FEDERAL AID
ANNUAL PERFORMANCE REPORT

ALASKA DEPARTMENT OF FISH AND GAME
DIVISION OF WILDLIFE CONSERVATION
PO Box 25526
Juneau, AK 99802-5526

MOOSE
ANNUAL SURVEY AND INVENTORY
PERFORMANCE REPORT

STATE: Alaska **GRANT AND SEGMENT NR:** W-33-3
PROJECT NR: 1.0

WORK LOCATION: Statewide

PROJECT LOCATIONS: Game Management Regions 1, 2, 3, and 5

PERIOD: 1 July 2004–30 June 2005

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

REPORT DESCRIPTION: This statewide performance report includes the four regions involved in moose survey and inventory activities. Statewide and regional 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 information to the Board of Game on moose management.

The Board of Game met in Juneau during November 2004. Staff prepared background material on moose management within each unit where this species occurs and provided recommendations to the board for 20 proposals from the public to change harvest regulations.

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

This activity was done regionwide as appropriate.

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

Staff in the Petersburg area office discussed the moose herd with hunters from Petersburg, Wrangell, Kake and other locations. In addition, the Petersburg area biologist met with the Wrangell Fish and Game Advisory Committee on 2 occasions and the Petersburg Fish and Game Advisory Committee on one occasion to discuss the status of moose populations and moose management. During fall 2004, 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 Ketchikan area biologist conducted one aerial moose survey along the Unuk River with good snow and light conditions during late January. A total of 18 adult moose and 6 calves were observed during the one hour survey.

The Petersburg area biologist conducted one aerial survey of the moose population on the Stikine River during one day in mid February. A total of 135 moose were counted, including 103 adults and 32 calves. The late survey date and antler-drop prevented an accurate assessment of sex composition.

In the Douglas Area, population surveys were conducted at Gustavus, Berners Bay, and the Chilkat Valley (Unit 1D). Excellent snow conditions allowed for good sightability and enumerating of moose numbers, but antler drop precluded the arrival of snow and prevented an accurate assessment of sex composition.

Surveys were not conducted in Unit 5 due to inadequate snow conditions.

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

No calf production surveys were conducted on the Stikine River during this report period. Such surveys have proven to be both expensive and unreliable due to sightability problems associated with vegetative leaf-out in the spring. Staff did, however, collect 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.

In the Units 1C, 1D, and 5, calf production surveys were not conducted. The expense of these surveys precludes any possibility of this type of activity becoming part of our moose monitoring protocol.

Activity: Finalize redraft of Region I moose management plan.

No work was done on this plan during the year.

Activity: Conduct moose browse surveys and habitat analysis on discrete moose winter ranges throughout Region I. In addition, a portion of Berners Bay was also surveyed for browse utilization.

Browse utilization and productivity surveys were conducted at Gustavus as part of an ongoing management and research project. This was the 6th consecutive year we were able to complete these surveys at Gustavus.

Activities by Unit

Unit 5

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

Sightability surveys were conducted during the winter of 2005. Surveys were conducted over a five-day period in December, with 545 moose being observed during 15 hours of flight time.

Other activities funded by Federal Aid on this project: None

Stewardship Investment items purchased: None

Total Regional Segment Period Project Costs (in thousands): $64.8

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.

Moose management reports were prepared for all Region II units where moose exist.

Activity: Provide information on moose to the Board of Game.

Specific reports on moose management in Region II were provided the Board of Game at its March 2005 meeting in response to proposals that would have changed the season and/or bag limits. Overviews on moose management in all units where moose exist were provided to the board in preparation for the 2005 meeting.

Activity: Conduct aerial sex and age population composition surveys in all units, except 8, to determine status, trend, productivity, and mortality of moose.

See individual unit reports below.

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

See individual unit reports below.

Activities by Unit
Unit 6

Activity 1: Conduct a moose census (modified Gasaway) in select areas.

Because of poor snow and inclement weather conditions, no surveys were completed despite repeated attempts during 2004–05.

Activity 2: Monitor the moose harvest through field observations, hunter harvest reports, and contact with hunters.

The Unit 6 harvest during 2004–05 was:
Males 109 Females 7 Total 116

Units 7 and 15

Activity 4: Conduct aerial sex and age population composition surveys in all units to determine status, trend, productivity, and mortality of moose.

No surveys were conducted during this period.

Activity 5: Monitor the moose harvest through field observations, hunter harvest reports, and contact with hunters.

