ALASKA DEPARTMENT OF FISH AND GAME
DIVISION OF WILDLIFE CONSERVATION
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MOOSE
ANNUAL SURVEY AND INVENTORY
PERFORMANCE REPORT

STATE: Alaska **GRANT AND SEGMENT NR:** W-33-4

PROJECT NR: 1.0

PERIOD: 1 July 2005–30 June 2006

PROJECT LOCATION: Statewide

PROJECT TITLE: The Status of Moose and Factors Influencing Their Populations

REPORT DESCRIPTION: This performance report describes statewide moose survey and inventory activities. Regionwide activities are listed before specific activities by herd and game management unit.

The Status of Moose and Factors Influencing Their Populations in Region I

Regionwide Activities

Activity: Provide biannual management report on moose.

A moose management report was written and submitted for each unit and subunit within the region where moose occur. These reports provide updated harvest and management information through the 2005 hunt.

Activity: Monitor the harvest through analysis of registration, Tier II, and drawing permit data, including collection of incisors for aging and photos of antlers.

Harvest in Unit 1A was 3 moose. All 3 bulls were harvested under federal subsistence regulations. Federal regulations do not require incisors to be submitted for aging, and consequently, no teeth were collected during this past season.

In Unit 1C, 154 moose were harvested. Hunter effort was collected from all hunters via their permit hunt reports. Incisors were collected from all moose and sent in for age analysis. Reproductive tracts and body fat indices were collected from all harvested cow moose in the DM043, DM044, and DM045 hunts.

In Unit 1D, 18 moose were harvested. Hunter effort and harvest data were collected from all hunters via their permit hunt reports. Incisors, antler measurements, antler point counts, and antler photos were collected from each of the harvested bull moose.

In Unit 5, 37 moose were harvested. Hunter effort and harvest data were collected from all hunters via their joint state/federal permit hunt reports. Incisors were collected from all harvested bull moose.

In the Petersburg area, 84 incisors and 90 antler photos were obtained from 92 bulls harvested in Units 1B and 3 during fall of 2005.

Activity: Collect anecdotal information about Region I moose populations through contacts with hunters.

Staff in the Douglas area office and those staff in the outer offices of Haines and Yakutat (Units 1C, 1D and 5) discussed moose management with hunters during the permitting process, as well as when hunters dropped off their moose jaws and/or hunt reports. In addition, Douglas staff spent time afield at Gustavus and Haines during the moose hunts to collect samples and to interact with hunters and discuss moose populations and moose management. Douglas staff attended advisory committee meetings in Juneau, Haines, Yakutat, and Gustavus to discuss moose management issues. Staff also orchestrated public meetings in Haines and Gustavus to specifically address moose management issues.

Staff in the Petersburg area office discussed the moose herd with hunters from Petersburg, Wrangell, Kake, and other locations. During fall 2005, staff collected anecdotal information on the number of bulls, cows, and calves observed by hunters during the moose hunting season by way of a question on the RM038 moose registration permit hunt report.

Activity: Conduct aerial surveys to assess sex and age composition of moose in key management areas of the region.

The Petersburg area biologist conducted 2 aerial surveys of the moose population on the Stikine River during 2 days in early December. For the first time in several years, early winter snowfall allowed for an accurate assessment of sex composition. A total of 199 moose were counted, including 32 bulls, 106 cows, and 61 calves, yielding a bull:cow ratio of 30 bulls per 100 cows and a calf:cow ratio of 58 calves per 100 cows.

Douglas Area (Units 1C, 1D and 5): Composition surveys were conducted prior to snowfall at Yakutat and Gustavus, allowing staff to estimate sex and age ratios across the respective populations. Overall population surveys were conducted at Gustavus, Berners Bay, Yakutat (Unit 5), and the Chilkat Valley (Unit 1D). Excellent snow conditions allowed for good sightability and enumerating of moose numbers, but antler drop preceded the arrival of snow and prevented an accurate assessment of sex composition.

Activity: Conduct calf production surveys as time and budget allow.

In Unit 1C at Gustavus, staff used radiocollared cow moose to conduct calf production surveys. During spring 2006, staff located 33 collared female moose and determined the presence or absence of calves with each.

Activities by Unit

Unit 5

Activity: Conduct moose sightability surveys in cooperation with the U.S. Forest Service during fall and winter.

