

## SEPTEMBER 2019 SURVEY OF THE ROCKY MOUNTAIN POPULATION OF GREATER SANDHILL CRANES

Philip P. Thorpe, USFWS, DMBM, 755 Parfet St, Suite 235, Lakewood, CO 80215  
Patrick Donnelly, USFWS-IWJV, 39 Campus Dr., FOR 302, Univ. of MT, Missoula, MT 59812  
Dan Collins, USFWS, Migratory Bird Office, P. O. Box 1306, Albuquerque, NM 87103

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 2019. 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 **21,290** RMP cranes at 74 survey areas with 35.3% in Montana, 20.8% in Idaho, 20.5% in Wyoming, 14.6% in Utah, and 8.8% in Colorado (Figure 1; Table 2). Two normally surveyed areas were not counted in 2019, Carey Lake, ID and Toston-Townsend, MT. Warm Springs, MT was counted on 8/29/2019, 18 days before the official survey week. The objective of having all areas surveyed during the same week is to avoid double counting cranes that could be dispersing across the region due to hunting pressures and migration (elevation and latitudinal movements). Given these variables, we did not include the count of 205 cranes into the overall estimate. The majority (97%) of the survey areas were counted during the designated survey week (16-20 September) with 78% of the areas surveyed during the three-day target period (17-19 September)(Table 1).

Five pre-migration staging areas had concentrations exceeding 1,000 cranes: 1) Dillon-Twin Bridges, MT – 3,431; 2) Farson, WY – 1,586; 3) the contiguous tri-state Upper Bear River Valley in ID, UT, and WY – 1,379; 4) Jensen, UT – 1,347; and 5) Yampa River, CO – 1,305. Over 500 cranes were recorded at seven other pre-migration sites: 1) Teton Basin, ID – 764; 2) Clark Fork of the Yellowstone, MT – 696; 3) Grays Lake NWR, ID – 590; 4) Musselshell River, MT – 583; 5) Silver Creek, ID – 576; 6) Dayton, WY – 558; and 7) Cache Co., UT – 501 (Table 1). These 12 areas accounted for 62.5% of all cranes recorded.

The Jensen and Pelican Lake areas in Utah, primarily migration stopover sites on the Green River in Uintah County, had estimates of 1,347 and 126 cranes, respectively, recorded during the survey week (Table 1). The Jensen area had the fourth highest count on record and was above the 10-year average of 1,042. The Pelican Lake estimate (n=126) was average for the area (10-year average = 129). The San Luis Valley, CO estimate was 327 (10-year average = 315) suggesting that large-scale crane movement was likely not a factor during the survey week. Although the Jensen area had a higher than average count, indicating that some cranes may have moved into southern areas of the breeding grounds, we believe that counts across the breeding grounds all fall within a normal range of estimates for this survey.

The survey has several built in checks to confirm optimal timing. Breeding areas (e.g., Hams Fork, WY, Henry Lake Flats, ID) are included in the survey to determine how many cranes are still on higher elevation nesting areas. Surveying migration stopover areas (e.g., San Luis Valley, CO) checks for late survey timing (i.e., cranes are actively migrating). Slightly later survey timing can make surveys more reliable because larger flocks of cranes have higher detectability from the aircraft compared to pairs and small family groups more typically seen on earlier timed surveys. Determining the survey timing is critical to a reliable population estimate and depends on several annual variables (e.g., seasonal weather conditions, participant work schedules). We hope to better document the variables involved in setting the survey dates and make determining survey timing more objective in the future through a predictive framework.

Temperatures from June through August 2019 were average across Montana, Idaho and Wyoming. Above average temperatures occurred in Utah and Colorado from July through September. Record high temperatures occurred in August and September in Utah and Colorado (hottest September on record for Colorado). Idaho and Wyoming received average precipitation from June through August. Through the summer, Montana had above average precipitation and September was the second wettest on record. Colorado and Utah received below average precipitation through the summer and early fall.

Weather conditions for the FWS aerial survey were good for crane detection. Cranes were in larger groups and we observed fewer 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 the ideal weather and slightly later than normal survey dates resulted in a reliable crane count for the 2019 survey.

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 2019 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 17 - 23 September.

