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CHAPTER 8: DALL SHEEP MANAGEMENT REPORT

From: 1 July 2010
To: 30 June 2013[1]

LOCATION

GAME MANAGEMENT UNIT: Portions of 13B, 20A, and 20D (1,680 mi^2)

GEOGRAPHIC DESCRIPTION: Delta controlled use area

BACKGROUND

Alaska Department of Fish and Game (ADF&G) management plans for Dall sheep (ADF&G 1976; G. Bos, ADF&G, personal communication to S. DuBois, ADF&G, 1988) define the management goals for this species in Alaska. These goals include protection and maintenance of populations, scientific and educational study, diversified recreational use, and commercial and subsistence uses. Federal and state subsistence laws mandate subsistence use as the highest priority of fish and wildlife when harvest is allowable. However, the Alaska Board of Game, acting in compliance with these subsistence laws, has found that historic human use of Dall sheep rarely meets the present definitions of subsistence use. Consequently, diversified human recreation is the predominant use of Dall sheep in Alaska.

The department revised management plans (G. Bos, personal communication to S. DuBois) to recognize that diversified human recreational uses of Dall sheep include both consumptive and nonconsumptive uses. Nonconsumptive uses include viewing and photography. Possible goals for consumptive use of this species include maximum opportunity to hunt, opportunity to hunt under aesthetically pleasing conditions, and the opportunity to harvest unusually large rams as trophies. Providing the opportunity to hunt sheep under aesthetically pleasing conditions is the present consumptive use goal for this species in the Delta controlled use area (DCUA).

Sheep seasons and legal harvest have become progressively more restrictive in the eastern Alaska Range where DCUA is located. This was necessary as hunting pressure increased and Dall sheep conservation required more active management. As this process evolved, hunters began to demand assurance of certain types of hunting experiences. DCUA, formerly known as the Delta management area, was the first attempt to meet these demands. The Delta management area was established prior to the hunting season in 1971 to provide sheep hunters with high-quality, walk-in hunting opportunities that were free from competition with other transportation types.

[1] At the discretion of the reporting biologist, this unit report may contain data collected outside the report period.

When the Delta management area was created, regulations initially prohibited use of motorized vehicles and pack animals for transporting hunters, hunting gear, or game for the first 15 days of the 10 August–20 September hunting season. After 25 August, transportation restrictions were lifted and mechanized and pack animal access were permitted. The bag limit was 1 ram with ¾-curl or larger horns.

Designation of the Delta management area as a walk-in-only area successfully provided walk-in-only hunting opportunity but failed to reduce harvest to the desired level or provide high-quality hunting experiences. The harvest and the quality hunting experience objectives were formally selected as consumptive use guidelines during the public planning project of the mid-1970s (ADF&G 1976). Rams in the Delta management area were still subjected to heavy hunting pressure resulting in excessive harvest, reduced horn size, and a great deal of hunter competition for available rams. In 1977, hunters killed 78 rams even though the desired harvest objective was 40 rams (Larson 1979).

In an effort to achieve the harvest and aesthetic quality objectives, sheep hunting in the Delta management area was restricted by drawing permit in 1978. Sixty permits were issued for a 10–25 August walk-in season, and 60 permits were issued for a 26 August–20 September open access season. The bag limit was 1 ram with ¾–curl horns or larger. As expected, the permit hunt reduced the hunting pressure, and harvest was reduced from 78 rams in 1977 to 31 rams in 1978. However, average horn size also decreased to an all-time low of 31.2 inches (Larson 1980).

In 1979 the minimum horn size for legal sheep in the Delta management area was increased from ¾- to ⅞-curl. The ⅞–curl regulation did not affect the number of rams harvested in the Delta management area, but average horn size increased from 31.2 inches in 1978 to 34.6 inches in 1979 (Larson 1979).

The Delta management area was renamed DCUA in 1981 to more accurately reflect its classification as a controlled use area rather than a management area. In 1982 the number of drawing permits issued was increased to 75 for each portion of the drawing permit hunt.

