FEDERAL AID
ANNUAL PERFORMANCE REPORT

ALASKA DEPARTMENT OF FISH AND GAME
DIVISION OF WILDLIFE CONSERVATION
PO Box 25526
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MOOSE
ANNUAL SURVEY AND INVENTORY

STATE: Alaska **GRANT AND SEGMENT NO.** W-33-6

PROJECT NO. 1.0

PERIOD: 1 July 2007 – 30 June 2008

PROJECT LOCATION: Statewide

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

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

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

Regionwide Activities:

ACTIVITY 1: Provide biannual management report on moose.

Moose management reports were written and submitted for each unit and sub-unit within the region where deer occur. These reports provide updated harvest and management information through 2007.

ACTIVITY 2: Monitor the harvest through analysis of registration, Tier II, and drawing permit data including collection of incisors for aging and photos of antlers.

Unit 1A: 2 bull moose, all were taken along the Unuk River drainage.

Unit 1B: 31 incisors and 31 antler photos were obtained from 31 bulls harvested. Information on days of effort, and location of successful and unsuccessful hunts was collected from all hunters via permit hunt reports.

Unit 1C: 58 moose were harvested. Incisors were collected from all but a few of the moose, and antler photo's were taken of 25 of the bulls. Hunter effort was collected from all hunters via their permit hunt reports. Incisors were collected from all moose and sent in for age analysis.

Unit 1D: 22 moose were harvested. Hunter effort and harvest data was 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.

Unit 3: 33 incisors and 33 antler photos were obtained from 33 bulls harvested. Seven of the bulls were taken under the newly initiated "any-bull" draw hunt. Information on days

of effort, and location of successful and unsuccessful hunts was collected from all hunters via permit hunt reports.

Unit 5: 58 moose were harvested throughout the unit. Hunter effort and harvest data was collected from all hunters in unit 5A via their joint state/federal permit hunt reports, and in 5B via their state registration permit hunt report. Incisors were collected from all harvested bull moose.

ACTIVITY 3: Collect anecdotal information about Region I moose populations through contacts with hunters.

Staffs in Douglas and those in the outer offices of Haines and Yakutat 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 in the field at Gustavus and Haines during the moose hunts to collect samples and to interact with hunters and to 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 conducted public meetings in Haines and Gustavus to specifically address moose management issues.

Staff in the Petersburg area office discussed moose management and the status of the Unit 1B and 3 moose herd with Fish and Game Advisory Committee members in Petersburg and Wrangell, and hunters from Petersburg, Wrangell, Kake and other communities. During fall 2007, 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 4: Conduct aerial surveys to assess sex and age composition of moose in key management areas of the region.

Sex and age composition was attained in Unit 1B, 1C (Gustavus and Berners Bay), 1D, and 5A.

Unit 1B: A single population survey was conducted of the Stikine River drainage. A total of 65 moose, including 11 calves were observed.

Unit 1C: Population surveys were conducted in Gustavus (287 moose: 25 bulls, 33 calves, 229 cows) and Berners Bay (59 moose: 10 bulls, 5 calves, 44 cows).

Unit 1D: 211 moose: 43 bulls, 23 calves, 144 cows, and 1 of unidentified sex and age.

Unit 5A: 685 moose; 79 bulls and 74 calves.

ACTIVITY 5: Conduct calf production surveys as time and budget allows.

No calf production surveys were conducted in the Petersburg Area due to sightability problems associated with leaf-out of vegetation.

Unit 1C: Productivity surveys were conducted in Gustavus for the sample of 36 collared cow moose. Both ground tracking and helicopter tracking were used to locate the animals and determine if they had a calf.

Units 1C:

ACTIVITY 1: Establish browse transects on the Gustavus Forelands and conduct browse surveys to determine browse availability, utilization and temporal changes.

Browse surveys were conducted at Gustavus along 6 transects that were established in 1999.

Unit 1D

ACTIVITY 1: Establish browse transects in the Chilkat River Valley and conduct browse surveys to determine browse availability, utilization, and temporal changes.

Browse surveys were conducted at three sites known to be used by moose during the winter in the Chilkat River drainage.

