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CHAPTER 9: DEER MANAGEMENT REPORT

From: 1 July 2012
To: 30 June 2014

LOCATION

GAME MANAGEMENT UNIT: 8 (5,097 mi^2)

GEOGRAPHIC DESCRIPTION: Kodiak and adjacent islands

BACKGROUND

Officially, the Sitka black-tailed deer population in Unit 8 originated from 3 transplants between 1924 and 1934, totaling 25 deer (Paul 2009). In May 1923, the U.S. Secretary of Agriculture authorized the first transplant of deer to Kodiak and the project commenced the following year when 14 animals were captured near Sitka and released on Long Island just east of Kodiak city. Soon after the Alaska Game Commission was established in 1925 it endorsed the project and adopted regulations to protect the newly established population. In 1930, 2 additional deer were captured from Prince of Wales Island and released on Long Island. There was, however, little movement from Long Island to Kodiak, as noted in a March 1931 report from the Alaska Game Commission to the Territorial Legislature stating only 3 does and 2 bucks had been observed on Kodiak Island (Burris and McKnight 1973). Due to the lack of movement of deer from Long Island to Kodiak Island transplant efforts were renewed in 1934 and 9 deer were captured in the Rocky Pass area near Petersburg and released on Kodiak.

Other evidence, however, suggests deer have been on the archipelago since at least the turn of the last century. A letter dated 15 March 1919 (ADF&G files, Kodiak) from the U.S. Marshal's Office to the Territorial Governor states "The Alaska Commercial Company planted some deer on Kodiak Island some 20 years ago and up to the time of the Katmai eruption [1912] they were increasing very nicely…" The correspondence noted that ash from the eruption had decimated the deer population on Kodiak, and hunters had killed all the deer on Long Island. A note from the U.S. Department of Agriculture to the governor on 26 April 1919 states, "I note your request that protection be continued on deer on Kodiak and Long Islands and will reinsert this in the regulations." We have not found any further information on the date, source, or size of this "original" transplant of deer to Kodiak.

By the early 1940s deer were abundant on Long Island and occupied northeastern Kodiak Island (Van Daele et al. 2013). In 1950 they were a common sight near Kodiak city, and the first officially sanctioned hunt was held in 1953 (Burris and McKnight 1973). The deer population continued to expand into unoccupied habitats, and by the late 1960s deer had dispersed throughout Kodiak, Afognak, and adjacent islands (Smith 1979). The expansion of deer on the

southern part of Kodiak Island continued for the next several decades, eventually allowing population expansion to Sitkinak and Tugidak islands in the early 1980s.

Winter mortality proved to be the most significant factor limiting the deer population. Deer herds suffered high mortality during the 1968–1969 and 1970–1971 winters, causing declines in harvests and hunter success (Alexander 1970, 1973). The population rebounded from 1972 to the mid-1980s, when it reached peak numbers, exceeding 100,000 animals unitwide (Smith 1989). Severe winter conditions prevailed from 1987 through 1992, and deer in the northern part of the archipelago were hit especially hard. There was a short reprieve from 1993 to 1996, but populations declined again in 1997. During the winter of 1998–1999 the Unit 8 deer population declined precipitously (Van Daele 2003). The 5 successive winters (1999–2000 through 2005–2006) were relatively mild. Harsh winter weather returned in 2006–2007 and 2008–2009, along with increased deer mortality. Mild winters were observed during 2009–2010 through 2010–2011. The winter of 2011–2012 was again harsh, and an estimated 40% of the deer herd perished due in part to record snowfall conditions.

Deer have become an important resource for the residents of, and visitors to, the Kodiak Archipelago. Venison has surpassed marine mammals as a primary source of mammalian protein for villagers, and income generated from services provided to deer hunters is a major factor in the local economy. In spite of the significance of this resource, we have not yet developed an objective method of measuring the population size or density. Annual hunter harvest surveys have been used to assess trends in the deer population since 1989. We assessed winter mortality by searching for and examining deer carcasses in selected coastal wintering areas and periodically used aerial surveys to assess winter conditions and physical appearance of deer. From 1990 through 1998 the U.S. Fish and Wildlife Service (USFWS) experimented with various aerial and ground surveys to monitor deer population trends on the Kodiak National Wildlife Refuge (NWR, Zwiefelhofer and Stovall 1992). Refuge staff also experimented with browse transects, Forward Looking Infrared Radar (FLIR), and range exclosures to investigate deer population trends. Most recently, NWR staff has attempted to obtain a population estimate for deer in nonforested habitats of the island, specifically in the Olga flats and Ayakulik areas, and along the Aliulik Peninsula, using aerial mark-recapture distance sampling techniques (Cobb 2014).