Minimum horn size for legal sheep in Unit 20 was raised from ⅞-curl to full curl in 1984. The season and bag limit in DCUA have not changed since 1984, with the exception of 1985, when Tier II subsistence regulations were adopted for that year only.

The size of DCUA was reduced in July 1992 to exclude a portion of non-sheep habitat between the Richardson Highway and the Delta River. This area of non-sheep habitat was popular for hunting small game and upland game, and DCUA access restrictions unnecessarily complicated hunting in the area and confused hunters. This area was again included in DCUA beginning in 2002 to facilitate Macomb caribou herd management. However, access restrictions applied to only big-game hunters, rather than to all hunters as before.

MANAGEMENT DIRECTION

MANAGEMENT GOAL

- Provide aesthetically pleasing hunting conditions.

- Maintain a harvestable population of Dall sheep fluctuating within historical limits of abundance and the carrying capacity of DCUA habitat.

- Maintain sheep abundance sufficient to allow for nonconsumptive uses.

MANAGEMENT OBJECTIVE

- Manage for a population of approximately 1,800 sheep.

- Manage for a mean annual harvest of 35 full-curl rams with a mean horn length of more than 36 inches.

- Manage for mean age of harvested rams exceeding 8 years.

Related Management Activities

- Monitor Dall sheep harvest through hunter contacts and permit reports.

- Conduct aerial and/or ground composition surveys of Dall sheep.

- Mail a periodic questionnaire to hunters and quantify their satisfaction with aesthetics of Dall sheep hunting in DCUA.

METHODS

Hunters selected in the permit drawing were required to report on their activities. Data contained on the permit reports were analyzed to determine hunter success, hunter residence, hunter effort, ram horn size, hunt location, transportation type, and other information. Data were summarized by regulatory year (RY), which begins 1 July and ends 30 June (e.g., RY10 = 1 July 2010 through 30 June 2011).

I surveyed DCUA in a Piper PA-18 Super Cub. Surveys were timed to avoid turbulence by conducting flights in the early morning, generally starting about 0530 hours, or evening, starting about 1900 hours. Survey altitude was 300–700 feet above ground level. Data and search times were recorded in reference to major drainages and recorded on 1:250,000 scale USGS topographic maps. In addition, the latitude and longitude of each observation were recorded. Sheep were classified as lambs, rams ≥½-curl, and others (includes ewes and rams ≤½-curl). Full-curl rams were noted when possible. Photographs were taken of aggregations that were difficult to observe from the air (i.e., in a steep canyon, too windy, etc.) and classified from the photographs. Photographs were taken with a digital single lens reflex camera and a 70–300 mm image stabilized lens, using ISO 400–800 depending on light conditions. Photographs were also taken of many ram aggregations to compare ram horn size from visual observations to the photographs.

RESULTS AND DISCUSSION

POPULATION STATUS AND TREND

Population Size and Composition

RY10. A partial aerial survey was conducted on 2–3 August 2010 for 4.4 hours of survey time in the Granite Mountains and McCumber Creek bowl of DCUA (east of the Jarvis Creek drainage).

A total of 419 sheep were observed, including 61 lambs, 112 rams ≥½ curl, 4 full-curl rams, and 242 other sheep (ewes and rams <½-curl; Table 1).

Composition ratios were not calculated due to incomplete survey. The survey was not completed due to poor survey conditions.

RY11. A subsample of DCUA was aerially surveyed on 24 June–8 July 2011 for 20.1 hours of survey time. All available sheep habitat from the Johnson River west to Jarvis Creek was surveyed. A total of 1,135 sheep were observed including 246 lambs, 208 rams ≥½-curl, 33 full-curl rams, 600 other sheep (ewes and rams <½ curl), and 48 unidentified sheep (Table 1).

Composition of identified sheep in the subsampled area was 23% lambs, 19% rams ≥½-curl but <full curl, and 3% full-curl rams.