Unit 5:

ACTIVITY 1: Conduct moose sightability surveys in cooperation with the USFS during fall and winter.

Sightability surveys were conducted on the Yakutat Forelands in Unit 5A.

Submitted by: Neil Barten, Region I Management Coordinator

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

Regionwide Activities:

ACTIVITY 1: Prepare biennial regional moose management reports.

Moose management reports were prepared for all GMUs with moose.

ACTIVITY 2: Conduct aerial sex and age composition surveys in all units to determine status, trend, productivity, and mortality of moose.

Unit 6: A composition count completed in Unit 6C resulted in 36 bulls:100 cows and 17 calves:100 cows. Aerial twinning surveys in Unit 6C indicated a twinning rate of 58%.

Units 7, 15A, & 15B: No composition surveys were conducted due to budget constraints.

Unit 9: Results of fall 2007 composition trend surveys: 88 Bulls, 223 Female, 38 Calves, 349 Total Moose, 17.0 calves per 100 cows, 39.5 bulls per 100 cows.

*Un*it 11: No composition surveys were flown in 2008 due to increased aircraft costs.

Unit 13: Composition surveys were flown during November in 7 distinct count areas. Bulls: 866, Cows: 2,841, Calves, 627, Total: 4,334.

Unit 14C: No composition surveys were flown due to inclement weather and lack of snow cover.

Unit 15C: One composition survey was flown in and tallied 212 moose, with a bull:cow ratio of 12:100, and 14% calves.

Unit 17: No aerial sex and age compositions surveys for moose were conducted because insufficient snow precluded fall moose surveys in this area.

ACTIVITY 3: Monitor the moose harvest through field observations, hunter harvest reports, and contact with hunters.

	Permits	Hunters	Male	Female	Unknown	Total
Unit 6			135	46		181
Unit 7 & 15:						379*
Unit 9:			143	1	0	144
Unit 11 (GM000):		124	23	1		
Unit 13 (GM000)		3,319	544		1	
Unit 13 (TM300)	150	128	47			
*Unit 14C**:*		709	74	39		113
Unit 17:			396	0		396
*An additional 36 moose were taken on limited drawing permits.						
* A total of 16 drawing hunts, three registration permit hunts and one general season harvest period occurred in Unit 14C during the reporting period.						

Activities by Unit:

Unit 6:

ACTIVITY 1: Conduct a moose population survey (modified Gasaway) in select areas.

Completed modified Gasaway surveys in all four management areas (990 sq. mi.). Except for percent calves in the population, these surveys were flown too late to determine composition. Population estimates were: Unit 6A(east) – 230, 6A(west) – 276, 6B – 242, 6C – 430.

Unit 14A&14B:

ACTIVITY 1: Conduct a fall moose population survey (GSPE) in select areas.

Survey was not completed due to unfavorable weather.

ACTIVITY 2: Monitor moose population for diseases including Chronic Wasting Disease

Moose heads were opportunistically collected and samples submitted for Chronic Wasting Disease.

Unit 14C:

ACTIVITY 1: Conduct a fall moose population survey (modified Gasaway) on Fort Richardson and Elmendorf Air Force Base in cooperation with the military.

No population survey was conducted on military lands due to inclement weather and lack of snow cover.

Unit 15A (Skilak Loop Wildlife Management Area):

ACTIVITY 1: Provide opportunities to view moose in cooperation with Kenai National Wildlife Refuge.

Skilak Loop Wildlife Management Area was created in part to provide wildlife viewing opportunities. No changes to management objectives were made during this reporting period.

Unit 15:

ACTIVITY 1: Conduct fall moose population survey (GSPE) in select areas.

A population survey was conducted from February 4-7, 2008 in units 7 and 15. The preliminary results showed a population of 1,600-1,700 moose in the unit. No other population surveys were conducted due to budgetary constraints.

Unit 16:

ACTIVITY 1: Conduct a fall moose population survey (GSPE) in select areas.

Survey was not completed due to unfavorable weather.