The preliminary harvest for the general season in Units 7 and 15 for 2004–05 was:

GMU	Males	Females	Unspecified	Total
7	31	0	0	31
15A	128	0	1	129
15B	37	0	0	37
15C	269	0	1	270
15Z	3	0	0	3
Total	468	0	2	470

15Z: exact location unknown

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	0	0	0	0
DM531	14	2	0	0	2
DM532	6	0	0	0	0
DM533	6	3	0	0	3
DM534	12	4	0	0	4
DM535	12	3	0	0	3
DM536	8	0	0	0	0
DM537	8	2	0	0	2
DM538	10	0	0	0	0
DM539	10	2	0	0	2
DM549	50	1	22	0	23
Totals	175	20	22	0	42

Unit 9

Activity 1: Conduct aerial sex and age population composition surveys to determine status, trend, productivity, and mortality of moose.

Poor snow conditions throughout the survey period curtailed survey efforts.

Activity 2: Monitor the moose harvest through field observations, hunter harvest reports, and contact with hunters.

The preliminary harvest was 151 males taken during the 2004–05 regulatory year.

Units 11 and 13

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

Composition surveys were flown during October/November in 9 distinct count units. Results were:

GMU 13 Bulls 733 Cows 2622 Calves 577 Total 3932

GMU 11 No surveys done in 2004

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

GMU 13 General Season Hunters 2920
GMU 13 Tier II TM300 Hunters 115
GMU 11 General Season Hunters 106

The preliminary Unit 2004–05 harvest was:

GMU 13	Males	558	Females 0	Unknown	6	Total Harvest	564
GMU 11	Males	28	Females 0	Unknown	0	Total Harvest	28

Unit 14 A and B

Activity 1: Conduct a fall moose census (modified Gasaway) and super-stratification surveys 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 the moose harvest through field observations, hunter harvest reports, and contact with hunters.

The preliminary Unit 2004–05 general season harvest was:

14A	Males 351	Females 2	Unknown 3	Total	356
14B	Males 56	Females 0	Unknown 0	Total	56

The preliminary Unit 2004–05 harvest by drawing permits was:

14A	Males 3	Females 134	Unknown 0	Total	137

Unit 14C

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

Aerial composition counts flown on Nov.26 and Dec.4 (4.5 hrs/$720):

Hillside	Bulls 15	Cows 53	Calves 21	Unk 10	Total 99
Twentymile/Placer	Bulls 27	Cows 44	Calves 23		Total 94

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

Analyzed harvest records for 245 drawing and 87 registration hunt permits. The preliminary Unit 14C 2004–05 harvest was:

Bulls 59 Cows 21 Total 80

Activity: Conduct a fall moose census (modified Gasaway) on Fort Richardson and Elmendorf Air Force Base in cooperation with the military.

The census was not conducted due to generally poor weather conditions in October–December and inability to obtain military permission on suitable days.

Unit 16

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

Winter surveys could not be completed during this period due to poor weather (flying) conditions. Calf production surveys were flown as part of a recruitment research project in Unit 16B. The preliminary results indicate that of the 59 adult cows captured (2 capture mortalities), radiocollared, and followed, 55 were determined to be pregnant by blood test. Later, 41 of 47 gave birth to at least one live calf. The twinning rate was 21/41 or 51%. The total was 61 calves born to 47 cows, which is a calf to cow ratio of 130 calves / 100 cows.

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

The preliminary Unit 2004–05 harvest was:

16A	Males 137	Females 0	Unknown 1	Total 138
16B	Males 83	Females 1	Unknown 0	Total 84

The preliminary Unit 2004–05 harvest by Tier II permit was:

16B	Males 78	Females 1	Unknown 0	Total 79

The preliminary Unit 2004–05 harvest by registration permits was:

16B	Males 22	Females 32	Unknown 0	Total 54

Activity: Conduct a fall moose census (modified Gasaway) and super-stratification surveys in select areas.

Winter surveys could not be completed during this period due to poor weather (flying) conditions.

Unit 17

Activity 1: Monitor the moose harvest through field observations, hunter harvest reports, and contact with hunters.

The preliminary Unit 2004–05 reported harvest was:

Males 382	Females 0	Total 382

Stewardship Investment items purchased: None.

Total Regional Segment Period Costs (in thousands): $682.4

Submitted by: Gino Del Frate
Regional Management Coordinator

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

Regionwide Activities

Activity: Monitor harvest and analyze harvest data.

Monitored harvest of 2371 moose and analyzed harvest data.

Activity: Monitor natural mortality and analyze mortality data.

Monitored natural mortality and analyzed mortality data.

Activity: Provide information to the Board of Game and advisory committees on moose management.