RY12. A complete aerial survey of all available sheep habitat in DCUA was flown 30 June–10 July 2012 for 29.9 hours of survey time. A total of 1,683 sheep were observed including 306 lambs, 421 rams ≥½-curl with 50 of those rams being full curl, 943 other sheep (ewes and rams <½-curl), and 13 unidentified sheep (Table 1).

Composition of identified sheep from the observed data was 18% lambs, 22% rams ≥½-curl, and 3% full curl rams.

The number of sheep observed in the same areas surveyed (Johnson River west to Jarvis Creek) during both RY11 and RY12 was comparable. A total of 1,135 sheep were observed in this area during RY11 and 1,169 sheep were observed in the same area during the RY12 survey.

MORTALITY

Harvest

Season and Bag Limit. The DCUA sheep hunting season was open from 10 August to 20 September and was split between 2 drawing permit hunts, DS203 and DS204. For permit hunt DS203, the season was open 10–25 August. Motorized vehicles and pack animals were not permitted for transport of big game hunters, hunting gear, or big game within DCUA during 5–25 August. Vehicle travel was permitted on the Richardson Highway and at recognized airports within DCUA's boundaries. For permit hunt DS204, the season was 26 August–20 September with no access restrictions. Each permit hunt had a bag limit of 1 full–curl ram. Seventy-five permits were issued for each of the 2 hunts.

Alaska Board of Game Actions and Emergency Orders. The Board of Game adopted a change to permit allocation for DS203 and DS204 at the February 2012 Interior meeting. This change allocated a maximum of 10% of drawing permits to nonresidents and a minimum of 90% of drawing permits to residents. The change goes into effect in RY13. There were no emergency orders pertaining to DCUA sheep during RY10–RY12.

Harvest by Hunters. DCUA's combined harvest for hunts DS203 and DS204 met the harvest objective in RY10–RY12 (Table 2) and averaged 42 sheep/year.

Mean horn length for all sheep taken during RY10–RY12 was below the objective each year, and averaged 35.3 inches (Table 2).

Mean age of all sheep taken in DCUA met the management objective each year during RY10–RY12 ranging from 8.2 in RY10 and RY12 to 8.5 years in RY11 (Table 2).

Permit Hunts. The number of drawing permit applicants for DS203 and DS204 continued to slowly increase to a high of 3,917 in RY10 for both hunts combined and declined slightly during RY11 and RY12 (Table 3). DS204 receives more applicants than DS203. DS203 averaged 1,689 applicants during RY10–RY12 compared to an average of 2,069 for DS204 (Table 3).

Hunter Residency and Success. Most DCUA hunters continued to be Alaska residents with an annual average of 7 (7%) nonresident hunters each year during RY10–RY12 (Table 4). Nonresidents continued to have a higher success rate than residents for DS203 and DS204. The annual average success rate for nonresidents during RY10–RY12 was 70% compared to 37% for resident hunters.

Harvest Chronology. During hunts DS203 and DS204, the largest percentage of the harvest generally occurred during the first 7 days of each hunting season (Table 5). During RY10–RY12, harvest occurred throughout the DS204 hunt periods, though there was a decline in harvest rate after the first 7 days in RY10 and RY11. Harvest was more static in RY12.

Transport Methods. No changes in mode of transportation were detected during RY10–RY12. Highway vehicles were the most popular mode of transportation during hunt DS203 because most hunters walked into DCUA from either the Richardson or Alaska Highway due to access restrictions. Aircraft were used along the Johnson River. Airplanes, 3- or 4-wheelers, and highway vehicles were most commonly used during hunt DS204 (Table 6).

Other Mortality

I observed the carcass of a ewe in upper July Creek during aerial surveys in July 2012. I also observed a living lamb proximate to the carcass. I made an attempt to recover the carcass from the ground as an effort of opportunistic health monitoring, but it had been scavenged prior to my arrival on the site.

