12 Kilgore	no survey	
13 Market Lake WMA (g) 9/14	4	B. Gullett, IDFG
14 Marsh Valley (a) 9/11	179	FWS survey
15 Mud Lake WMA (g) 9/12	47	J. Gray, IDFG
16 Oxford Slough-Swan Lake (a) 9/11	197	FWS survey
17 Silver Creek (g) 9/14	31	C. Shackelford, IDFG
18 Teton Basin (a) 9/13	801	FWS survey
19 Malad River (a) 9/11	384	C. Anderson, B. Stringham, UDWR
subtotal	4,066	20.8%

MONTANA

1 Blackfoot/Ovando Valley (a) 9/12	91	J. Rahn, MFWP
2 Cascade-Ulm (a) 9/13	87	K. Smucker, MFWP
3 Centennial Valley (g) 9/11	5	M. Kircus, FWS
4 Clark Fork of the Yellowstone (a) 9/13	641	S. Stewart, MFWP
5 Deadman's Basin (a) 9/12	268	S. Mitchell, MFWP
6 Dillon-Twin Bridges (a) 9/12	2,951	FWS survey
7 Gallatin Valley (a) 9/11	175	J. Cunningham, MFWP
8 Helena Valley (a) 9/12	6	K. Podruzny, MFWP
9 Melville (a) 9/12	200	S. Mitchell, MFWP
10 Musselshell River (a) 9/12	261	" "
11 Otter Creek (a) 9/12	331	" "
12 Teton River-Eureka Res. (a) 9/13	331	K. Smucker, MFWP
13 Toston-Townsend (a) 9/13	593	A. Grove, MFWP
14 Upper Madison Valley (a) 9/12	232	FWS survey
15 Warm Springs (a) 9/11	450	J. Golla, MFWP
16 White Sulphur Spr. (a) 9/13	481	J. Kolbe, MFWP
17 Whitehall (a) 9/12	46	FWS survey
subtotal	7,149	36.5%

UTAH

1 Cache Co. (a) 9/13	594	C. Anderson, UDWR
<u>Great Salt Lake Basin</u>		
2 Box Elder Co. (a) 9/11	626	B. Stringham, C. Anderson, UDWR
3 Davis Co. (a) 9/11	14	" "
4 Weber Co. (a) 9/12	85	" "
5 Morgan Co. (g) 9/15	87	B. Stringham, UDWR
<u>Rich Co.</u>		
6 Bear River Valley (a) 9/15	551	C. Anderson, UDWR
7 Round Valley (a) 9/15	24	" "
8 Summit Co. (g) 9/12	15	B. Stringham, UDWR

Table 1 (continued)

Map No.	Location(a/g) Date	No. Cranes	Source
<u>Utah Co.</u>			
9	Jensen (a) 9/14	832	B. Stringham, UDWR
10	Pelican Lake area (a) 9/14	98	" "
11	Leland Bench (a) 9/14	13	" "
12	Wasatch Co. (g) 9/12	55	" "
	subtotal	2,994	15.3%
<u>WYOMING</u>			
1	Baggs (g) 9/13	21	S. Stephens, WGFD
2	Bear River Valley (a) 9/11	148	FWS survey
<u>Big Horn Basin</u>			
3	Greybull River/Otto (a) 9/12	77	N. Huck, WGFD
4	Shoshone River/Ralston (a) 9/12	294	" "
5	Worland (a) 9/12	50	" "
<u>Green River Basin</u>			
6	Big Piney-Daniel (a) 9/11	167	FWS survey
7	Bridger Valley (g) 9/13	90	A. Deru, WGFD
8	Lonetree (g) 9/13	2	" "
9	Farson (a) 9/11	1,578	FWS survey
10	Hams Fork (a) 9/11	35	" "
11	Pinedale-Cora-Boulder (a) 9/11	0	" "
12	Seedskaadee NWR	no survey	
13	Saratoga (g) 9/13	2	W. Shultz, WGFD
<u>North Platte River Basin</u>			
14	33 Mile (a) 9/11	104	N. Huck, WGFD
<u>Powder-Tongue River Basin</u>			
15	Barnum - Middle Fork Powder R. (a) 9/11	0	N. Huck, WGFD
16	Mayoworth - N. Fork Powder R. (a) 9/11	0	" "
17	Kaycee-Sussex (a) 9/11	320	" "
18	Buffalo (a) 9/11	120	" "
19	Dayton (a) 9/11	380	" "
<u>Snake River Basin</u>			
20	Jackson Hole Natl Elk (g) 9/13	72	E. Cole, C. Mulcahy, B. Mulcahy
21	Star Valley (g,a) 9/13,15	166	J. Bohne, FWS Survey
<u>Wind River Basin</u>			
22	Hidden Valley (a) 9/12	11	N. Huck, WGFD
23	Ocean Lake (a) 9/12	22	" "
24	Riverview Valley (a) 9/12	66	" "
	subtotal	3,725	19.0%
TOTAL CRANES		19,592	

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

Table 2. September pre-migration staging area counts by state of the Rocky Mountain Population of greater sandhill cranes during 1987, 1992, 1995-2005, 2007-2017.

