SUMMARY OF THE 2004-2005 SPECIAL MIDDLE RIO GRANDE VALLEY AND SOUTHWEST NEW MEXICO SANDHILL CRANE SEASONS

Tim Mitchusson
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ABSTRACT Special seasons for Sandhill Crane (*Grus canadensis*) hunting were established in portions of southwestern New Mexico (SW), the middle Rio Grande valley (MRGV), and the Estancia Valley (EV) during 2004-2005. Morphometric data gathered at hunter check stations in addition to hunter effort and harvest information compiled from questionnaires were summarized and used to identify hunter effort, subspecies, sex and age composition of the harvest, and to project crane harvest. Based upon these data, it was projected that the total harvest of cranes was 356 and that 189 were the greater Sandhill Crane subspecies, *G. c. tabida*. New Mexico's 2004-2005 harvest allotment for the Rocky Mountain Population of greater sandhill cranes was established at 206. New Mexico's harvest fell 8.2% below the assigned allotment.

INTRODUCTION

New Mexico conducted special hunting seasons for sandhill cranes (*Grus canadensis*) during 2004-2005. These special seasons were approved by the respective technical committees and councils of the Central and Pacific Flyways. Additionally, the hunt structure was conducted within guidelines outlined in the revised A Plan for the Management of Waterfowl, Sandhill Cranes, and other Migratory Birds in the Middle Rio Grande Valley of New Mexico (Taylor 1999) in which specific hunt management options are outlined. In addition, all aspects of this hunt followed guidelines and procedures outlined in the 1997 Management Plan of the Pacific and Central Flyways for the Rocky Mountain population (RMP) of greater sandhill cranes (Tessman 1997).

A harvest allotment for the RMP greater Sandhill Crane (*G. c. tabida*) of 206 was established for New Mexico. This allotment was based upon the average from the previous three years' fall population surveys as well as projected recruitment and productivity on the breeding grounds. The specific criteria for establishing harvest allotments are described in the management plan listed above. The hunt structures developed each season are modified to accommodate the allotment in conjunction with historical data on participation rate, mean bag per hunter, and racial composition of the harvest.

The 2004-2005 allotment was 2% lower than the 2003-2004 allotment. New Mexico's greater sandhill crane harvest continues to be below the harvest allotment. Since the previous year's greater sandhill crane harvest was below this year's harvest allotment, New Mexico increased the number of permits available for most of the MRGV hunts with a daily bag of 1/day, possession 2/season. The SW and EV sandhill crane hunts maintained the same bag, possession and season limits as the previous year. The EV bag limit was 2/day with a season limit of 4. The SW bag limit was 2/day, 6 in possession and 8 for the season; and the number of available permits was maintained at 60 due to the majority of the harvest is composed of lesser sandhill cranes. It was anticipated that with this structure and historical rates of participation, the RMP greater sandhill crane harvest would remain below the assigned allotment.

METHODS

To obtain a permit, prospective hunters were required to submit an application to the Department on which they indicated their preferred season along with a second choice. A random drawing was held to award permits. Persons that received a permit for the MRGV were mailed their permit along with a questionnaire, return envelope and instructions where to check their birds for examination at the Bernardo Waterfowl Management Area (WMA). They were instructed to complete and mail their questionnaire within five working days of the close of their hunt.

Persons selected for a Southwest New Mexico permit were mailed their permit along with a questionnaire for each hunt period, two return envelopes and instructions where they may check their birds for examination. They were instructed to complete and mail their questionnaires within five working days of the close of each hunt segment. Persons selected for an Estancia Valley permit were mailed their permit along with a questionnaire, return envelope and instructions where to check their birds for examination. They were instructed to complete and mail their questionnaires within five working days of the close of the hunt.

Questionnaires were designed to gather information from which to estimate the harvest of cranes. Other types of information were also collected from these questionnaires in order to estimate crippling losses, number of days hunted, preferred dates of hunting, and related information. A second wave of questionnaires was sent to those that hadn't returned the first questionnaire. Phone calls were followed up to those not responding to the second questionnaire.

Four hunts were scheduled for the MRGV, two for southwest New Mexico and one hunt was scheduled for the EV. Each hunt was two days in length (weekends). The daily bag limit was one crane with a season limit of two in the MRGV. The daily bag limit was two for all other hunts with a possession limit of four for the EV, six for the Southwest New Mexico hunt and a season limit of eight for the SW. Table 1 provides information on 2004-2005 seasons dates and hunt area descriptions.

Table 1. Scheduled Dates, Number of Hunting Days, Hunt Boundaries, Daily and Season Limits for Sandhill Crane Hunts in the Middle Rio Grande Valley and Southwest New Mexico During 2004-05.

