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-33-2
PROJECT NR: 1.0

WORK LOCATION: Statewide

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

PERIOD: 1 July 2003–30 June 2004

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 : Prepare biennial regional moose management report.

Management reports were finalized and submitted to Division headquarters.

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

The Board of Game meets on a two-year cycle for the SE Alaska region and did not meet during this reporting period. However, in preparation for the November 2004 meeting, regional staffs have met and discussed ideas that may need to be addressed at the next meeting.

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 region-wide as appropriate

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

This was done throughout the region, primarily while checking moose during the hunting seasons.

Activity : Finalize redraft of Region I moose management plan.

Data was collected as part of the development of the plan. The plan was not completed during this performance period and work will continue next year.

Activity : Conduct moose browse surveys and habitat analysis on discrete moose winter ranges throughout Region I.

Browse utilization and productivity surveys were conducted at Gustavus for the 5th consecutive year.

Activities by Unit

Unit 1A

Activity : Conduct no more than one aerial sex and age composition surveys in the Unuk and Chickamin Drainages.

Surveys were not conducted during this performance period because of poor snow conditions.

Unit 1B

Activity : Investigate opportunities for conducting intensive habitat surveys in Thomas Bay and Stikine areas as a basis of evaluation those populations.

Moose fecal pellet samples collected along the Stikine River and at Thomas Bay were submitted to the lab for analysis of winter diet composition. Staff also assessed slash decomposition and vegetative release at two of three second growth stands thinned in fall of 1998 to enhance habitat for moose at Thomas Bay.

Activity : Do at least one calf production survey of the Stikine River moose population.

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,.

Unit 1C

Activity : Do at least one sex and age composition survey for Berners Bay, Taku River, Endicott River/St. James Bay, and Gustavus Forelands populations.

Population composition surveys were conducted at Gustavus as well as in Berners Bay. The remaining areas were not surveyed.

Activity : Monitor habitat conditions on the Gustavus Forelands and in Berner's Bay by ground surveys of willow browse, using standard counts of number of leaders, amount of annual production, and level of browsing by moose.

Browse transects were conducted on the Gustavus Forelands for the 5th consecutive year. In addition, a portion of Berners Bay was also surveyed for browse utilization.

Unit 1D

Activity : Do at least one sex and age composition survey of the Chilkat Valley populations.

One survey was done of the Chilkat Valley; however, patchy snow in the area upstream of Wells Bridge prevented reasonable sighting and resulted in a curtailed survey.

Activity : Monitor habitat conditions in the Chilkat Valley by ground surveys of willow browse, using standard counts of number of leaders, amount of annual production, and level of browsing by moose.

No habitat work was completed in the Chilkat Valley, beyond cursory examination of browse during the course of other activities. Fecal pellet samples have been sent for diet composition analysis.

Unit 3

Activity : Collect anecdotal information about moose populations on Mitkof, Wrangell, Kupreanof and adjacent islands.

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 two occasions to discuss the status of moose populations and moose management. During fall 2003, 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.

Unit 5

Activity : Do at least one sex and age composition survey each for the Yakutat Forelands, Nunatak Bench, and Malaspina Forelands populations.

Composition surveys were flown on the Yakutat Forelands and Nunatak Bench, but the Malaspina Forelands were not surveyed due to poor snow conditions.

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

ADF&G biologists participated in sightability surveys with the USFS in Yakutat. The results of these surveys should provide ADF&G with a sightability correction factor when conducting surveys in the future.

Other activities funded by Federal Aid on this project: None

Stewardship Investment items purchased: None

Total Regional Segment Period Project Costs (in thousands): $67.6

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 1: Draft a moose management report.

Management reports were finalized and submitted to Division headquarters.

Activity 2: Provide information on moose to the Board of Game.

There was no board activity in Region 2 this year.

Activity 3: Conduct aerial sex and age population composition surveys in all units to determine status, trend, productivity, and mortality of moose.

See below

Activity 4: Monitor the moose harvest through field observations, hunter harvest reports, and contact with hunters.

See below

Unit 6

Activity: Conduct a moose census in select areas.

Surveys conducted during November, 2003:

Unit 6A West 2003–04 survey:

Calves (%)	Bulls/100 cows	Total	Pop. Estimate	21
(13)	19	181	297	

Unit 6B 2001–02 survey:

Calves (%)	Bulls/100 cows	Total	Pop. Estimate
8 (6)	57	124	198

Unit 6C 2001–02 census:

Calves (%)	Bulls/100 cows	Total	Population Estimate
9 (6)	63	146	341

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

The Unit 6 harvest during 2003–04 was:

Males	Females	Total
74	9	83

Units 14A and 14B

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

A fall “Spatial Estimator” population estimate was completed in GMU 14A with a point estimate of 6,564 moose (range 5,813-7,316 at 80 percent confidence intervals). Calf cow ratio was estimated at 28.5:100 cows (range 24.5 – 32.6 at 80%) and bull cow ratio at 20.7 bulls:100 cows (range 17.6-23.8 at 80%).