Predation rates on sheep in DCUA are unknown. Wolf, coyote, grizzly bear, black bear, wolverine, and golden eagle inhabit the area and undoubtedly prey on sheep. I have observed coyote and golden eagle pursuing sheep in DCUA.

Weather is not thought to adversely affect sheep populations in DCUA in most years. DCUA is located at the north end of the 2,443-foot Isabel Pass through the Alaska Range. Winter storms frequently bring high winds and warm temperatures so much of the area is either snow-free or has little snow during much of the winter. Hence, it provides suitably stable winter range for Dall sheep.

HABITAT

Assessment

Sheep habitat appears sufficient to support the population at its current level; however, we have not conducted habitat assessment surveys. Military operations and mining present the greatest potential impact to sheep habitat. Both of these activities occur within DCUA.

CONCLUSIONS AND RECOMMENDATIONS

The DCUA harvest objective was met during RY10–RY12, but the horn length objective was not met. Average horn length from the total annual DCUA harvest has been below the objective since RY03. If this trend continues it may be necessary to review the horn length objective and assess its applicability to the DCUA sheep population. It is possible the objective cannot be consistently met due to prevalence of brooming. Also, it is possible that rams from this subpopulation of sheep are not growing 36 inches of horn length in the amount of time it takes them to reach full-curl horn length and/or 8 years of age (legal harvest status). Because hunters have not voiced concern about shorter horn length, this objective will be monitored during the next reporting period, but no changes to the horn length objective will be suggested at this time. I do recommend an analysis of horn measurement data from sheep harvested in DCUA with emphasis on prevalence of brooming and horn length-age relationships. The local Fish and Game advisory committee and the public will be consulted if a change to the horn length objective is considered.

The population size was not estimated in RY10 and RY11 due to incomplete surveys. The most recent sheep survey of the entire DCUA was in June and July 2012, when 1,683 sheep were observed. Because this latest survey was a minimum count, the management objective of 1,800 sheep was likely met.

Population estimates generated by DuBois (2008) in RY07, RY08, and RY09 ($\bar{x}$ = 2,184) suggest the sheep population in DCUA was stable. The minimum count achieved during the RY12 survey of the entire DCUA is lower than the population estimates of RY07–RY09, but is comparable to the number of sheep observed during RY07–RY09 surveys of DCUA ($\bar{x}$ = 1,679; DuBois 2008). Therefore, I suggest the DCUA sheep population continued to be stable during RY10–RY12.

Ongoing military activity within DCUA is expected, particularly in the Black Rapids area and military exercises may overlap with Dall sheep habitat. I will meet with the U.S. Army to assess the potential frequency, scope, duration, and locations of future military activities in DCUA, and coordinate with the U.S. Army to manage and reduce interactions between sheep and military operations.

Active mining occurred within DCUA during RY10–RY12, but it did not take place in core sheep habitat. Ongoing and future mining development will be monitored to assess the potential of disturbance to sheep and sheep habitat.

The potential adverse effects of disease on wild sheep populations is a high priority among management challenges and issues. I recommend that emphasis be placed on opportunistic health

monitoring of the DCUA sheep population to improve our knowledge of the presence of pathogens and to increase our preparedness for disease management.

Hunters were not queried during RY10–RY12 to quantify satisfaction with sheep hunting aesthetics in DCUA. I recommend conducting a hunter survey during the next reporting period to assess hunter satisfaction with the goals of DCUA. I also recommend review of the horn length objective to assess its applicability to the DCUA subpopulation of Dall sheep and ongoing communication with the U.S. Army to discuss plans for military operations within the DCUA and the potential impact to sheep.

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Table 1. Aerial survey data for Dall sheep seen in the Delta controlled use area, 2010–2012.