Seasons and bag limits were liberal during the past 3 decades. Seasons ranged from 153 to 184 days, and bag limits ranged from 3 bucks to 7 deer. Most regulatory changes were initiated in response to perceived population trends and hunting effort. The unit typically has been divided into 2–3 hunt areas. The road systems emanating from Kodiak city and Port Lions have had the most restrictive regulations, while more remote areas have been more liberal. Gender restrictions are usually predicated on protecting maternal does while their fawns are still dependent on them or restricting doe harvests during times when the population is recovering from declines. Because of the subjective nature of much of the data used in deer management, close cooperation between the Alaska Department of Fish and Game (ADF&G), USFWS, the Kodiak Fish and Game Advisory Committee, and the general public is critical.

MANAGEMENT DIRECTION

MANAGEMENT OBJECTIVE

Maintain a population of 70,000–75,000 deer and an annual harvest of 8,000–8,500 deer (5 AAC 92.108).

METHODS

From regulatory year 89 (RY89) to RY10 (a regulatory year runs from 1 July through 30 June; e.g., RY11 = 1 July 2011–30 June 2012) questionnaires were mailed to hunters annually to assess trends in hunting effort and harvest. Questionnaires were sent to a random sample of deer harvest ticket holders and harvest estimates were derived from data collected from returned questionnaires. However, in RY11, a statewide deer harvest ticket system was implemented and all individuals obtaining deer harvest tickets were required to report their harvest and a summary of their hunting effort. Harvest information is summarized by regulatory year and includes total harvest, hunter residency and success, transportation method, and harvest chronology. In addition, guides and transporters frequently submitted voluntary summaries of hunting activities which served as anecdotal information when investigating hunting and deer population trends.

We annually assessed natural mortality by searching for deer carcasses in selected known coastal wintering areas. Mortality surveys provided a relative index of winter mortality, but current methods are not consistent or sufficiently rigorous to provide conclusive findings. To supplement information obtained from mortality surveys, we conducted opportunistic flights to observe snow conditions and overall herd condition during winter months. Reports from the public, particularly spring bear hunters, also provided anecdotal information on winter conditions and deer mortality.

RESULTS AND DISCUSSION

POPULATION STATUS AND TREND

Population Size

The Unit 8 deer population experienced substantial winter mortality during RY68, RY70, RY89, and RY98. Following these population declines, more conservative regulations were enacted and the populations quickly rebounded (Van Daele 2003).

In the years following the severe winter of 1998–1999, there were 7 successive mild winters followed by harsh winter weather again in 2006–2007 and 2008–2009 resulting in substantial deer mortality. The winters of 2009–2010 through 2010–2011 were moderate and a noticeable increase in fawn survival was observed. However, the winter of 2011–2012 was severe and an unprecedented 40% of the deer herd was estimated to have perished due to record snowfall conditions. The winters of 2012–2013 and 2013–2014 have been moderate to mild and all reports and observations indicate the deer population is rebounding.

Currently, we have no impartial methods of ascertaining deer numbers or densities, but annual hunter harvest reports provide reliable harvest data, and, combined with anecdotal evidence, serve as an indicator of overall population trend.

Distribution and Movements

Deer are distributed throughout Unit 8 except in the more remote Semedi, Barren, and Chirikof island groups. Within the past 30 years, deer colonized Tugidak Island, about 20 miles south of Kodiak Island. It is important to note, Tugidak Island is a State Critical Habitat Area identified as important to ground-nesting birds and harbor seals. If deer flourish on the island, it could result in detrimental impacts to the native flora and fauna, so increased monitoring is warranted.

Our knowledge of deer movements in Unit 8 is based on Selinger (1995), who documented movements between summer and winter ranges for 21 radiocollared female deer monitored in 1990 and 1991 near Spiridon Bay on western Kodiak Island. Distances between summer and winter ranges did not exceed 5 km (3 miles) for 14 deer, but 7 deer moved 22 km (13 miles). The mean date of movement was 29 May between winter and summer ranges, and 20 October for movement between summer and winter ranges. Summer home ranges were larger than winter home ranges, averaging 454 ha (1.8 mi^2) and 107 ha (0.4 mi^2), respectively.