Map No. & Location(a/g) Date	No. Cranes	Source
<b><u>COLORADO</u></b>		
1 Yampa River (g) 9/19	<b>1,305</b>	
Axial Basin (g) 9/18	4	A. Kircher, GRSG Crew, CPW
County Line grain fields (g) 9/18	253	A. Reishus, CPW
Craig vicinity fields (g) 9/18	202	E. Jones, CPW
Hayden airport/racetrack (g) 9/18	453	A. Gerstenberger, J. Pollock, CPW
Morgan Bottoms (g) 9/18	197	L. Rossi, CPW
Yampa River SWA (g) 9/18	196	M. Emanuel, CPW
2 Elk River	<b>52</b>	
Selby's grain fields (g) 9/18	52	J. Taylor, CPW
3 White River	<b>183</b>	
East of Meeker - Agency Park (g) 9/18	0	B. Holmes, CPW
Little Beaver-Irish Mesa (g) 9/18	183	R. McGee, CPW
4 Williams Fork River	<b>0</b>	
East of Hamilton (g) 9/18	0	A. Kircher, GRSG crew, CPW
5 Little Snake River (g) 9/18	<b>2</b>	
Slater (g) 9/18	2	J. Lambert
Two Bar Ranch (g) 9/18	0	" "
6 Delta Co.	<b>10</b>	
Harts Basin/Fruitgrowers (g) 9/18	10	B. Banulis, CPW
7 San Luis Valley (g) 9/16-18	<b>327</b>	D. Lee, M. Ciaglo, FWS
Subtotal	<b>1,879</b>	<b>8.8%</b>
<b><u>IDAHO</u></b>		
1 Amer. Falls Res. (a) 9/17	<b>63</b>	FWS survey <sup>a</sup>
2 Ashton-St. Anthony (a) 9/18	<b>444</b>	" "
3 Bear River Valley	<b>573</b>	
Bear Lake Valley (g) 9/19	263	B. Wishnek, N. Goldemund, FWS
Border-Pegram (a) 9/17	134	FWS survey
Bennington-Soda Spr. (a) 9/17	2	" "
Grace-Thatcher (a) 9/17	140	" "
Thomas Fork (a) 9/17	34	" "
4 Blackfoot Res. (a) 9/19	<b>331</b>	" "
5 Camas NWR (g) 9/18	<b>72</b>	A. Kristof, F. Downs, S. White, R. Stevens, FWS
6 Camas Prairie (g) 9/18	<b>0</b>	T. Gregory, IDFG
7 Carey Lake area (g)	<b>no survey</b>	
8 Chesterfield Res. (a) 9/17	<b>53</b>	FWS survey
9 Grays Lake NWR (a) 9/19	<b>590</b>	" "
10 Henrys Lake Flats (a) 9/18	<b>102</b>	" "
11 Island Park Res. (a) 9/18	<b>14</b>	FWS survey

Table 1 (continued)

Map No. Location(a/g) Date	No. Cranes	Source
12 Kilgore	<b>no survey</b>	
13 Market Lake WMA (g) 9/17	<b>0</b>	R. Akins, IDFG
14 Marsh Valley (a) 9/17	<b>112</b>	FWS survey
15 Mud Lake WMA (g) 9/18	<b>196</b>	J. Panting, IDFG
16 Oxford Slough-Swan Lake (a) 9/17	<b>257</b>	FWS survey
17 Silver Creek (g) 9/23	<b>576</b>	C. Shackelford,S. Robotcek, IDFG
18 Teton Basin (a) 9/19	<b>764</b>	FWS survey
19 Malad River (g) 9/20	<b>281</b>	B. Stringham, UDWR
subtotal	<b>4,428</b>	<b>20.8%</b>

**MONTANA**

1 Blackfoot/Ovando Valley (a) 9/16	<b>6</b>	S. Eggeman, MFWP
2 Cascade-Ulm (a) 9/20	<b>271</b>	K. Smucker, MFWP
3 Centennial Valley (g) 9/18	<b>10</b>	K. Manning, FWS
4 Clark Fork of the Yellowstone (a) 9/13	<b>696</b>	S. Stewart, MFWP
5 Deadman's Basin (a) 9/18	<b>257</b>	S. Mitchell, MFWP
6 Dillon-Twin Bridges (a) 9/18	<b>3,431</b>	FWS survey
7 Gallatin Valley (a) 9/24	<b>79</b>	J. Cunningham, MFWP
8 Helena Valley (a) 9/18	<b>340</b>	J. Sika, MFWP
9 Melville (a) 9/18	<b>128</b>	S. Mitchell, MFWP
10 Musselshell River (a) 9/18	<b>583</b>	" "
11 Otter Creek (a) 9/18	<b>468</b>	" "
12 Teton River-Eureka Res. (a) 9/20	<b>326</b>	K. Smucker, MFWP
13 Toston-Townsend	<b>no survey</b>	
14 Upper Madison Valley (a) 9/18	<b>305</b>	FWS survey
15 Warm Springs (g) 8/29	<b>no survey</b>	<b>Surveyed on 8/29/19 outside survey window</b>
16 White Sulphur Spr. (a) 9/18	<b>485</b>	J. Kolbe, MFWP
17 Whitehall (a) 9/18	<b>126</b>	FWS survey
subtotal	<b>7,511</b>	<b>35.3%</b>