Sightability surveys conducted in Unit 5 are described above.

Total Regional Segment Period Project Costs (in thousands): $69.9

Submitted by: Dale L. Rabe – Region I Management Coordinator

The Status of Alaska Moose and Factors Influencing Their Populations in Region II

Regionwide Activities

Activity: Prepare biennial regional moose management reports.

Biennial moose management reports were prepared for all units in which moose occur.

Activity: Conduct aerial sex and age population composition surveys in all units to determine status, trend, productivity, and mortality of moose.

Unit 6

We completed Gasaway moose surveys in Units 6A and 6C and conducted a composition count in Unit 6B during FY 2005. The estimated moose population in Unit 6 was 1280.

Units 7 and 15

In Unit 7, seven count areas were surveyed with a total of 460 moose tallied. The bull:cow and calf:cow ratios in Unit 7 were 23 and 11, respectively. In Unit 15, eight count areas were surveyed with a total of 1394 moose tallied. The bull:cow and calf:cow ratios in Unit 15 were 22 and 22, respectively.

Unit 9

Composition surveys were flown during October/November in 5 count units. We counted 132 bulls, 390 cows, 77 calves, and a total of 599.

Unit 14C

No composition surveys were conducted due to poor weather and snow conditions.

Unit 16

Ongoing 16B natality and recruitment studies indicate calf production remains high. The preliminary results indicate that of the 67 adult cows captured, radiocollared, and followed, 25 gave birth to one calf, another 25 gave birth to twins, and 5 gave birth to *at least* one calf. The twinning rate was 25/50 or 50%. The total was 80 calves minimum born to 67 cows, which is a calf to cow ratio of 119 calves:100 cows.

Fall 2005 moose census survey in 16B (middle) showed a downward trend in the overall population with a bull to cow ratio of 29 and a calf to cow ratio of 14. The fall 2005 survey in 16A showed a substantial downward trend and a bull to cow ratio of 22 and a calf to cow ratio of 19.

Activity: Monitor the moose harvest through field observations, hunter harvest reports, and contact with hunters.

Unit 6

The Unit 6 harvest during FY 2005 was:

Males	Females	Total
78	7	85

Units 7 and 15

The preliminary harvest for the general season in Units 7 and 15 for 2005–06 was:

GMU	Males	Females	Unspecified	Total
7	38	0	0	38
15A	118	2	3	123
15B	46	0	0	46
15C	271	3	1	275
15Z	5	0	0	5
Total	478	5	4	487

The harvest for all permit hunts held in Units 7 and 15 is summarized in the following table:

	Permits	Harvest			
Hunt area	issued	Male	Female	Unknown	Total
DM522	25	3	0	0	3
DM530	14	3	0	0	3
DM531	14	1	0	0	1
DM532	6	1	0	0	1
DM533	6	1	0	0	1
DM534	12	2	0	0	2
DM535	12	5	0	0	5
DM536	8	0	0	0	0
DM537	8	1	0	0	1
DM538	10	1	0	0	1
DM539	10	1	0	0	1
DM549	50	0	24	0	24
Totals	175	19	24	0	43

Unit 9

The preliminary harvest during the 2005–06 regulatory year was:

Males 156 Females 0 Unknown 2 Total 158

Units 14A and 14B

The preliminary Unit 2005–06 general season harvest was:

14A Males 364 Females 3 Unknown 2 Total 369
14B Males 46 Females 1 Unknown 0 Total 47

The preliminary Unit 2005–06 harvest by drawing permits was:

14A Males 2 Females 157 Unknown 1 Total 160

Unit 14C

The preliminary harvest during the 2005–06 regulatory year was:

14C Bulls 64 Cows 34 Total 98

Unit 16

The preliminary Unit 2005–06 harvest was:

16A	Males	106	Females	0	Unknown	0	Total 106
16B	Males	61	Females	0	Unknown	0	Total 61

The preliminary 2005–06 harvest by Tier II permit was:

16B	Males	77	Females	0	Unknown	0	Total 77

The preliminary 2005–06 harvest by registration permits was:

16B	Males	10	Females	10	Unknown	0	Total 20

Unit 17

The preliminary Unit 2005–06 reported harvest was:

Males	381	Females	0	Total 381

Activities by Unit

Units 7 and 15

Activity: Unit 15 – Conduct fall moose census (VerHoef) in select areas.