MORTALITY

Harvest

Season and Bag Limits. During this reporting period the open season for resident, nonresident, and federal subsistence hunters was 1 August–31 October in that portion of Kodiak Island north of a line from the head of Settlers Cove (including Peregrebni Point) to Crescent Lake (57° 52'N, 152° 08'W) and east of a line from the outlet of Crescent Lake to Mount Ellison Peak and from Mount Ellison Peak to Pokati Point at Whale Passage, and that portion of Kodiak Island east of a line from the mouth of Saltery Creek to the mouth of Elbow Creek and adjacent small islands in Chiniak Bay. The bag limit was 1 buck. A special weapons hunt (archery and muzzleloaders) was open in this area 1–14 November with a bag limit of 1 deer (either sex). Hunters were required to successfully complete a special weapons education course before participating in the hunt. In the fall of 2011, a special-weapons youth hunt was opened within the 1 deer bag limit area along the Kodiak road system. From 15 November through 31 December youth hunters within the ages of 10 to 18 that had successfully completed a basic hunter education course and an archery/muzzleloader course were able to participate in the hunt. The bag limit was 1 deer (either sex).

The open season for resident, nonresident, and federal subsistence hunters in the remainder of Unit 8 was 1 August–31 December. The bag limit was 3 deer. Hunters could harvest only bucks 1 August–30 September and deer of either sex could be taken October through December.

Federal subsistence hunting regulations mirrored state regulations, except that residents of Unit 8 could continue to hunt on the Kodiak NWR throughout January. On Kodiak NWR lands, hunters could harvest deer for other qualified subsistence users if they first obtained a designated hunter permit. Proxy hunting on other lands was restricted to resident hunters who were hunting for other Alaska residents who were ≥65 years old, legally blind, or ≥70% disabled.

Board of Game Actions and Emergency Orders. No Board of Game actions regarding deer in Unit 8 occurred during this reporting period.

Hunter Harvest. Harvest during this reporting period was lower than in previous years, presumably due to the severe winter in RY11. Hunter effort and the number of hunters participating in deer hunts often declines following harsh winters as reports of increased winter deer mortality and reduced densities discourage hunters from going afield. Historical data suggests hunter effort, hunter participation, and hunter success increase gradually as deer numbers rebound in the years following a severe winter. The total estimated legal harvest was 2,856 in RY12, and increased to 3,251 in RY13 (Table 1). During the previous 5 years of reported harvest (RY07–RY11) the mean annual harvest was 4,047.2 deer, which further highlights the reduction in harvest commonly observed following a severe winter. In RY12 and RY13 the percentage of bucks in the harvest was 76% and the previous 5-year (RY07–RY11) mean was 76.8%.

Harvest Composition. The percent males in the annual harvest remained at least 75% from RY03 to RY13 (range 75%–86%), and peaked at 86% in RY05; however, no harvest data were available in 2004 (Table 1). Following the peak in male harvest in RY05, the percentage of males in the harvest has been consistent with the RY03–RY13 mean of 78.1%.

Hunter Residency and Success. The estimated number of hunters afield during this reporting period increased slightly from 2,686 in RY12 to 2,781 in RY13 (Table 2). The estimated mean number of hunters afield during the previous 5 years (RY07–RY11) was 2,968. Despite the decline in hunters in recent years, we anticipate an increase in hunter participation as the deer population recovers from the devastating winter of 2011–2012. Unit 8 residents comprised 40% of deer hunters in RY12 and 39% in RY13, comparable to the previous 5-year mean of 38%. Nonlocal residents comprised 44% of the hunters in RY12 and 48% in RY13, also comparable to the previous 5-year mean of 43%. Nonresidents comprised 16% of the hunters in RY12 and 13% in RY13, a proportion comparable to the 5-year mean of 19%.

When compared to the 5-year mean, estimated hunter success decreased during this reporting period from 57% in RY12 to 64% in RY13. The mean annual hunter success during the previous 5 years was 68% (Table 2). The mean number of deer harvested per hunter was 1.0 in RY12 and 1.1 in RY13. The previous 5-year (RY07–RY11) mean was 1.3 deer per hunter (Table 3). In RY10, 40% of the hunters killed 1 deer, and 33% of hunter took $\geq$3 deer (Table 4). Data regarding the number of deer harvested by each specific hunter were not available for RY11–RY13. Decreased hunter success and the decreased number of deer harvested per hunter observed during this reporting period presumably reflect the decreased deer numbers following the population decline in RY11. Not surprisingly, hunter effort (i.e., number of days hunted/deer) declined in recent years as the deer population rebounded and expanded.

Harvest Chronology. November is consistently the peak month of harvest in Unit 8 (Table 5). In RY12 and RY13, 45% and 49%, respectively, of deer taken were harvested in November, similar to the 5-year mean of 45%. Hunters prefer to hunt during the months of October and November on Kodiak as the onset of snow in the higher elevations forces deer to move to lower elevations, making them more vulnerable to hunters. Also, deer typically enter the rut in November resulting in increased male vulnerability.