Provided information to 2 Board of Game meetings and to numerous Fish and Game advisory committee meetings throughout the Interior.

Activities by Unit

Unit 12

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

Did not conduct a moose population estimation survey due to budget constraints and other priorities.

Activity: Cooperate with Alaska Division of Forestry in developing an Upper Tanana Valley Logging/Wildlife Habitat Plan. We will assist state forestry in designing scarification techniques that will promote willow and aspen regeneration following logging.

Continued to work with the Division of Forestry to implement the Upper Tanana Valley Logging/Wildlife Habitat Plan.

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

Attended Tanana Chiefs Regional meetings in Tok and Tanacross in April and May and discussed aspects of the Upper Tanana River moose management planning process.

Unit 19, 21A, and 21E

Activity: Conduct trend area and moose population estimation surveys.

In Unit 19D East, conducted a fall moose population estimate and estimated 2354 moose (range: 1906–1887, 90%CI) and 57 calves:100 cows (range: 47–66, 90% CI). In Unit 19A, south of the Kuskokwim River and excluding the Aniak River drainage, conducted a fall composition survey and determined 4–34 bulls:100 cows (90%CI) and 19–43 calves:100 cows (90%CI). In all of Unit 19A south of the Kuskokwim River, conducted a spring moose population estimate, estimating 1953 moose or 0.27±16% moose/mi^2 (90%CI) and 17.4%±29% calves (90%CI). In Unit 21E, conducted a spring moose population estimate,

estimating 4673 ± 17% moose (90%CI) and 18.5% ± 16% calves (90%CI) in a 5070 mi^2 area.

Activity: Conduct spring calf twinning surveys.

Conducted spring calf twinning surveys in Unit 21E in June 2005 and estimated 16% twinning rate.

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

Determined movements and distribution of radiocollared moose by monthly relocation flights, finding that most moose did not make long-range movements.

Unit 20A

Activity: Conduct geostatistical population estimation surveys.

Conducted a population estimation survey (16,279 ± 13% moose).

Activity: Conduct spring calf twinning surveys.

Conducted a moose twinning rate (9%, $n = 54$) survey in May.

Unit 20B

Activity: Conduct trend area surveys.

Conducted population estimation surveys that indicated 13,810 moose (±28%).

Activity: Conduct spring calf twinning surveys.

Conducted moose twinning rate (28%, $n = 54$) surveys.

Unit 20D

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

Conducted a Geo-Statistical population estimate in northern Unit 20D resulting in a population estimate of 1929 moose.

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

Did not conduct moose browse surveys because of scheduling conflicts.

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

Conducted aerial twinning surveys during 27 May–1 June 2005, resulting in an estimate of 28% twins.

Unit 20E

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

Completed population estimation surveys in a 2450 mi^2 area in southern Unit 20E resulting in a unitwide population estimate of 4500–4900 moose and a bull:cow ratio of 61 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.

In cooperation with U.S. Fish and Wildlife Service (FWS), counted 187 moose in the Nowitna Mouth TCA, 188 moose in the Nowitna/Sulatna confluence TCA, and 152 moose in the Deep Creek TCA.

Activity: Assist FWS in the operation of a hunter checkstation on the Nowitna River.

Provided support to hunter checkstation and collected data from 151 hunters.

Unit 21C

Activity: Conduct trend area surveys.

Did not conduct surveys because of inadequate funding.

Activity: Conduct a hunter checkstation on the Koyukuk River.

In combination with Units 21D and 24, collected data on 448 hunters and 153 moose at a checkstation on the Koyukuk River.

Unit 21D

Activity: Conduct fall trend area surveys.

In cooperation with FWS, counted 873 moose in the Three Day Slough Trend Count Area (TCA), 406 in the Dulbi River TCA, 551 moose in the Koyukuk River Mouth TCA, 248 moose in the Squirrel Creek TCA, 252 moose in the Kaiyuh Slough TCA and 377 moose in the Pilot Mountain Slough TCA.

Activity: Conduct spring twinning surveys.

Counted 100 cow:calf pairs during twinning surveys.

Activity: Conduct a hunter checkstation on the Koyukuk River.

In combination with Units 21C and 24, collected data on 448 hunters and 153 moose at a checkstation on the Koyukuk River.

Unit 24

Activity: Conduct fall trend area surveys.

In cooperation with FWS and Bureau of Land Management, counted 659 moose in the Huslia Flats TCA, 800 moose in the Treat Island TCA, 389 moose in the Dulbi Slough TCA, 69 moose in the Henshaw Creek TCA, 35 moose in the Kanuti Canyon TCA, and 110 moose in the Middle Fork TCA.