The fall moose census was not completed because of inadequate snow conditions.

Activity: Unit 15A (Skilak Loop Wildlife Management Area) – Provide opportunities to view moose in cooperation with Kenai National Wildlife Refuge.

Staff participated in a Kenai National Wildlife Refuge planning exercise to address wildlife viewing and hunting issues within this management area.

Units 14A and B

Activity: Conduct a fall moose census (VerHoef) in select areas.

No surveys were completed during this period due to poor survey (weather) conditions and inadequate time to complete surveys in adjacent units.

Activity: Monitor moose population for diseases including Chronic Wasting Disease.

Samples from 5 road-killed moose were submitted for CWD testing during this reporting period.

Unit 14C

Activity**:** Conduct a fall moose census (modified Gasaway) on Fort Richardson, Elmendorf AFB, and upper Ship Creek drainage in cooperation with the military.

We were unable to calculate population estimate due to inexperienced military observer. We counted 395 moose in 14C, including 119 bulls, 210 cows, and 66 calves.

Unit 16

Activity: Conduct a fall moose census (VerHoef) in select areas.

An aerial Ver Hoef census conducted in 16B (middle) showed a population estimate of 1714 (± 218). The Ver Hoef census conducted in 16A showed a population estimate of 1619 (±197). Composition data from these surveys were reported above.

Unit 17

Conduct a spring moose census (modified Gasaway or VerHoef) in select areas.

Conducted a population estimation survey in western Unit 17B. Population estimated at 1210 ± 120 moose.

Total Regional Segment Period Costs (in thousands): $419.1

Submitted by: Gino Del Frate, Regional Management Coordinator

The Status of Moose and Factors Influencing Their Populations in Region III

Regionwide Activities

Activity: Prepare biennial moose management reports.

Prepared biennial moose management reports for all units.

Activity: Provide information to state and federal regulatory processes on moose management.

Provided information to the Alaska Board of Game, state Fish and Game advisory committees, federal regional advisory committees and the Federal Subsistence Board.

Activity: Monitor harvest and analyze harvest data.

Monitored harvest of 4426 moose and analyzed harvest data.

Activity: Monitor natural mortality and analyze mortality data.

Monitored natural mortality and analyzed mortality data.

Activities by Unit

Unit 12

Activity: Conduct a moose population estimation survey in the western and northern portions of Unit 12.

Completed moose survey in the northwest portion of Unit 12, resulting in a bull:cow ratio of 22 :100.

Activity: Continue the upper Tanana River moose management planning process.

Attended Tanana Chiefs Regional meeting in Tanacross in fall of 2005 and discussed aspects of the Upper Tanana River moose management planning process, and communicated with community leaders in Tetlin about moose management strategies.

Unit 19, 21A, and 21E

Activity: Conduct trend area and moose population estimation surveys.

Conducted a moose population density estimate in the western part of Unit 19A (3440 mi^2) and estimated a density of 0.39 moose/mi^2; conducted transect composition surveys in Units 19A and 19B. In western 19A, 410 moose were observed with a bull:cow ratio of 20:100 and a calf:cow ratio of 23:100. In the Holitna drainage portion of 19A, 307 moose were observed with a bull:cow ratio of 8:100 and a calf:cow ratio of 24:100. In 19B within the Holitna and Hoholitna river drainages, 147 moose were observed with a bull:cow ratio of 66:100 and a calf:cow ratio of 29:100.

Activity: Conduct spring calf twinning surveys.

We attempted spring calf twinning surveys in Units 21E and 19A, but were unable to obtain meaningful data due to early leaf emergence and poor sightability.

Activity: Determine movements and distribution of radiocollared moose in Units 19A and 19B.

Located radiocollared moose in 19A and 19B during fall, winter, and spring flights.

Activity: Conduct moose management planning in Unit 21E.

Completed a moose management plan for Units 21A and 21E that was approved by the Board of Game and the Federal Subsistence Board.

Unit 20A

Activity: Conduct geostatistical population estimation surveys.

Conducted a population estimation survey (population estimate=16,018 ± 15% @ 95% CI; fall calf:cow ratios=30:100; fall yearling:cow ratios=18:100).