Late winter calf recruitment surveys were flown in GMU 14A with 31.3 percent calves.

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

The preliminary Unit 2003–04 general season harvest was:

14A	Males 409	Females 2	Unknown 1	Total	412
14B	Males 56	Females 0		Total	56

The preliminary Unit 2003–04 harvest by drawing permits was:

Males 2	Females 175	Total	177

Unit 14 C

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

Aerial census flown on Nov. 14-15, 2003 (24.5 hrs/$3,793)

Fort Richardson/Elmendorf population count was:

	Bulls 154	Cows 266	Calves 106	Total 527

Aerial composition counts flown on Dec. 1, 5 and 8, 2003 (16.8 hrs/$2,688)

Eklutna	Bulls 14	Cows 28	Calves 4	Total 46
Hillside	Bulls 21	Cows 74	Calves 17	Total 117
Twentymile/Placer	Bulls 27	Cows 106	Calves 52	Total 185

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

The preliminary Unit 2003–04 harvest was:

Bulls 80	Cows 32	Total 112

Units 15

Activity: Conduct fall moose census in select areas.

Standard fall composition surveys were flown in selected sample units across the Kenai except in Subunit 15B. Two surveys were flown in Unit 7 (07Z CA07, CA09, and CA11). Results included; 48 bulls, 55 calves, and 201 cows (24 bulls per 100 cows and 27 calves per 100 cows).

In GMU 15, four composition surveys were completed in subunit 15A (15A CA02, CA05, CA08, CA09, CA10 and CA13) and 2 in subunit 15C (15C CA21 and CA26). Results for subunit 15A included; 118 bulls, 510 cows, and 132 calves (23 bulls per 100 cows and 26 calves per 100 cows). Results for unit 15C included 129 bulls, 497 cows, 269 unidentified adults, and 164 calves.

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

The preliminary harvest for the general season in Units 7 & 15 for 2003/04 was:

GMU	Males	Females	Unspecified	Total
7	29	0	0	29
15A	171	1	3	175
15B	40	1	0	41
15C	306	3	1	310
15Z	1	0	0	1
Total	547	5	4	556

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

	Permits	Harvest			
Hunt area	issued	Male	Female	Unknown	Total
DM522	25	3	0	0	3
DM530	14	1	0	0	1
DM531	14	0	0	0	0
DM532	6	1	0	0	1
DM533	6	1	0	0	1
DM534	12	1	0	0	1
DM535	12	3	0	0	3
DM536	8	0	0	0	0
DM537	8	1	0	0	1
DM538	10	4	0	0	4
DM539	10	3	0	0	3
DM549	50	0	27	0	27
Totals	175	18	27	0	45

Unit 16

Activity: Conduct a moose census and super-stratification surveys in select areas.

A fall "Spatial Estimator" population estimate was completed in GMU 16B north with a point estimate of 898 moose (range 735-1,060 at 80 percent confidence intervals). Calf cow ratio was estimated at 17:100 cows (range 15.1 – 18.9 at 80%) and bull cow ratio at 35.3 bulls:100 cows (range 32.3-38.4 at 80%).

Trend area composition surveys were flown in GMU 16B south and on Kalgin Island. In 16B south we estimated 23 calves:100 cows and 46 bulls:100 cows, however only 154 moose were surveyed in two trend areas. On Kalgin Island we observed 125 moose with a calf:cow ratio of 89:100 and bull:cow ratio of 38:100.

Late winter calf recruitment surveys were flown in GMUs 16B north with 15.8 percent calves and 16B middle with 14.6 percent calves.

Spring calf production surveys were again attempted with limited results. Only 22 cows were observed: 9 with no calf, 7 with 1 calf, and 6 with twins for a total of 76 calves per 100 cows.

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

The preliminary Unit 2003–04 harvest was:

16A	Males 167	Females 0		Total 167
16B	Males 95	Females 0	Unknown 1	Total 96

The preliminary Unit 2003–04 harvest by Tier II permit was:

16B	Males 79	Females 1	Total 80

The preliminary Unit 2003–04 harvest by registration permits was:

Males 30	Females 24	Total 54

Unit 17

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

Conducted a late-winter moose population estimation survey (spatial statistics model) in GMU 17C.

Survey conducted in GMU 17C March 18–27, 2004. Population estimate was 3,670 (+/- 542 @ .90) moose. Estimated number of calves was 410 (+/- 96@ .90).