Unit 17:

ACTIVITY 1: Conduct a spring moose population survey (modified Gasaway or VerHoef) in select areas.

A spring population estimation survey was conducted in Game Management Unit 17C during this reporting period. Population estimated at 3,235 ± 354 moose.

Submitted by: Bruce Bartley

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

Regionwide Activities

ACTIVITY 1: Prepare moose management reports.

Prepared moose management reports.

ACTIVITY 2: Monitor harvest and analyze harvest data.

Monitored preliminary harvest of 3306 moose during general season and registration and drawing permit hunts and analyzed harvest data.

ACTIVITY 3: Monitor natural mortality and analyze mortality data.

Monitored natural mortality and analyzed mortality data.

ACTIVITY 4: Provide information to State and Federal regulatory processes on moose management.

Provided information to 15 State fish and game advisory committees, the Alaska Board of Game, and 2 Federal regional advisory councils and the Federal Subsistence Board.

Activities by Unit

Unit 12

ACTIVITY 1: Conduct a moose population estimation survey in the western and northern portions of Unit 12.

Did not complete fall moose surveys due to poor weather conditions and lack of snow cover.

ACTIVITY 2: Cooperate with Alaska Division of Forestry in implementing the Upper Tanana Valley Logging/Wildlife Habitat Plan

Provided information to Alaska Division of Forestry relating to the Upper Tanana Valley Logging/Wildlife Habitat Plan as requested, and worked with DNR Area Forester to conduct willow crushing in one oxbow along the Tok River.

Unit 19

ACTIVITY 1: Conduct trend area and moose population estimation surveys.

Conducted trend area/composition surveys in Unit 19A in November 2007 in the Aniak area and sampled 122 moose (40.7 moose/hr), including 6 yearling bulls, 7 sets of twins, 51 calves:100 cows, and 28 bulls:100 cows.

Conducted trend area/composition surveys in Unit 19A in November 2007 in the Holitna area and sampled 200 moose (64.8 moose/hr), including 23 yearling bulls, 9 sets of twins 45 calves:100 cows, and 35 bulls:100 cows.

Conducted trend area/composition surveys in Unit 19C in November 2007 in the Farewell area and sampled 104 moose (83.2 moose/hr), including 16 yearling bulls, 7 sets

of twins 68 calves:100 cows, and 105 bulls:100 cows. Weather conditions prevented unbiased sampling and results are skewed favoring bulls and cows with calves

ACTIVITY 2: Conduct spring calf twinning surveys.

Conducted spring calf twinning surveys in May-June 2008 and found 3 cows with twins near Aniak, and measured 75% twins in 19A in the Holitna area.

ACTIVITY 3: Determine movements and distribution of radiocollared moose in Units 19A and 19B.

Conducted radiotelemetry surveys in Units 19A and 19B and found animals distributed similar to previous years when we confirmed that bulls collared in 19B remained in 19B or moved south and did not spend the hunting season in 19A. Cows radiocollared in 19A typically remained in 19A.

Unit 20A

ACTIVITY 1: Conduct geostatistical population estimation surveys.

Did not conduct geostatistical population estimation surveys due to poor survey conditions.

ACTIVITY 2: Conduct spring calf twinning surveys.

Conducted May twinning surveys (15%, n = 164).

Unit 20B

ACTIVITY 1: Conduct trend area surveys.

Did not conduct geostatistical population estimation surveys due to poor survey conditions.

ACTIVITY 2: Conduct spring calf twinning surveys.

Conducted May twinning surveys (18%, n = 142).

Unit 20D

ACTIVITY 1: Conduct a Geo-Statistical population estimate in northern Unit 20D.

Conducted a Geo-Statistical population estimate in southwest Unit 20D that resulted in an observed population estimate of 5,926 moose.

ACTIVITY 2: Conduct moose browse surveys to assess habitat quality and condition.

Did not conduct moose browse surveys because an extensive survey was conducted the last year.

ACTIVITY 3: Conduct spring calf twinning surveys.

Conducted spring 2008 moose calf twinning surveys that resulted in a 16.7% twinning rate.