Activity: Conduct spring calf twinning surveys.

Conducted May twinning surveys (14%, *n* = 129).

Unit 20B

Activity: Conduct trend area surveys.

Conducted GSPE moose surveys in Central 20B (population estimate=7057 ± 18% @ 95% CI; fall calf:cow ratios=40:100; yearling:cow ratios=26:100) and the Minto Flats Management Area (population estimate=3524 ± 17% @ 95% CI).

Activity: Conduct spring calf twinning surveys.

Conducted May twinning surveys (22%, *n* = 87).

Unit 20D

Activity: Conduct a Geo-Statistical population estimate in northern Unit 20D.

Conducted a Geo-Statistical population estimate in southern Unit 20D, resulting in a population estimate of 6663 moose when corrected for sightability.

Activity: Conduct moose browse surveys to assess habitat quality and condition.

Conducted moose browse surveys in southwestern Unit 20D during spring 2006.

Activity: Conduct aerial twinning surveys to assess relationship between moose density and habitat quality in southwest Unit 20D.

Conducted aerial twinning surveys in southwestern Unit 20D during May 2006, resulting in an estimate of 22% twins among cows that had calves.

Unit 20E

Activity: Conduct moose population estimation surveys in the eastern, central, and western portions of the unit.

Completed population estimation surveys in a 4630 mi^2 area in southern Unit 20E, resulting in a unitwide population estimate of 4000–4800 moose and a bull:cow ratio of 53–63 bulls:100 cows.

Activity: Continue to alert hunters about the need to increase harvest of grizzly bears in Unit 20E to test the effects on moose calf survival.

Maintained effort to inform the public about the effects of predators on the Unit 20E moose population in the Tok office and in the field.

Unit 21B

Activity: Conduct trend area surveys.

Did not conduct surveys due to budget constraints.

Activity: Assist U.S. Fish and Wildlife Service (FWS) in the operation of a hunter checkstation on the Nowitna River.

Provided support to hunter checkstation and checked 130 hunters with 38 moose harvested.

Unit 21C

Activity: Conduct trend area surveys.

Did not conduct surveys because of budget constraints.

Activity: Conduct a hunter checkstation on the Koyukuk River.

In combination with Units 21D and 24, registered 453 hunters at a checkstation on the Koyukuk River and checked 155 moose.

Unit 21D

Activity: Conduct fall trend area surveys.

In cooperation with FWS, counted 756 moose in the Three Day Slough TCA, 333 in the Dulbi River TCA, 443 moose in the Koyukuk River Mouth TCA, 252 moose in the Squirrel Creek TCA, 180 moose in the Kaiyuh Slough TCA, 318 moose in the Pilot Mountain Slough TCA, and 178 moose in the Ruby Slough TCA.

Activity: Conduct spring twinning surveys.

In cooperation with FWS, counted 102 cow–calf pairs in the 21D twinning surveys.

Activity: Conduct a hunter checkstation on the Koyukuk River.

In combination with Units 21C and 24, registered 453 hunters at a checkstation on the Koyukuk River and checked 155 moose.

Unit 24

Activity: Conduct fall trend area surveys.

In cooperation with FWS and the federal Bureau of Land Management, counted 752 moose in the Huslia Flats TCA, 566 moose in the Treat Island TCA, 86 moose in the Middle Fork TCA and estimated 1025 moose on the Kanuti National Wildlife Refuge.

Activity: Operate a hunter checkstation on the Koyukuk River.

In combination with Units 21C and 21D, registered 453 hunters at a checkstation on the Koyukuk River and checked 155 moose.

Units 25A, 25B, and 25D

Activity: Conduct a geostatistical population estimate in eastern Unit 25D.

Conducted population surveys during 31 October–8 November 2005 in eastern Unit 25D, estimating 1008±20% (90% CI) in the Fort Yukon survey area with 24% calves and 423 ±32% in the Venetie survey area with 29% calves.

Unit 26B and 26C

Activity: Conduct riparian zone minimum direct count surveys.

Conducted a survey during April 2006 in Unit 26B and a small section of Unit 26C, counting 518 moose with 20% short yearlings (calves).