Transport Methods. Boats and aircraft have been the most favored means of transportation for deer hunters in Unit 8, presumably due to the inaccessibility of the island. In RY12, 44% of the

deer hunters used boats and 26% used aircraft as their primary means of access. In RY13, 44% of deer hunters used boats and 25% used aircraft. Averages for the previous 5 years were 42.2% and 19.6% for boats and aircraft, respectively (Table 6). Charter boats are consistently common modes of transportation for deer hunters throughout the archipelago; however, the number of operators from Homer and other off-island locations appears to fluctuate with deer density and availability.

Other Mortality

A severe winter in 2011–2012 resulted in high fawn mortality and a noticeable decline in the deer population on most parts of the archipelago (Table 7). The number of deer mortalities identified along transects during this reporting period was more than a 50% reduction following the 2011–2012 winter. The winters of 2012–2013 and 2013–2014 were comparatively mild and abundant food resources were readily available throughout most of the winter, resulting in a significant reduction in winter mortality throughout much of the archipelago.

Anecdotal evidence suggests unreported deer harvest, including wounding loss and illegal kills outside the hunting season, was common, resulting in an estimated additional kill of 20% of the reported harvest. Free-roaming dogs are significant predators on deer near communities and isolated residences (Van Daele, et al. 2013). Deer–motor vehicle collisions kill an estimated 40–50 deer annually along the Kodiak road system. Brown bear predation of deer occurs, predominantly in late winter/early spring as bears emerge from dens and deer exhibit reduced body condition and increased vulnerability. However, bears do not appear to be an important factor limiting the deer population.

HABITAT ASSESSMENT

High deer densities in the late 1970s through the mid-1980s resulted in heavily browsed winter range in some locales. The population decline in the late 1980s reduced pressure on winter range, but we did not evaluate the level of recovery. Staff from Kodiak NWR established small range exclosures in 1999; however, they have never conducted an objective analysis, and the exclosures simply provide an example of unbrowsed vegetative growth. During winters with heavy snowfall that force deer onto beaches and exposed capes, vegetation in those areas receives extensive use, especially red elderberry, highbush cranberry, blueberry, and willow. There have been no objective investigations of the browse since the decline in the deer population in 1998–1999.

Much of the Sitka spruce forest of central and eastern Afognak Island, as well as private land on the Chiniak Peninsula of northeastern Kodiak Island, has been clearcut. In the northern range of Sitka black-tailed deer, maintenance of mature forest with a patchy understory for foraging and a well-developed canopy for snow interception are of paramount importance (Nelson et al. 2008). Deer may benefit from increased forage plants in young clearcuts on Afognak Island as long as a mosaic of mature stands are available to provide sufficient thermal cover and areas of reduced snow depths during harsh winters. Selinger (1995) noted that deer on Kodiak Island occupying nonconiferous brush and deciduous forest habitat have much larger summer ranges than deer in heavily forested Southeast Alaska, and hypothesized that Kodiak deer may have adopted a strategy that allows them to accumulate greater fat reserves in summer that enhance their survival in areas without coniferous forest.

NONREGULATORY MANAGEMENT PROBLEMS/NEEDS

Hunters continued to report harvested bucks with malformed antlers caused by abnormal testicular development ("steer deer"), particularly from the south end of Kodiak. Hunter questionnaires indicated that about 3% of the bucks taken in 1999 were steer deer, with the highest prevalence being on the Hepburn Peninsula (13%). From 1999 to 2010, a local big game guide collected samples from normal and abnormal deer harvested on the Aliulik and Hepburn peninsulas. Staff at the University of Guelph in Ontario, Canada, and Colorado State University analyzed these samples. Results suggest an unusual occurrence of underdeveloped testes and/or testes that had not descended in adult bucks (unilateral and bilateral cryptorchidism; Bubenik et al. 2001). The cause of this phenomenon has not been determined, but it is likely caused by an environmental factor rather than a genetic anomaly (Veeramachaneni et al. 2006; Latch et al. 2008). In spite of the increasing reports of abnormal deer, harvest data from the affected areas do not indicate discernable changes in the population and we feel that no management action is practical or necessary at this time.

CONCLUSIONS AND RECOMMENDATIONS

Sitka black-tailed deer on the Kodiak Archipelago is an introduced ungulate using an island habitat. There are no significant natural predators of deer on the archipelago and vegetation comprising the islands has evolved in the absence of any indigenous herbivores (except for seasonal use by brown bears). The dense coniferous cover similar to the old-growth forests of this ungulate's ancestral home in Southeast Alaska is not available in much of the archipelago, and during most winters deer are forced onto beaches by snow and/or cold temperatures. Consequently, the deer population is prone to dramatic population swings. Hunting harvest is presumably compensatory, as winter severity is the primary limiting factor. The potential success of implementing management strategies to enhance Kodiak's deer population is uncertain.