**UTAH**

1 Cache Co. (a) 9/16	<b>501</b>	C. Anderson, UDWR
<u>Great Salt Lake Basin</u>		
2 Box Elder Co. (a) 9/16	<b>412</b>	C. Anderson, UDWR
3 Davis Co. (a) 9/16	<b>13</b>	" "
4 Weber Co. (g) 9/17	<b>42</b>	B. Stringham, UDWR
5 Morgan Co. (g) 9/16	<b>92</b>	" "
<u>Rich Co.</u>		
6 Bear River Valley (a) 9/16	<b>437</b>	C. Anderson, UDWR
7 Round Valley (a) 9/16	<b>24</b>	" "
8 Summit Co. (g) 9/16	<b>57</b>	B. Stringham, UDWR

Table 1 (continued)

Map No.	Location(a/g) Date	No. Cranes	Source
<u>Utah Co.</u>			
9	Jensen (g) 9/17	<b>1,347</b>	B. Stringham, UDWR
10	Pelican Lake area (g) 9/18	<b>126</b>	" "
11	Leland Bench (g) 9/18	<b>13</b>	" "
12	Wasatch Co. (g) 9/16	<b>42</b>	" "
	subtotal	<b>3,106</b>	<b>14.6%</b>
<b><u>WYOMING</u></b>			
1	Baggs (g) 9/19	<b>13</b>	P. Damm, WGFD
2	Bear River Valley (a) 9/17	<b>369</b>	FWS survey
<u>Big Horn Basin</u>			
3	Greybull River/Otto (a) 9/19	<b>123</b>	A. Orabona, WGFD
4	Shoshone River/Ralston (a) 9/19	<b>172</b>	" "
5	Worland (a) 9/19	<b>206</b>	" "
<u>Green River Basin</u>			
6	Big Piney-Daniel (a) 9/16	<b>32</b>	FWS survey
7	Bridger Valley (g) 9/18	<b>70</b>	A. Deru, WGFD
8	Lonetree (g) 9/18	<b>0</b>	" "
9	Farson (a) 9/16	<b>1,586</b>	FWS survey
10	Hams Fork (a) 9/16	<b>2</b>	" "
11	Pinedale-Cora-Boulder (a) 9/16	<b>2</b>	" "
812	Saratoga (g) 9/18	<b>12</b>	T. Cufaude, WGFD
<u>North Platte River Basin</u>			
13	33 Mile (a) 9/17	<b>413</b>	A. Orabona, WGFD
<u>Powder-Tongue River Basin</u>			
14	Barnum - Middle Fork Powder R. (a) 9/17	<b>0</b>	A. Orabona, WGFD
15	Mayoworth - N. Fork Powder R. (a) 9/17	<b>0</b>	" "
16	Kaycee-Sussex (a) 9/17	<b>160</b>	" "
17	Buffalo (a) 9/18	<b>5</b>	" "
18	Dayton (a) 9/17	<b>558</b>	" "
<u>Snake River Basin</u>			
19	Jackson Hole Natl Elk (g) 9/18	<b>148</b>	E. Cole, C. Mulcahy, B. Mulcahy, FWS
20	Star Valley (a,g) 9/18,19	<b>305</b>	J. Bohne, FWS Survey
<u>Wind River Basin</u>			
21	Hidden Valley (a) 9/19	<b>44</b>	A. Orabona, WGFD
22	Ocean Lake (a) 9/19	<b>9</b>	" "
23	Riverview Valley (a) 9/19	<b>137</b>	" "
	subtotal	<b>4,366</b>	<b>20.5%</b>
<b>TOTAL CRANES</b>		<b>21,290</b>	

<sup>a</sup> Fish & Wildlife Service aerial survey flown by P. Thorpe, P. Donnelly, D. Collins, and S. Coons.