Total Regional Segment Period Project Costs (in thousands): $648.9

Submitted by: Roy A. Nowlin, Management Coordinator

The Status of Moose and Factors Influencing Their Populations in Region V

Regionwide Activities

Activity: Prepare biennial regional moose management reports.

A moose management report was prepared during this reporting period.

Activity: Provide information to state and federal regulatory processes on moose management.

Area management staff reviewed state and federal regulatory proposals, attended regulatory process meetings, and presented moose information to the Alaska Board of Game, state Fish and Game advisory committees, Federal Subsistence Board, and federal subsistence regional advisory councils.

During the November 2005 Board of Game (BOG) meeting, the department provided information regarding population status of moose in Units 18, 23, 22, and 26A. Staff commented on and provided additional information at the board's request on approximately 15 proposals affecting Region V.

Activities by Unit

Unit 18

Activity: Conduct fall aerial sex and age composition surveys and calf production surveys in selected portions of Unit 18.

We conducted 2 aerial sex and age composition surveys during the report period. In the Paimiut Survey area we classified 335 moose for a composition of 23.9 bulls per 100 cows and 29.8 calves per 100 cows. In the Lowest Yukon count area we classified 211 moose, which revealed a composition of 36.9 bulls per 100 cows and 92.4 calves per 100 cows.

Activity: Conduct spring aerial surveys (trend area surveys, distribution surveys, or calf production surveys) in selected portions of Unit 18 to assess population trend and recruitment.

No work was completed toward this activity during this reporting period due to weather and pilot unavailability.

Activity: Conduct geostatistical population estimation surveys, (regular) population estimation surveys, riparian zone minimum direct count surveys, or other appropriate census techniques to estimate the size of moose populations in selected portions of Unit 18.

We conducted a geostatistical population estimation survey along the Paimiut Count Area during March 2006 and estimated the moose population at 2362 ± 19.2% and the density at 1.24 moose/mi^2

Activity: Conduct fall and/or midwinter trend area surveys or distribution surveys of the Kuskokwim River and its major drainages to assess the status and estimated size of the Kuskokwim River population.

No work was completed toward this activity during this reporting period due to budget constraints.

Activity: Monitor moose numbers, distribution, and utilization of the smaller drainages in Unit 18 through trend area surveys, distribution surveys, public contacts, and field observations.

Numerous contacts with the public have indicated that moose population in the Kuskokwim drainage has increased during this report period. In the Kwethluk River drainage we assisted FWS staff in collaring 25 moose in April 2006. During this activity we observed many more moose than had previously been sighted in this area.

Public contacts and incidental field observations on the Yukon River drainage indicate a relatively stable moose population in the Paimiut Count Area and a rapidly increasing moose population in the Lowest Yukon Count Area.

Activity: Monitor overall hunting activity through hunter checkstations, harvest reporting, hunter contacts, and field observations.

We analyzed harvest reports and found that 316 moose were reported taken in Unit 18. We contacted moose hunters opportunistically throughout the year.

Activity: Monitor other mortality factors through public contacts and field observations.

We observed wolf-killed moose carcasses and observed wolves hunting moose during moose composition surveys. We received reports from hunters/trappers and the public regarding wolf kills, particularly along the Yukon River drainage near Ohogamiut and Russian Mission, and in the Kilbuck Mountains. Numerous reports by residents of the area indicated that there were more wolf kills on the Gweek River drainage and the mainstem of the Kuskokwim upriver of Kalskag, but we did not directly observe this.

Activity: Assess habitat quality through browse surveys and field observations.

Work was not completed in this area due to staff unavailability.

Activity: Work with the Association of Village Council Presidents, Kuskokwim Native Association, The Kuskokwim Corporation, FWS, Unit 19 and 21A&E area biologist, affected advisory committees, local moose hunters, and other users to resolve conflicts between upriver and downriver uses.

Much of this problem has been resolved along the Yukon as moose populations in the downriver areas have become established and grown. Along most of the Kuskokwim River, we have implemented a moose-hunting moratorium that we anticipate will result in similar moose population growth and expansion, which should alleviate the conflicts there in a similar fashion. We also fielded numerous questions regarding hunting moose upriver on the Kuskokwim.

Activity: Continue educational efforts toward increasing moose populations in the smaller drainages in Unit 18.