Unit 20E

ACTIVITY 1: Conduct moose population estimation surveys in the eastern, central and western portions of the unit.

Completed population estimation surveys in a 4,630 mi^2 area in southern Unit 20E resulting in a unit-wide population estimate of 3,300-5,000 moose and a bull:cow ratio of 46-50 bulls:100 cows.

ACTIVITY 2: Conduct spring twinning surveys.

Conducted a moose twinning survey in southwest Unit 20E to evaluate nutritional condition of habitat for moose, resulting in a twinning rate estimate of 17%.

ACTIVITY 3: 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.

Unit 21A and 21E

ACTIVITY 1: Conduct trend area and moose population estimation surveys.

Conducted trend area/composition surveys in Unit 21A in November 2007 and sampled 43 moose (17.2 moose/hr), including 4 yearling bulls, 1 set of twins 36 calves:100 cows, and 36 bulls:100 cows.

ACTIVITY 2: Conduct spring calf twinning surveys.

Conducted spring calf twinning surveys in May-June 2008 and measured 100% twins in 21A (small sample size) and 47% twins in 21E.

Unit 21B

ACTIVITY 1: Conduct trend area surveys.

In cooperation with USFWS, counted 196 moose in the Nowitna Mouth TCA and 177 moose in the Nowitna/Sulatna confluence TCA (Trend Count Area).

Unit 21C

ACTIVITY 1: Conduct trend area surveys.

Did not conduct trend area surveys due to lack of funding.

ACTIVITY 2: Conduct a hunter checkstation on the Koyukuk River.

In combination with Units 21D and 24, registered 416 hunters at a checkstation on the Koyukuk River and checked 158 moose.

Unit 21D

ACTIVITY 1: Conduct fall trend area surveys.

In cooperation with USFWS, counted 967 moose in the Three Day Slough TCA, 454 in the Dulbi River TCA, 528 moose in the Koyukuk River Mouth TCA, 248 moose in the

Squirrel Creek TCA, 190 moose in the Kaiyuh Slough TCA, and 409 moose in the Pilot Mountain Slough TCA.

ACTIVITY 2: Conduct spring twinning surveys.

In cooperation with USFWS, counted 126 cow/calf pairs during twinning surveys.

ACTIVITY 3: Conduct a hunter checkstation on the Koyukuk River.

In combination with Units 21C and 24, registered 416 hunters at checkstation on the Koyukuk River and checked 158 moose.

Unit 24

ACTIVITY 1: Conduct fall trend area surveys.

In cooperation with USFWS counted 101 moose in the Middle Fork TCA, 684 moose in the Huslia Flats TCA, and 711 moose in the Treat Island TCA.

ACTIVITY 2: Conduct spring twinning surveys.

In cooperation with USFWS, counted 105 cow/calf pairs during twinning surveys.

ACTIVITY 3: Operate a hunter checkstation on the Koyukuk River.

In combination with Units 21C and 21D, registered 416 hunters at checkstation on the Koyukuk River and checked 158 moose.

Units 25A, 25B and 25D

ACTIVITY 1: Conduct a geostatistical population estimate in eastern Unit 25D.

Conducted a Geo-Spatial population estimate and surveyed 2,936 mi^2 including 110 sample units (76 high density strata and 34 low-density strata), with search intensity averaging 7.2 min/mi^2. Observed 189 moose and the estimated a population size of 585 (±23%, 0.20 $moose/mi^2$) observable moose, with bull, yearling bull, and calves:100 cows estimated at 57, 24, and 59, respectively.

Units 26B and 26C

ACTIVITY 1: Conduct riparian zone minimum direct count surveys.

Conducted riparian zone surveys and observed 570 moose, including 42 calves.

Submitted by: Roy A. Nowlin, Region III Management Coordinator

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

Regionwide Activities*:*

ACTIVITY 1: Prepare biennial regional moose management reports.

A moose management report was prepared during this reporting period.

ACTIVITY 2: 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 State Board of Game, State Fish and Game Advisory Committees, Federal Subsistence Board, and Federal Subsistence Regional Advisory Councils.