Table 2. September pre-migration staging area counts by state of the Rocky Mountain Population of greater sandhill cranes during 1987, 1992, 1995-2005, 2007-2019.

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
3-yr Mean	1,815	4,321	7,404	2,957	4,397	20,894
All yr Mean	1,360	6,738	5,532	2,483	3,395	19,508

<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.

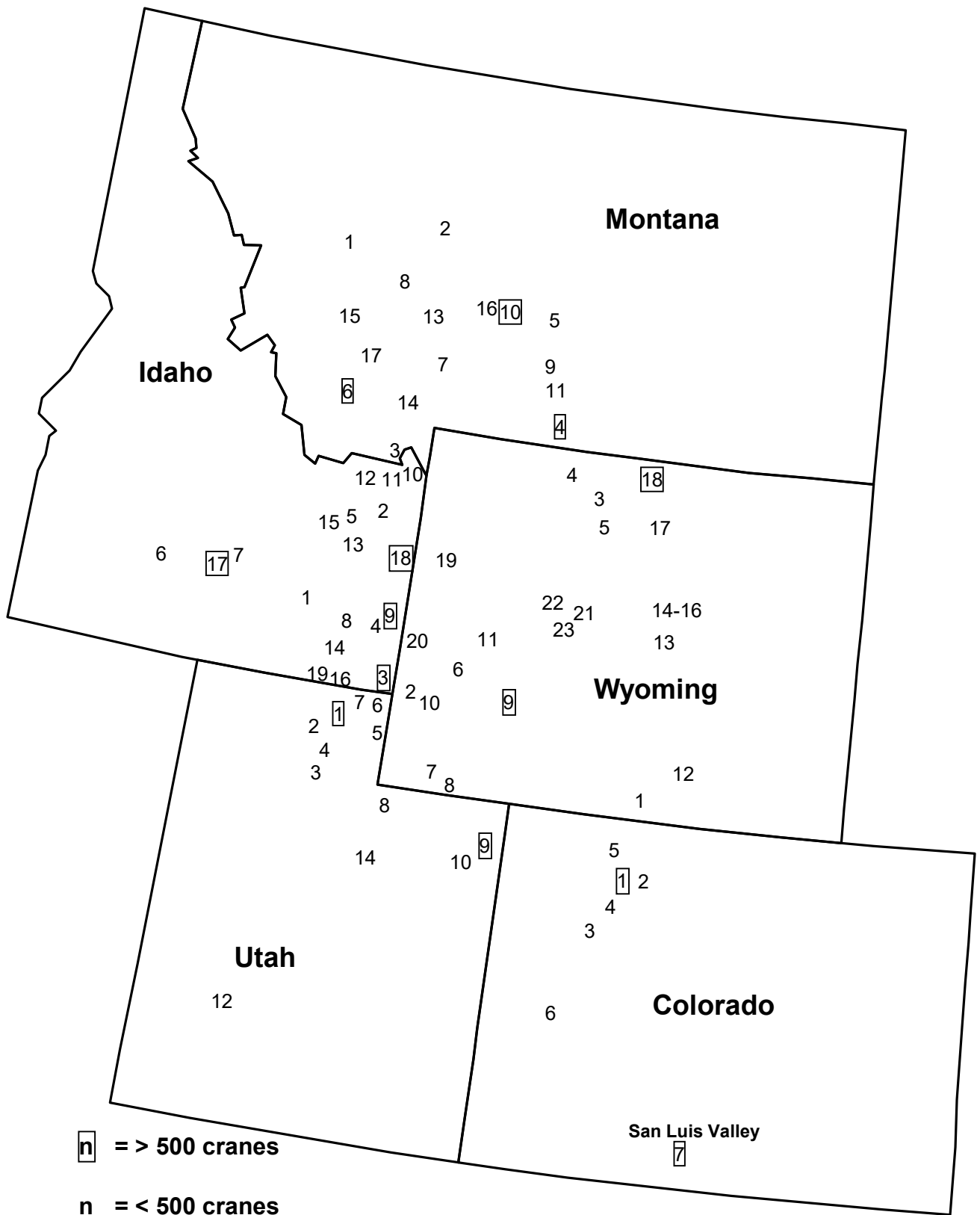


Figure 1. September survey locations for the Rocky Mountain Population of Greater Sandhill Cranes. See Table 1 for location names and numbers.