Public education was completed by writing several newspaper articles and participating in interviews with the local public radio station, stressing the importance of following the current regulations.

Activity: Use incentive programs and/or public education to improve understanding of hunting regulations and the value of conserving moose populations, and to obtain better harvest data through increased harvest reporting.

Public education was done in the form of writing articles for the local newspapers and teaching hunter education classes.

Activity: Develop an ongoing cooperative moose management strategy for the Kuskokwim River moose population with the Lower Kuskokwim Advisory Committee (LKAC), the Yukon Delta National Wildlife Refuge (YDNWR), and interested local groups and communities.

As part of this ongoing cooperative strategy, the LKAC submitted a proposal to the BOG to close the moose season within the Kuskokwim River drainage in Unit 18 for 5 years as the key part of a strategy to establish a Kuskokwim River moose population. We attended meetings of the LKAC and the Yukon-Delta Regional Advisory Council and coordinated with YDNWR staff to update local residents on how this strategy is working and encouraged local residents to follow the current regulations.

Activity: Develop an ongoing cooperative moose management strategy for the moose population within the Togiak Refuge portion of Unit 18 with local village leaders, members of the Central Bering Sea Advisory Committee, the Regional Advisory Council, the Togiak National Wildlife Refuge (TNWR), and interested local groups and communities.

The Unit 18 communities of Goodnews Bay and Platinum and other agency participants agreed to a strategy to encourage moose to colonize the Goodnews River drainage and the portion of Unit 18 south of the Goodnews River drainage during this reporting period. As part of that strategy, the moose season was closed within that area and will not be opened until we are able to count 100 moose there or until the season has been closed for 5 years. The BOG passed a proposal to implement this strategy at its fall 2006 meeting.

Unit 22

Activity: Conduct a geostatistical estimation survey (census) or a riparian zone minimum direct count survey (census) in a portion of Unit 22 to monitor trends in population size, sex/age composition, and recruitment.

In March 2006, ADF&G and Bureau of Land Management (BLM) staff completed a moose census in Unit 22D and Unit 22E using the spatial census technique developed by VerHoef. Population estimates, calf:adult ratios and calf recruitment rates were generated for 4 areas:

1) combined Kuzitrin and Agiapuk River drainages (2881 mi^2)
    a) population estimate = 1565 moose ± 22.8% at 90% CI (1208–1922 moose)
    b) calf:adult ratio = 24 calves:100 adults (±18.8 at 90% CI)
    c) recruitment rate = 19%

2) the Kuzitrin River drainage (1610 mi^2)
    a) population estimate = 966 moose ±28.9% at 90% CI (687–1246 moose)
    b) calf:adult ratio = 18 calves:100 adults (±27.3 at 90% CI)
    c) recruitment rate = 15%
3) the Agiapuk River drainage (1271 mi^2).
    a) population estimate = 599 moose ± 29.9% at 90% CI (420–778 moose)
    b) calf:adult ratio = 35 calves:100 adults (±26.1 at 90% CI)
    c) recruitment rate = 26%.
4) Unit 22E (4235 mi^2)
    a) population estimate = 587 moose ±18.2% at 90% CI (481–695 moose)
    b) calf:adult ratio = 22 calves:100 adults (± 23.5% at 90% CI)
    c) recruitment rate = 18%

The department has historically censused Units 22E and 22D separately in different years, but we altered our census schedule to census the areas together in 2006 in order to capture the potential movement of moose between the 2 subunits. The data collected this year suggest stable or perhaps slightly increasing populations in both Units 22D and 22E with calf:adult ratios of more than 20:100.

Activity: Complete trend area surveys, sex and age composition surveys, or other aerial surveys (where appropriate in Unit 22) during late fall and early spring to provide an index of moose population status and trends, sex and age composition, and yearling recruitment.