UNIT 18:

ACTIVITY 1: Conduct fall aerial sex and age composition surveys and calf production surveys in selected portions of Unit 18.

We flew aerial sex and age composition surveys on the mainstem of the Kuskokwim river on 15-16 November 2007. We classified 96 moose, 32 were cows (33.3%) 27 were calves(28.2%) and 37 were bulls(38.5%).

ACTIVITY 2: 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 limited availability of survey aircraft.

ACTIVITY 3: 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 GSPE survey in January 2008 in the Lower Kuskokwim count area. The mid-point of the estimate was 678 moose after applying a sightability correction factor (SCF). We also conducted a GSPE survey in February 2008 in the Lowest Yukon Count area. The estimate after applying the SCF is this area was 3320.

ACTIVITY 4: 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 poor snow conditions throughout the unit.

ACTIVITY 5: 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 indicate that moose population in the Kuskokwim drainage has increased during this report period. In the Kwethluk River drainage we

assisted USFWS staff in collaring 28 moose in April 2008. 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 6: Monitor overall hunting activity through hunter checkstations, harvest reporting, hunter contacts, and field observations.

We analyzed harvest reports and found that 456 moose were reported taken in Unit 18. We contacted moose hunters opportunistically throughout the year.

ACTIVITY 7: Monitor other mortality factors through public contacts and field observations.

We observed wolf-killed moose carcasses and observed wolves during moose calving 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 indicate there were more wolf kills on the Gweek River drainage and the main stem of the Kuskokwim upriver of Kalskag but we did not directly observe this.

ACTIVITY 8: Assess habitat quality through browse surveys and field observations.

Bethel staff received training to conduct moose browse surveys. We observed moose browse conditions during calving surveys and while assisting with moose captures in the Kwethluk and Eek River drainages. Potential browse in the Kuskokwim River drainage remains mostly unused. In the Yukon drainage near Paimiut many of the islands are heavily browsed, but much of the other areas are not nearly as heavily used.

ACTIVITY 9: Work with the Association of Village Council Presidents (AVCP), Kuskokwim Native Association (KNA), The Kuskokwim Corporation (TKC), U.S. Fish and Wildlife Service (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 the upriver-downriver conflicts along the Yukon River have been resolved 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 10: Continue educational efforts toward increasing moose populations in the smaller drainages in Unit 18.

Along with the USFWS, we cooperatively held a meeting in Goodnews Bay to discuss the current populations and management of moose in the Goodnews River drainage.

ACTIVITY 11: Use 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 helped teach the sections of Hunter Education that deal with Wildlife Management and tailored those sections to reflect local issues and moose management. We also

prepared PSA's and newspaper articles to inform and educate the public about harvest reporting requirements and reasons for harvest reporting.

ACTIVITY 12: Implement the cooperative moose management strategy for the Kuskokwim River moose population with participation from the Lower Kuskokwim Advisory Committee, the Yukon Delta National Wildlife Refuge (YDNWR), and interested local groups and communities.

We attended and presented information at several public meetings including: Lower Kuskokwim Advisory Committee meeting (October 2007); Y-K Delta Regional Advisory Council meetings (September 2007 and March 2008); and a joint meeting with the ONC, AVCP, several state Advisory Committees and USFWS (February 2008) to discuss amount necessary for subsistence (ANS) and population objectives for moose in Unit 18.

ACTIVITY 13: 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. We participated in a meeting with the villages of Goodnews Bay and Platinum to talk about current status of moose populations and strategies for management in the future.

UNIT 22:

ACTIVITY 1: 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 February 2008, Department staff completed a moose census in Unit 22A using the spatial census technique developed by VerHoef. Population estimates, calf:adult ratios and calf recruitment rates were generated for one area:

1) Unit 22A (2400 mi.^{2})
   a) population estimate = 339 moose +/- 23.5% at 90% C.I. (259-419 moose)
   b) calf:adult ratio = 21 calves:100 adults (+/-29.0 at 90% C.I.)
   c) recruitment rate = 21%

The data collected this year suggest increasing populations in Units 22A since 2003 when 75 moose were counted. The season was closed in the local area in 2004 and will be reopened in September 2008.