Survey date/Drainage	Lambs	Rams ≥1/2 curl <full curl	Full curl	Total rams	Others	Unk	Total	Survey minutes	Survey hours
2–3 August 2010[a]									
Granite Mountains–Bradford Creek	37	74	4	78	170	0	285	228	3.8
Southern McCumber, Morningstar	24	38	0	38	72	0	134	38	0.6
Subtotal	61	112	4	116	242	0	419	266	4.4
24 June–8 July 2011									
Johnson River	8	41	5	46	32	0	86	167	2.8
Spur Creek	41	29	6	35	117	0	193	176	2.9
Boulder Creek	4	16	4	20	15	1	40	58	1.0
Gerstle River	57	44	6	50	107	15	229	204	3.4
Granite Mountains–Bradford Creek	19	11	0	11	59	0	89	131	2.2
Southern McCumber, Morningstar	67	41	6	47	104	11	229	215	3.6
July Creek	8	1	0	1	13	21	43	55	0.9
Pegmatite, Little Gerstle, Sheep Creek	25	12	1	13	78	0	116	76	1.3
Jarvis Creek	17	13	5	18	75	0	110	120	2.0
Subtotal	246	208	33	241	600	48	1,135	1,202	20.1
30 June–10 July 2012									
Johnson River	5	44	4	48	35	0	88	177	2.9
Spur Creek	29	39	4	43	124	0	196	149	2.5
Boulder Creek	2	18	5	23	23	0	48	57	0.9
Gerstle River	41	38	4	42	117	0	200	181	3.0
Granite Mountains–Bradford Creek	30	38	5	43	74	0	147	144	2.4
Southern McCumber, Morningstar	48	51	6	57	112	0	217	199	3.3
July Creek	12	3	0	3	38	0	53	54	0.9
Riley Creek	6	5	1	6	23	10	45	31	0.5
Pegmatite, Little Gerstle, Sheep Creek	12	8	1	9	65	0	86	62	1.0
Jarvis Creek	22	28	4	32	80	0	134	103	1.7
Ruby–Trims Creek	32	22	2	24	103	0	159	187	3.1
Pillsbury–McGinnis Creek	24	40	2	42	24	0	90	98	1.6
Castner Glacier	9	7	1	8	5	0	22	78	1.3
Eel Glacier	0	5	1	6	11	0	17	41	0.7
Canwell Glacier	0	3	2	5	8	0	13	43	0.7

Survey date/Drainage	Lambs	Rams ≥1/2 curl <full curl	Full curl	Total rams	Others	Unk	Total	Survey minutes	Survey hours
Augustana–S Black Rapids	5	0	0	0	13	0	18	50	0.8
N Black Rapids	19	17	6	23	63	3	108	145	2.4
Little Gold Creek	10	5	2	7	25	0	42	14	0.2
Subtotal	306	371	50	421	943	13	1,683	1,796	29.9

[a] Incomplete survey due to weather and wind conditions.

Table 2. Delta controlled use area sheep harvest data by permit hunt, regulatory years[a] 2005–2012.

Hunt no.	Regulatory year	Permits issued	Percent did not hunt	Percent unsuccessful hunters	Percent successful hunters	Ram harvest	$\bar{x}$ Horn length (inches)	$\bar{x}$ Age (yr)	Percent ≥40″
DS203	2005	75	21	43	33	25	36.2	8.8	8
	2006	75	29	41	28	21	35.2	8.1	5
	2007	75	27	45	28	21	35.7	8.2	0
	2008	75	12	52	36	27	35.2	8.8	0
	2009	75	23	47	31	23	35.7	8.1	4
	2010	74	30	71	29	15	36.1	8.5	0
	2011	75	31	63	37	19	35.0	8.5	0
	2012	75	28	59	41	22	35.3	8.2	0
DS204	2005	75	26	35	36	27	35.0	8.4	0
	2006	75	24	37	39	29	35.7	9	3
	2007	75	21	39	39	29	35.0	8.0	4
	2008	75	16	47	37	28	35.2	8.3	4
	2009	75	31	31	39	28	34.5	8.3	7
	2010	75	27	60	40	22	35.2	8.0	5
	2011	75	27	46	54	29	35.1	8.5	3
	2012	75	27	65	35	19	35.1	8.4	6
Total for all permit hunts	2005	150	24	39	35	52	35.5	8.6	4
	2006	150	27	39	33	50	35.5	8.9	4
	2007	150	24	42	33	50	35.3	8.1	2
	2008	150	14	49	37	55	35.2	8.6	2
	2009	150	27	39	35	51	35.0	8.2	6
	2010	149	28	65	35	37	35.5	8.2	3
	2011	150	29	54	46	48	35.1	8.5	2
	2012	150	27	62	38	41	35.2	8.2	3