During the reporting period, 2 fall composition surveys and 2 recruitment surveys were completed with the following results:

1) November 2005 – fall composition survey (ADF&G)
    a) Area: Unit 22C, including portions of the Snake and Stewart River drainages
    b) Total classified = 110 moose
    c) Bull:cow ratio = 27 bulls: 100 cows
    d) Calf:cow ratio = 39 calves: 100 cows.
2) November 2005 – fall composition survey (ADF&G)
    a) Area: Unit 22D, including portions of the Kuzitrin, Kougarok, and Noxapaga Rivers
    b) Total classified = 145 moose
    c) Bull:cow ratio = 20 bulls: 100 cows
    d) Calf:cow ratio = 33 calves: 100 cows
3) February 2006 – spring recruitment surveys (ADF&G and BLM)
    a) Area: Central portion of Unit 22A, including the mainstem and north fork of the Unalakleet River, and the Old Woman, Ten mile, Chiroskey, South, Golsovia, Egavik, and North Rivers. Some of the small coastal drainages were also flown.
    b) Total classified = 164 moose, 137 adults and 27 yearlings (20 calves: 100 adults and 16% yearlings)

4) March 2006 – recruitment survey (ADF&G staff)
    a) Area: Western Unit 22B, covering the Niukluk and Fish River drainages
    b) Total classified = 208 moose, including 189 adults and 16 calves (10 calves:100 adults and a 9% recruitment rate)
    c) The low calf:adult ratio is similar to results in the 2004 census and previous recruitment surveys.

Activity: Monitor human and natural mortality factors affecting the population.

Human harvest was monitored through the harvest/registration permit reporting system and community-based harvest assessment surveys in Brevig Mission, Teller, and Elim. No surveys were attempted to determine natural mortality rates of Seward Peninsula moose. Anecdotal evidence indicates bear predation on moose calves is depressing moose populations in much of the unit, specifically in areas of Unit 22A, 22B, and 22D.

Activity: Evaluate hunting mortality by analyzing all moose harvest data.

Hunt reports were received for a bull fall registration hunt (RM840 including Unit 22C, Unit 22B west of the Darby Mountains, the Kuzitrin River drainage in Unit 22D, and in Unit 22D SW), an antlered bull winter registration hunt (RM849 including Unit 22B west of the Darby Mountains), a nonresident bull registration hunt (RM842 in a portion of Unit 22D), and 2 antlerless fall registration hunts (RM850 and RM852 in Unit 22C). Harvest from other areas of the unit was monitored by harvest report cards. Total reported harvest for Unit 22 during the reporting period was 161 moose (Unit 22A, 12; 22B, 36; 22C, 48; 22D, 55; 22E, 8). The department documented 187 harvested moose in 2004 through similar reporting methods.

Activity: Improve harvest reporting through public education and improved communication and by conducting community-based harvest assessments in selected villages.

The importance of harvest reporting was emphasized to registration permit recipients, village license vendors, and hunters at village meetings in Nome, Shishmaref, Wales, Brevig Mission, Teller, White Mountain, Golovin, Elim, Koyuk, and Unalakleet. Public service announcements were posted in Nome, and residents of Unit 22 villages were notified by radio announcements. Harvest reporting has improved in the registration hunts in the Nome area; however, village surveys remain a more effective method of obtaining village harvest data.

Activity: Evaluate hunting regulations and recommend changes, if necessary, for conservation purposes.

The department recommended and the BOG adopted several changes to moose hunting regulations during the November 2005 meeting. Declining moose numbers in the central portion of Unit 22A caused Unalakleet residents and staff to recommend a season closure in the area. The season will be discussed again during the 2007 BOG meeting. Staff recommended a nonresident drawing hunt in the eastern portion of Unit 22B due to increasing nonresident harvest numbers in recent years. Staff also recommended that all 4 areas of the fall RM840 registration hunt along the Nome road system have consistent 1–14 September season dates.

Past composition surveys and a recent moose census completed in Unit 22D and Unit 22E indicate an increased harvest quota from 33 bulls to 39 bulls in the Unit 22D portion of RM840 is acceptable. Analysis of harvest data and census and recruitment survey results from areas of Unit 22B indicate populations have declined and changes to the RM840 harvest quota is necessary. Staff reduced the harvest quota in Unit 22B west of the Darby Mountains from 5% to 4%, which lowered the quota to 23 moose.

Activity: Use incentive programs and/or public education to improve understanding of hunting regulations and the value of conserving moose populations, and to obtain better harvest data through increased harvest reporting.

Staff attended state advisory committee meetings, federal Regional Advisory Council meetings, and 2 meetings in Unalakleet to discuss game population status in Unit 22. Several newspaper articles were written to improve public understanding of game management.