ACTIVITY 2: 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 were attempted, but only 1 survey was completed due to weather. There was 1 spring recruitment survey attempted but weather prevented the survey from being completed. The fall composition survey was completed with the following results:

1) November 2007 - fall composition survey (ADF&G)
   a) Area: Unit 22C, including portions of the Nome and Snake River drainages.

b) Total classified = 137 moose
c) Bull:Cow ratio = 17 bulls: 100 cows
d) Calf:Cow ratio = 27 calves: 100 cows

ACTIVITY 3: 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. 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 4: 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 anlterless 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 199 moose (Unit 22A-19, 22B-38, 22C-54, 22D-71, 22E-17). The Department documented 175 harvested moose in 2006-2007 through similar reporting methods.

ACTIVITY 5: 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. Compliance with reporting requirements has improved in the registration hunts in the Nome area; however village surveys remain a more effective method of obtaining village harvest data.

ACTIVITY 6: Evaluate hunting regulations and recommend changes, if necessary, for conservation purposes.

The Department recommended and the Board of Game adopted two changes to moose hunting regulations during the November 2007 BOG meeting. Nonresident moose hunting was reopened in Unit 22E during September 1 - 14 with a harvest quota of 10 bull moose. Resident moose hunting was reopened in Unit 22A during September 1 - 14 with a harvest quota of 14 bull moose. Both hunting seasons require hunters to register before hunting.

ACTIVITY 7: Use 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 meetings in Unalakleet to discuss game population status in Unit 22.

Several newspaper articles were written to improve public understanding of game management.

ACTIVITY 8: Evaluate moose browse in portions of Unit 22 for indications of over utilization of winter habitat.

Moose browse surveys were not completed in Unit 22 because Region V had a vacancy and Department biologists were assigned to other S&I activities.

ACTIVITY 9: 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. Laboratory analysis is ongoing.

UNIT 23:

ACTIVITY 1: 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.

A geospatial population census was conducted during this reporting period in the Noatak drainage in March 2008. Density of adult moose was 0.33 moose/mi^2 and the calf:adult ratio was 15:100. For comparative purposes, we collected information on the distribution of moose in selected portions of the western half of Unit 23 during October through early December 2007. However, because 2007 was a Board of Game meeting cycle year, less time could be spent surveying the area. Based on direct observation of 1097 moose, we observed 40 bulls:100 cows and 22 calves:100 cows. We observed an average of 13% of the estimated total number of moose in the areas surveyed.

ACTIVITY 2: 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. 447 hunters reported taking 102 moose through the statewide harvest ticket system and the registration permit 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.

ACTIVITY 3: Use 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. Radio Public Service Announcements were recorded to help educate the hunters about regulations and acquiring the necessary permits.

UNIT 26A:

ACTIVITY 1: Survey unit-wide 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 in Unit 26A on 8-12 April 2008. We counted a total of 1116 moose. There were 963 adults and 153 short yearlings that had survived the winter (14 %), including 10 sets of twins.

ACTIVITY 2: Conduct a fall aerial sex and age composition survey of the Colville River population.

We conducted a fall sex and age composition survey from 31 October - 2 November 2007. We observed 315 moose, including 96 bulls (60 bulls: 100 cows), 159 cows, and 60 calves (38 calves:100 cows, 19%). There were 2 sets of twins. Antler spreads were estimated and 20 % were less than 30 inches, 16 % were 30-39 inches, 18 % were 40-49 inches, 25 % were 50-59 inches, and 22 % were over 60 inches.

ACTIVITY 3: Monitor predator populations by logging bear and wolf observations during moose surveys and other mortality factors through field observations and public contacts.

We observed 68 wolves, 5 bears, 5 wolverines, and 4 lynx during the spring census of 2008.

ACTIVITY 4: Examine dead moose to look for causes of death, disease, mineral deficiencies, and contaminants.

We examined and collected samples from 16 dead moose during the census in April and calving surveys in June.

ACTIVITY 5: 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.

Submitted by: Peter Bente, Survey and Inventory Coordinator, Region V