Several techniques for assessing and estimating the deer population have been considered and attempted (Van Daele 2003, Cobb 2014); however, hunter harvest reports and anecdotal evidence collected from hunters, guides, and transporters continue to be the primary tools for assessing population trends. Even though objective population data are nonexistent, Alaska Statute 16.05.255 mandates that population and harvest objectives be established for Unit 8 deer because of their importance as a human food resource. ADF&G, in close cooperation with the Kodiak Fish and Game Advisory Committee, Kodiak NWR, commercial operators, and individual hunters made an attempt to satisfy this requirement by using the best available data to estimate population size and harvest. We recognize there is considerable room for improvement in the current estimates and data gathering techniques and anticipate changes in management objectives as these techniques are implemented and refined.

A great deal of interagency cooperation continued to occur during this reporting period. The Kodiak Fish and Game Advisory Committee worked closely with its federal subsistence counterpart, the Kodiak/Aleutians Regional Advisory Council, to develop and review deer hunting regulations for both the state and federal boards. Staffs from ADF&G and the Kodiak NWR were active participants throughout the process. State and federal biologists also worked together to assess winter mortality and conduct interviews of hunters, guides, and transporters in the field.

Deer harvest information collected by hunter harvest report cards provided objective data and assisted with refining our management program; however, development of rigorous population estimation and monitoring techniques that will address the unique population characteristics and rugged terrain on Kodiak is greatly needed. The data collected from harvest report cards form the basis of our management reports and provide insight into inter-annual deer population fluctuations. The deer harvest ticket reporting system has improved with online reporting capabilities and provides managers with up to date harvest information. We will continue to monitor the efficiency of the new reporting system and identify methods to further refine our data gathering techniques.

REFERENCES CITED

Alexander, J. E. 1970. Unit 8 deer survey-inventory progress report. Pages 77–78 [*In*] D. E. McKnight, editor. Annual report of survey-inventory activities: Vol. 1 Part I–Moose, deer, and elk. Alaska Department Fish and Game, Division of Game, Federal Aid in Wildlife Restoration Progress Report, Project W-17-2. Jobs No. 1, 2, and 13, Juneau.

Alexander, J. E. 1973. Unit 8 deer survey-inventory progress report. Pages 170–171 [*In*] D. E. McKnight, editor. Annual report of survey-inventory activities: Vol. III, Part I–Moose, deer, and elk. Alaska Department Fish and Game, Division of Game, Federal Aid in Wildlife Restoration Progress Report, Project W-17-4, Jobs No. 1, 2 and 13, Juneau.

Bubenik, G. A., J. P. Jacobson, D. Schams, and L. Bartos. 2001. Cryptorchism, hypogonadism, and malformation in black-tailed deer (*Odocoileus hemionus sitkensis*) of Kodiak Island. Z. Jagdwiss 47: 241–252.

Burris, O. E., and D. E. McKnight. 1973. Game transplants in Alaska. Alaska Department of Fish and Game, Division of Game, Wildlife Technical Bulletin 4, Juneau.

Cobb, M. A. 2014. Using mark-recapture distance sampling to estimate black-tailed deer densities in non-forested habitats of Kodiak Island, Alaska. Refuge report no. 2014.5, Kodiak National Wildlife Refuge, U.S. Fish and Wildlife Service, Kodiak, Alaska.

Latch, E. K., R. P. Amann, J. P. Jacobson, and O. E. Rhodes, Jr. 2008. Competing hypotheses for the etiology of cryptorchidism in Sitka black-tailed deer: an evaluation of evolutionary alternatives. Animal Conservation 11:234–246. doi:10.1111/j.1469–1795.2008.00174.x

Nelson, J., D. Cottam, E. W. Holman, D. J. Lancaster, S. McCorquodale, and D. K. Person. 2008. Habitat guidelines for black-tailed deer – coastal rainforest ecoregion. Mule Deer Working Group. Western Association of Fish and Wildlife Agencies.

Paul, T. W. 2009. Game transplants in Alaska. Alaska Department of Fish and Game, Division of Wildlife Conservation, Technical bulletin 4, 2nd edition, Juneau.

Selinger, J. S. 1995. Seasonal habitat relationships of adult female deer on Kodiak Island, Alaska. M.Sc. thesis, University Alaska, Fairbanks.