YEAR	DATES	PERMITS AVAILABLE	NO. DAYS	AREA	LIMITS SEASON	LIMITS DAILY
2004	30-31 October	65	2	Rio Grande[1]	2	1
	20-21 November	60	2			
	11-12 December	55	2			
2005	15-16 January	60	2			
	TOTAL	240	8			
2004 2005	06-07 November & 08-09 January	60	4	Southwest[2]	8	2
2004	30-31 October	40	2	Estancia Valley[3]	4	2
	TOTAL	340	14			

[1] Socorro and Valencia Counties.

[2] The portions of Luna, Sierra, and Doña Ana Counties bounded by the south by the U. S./Mexico border; on the west by the western Luna County line north to I-10; east to U. S. 180 north to N. M. 26, N. M. 26 northwest to N. M. 27 at Nutt, N. M. 27 north to N. M. 152 at Hillsboro; on the north by N. M. 152 from Hillsboro to I-25; on the east by I-25 south to I-10; I-10 west to the Luna County line, and the eastern Luna County line south to the U. S./Mexico border.

[3]The portions of Torrance, Santa Fe and Bernalillo Counties bounded on the west by N.M. highway 55 beginning at Mountainair north to N.M. 337, north to N.M. 14, north to Interstate 25; on the north by Interstate 25 east to U.S. 285; on the east by U.S. 285 south to U.S. 60; and on the south by U.S. 60 from U.S. 285 west to N.M. 55 in Mountainair.

Successful MRGV hunters were required to bring their cranes to the Bernardo WMA check station operated by Department personnel for examination. Southwest New Mexico hunters hunting in and around the Hatch, New Mexico area were requested to bring their cranes to the Hatch check station. Estancia Valley hunters were required to bring their cranes to the check station located in Moriarty. The purpose of these check stations was to examine their cranes and determine the subspecies, sex, and age composition of the harvest. Information collected and recorded from each specimen included: date, time, and location of kill, weight (grams), anterior culmen, posterior culmen, wing (chord), length of tarsus (all measurements in mm), color of irises, age, and sex (determined by examination of gonads). Hunters that fail to bring harvested cranes to the MRGV or EV check stations and those that fail to return a harvest questionnaire are ineligible to receive a crane permit the following year.

In order to determine the subspecific composition of sandhill cranes examined at these check stations, those pertinent measurements (listed above) were compared with similar measurements of sandhill cranes described by Aldrich (1979), Hubbard (1985), Johnson and Steward (1973), and Schmitt and Hale (1997).

RESULTS

Information summarized from questionnaires from the MRGV season indicated that 83.7% of those that received a permit hunted. For the southwest season, it was projected that 75% of those receiving a permit hunted. Sixty permits were issued for the southwest New Mexico sandhill crane hunt and SW hunters could hunt both the November and January hunt periods. During the November hunt 62% participated, and 62% participated during the January hunt. Eight hunters participated only during the November hunt period, 29 during both hunt periods, and 8 hunted only during the January hunt period for a total of 45 participants. Thirty-nine permits were issued for the Estancia Valley season and 74% participated. An overall participation rate of 74.2% was projected. Table 2 provides a summary of this and related information for the MRGV, SW and Estancia Valley sandhill crane seasons.

Table 2. Summary on 2004-2005 Numbers of Available Permits, Applicants, Permits Issued, Missing Questionnaires, and Number of Participating Hunters.

	MIDDLE RIO GRANDE VALLEY	SOUTHWEST	ESTANCIA VALLEY	TOTAL
Number of Available Permits	240	60	40	340
Number of Permits Issued	240	60	39	339
Number of Permittees who Hunted	192	45	29	266
Number Questionnaires Missing	5	2	0	7

Based upon morphological characters, the subspecific composition of the 198 specimens examined from the MRGV consisted of 83.3% *G. c. tabida*, 9.6% *G. c. rowani*, and 7.1% *G. c. canadensis*. This information is summarized in Table 3. These specimens consisted of 85.4% adults and 14.6% immature and this data is presented in Table 4.

Table 3. Subspecific Sex Composition of Sandhill Crane Specimens Examined at Check Stations During the 2004-2005 Middle Rio Grande Valley Sandhill Crane Season.

Subspecies	Females	Males	UK	Total
canadensis	6	8	0	14

rowani	7	12	0	19
tabida	81	81	3	165

Table 4. Sex and Age Composition of Sandhill Crane Specimens Examined at Check Stations During 2004-2005 Middle Rio Grande Valley Sandhill Crane Season.

	Female	Male	Sex Unknown	Total
Adult	81	86	2	169
Immature	13	15	1	29
TOTAL	94	101	3	198

Two MRGV crane hunters reported harvesting 2 cranes each and failed to bring the birds to the check station so that morphometric data could be obtained. These four cranes were assigned as *tabida*. It was projected that 207 cranes consisting of 172 *tabida,* 20 *rowani*, and 15 *canadensis* were harvested during the MRGV season.