Activity: Operate a hunter checkstation on the Koyukuk River.

In combination with Units 21D and 21C, collected data on 448 hunters and 153 moose at a checkstation on the Koyukuk River.

Unit 25A, 25B, and 25D

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

Conducted a moose population survey during November 2–7 in eastern Unit 25D, and estimated the moose population in a 2936 mi^2 survey area at 773$\pm$17% (90% CI), with an average density of .26 moose/mi^2 and 19%.

Activity: Conduct fall trend area surveys.

Did not conduct trend area surveys because of budget constraints.

Activity: Conduct moose management planning.

Discussed moose management issues and strategies outlined in the Yukon Flats Cooperative Moose Management Plan at a variety of public meetings.

Unit 26B and 26C

Activity: Conduct riparian zone minimum direct count surveys.

Conducted a survey during April 2005 in Unit 26B, counting 490 moose with 18% short yearlings (calves) in the sample.

Stewardship Investment items purchased: None.

Total Regional Segment Period Project Costs (in thousands): $395

Submitted by: Roy A. Nowlin, Management Coordinator

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

Regionwide Activities

None

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 were unable to conduct fall aerial sex and age composition surveys between mid November and mid January due to weather and pilot availability.

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.

We conducted a spring calf production survey in the Paimiut survey area and found 39 total moose with the following composition: 8 bulls, 11 cows > 2 years old, five 2-year old cows, 6 yearlings, 4 single calves and 2 sets of twins.

We also conducted spring calf production surveys in the Lowest Yukon survey area. On May 31, we found 78 total moose, including 4 bulls, 19 cows > 2 years old, nine 2-year old cows, 30 yearlings, 2 single calves and 7 sets of twins. We repeated this survey on June 6 and found 67 total moose, including 8 bulls, 10 cows >2, ten 2-year old cows, 19 yearlings, 2 calves, and 9 sets of twins.

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 Lower Yukon River during March 2005 and estimated the moose population at 1341 ± 21.0% and the density at 1.12 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.

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.

Due to funding decisions within the FWS, we were forced to change our geostatistical population estimation survey plans for the Yukon River, and rather than conduct such a survey within the Andreafsky survey area, we conducted a trend survey within this area during March 2005. Between Allen Creek and St. Marys, we found 94 moose per hour, including 66 adults and 28 calves.

In addition, to address a data shortcoming brought on by this funding change, we conducted a trend and composition survey within the Paimiut survey area during March 2005. Of 354 moose, we found 252 adults, 102 calves or 40.5 calves:100 adults.

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

A moose hunter checkstation was operated downriver from Russian Mission this year, but only 8 moose were measured. We attribute this low turnout to fewer hunters being compelled to travel upriver to hunt moose as during previous years because moose populations downriver have increased.

We analyzed harvest reports and found that at least 206 of 220 moose reported taken in Unit 18 came from the Yukon River drainage. 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.

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

We conducted a moose browse assessment survey along the Yukon River during July 2004 and generally found that moose browse is still abundant, though there is evidence of greater use, particularly within the Paimiut survey area. This is consistent with the establishment of moose populations along the Yukon and continued population growth.

Activity: Work with the Association of Village Council Presidents (AVCP), Kuskokwim Native Association (KNA), The Kuskokwim Corporation (TKC), 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.

We used newspaper articles, radio, and other communication tools to provide information related to moose habitats by comparing vacant moose habitats in Unit 18 with similar occupied habitats near Unit 18.

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 provided coffee cups emblazoned with a logo depicting the potential reproduction of cow moose to hunters and others influential with hunters.

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

As part of this ongoing cooperative strategy, the Lower Kuskokwim Advisory Committee submitted a proposal to the Board of Game 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. This proposal was adopted and implemented during this reporting period. Federal agencies followed with an equivalent change to their 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 close the moose season 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.

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 2005, ADF&G and Bureau of Land Management staff completed a moose census in the central portion of Unit 22A (2400 mi² censused) using the spatial census technique developed by VerHoef. The point estimate was 123 moose (± 33.8% (81 to 164 moose) at 90% C.I., but is not directly comparable to past censuses because the 2005 census area was expanded by 20%. The census yielded an 8% recruitment rate and a moose density of 0.05 moose/mi².

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.

In November 2004 ADF&G staff completed fall composition surveys in Unit 22C, including the Snake and Stewart River drainages. Staff classified 116 moose in the Snake River drainage and obtained a bull: cow ratio of 12 bulls: 100 cows and a calf: cow ratio of 26 calves: 100 cows. Staff observed 13 moose in the Stewart River drainage (6 calves and 7 cows). A partial survey of the Kuzitrin River drainage in Unit 22D found 74 moose and classified 30 bulls:100 cows and 9 calves:100 cows.