Smith, R. B. 1979. History and current status of Sitka black-tailed deer in the Kodiak Archipelago. Pages 184 to 195 [*In*] O. C. Wallmo and J. W. Schoen, editors. Sitka black-tailed deer: Proceedings of a conference in Juneau, Alaska. U.S. Forest Service, Alaska Region, Juneau. Series No. R10-48.

Smith, R. B. 1989. Unit 8 deer survey-inventory progress report. Pages 78–112 [*In*] S. O. Morgan, editor. Annual report of survey-inventory activities: Vol XIX, Part VI–Deer, Alaska Department Fish and Game, Division of Wildlife Conservation. Federal Aid in Wildlife Restoration Project W-23-1, Study 2.0, Juneau.

Van Daele, L. J. 2003. Unit 8 deer management report. Pages 108–125 [*In*] C. Healy, editor. Deer management report of survey-inventory activities 1 July 2000–30 June 2002. Alaska Department Fish and Game, Division of Wildlife Conservation, Federal Aid in Wildlife Restoration Project 2.0, Juneau.

Van Daele, L. J., N. J. Svoboda, J. R. Crye. 2013. Unit 8 deer management report. Pages 97–112 [*In*] P. Harper, editor. Deer management report of survey-inventory activities 1 July 2010–30 June 2012. Alaska Department Fish and Game, Species Management Report ADF&G/DWC/SMR-2013-1, Juneau.

Veeramachaneni, D. N. R., R. P. Amann, and J. P. Jacobson. 2006. Testis and antler dysgenesis in Sitka black-tailed deer on Kodiak Island, Alaska: Sequela of environmental endocrine disruption? Environmental Health Perspectives 114(1):51–59.

Zwiefelhofer, D., and R. Stovall. 1992. Summary of the 1992 black-tailed deer winter population index surveys on the Kodiak National Wildlife Refuge. U.S. Fish and Wildlife Service. Unpublished report.

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While this unit report was actually published in 2016, it is part of the set of 2015 unit species management reports, so we suggest citing the report as a 2015 report to maintain its relationship to the other 2015 unit reports.

Table 1. Game Management Unit 8 deer harvest during regulatory years[a] 2002 through 2013, Kodiak Archipelago, Alaska.

Regulatory year	Estimated legal harvest				Estimated illegal harvest[b]	Estimated wounding loss[c]	Estimated total[d,e]
	Male (%)	Female (%)	Unknown	Total			
RY02	2,943 (94)	200 (6)	---	3,143	314	314	3,771
RY03	4,430 (85)	769 (15)	---	5,199	520	520	6,239
RY04[f]	---	---	---	---	---	---	---
RY05	5,635 (86)	936 (14)	---	6,571	657	657	7,885
RY06	4,369 (81)	1,053 (19)	---	5,422	542	542	6,506
RY07	2,563 (78)	727 (22)	---	3,290	329	329	3,948
RY08	2,792 (75)	921 (25)	---	3,713	372	372	4,459
RY09	3,057 (75)	1,030 (25)	---	4,087	409	409	4,906
RY10	3,035 (75)	1,011 (25)	---	4,046	405	405	4,856
RY11	4,123 (81)	977 (19)	---	5,100	510	510	6,120
RY12	2,165 (76)	691 (24)	---	2,856	286	286	3,428
RY13	2,457 (76)	794 (24)	---	3,251	325	325	3,901

[a] A regulatory year (RY) runs from 1 July through 30 June (e.g., RY13 = 1 July 2013–30 June 2014). Harvest data for RY02–RY10 were extrapolated from the results of a mail questionnaire survey. No survey was conducted in RY04. Harvest data for RY11–RY13 were derived from harvest tickets.

[b] Although illegal harvest has not been quantified, it is presumed to be about 10% of the legal harvest.

[c] Although wounding loss has not been quantified, it is presumed to be about 10% of the legal harvest.

[d] Harvest estimates include both State and Federal (subsistence) harvest.

[e] Harvest information is based on the best available data at the time of this publication

[f] No deer harvest information was available in RY04.

Table 2. Game Management Unit 8 deer hunter residency and success during regulatory years[a] 2002 through 2013, Kodiak Archipelago, Alaska.