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
Mean	1,301	7,053	5,288	2,421	3,265	19,328

^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.

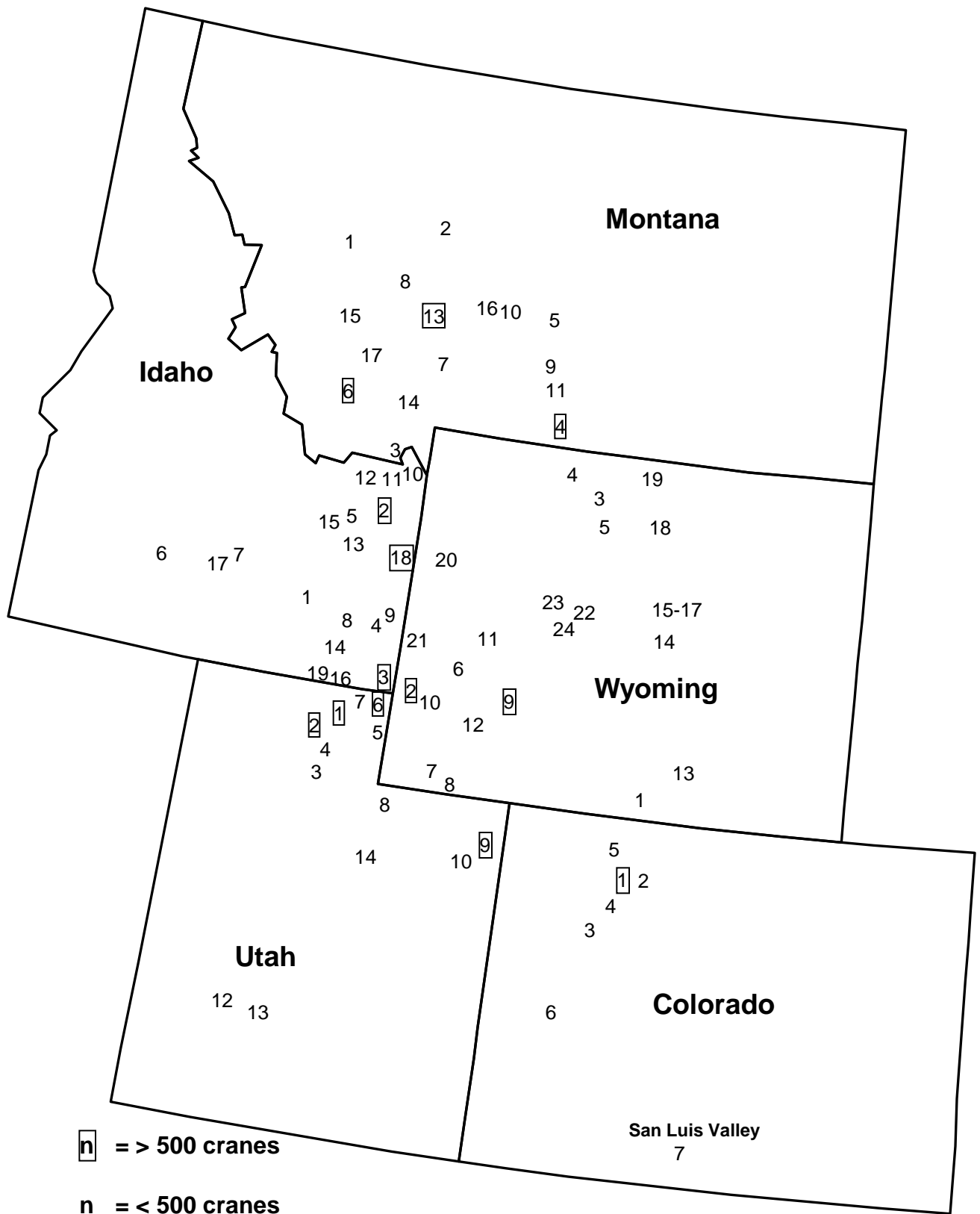


Figure 1. September survey locations for the Rocky Mountain Population of Greater Sandhill Cranes. See Table 1 for location names and numbers.