In March 2005 staff completed a spring moose recruitment survey in areas of eastern Unit 22B, including the Koyuk, East Fork, and Peace Rivers. Observers found 102 moose and obtained a calf: adult ratio of 15 calves: 100 adults and a 13% recruitment rate.

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 Koyuk and Unalakleet. No surveys were attempted to determine natural mortality rates of Seward Peninsula moose. In much of Unit 22 winter conditions during 2004–2005 were severe with areas of deep snow, but moose appeared to generally survive the winter in good condition. 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.

Harvest was monitored by analyzing harvest report cards and registration permit data. Reported harvest for Unit 22 during the reporting period was 187 moose (Unit 22A-5, 22B-53, 22C-66, 22D-56, 22E-7). The department documented 182 harvested moose in 2003 through similar reporting methods.

Village based harvest assessment surveys conducted during spring 2004 in Unalakleet (95% of households participated) and Koyuk (74% of households reported) discovered 8 and 20 moose harvested respectively.

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 White Mountain and Golovin. Public service announcements were posted in Nome, and residents of Unit 22 villages were notified by radio announcements. 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.

Analysis of harvest data in Units 22B, 22C, and 22D indicate season date changes for RM840 are necessary. Results of the moose census completed in Unit 22A, and recruitment surveys completed in areas of Unit 22B indicate populations have declined and changes to hunting seasons are recommended. The department prepared news articles to inform the public, held a public meeting in Unalakleet, and began advising the Southern and Northern Norton Sound Advisory Committees on developing moose proposals for the November 2005 Board meeting.

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 4 Advisory Committee (2 Northern Norton Sound/2 Southern Norton Sound) meetings, 2 Regional Advisory Council meetings, and 1 meeting each in Unalakleet and White Mountain to discuss game population status in Unit 22. Three newspaper articles were written to improve public understanding of moose management.

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

Department and University of Alaska Fairbanks staff evaluated riparian moose habitat in areas of Unit 22B and 22D, including the Kuzitrin River in Unit 22D and the Niukluk and Fish Rivers in Unit 22B. Further data collection in Units 22B and 22D is necessary before analysis.

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, and tissue and tooth samples were sent to the University of Alaska Fairbanks for analysis. Results for the tooth and tissue samples are pending.

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.

A geospatial population census was conducted in the lower Noatak and upper Squirrel drainages during April 2005. Density of adult moose was 0.30 moose/mi^2 and the calf:adult ratio was 12:100.

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 system, Community-based Harvest Assessments, public contacts and field observations. Four-hundred-fifty-six hunters reported taking 171 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.

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 all moose habitat in Unit 26A on 8-12 April 2005. We counted a total of 998 moose. There were 819 adults and 179 short yearlings that had survived the winter (18%), including 20 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 26–29 October 2004. We observed 328 moose, including 99 bulls (59 bulls:100 cows), 168 cows, and 61 calves (36 calves:100 cows). There were 10 sets of twins. Antler spreads were estimated and 24% were less than 30 inches, 18% were 30–39 inches, 10% were 40–49 inches, 37% were 50–59 inches, and 10% were over 60 inches.

Activity: Conduct spring, summer, and fall radio telemetry surveys to examine calf production and survival and adult distribution and mortality rates.

We attempted to conduct fall radiotracking surveys on 29 October 2004 but had a mechanical breakdown. During spring radiotracking surveys on 8–12 April 2005, we observed 6 cows with 3 short yearlings that had survived the winter (50 calves:100 cows), including no twins. We flew calving surveys on 8 June 2005 and observed 10 collared cows, which had a total of 2 calves (20 calves:100 cows), and we observed 1 set of twins. We also retrieved 4 collars from instrumented moose that had died since 1997. The age structure of this sample of marked animals is probably quite different from the population at large and most of the collars have gone off the air, since all of these animals were captured in 1996–1997, so we will probably discontinue radiotracking in the future.

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 16 wolves, 1 bear, 5 wolverines, and 3 golden eagles during the spring census of 2005. We observed one instance where a wolverine apparently killed a bull moose.

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.

Stewardship Investment items purchased: None.

Total Regional Segment Period Project Costs (in thousands): $235.8

Submitted by: Peter Bente, Management Coordinator

Statewide Project Costs (in thousands):

State Share = $328.3 Federal share = $984.9 Total costs = $1313.2