	Successful				Unsuccessful				
Regulatory year[b]	Local resident[c]	Nonlocal resident	Nonresident	Total (%)	Local resident[c]	Nonlocal resident	Nonresident	Total(%)	Total hunters
RY02	705	693	207	1,605 (59)	524	413	196	1,133 (41)	2,738
RY03	1,065	1,027	308	2,400 (77)	356	242	104	702 (23)	3,102
RY04	---	---	---	---	---	---	---	---	---
RY05	1,268	1,350	430	3,048 (83)	292	185	139	616 (17)	3,664
RY06	1,154	1,135	433	2,722 (71)	429	414	245	1,088 (29)	3,810
RY07	583	630	588	1,801 (59)	360	486	412	1,258 (41)	3,059
RY08	882	732	206	1,820 (63)	447	451	158	1,056 (37)	2,876
RY09	725	968	291	1,984 (73)	296	338	86	720 (27)	2,704
RY10	767	876	302	1,945 (68)	347	360	202	909 (32)	2,854
RY11	1,002	1,158	406	2,566 (77)	295	313	172	780 (23)	3,346
RY12	608	718	218	1,544 (57)	467	453	222	1,142 (43)	2,686
RY13	679	906	181	1,766 (64)	410	427	178	1,015 (36)	2,781

[a] A regulatory year (RY) runs from 1 July through 30 June (e.g., RY13 = 1 July 2013–30 June 2014). Harvest data for RY02–RY10 were extrapolated from the results of a mail questionnaire survey. No survey was conducted in RY04.

[b] Harvest data for RY11–RY13 were derived from harvest tickets.

[c] 'Local resident' includes only residents of Unit 8.

Table 3. Game Management Unit 8 comparison of deer harvest for regulatory years[a] 2002 through 2013, Kodiak Archipelago, Alaska.

Regulatory year	% Hunter success	% Hunters taking bag limit[b]	% Male	% Female	Total harvest	Estimated hunters	Mean number deer/hunter	Number days hunted/deer
RY02	59	30	94	6	3,143	2,738	1.1	4.8
RY03	77	42	85	15	5,199	3,102	1.7	3.0
RY04	---	---	---	---	---	---	---	---
RY05	83	42	86	14	6,571	3,664	1.8	3.6
RY06	71	35	81	19	5,422	3,810	1.4	3.7
RY07	59	25	78	22	3,290	3,059	1.1	4.6
RY08	63	34	75	25	3,713	2,876	1.3	4.1
RY09	73	36	75	25	4,087	2,704	1.5	3.6
RY10	68	34	75	25	4,046	2,854	1.4	5.4
RY11	77	--	81	19	5,100	3,346	1.5	4.8
RY12	57	--	76	24	2,856	2,686	1.1	4.6
RY13	64	--	76	24	3,251	2,781	1.2	4.1

[a] A regulatory year (RY) runs from 1 July through 30 June (e.g., RY13 = 1 July 2013–30 June 2014). Harvest data for RY02–RY10 were extrapolated from the results of a mail questionnaire survey. No survey was conducted in RY04.

[b] Maximum bag limit was 4 deer in RY80; 5 deer in RY81; 7 deer in RY82; 5 deer in RY83–RY90; 5 deer on Kodiak NWR and 4 deer on nonfederal lands in RY91–RY00; 4 deer on Kodiak NWR and 3 deer on nonfederal lands in RY01; and 3 deer in RY02–RY13.

Table 4. Number and percent of hunters in Game Management Unit 8 that reported harvesting 1, 2, 3, 4, or 5+ deer, in regulatory years[a] 2002 through 2013, Kodiak Archipelago, Alaska.

Regulatory year	1 deer Hunters	%	2 deer Hunters	%	3 deer Hunters	%	4 deer Hunters	%	5+ deer Hunters	%
RY02	709	44	420	26	416	26	11	1	47	3
RY03	802	33	591	25	921	38	40	2	45	2
RY04[b]	---	--	---	--	---	--	---	--	---	--
RY05	1,113	37	655	22	1,164	39	56	2	31	1
RY06	1,122	41	646	24	874	32	47	2	17	1
RY07	893	50	469	26	397	22	15	1	26	1
RY08	740	35	443	21	874	41	47	2	17	1
RY09	704	36	563	28	671	34	7	<1	38	2
RY10	772	40	520	27	573	29	14	1	67	3
RY11[a]	---	--	---	--	---	--	---	--	---	--
RY12[a]	---	--	---	--	---	--	---	--	---	--
RY13[a]	---	--	---	--	---	--	---	--	---	--

[a] A regulatory year (RY) runs from 1 July through 30 June (e.g., RY13 = 1 July 2013–30 June 2014). Harvest data for RY02–RY10 were extrapolated from the results of a mail questionnaire survey.

[b] Data not available as no survey was conducted in RY04.

Table 5. Game Management Unit 8 deer harvest chronology percent by period, in regulatory years[a] 2002 through 2013, Kodiak Archipelago, Alaska.