[a] Regulatory year begins 1 July and ends 30 June (e.g., regulatory year 2005 = 1 July 2005–30 June 2006).

Table 3. Number of applications received for Delta controlled use area hunts DS203 (restricted access) and DS204 (unrestricted access), regulatory years[a] 2005–2012.

Regulatory year	Hunt DS203	Hunt DS204	Total applications
2005	1,324	1,538	2,862
2006	1,590	1,944	3,534
2007	1,617	1,979	3,596
2008	1,514	1,865	3,379
2009	1,433	1,828	3,261
2010	1,742	2,175	3,917
2011	1,667	1,970	3,637
2012	1,658	2,063	3,721

[a] Regulatory year begins 1 July and ends 30 June (e.g., regulatory year 2005 = 1 July 2005–30 June 2006).

Table 4. Delta controlled use area sheep hunter residency and success, regulatory years[a] 2005–2012.

Hunt no.	Regulatory year	Successful					Unsuccessful					Total hunters
		Local[b] resident	Nonlocal resident	Nonres	Unk	Total (%)	Local[b] resident	Nonlocal resident	Nonres	Unk	Total (%)	
DS203	2005	4	16	5	0	25 (44)	4	28	0	0	32 (56)	57
	2006	0	17	4	0	21 (41)	2	24	5	0	31 (61)	52
	2007	0	16	5	0	21 (38)	2	30	2	0	34 (62)	55
	2008	1	24	2	0	27 (41)	3	31	5	0	39 (59)	66
	2009	2	16	5	0	23 (40)	0	32	3	0	35 (60)	58
	2010	1	12	2	0	15 (29)	2	34	1	0	37 (71)	52
	2011	0	15	4	0	19 (37)	2	29	1	0	32 (63)	51
	2012	1	21	0	0	22 (41)	2	29	1	0	32 (59)	54
DS204	2005	2	20	5	0	27 (51)	6	19	1	0	26 (49)	53
	2006	4	24	1	0	29 (51)	1	26	1	0	28 (49)	57
	2007	2	24	3	0	29 (50)	1	24	4	0	29 (50)	58
	2008	3	19	6	0	28 (44)	6	28	1	0	35 (56)	63
	2009	2	23	4	0	29 (57)	1	21	0	0	22 (43)	51
	2010	1	17	4	0	22 (40)	5	27	1	0	33 (60)	55
	2011	4	23	2	0	29 (54)	2	22	1	0	25 (46)	54
	2012	2	14	3	0	19 (35)	1	34	1	0	36 (65)	55
Total for all permit hunts	2005	6	36	10	0	52 (47)	10	47	1	0	58 (53)	110
	2006	4	41	5	0	50 (45)	3	50	6	0	59 (54)	109
	2007	2	40	8	0	50 (44)	3	54	6	0	63 (56)	113
	2008	4	43	8	0	55 (43)	9	59	6	0	74 (57)	129
	2009	4	39	9	0	52 (48)	1	53	3	0	57 (52)	109
	2010	2	29	6	0	37 (35)	7	61	2	0	70 (65)	107
	2011	4	38	6	0	48 (46)	4	51	2	0	57 (54)	105
	2012	3	35	3	0	41 (38)	3	63	2	0	68 (62)	109

[a] Regulatory year begins 1 July and ends 30 June (e.g., regulatory year 2005 = 1 July 2005–30 June 2006).
[b] Local is a hunter who resides in Unit 20D.