Activity: Evaluate moose browse in portions of Unit 22 for indications of overutilization of winter habitat.

Department staff evaluated riparian moose habitat in the Unalakleet River drainage in Unit 22A. Staff did not find recent browsing activity that appeared to be responsible for shrub mortality. The survey found no evidence to suggest winter browse availability is currently limiting moose numbers in the Unalakleet River drainage. The brooming index for the Unalakleet River drainage is significantly lower than the brooming indices for Seward Peninsula sites in Units 22B, 22C and 22D, where moose densities are considerably higher.

Activity: Investigate causes of tooth cracking and breakage in Seward Peninsula moose.

Moose jaws were collected and photographed from moose harvested in Unit 22. Department and volunteer staff extracted incisors that were aged by Matson's Laboratory. Results for the tooth and tissue samples are pending. We provided researchers with kidneys and jaws from 12 hunter-killed moose taken in Units 22B, 22C, and 22D to investigate cadmium levels in Seward Peninsula moose. Laboratory analysis is ongoing.

Activity: Weigh 10 month-old moose calves in portions of Unit 22 to assess body condition in relation to habitat quality. Up to 10 moose calves will be captured and weighed.

This activity was completed but not supported with federal aid funds as expected.

Unit 23

Activity: Conduct geostatistical population estimation surveys, sex and age composition surveys, and calf survival counts where appropriate in the unit to monitor trends in population density, sex and age composition, and recruitment.

Two geospatial population censuses were conducted during this reporting period: one in the lower Kobuk drainage during late March and one in the upper Kobuk drainage in April 2006. Density of adult moose in the lower Kobuk drainage was 0.59 moose/mi^2 and the

calf:adult ratio was 15:100. Density of adult moose in the upper Kobuk drainage was 0.16 moose/mi^2 and the calf:adult ratio was 15:100.

Activity: Monitor hunting activity and harvests through the statewide harvest ticket system, community-based harvest assessments, public contacts, and field observations.

We monitored hunting activity and harvests through the statewide harvest ticket, registration permit and drawing permit systems and community-based harvest assessments. Three hundred eighteen hunters reported taking 151 moose through the statewide harvest ticket system. Community-based harvest assessments suggested residents of Unit 23 have taken 400–425 moose annually during recent years, substantially more than indicated by harvest ticket hunt reports. This was the first year nonresident drawing hunts were held in Unit 23, and the second year the resident registration hunt was held.

Activity: Use incentive programs and/or public education to improve understanding of hunting regulations and the value of conserving moose populations, and to obtain better harvest data through increased harvest reporting.

We spoke with many local and nonlocal hunters to improve the accuracy of moose harvest data.

Unit 26A

Activity: Survey unitwide riparian zones and other suitable areas of willow habitat, using trend area surveys, riparian zone minimum direct count surveys, or other appropriate census techniques to estimate the moose population trend in Unit 26A.

We conducted a riparian zone minimum direct count census of moose habitat in the trend count area of Unit 26A on 6–9 April 2006. We counted 539 moose. There were 413 adults and 126 short yearlings that had survived the winter (23%), including 14 sets of twins.

Activity: Conduct a fall aerial sex and age composition survey of the Colville River population.

We conducted a fall sex and age composition survey during 1–3 November 2005. We observed 230 moose, including 75 bulls (66 bulls:100 cows), 113 cows, and 42 calves (37 calves:100 cows). There were 4 sets of twins. Antler spreads were estimated, and 19% were less than 30 inches, 15% were 30–39 inches, 19% were 40–49 inches, 16% were 50–59 inches, and 32% were over 60 inches.

Activity: Monitor predator populations by logging bear and wolf observations during moose surveys and other mortality factors through field observations and public contacts.

We observed 8 wolves, 2 bears, 4 wolverines, and 2 golden eagles during the spring trend count of 2006.

Activity: Examine dead moose to look for causes of death, disease, mineral deficiencies, and contaminants.

All of the mortalities we were able to inspect had occurred long before we looked at them. We did not collect any samples for further analysis.

Activity: Develop updated population objectives in cooperation with the public and other agencies.

We worked with the North Slope Borough Fish and Game Management Committee to discuss population and management objectives.

Total Regional Segment Period Project Costs (in thousands): 250.9

Submitted by: Peter Bente, Management Coordinator