Regulatory year	Harvest periods (%)						
	August	September	October	November	December	January	*n*
RY02	6	6	23	38	25	2	3,143
RY03	7	7	21	39	25	1	5,199
RY04[b]	--	--	--	--	--	--	---
RY05	7	6	24	45	17	1	6,571
RY06	6	6	21	46	20	1	5,422
RY07	7	5	19	44	23	2	3,290
RY08	6	7	21	45	18	3	3,713
RY09	6	3	19	47	23	2	4,087
RY10	7	9	21	40	22	1	4,046
RY11	6	3	22	49	20	<1	5,100
RY12	6	4	25	45	19	1	2,856
RY13	5	3	21	49	20	<1	3,251

[a] A regulatory year (RY) runs from 1 July through 30 June (e.g., RY13 = 1 July 2013–30 June 2014). Harvest data for RY02–RY10 were extrapolated from the results of a mail questionnaire survey.

[b] Data not available as no survey was conducted in RY04.

Table 6. Game Management Unit 8 deer harvest percent by transport method, in regulatory years[a] 2002 through 2013, Kodiak Archipelago, Alaska.

Regulatory year	Percent of harvest									
	Airplane	Horse	Boat	3- or 4-wheeler	Snowmachine	ORV	Highway vehicle	Other	Unknown	*n*
RY02	16	<1	40	7	0	<1	14	17	4	4,403
RY03	20	<1	42	7	0	2	14	12	2	4,410
RY04[b]	--	--	--	--	--	--	--	--	--	---
RY05	21	<1	43	10	0	<1	15	11	<1	5,638
RY06	18	<1	39	9	0	2	18	14	--	5,924
RY07	21	<1	40	9	0	1	17	12	--	4,524
RY08	15	1	37	13	0	<1	17	16	<1	4,870
RY09	20	<1	46	7	0	1	12	13	<1	3,929
RY10	18	0	44	7	0	1	15	12	3	4,046
RY11[c]	24	<1	44	7	<1	1	12	6	5	4,804
RY12[c]	26	<1	43	8	<1	1	14	7	--	2,747
RY13[c]	25	<1	44	8	0	2	17	4	--	2,875

[a] A regulatory year (RY) runs from 1 July through 30 June (e.g., RY13 = 1 July 2013–30 June 2014). Harvest data for RY02–RY10 were extrapolated from the results of a mail questionnaire survey.

[b] Data not available as no survey was conducted in RY04.

[c] Harvest ticket system implemented beginning in RY11.

Table 7. Game Management Unit 8 sex and age composition of deer winter-kill from beach mortality transects, in regulatory years[a] 2002 through 2013, Kodiak Archipelago, Alaska.

Regulatory	Adult				Juvenile[a]				Unk age/	All			
year	M (%)	F (%)	Unk	Total	M (%)	F (%)	Unk	Total	gender	M (%)	F (%)	Unk	Total
RY02[c]	0	0	0	0	0	0	0	0	0	0 (--)	0 (--)	0	0
RY03[c]	3 (30)	7 (70)	5	15	1 (50)	1 (50)	13	15	5	4 (33)	8 (67)	23	35
RY04[c]	0 (--)	2 (100)	2	4	0 (--)	0 (--)	5	5	0	0 (--)	2 (100)	7	9
RY05[c]	4 (36)	7 (64)	3	14	8 (67)	4 (33)	29	41	1	12 (52)	11 (48)	33	56
RY06[c]	0 (--)	2 (100)	1	3	4 (80)	1 (20)	36	41	1	4 (57)	3 (43)	38	45
RY07[c]	0 (--)	1 (100)	3	4	8 (100)	0 (--)	35	43	3	8 (89)	1 (11)	41	50
RY08[c]	1 (100)	0 (--)	--	1	1 (25)	3 (75)	14	18	2	2 (40)	3 (60)	16	21
RY09[c]	0 (--)	0 (--)	--	0	7 (64)	4 (36)	17	28	1	7 (64)	4 (36)	18	29
RY10[c]	0 (--)	1 (100)	3	4	0 (--)	1 (100)	12	13	1	0 (--)	2 (100)	16	18
RY11[c]	2 (33)	4 (66)	2	8	6 (60)	4 (40)	11	21	0	8 (50)	8 (50)	13	29
RY12	3 (38)	5 (63)	2	10	6 (55)	5 (45)	10	21	0	9 (47)	10 (53)	12	31
RY13	2 (100)	0 (--)	6	8	2 (100)	0 (--)	3	5	2	4 (100)	0 (--)	11	15

[a] A regulatory year (RY) runs from 1 July through 30 June (e.g., RY13 = 1 July 2013–30 June 2014).

[b] Includes fawns and yearlings.

[c] Data obtained from Kodiak National Wildlife Refuge files.