Table 5. Delta controlled use area sheep harvest chronology percent by month/day, regulatory years[a] 2005–2012.

Hunt	Regulatory year	Harvest chronology percent by month/day							
		8/10–8/16	8/17–8/23	8/24–8/30	8/31–9/6	9/7–9/13	9/14–9/20	Unknown	*n*
DS203[b]	2005	88	13	0				0	24
	2006	100	0	0				0	17
	2007	67	24	0				10	21
	2008	70	30	0				0	27
	2009	61	35	0				4	23
	2010	93	7	0				0	15
	2011	95	5	0				0	19
	2012	86	14	0				0	22
DS204[c]	2005			63	22	7	7	0	27
	2006			43	18	21	14	4	28
	2007			41	30	22	7	4	27
	2008			54	43	0	4	0	28
	2009			34	38	17	7	3	29
	2010			59	14	18	9	0	22
	2011			55	21	14	10	0	29
	2012			37	21	16	26	0	19
Total for all permit hunts	2005	41	6	33	12	4	4	0	51
	2006	43	0	24	10	12	8	2	49
	2007	29	10	23	17	13	4	4	48
	2008	35	13	29	22	0	2	0	55
	2009	27	15	19	21	10	4	2	52
	2010	38	3	35	8	11	5	0	37
	2011	38	2	33	13	8	6	0	48
	2012	47	7	17	10	7	12	0	41

[a] Regulatory year begins 1 July and ends 30 June (e.g., regulatory year 2005 = 1 July 2005–30 June 2006).
[b] Season open from 10 August to 25 August.
[c] Season open from 26 August to 20 September.

Table 6. Delta controlled use area sheep harvest percent by transport method, regulatory years[a] 2005–2012.

		Sheep harvest percent by transport method									
Permit hunt	Regulatory year	Airplane	Horse	Boat	3- or 4-wheeler	Snowmachine	ORV	Highway vehicle	Other	Unknown	*n*
DS203	2005	36	0	4	0	0	0	48[b]	12	0	25
	2006	14	0	10	0	0	0	67[b]	10	0	21
	2007	24	0	0	0	0	0	67[b]	10	0	21
	2008	19	0	11	0	0	4	52	15	0	27
	2009	22	0	9	4	0	0	61	4	0	23
	2010	13	7	0	0	0	0	60	20	0	15
	2011	21	0	0	5	0	0	74	0	0	19
	2012	32	0	5	0	0	0	55	4	4	22
DS204	2005	48	0	0	26	0	11	15	0	0	27
	2006	21	0	0	62	0	10	7	0	0	29
	2007	31	0	0	41	0	10	7	10	0	29
	2008	19	0	11	0	0	4	52	15	0	27
	2009	19	0	7	4	0	0	52	4	0	23
	2010	32	0	0	50	0	4	14	0	0	22
	2011	31	0	3	55	0	0	10	0	0	29
	2012	53	0	5	26	0	0	16	0	0	19
Total for all permit hunts	2005	40	0	2	13	0	11	29[b]	5	0	55
	2006	18	0	4	37	0	6	33[b]	4	0	49
	2007	29	0	0	25	0	6	29[b]	6	4	48
	2008	35	0	5	16	0	9	27	7	0	55
	2009	35	0	7	19	0	2	33	2	0	52
	2010	24	0	3	30	0	3	32	8	0	37
	2011	27	0	2	35	0	0	36	0	0	48
	2012	42	0	5	12	0	0	37	2	2	41

[a] Regulatory year begins 1 July and ends 30 June (e.g., regulatory year 2005 = 1 July 2005–30 June 2006).

[b] Transportation mode of "foot" is combined with "highway vehicle" on the assumption that hunters used a highway vehicle to get to the departure point.