Racial composition for the 33 specimens examined at the check station for the Southwest New Mexico sandhill crane season was found to be 30 *canadensis*, 0 *rowani* and 3 *tabida* for the November season. This information is summarized in Table 5. These specimens consisted of 84.8% adults and 15.2% immatures (Table 6).

Table 5. Subspecific Sex Composition of Sandhill Crane Specimens Examined at the Check Station During the November 2004-2005 Southwest New Mexico Sandhill Crane Season.

Subspecies	Females	Males	Sex Unknown	Total
canadensis	13	17	0	30
rowani	0	0	0	0
tabida	1	2	0	3

Table 6. Sex and Age Composition of Sandhill Crane Specimens Examined at the Check Station During the November 2004-2005 Southwest New Mexico Sandhill Crane Season.

	Female	Male	Sex Unknown	Total
Adult	12	16	0	28
Immature	2	3	0	5
TOTAL	14	19	0	33

Department personnel were unable to man the January Southwest New Mexico check station. A card survey utilizing hunters marking the distance between the nares posterior to bill tip was used to determine the subspecies harvest composition. This method allows one to determine the subspecies composition between *canadensis* and *tabida/rowani*, but isn't accurate enough to determine the difference between *tabida* and *rowani*. All surveys keyed as large cranes are assigned as *tabida* resulting in a probable overestimation for the *tabida* harvest during the January Southwest New Mexico hunt. Instructions were given on determining sandhill crane age, which hunters marked on the bill measurement card. Racial composition from the 36 card measurements was 28 *canadensis* and 8 *tabida/rowani* for the January season. This survey consisted of 83.3% adults and 16.7% immatures (Table 7).

Table 7. Subspecific Composition and Age of Sandhill Cranes During the January 2004-2005 Southwest New Mexico Sandhill Crane Season Using Bill Measurement Card Survey.

Subspecies	Adult	Immature	Total
canadensis	24	4	28
tabida/rowani	6	2	8
	30	6	36

There were 23 persons issued permits for the southwest season that brought 33 cranes to the November check station. Seventeen hunters sent in card bill measurements for 36 cranes during the January hunt. Based upon information contained on returned questionnaires, it was projected that 91 cranes were harvested in the southwest season. Using subspecific composition of harvest obtained at the check stations, the value of 9.1% for *G. c. tabida* was applied to the 2004 November harvest and 22.2% for the January 2005 harvest. This was done to consider the Southwest New Mexico season harvest of greaters toward New Mexico's allotment. It was projected that 15 *tabida* and 76 *canadensis* were harvested during this season. Since the initiation of the November hunt period, this is the first year that tabida have been recorded at the check station. Also, due to using the card bill measurement survey for the January hunt it is likely some classed as *tabida* were *rowani*. Thus, the

projected tabida harvest for the southwest season is likely overestimated.

There were 23 persons issued permits for the Estancia Valley season who brought cranes to the check station. Racial composition for the 58 specimens examined at the check station was found to be 51 *canadensis*, 5 *rowani* and 2 *tabida*. This information is summarized in Table 8. These specimens consisted of 79.3% adults and 20.7% immatures (Table 9). Based upon information contained on returned questionnaires, it was projected that 58 cranes were harvested in the Estancia Valley season. Since the initiation of the Estancia Valley hunt this is the first year tabida have been recorded at the check station.

Table 8. Subspecific Sex Composition of Sandhill Crane Specimens Examined at the Check Station During the 2004-2005 Estancia Valley Sandhill Crane Season.

Subspecies	Females	Males	Sex Unknown	Total
canadensis	23	24	4	51
rowani	3	2	0	5
tabida	1	1	0	2

Table 9. Sex and Age Composition of Sandhill Crane Specimens Examined at the Check Station During the 2004-2005 Estancia Valley Sandhill Crane Season.

	Female	Male	Sex Unknown	Total
Adult	22	22	2	46
Immature	5	5	2	12
TOTAL	27	27	4	58

Seventeen immatures keyed as greaters using adult criteria to differentiate subspecies. Ten immatures keyed as Rowani using the same criteria, but were within the range of known immature greaters used in the ultra light experiment and harvested in the MRGV. These ten were assigned as tabida. Three other immature cranes were assigned as greaters. It is possible a percentage of the immatures assigned as tabida may be Rowani. Thus, the projected tabida harvest is likely

overestimated.

The estimated total bag of Sandhill Cranes (excluding non-retrievable) for 2004-2005 was 356 (207 from the middle Rio Grande valley, 91 from southwest New Mexico and 58 from the Estancia Valley). Based upon criteria to differentiate subspecies, it was projected that 189 were greaters. The 2004-2005 harvest allotment of greaters for New Mexico was 206, thus the estimated harvest of 189 was under the allotment by 8.2%.

A summary table is provided as Appendix 1, which describes various parameters and aspects of the 2004-2005 special middle Rio Grande valley, Southwest New Mexico and Estancia Valley Sandhill Crane seasons. This table separates these parameters according to season as well as including cumulative totals.

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