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

The preliminary Unit 2003–04 reported harvest was:

Males 426 Females 0 Total 426

Other activities funded by Federal Aid on this project: None

Stewardship Investment items purchased: None

Total Regional Segment Period Project Costs (in thousands): $330.0

Submitted by: Bruce Bartley, Acting Assistant Management Coordinator

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

Regionwide Activities

Activity: Prepare biennial regional moose management reports.
Drafted 2-year moose management report in spring 2004.

Activity: Monitor harvest and analyze harvest data.
Compiled and analyzed harvest ticket and permit reports. Preliminary data indicate:

Unit 12: 567 hunters harvested 134 bull moose harvested.
Units 19, 21A, 21E: 482 bulls, 1 cow harvested.
Units 20A: 328 bulls, 165 antlerless moose harvested.
Unit 20B: general hunt = 483 bulls; DM788 = 28 cows; TM785 = 23 bulls and 23 cows; YM301 = 39 bulls harvested.
Units 20C, 20F, 25C: 177 bulls harvested.
20D: 227 moose harvested.
Unit 20E: 798 hunters harvested 129 bull moose harvested.
Unit 21B: 166 hunters harvested 60 moose harvested.
Unit 21C: 46 hunters harvested 21 moose harvested.
Unit 21D: 772 hunters harvested 327 moose harvested.
Unit 24: 339 hunters harvested 155 moose harvested.
Unit 25A, 25B, and 25D: 69 moose harvested.

Activity: Monitor natural mortality and analyze mortality data.
Monitored natural mortality through anecdotal reports and observations obtained during aerial surveys, and by necropsy and analysis of moose that died of natural causes. Estimate of unreported illegal, road, and train is 35 moose in Unit 20C.

Activity: Provide information to the Board of Game, advisory committees and the general public on moose management.
Provided information on moose management issues and population status to the Board of Game and advisory committees, a variety of public interests, local communities and state and federal regulatory bodies.

Unit 12

Activity: Conduct trend area surveys.
Conducted no trend area surveys because moose population estimation surveys were conducted.

Activity: Conduct a moose population estimation survey in the western and northern portions of Unit 12.
Conducted moose population estimation survey in conjunction with USFWS, estimated a population of 4,000 moose in a 5,818 mi^2 area that included all of Unit 12, north of Wrangell-St. Elias National Park and Preserve. Calf and bull:100 cow ratios were 33 and 89:100, respectively.

Activity: Assess effects of liberal grizzly bear hunting regulations on area specific bear harvest in relation to moose calf survival.

Analyzed effects of liberal grizzly bear hunting regulations on area specific bear harvest in relation to moose calf survival and found no relationship.

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

Worked with the Division of Forestry to implement the Upper Tanana Valley Logging/Wildlife Habitat Plan. The Tok River timber sale is expected to be completed by spring of 2005.

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

Attended Tanana Chiefs Regional meeting in Northway in May 2004. Discussed aspects of Upper Tanana River moose management planning process.

Units 19, 21A, and 21E

Activity: Conduct trend area and moose population estimation surveys.

Estimated early winter moose population of 1,664 and counted 51 animals in a trend area in Unit 19D East. Counted 305 moose in a trend area in Unit 19C

Activity: Conduct spring calf twinning surveys.

Estimated 32% twins during spring surveys in Unit 21E.

Unit 20A

Activity: Conduct geostatistical population estimation surveys.

Conducted population estimation surveys: 14684 ± 13% moose.

Activity: Conduct spring calf twinning surveys.

Conducted a moose twinning rate (5%, $n = 60$) survey in May.

Unit 20B

Activity: Conduct trend area surveys.

Did not conduct trend area surveys, but instead conducted geostatistical population estimation surveys: 12,904 moose ± 23%

Activity: Conduct spring calf twinning surveys.

Conducted moose twinning rate (26%, $n = 82$) surveys

Unit 20D

Activity: Conduct a geostatistical population estimate in northern Unit 20D.

Conducted a geostatistical population estimate in southern Unit 20D that resulted in a population estimate of 4,456 moose.

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

Did not conduct moose browse surveys due to prolonged medical leave during that time period.

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

Conducted aerial twinning surveys that resulted in estimate of 20% twinning.

Unit 20E

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

Completed population estimation surveys in a 1,933 mi^2 area in southwestern Unit 20E and in a 1,821 mi^2 area in eastern Unit 20E resulting in a unit-wide population estimate of 4,900 moose and a bull:cow ratio of 53-64 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, in the field and at the Taylor Highway hunter check station.

Unit 21B

Activity: Conduct trend area surveys.

Counted 172 moose in the Nowitna Mouth TCA, 153 moose in the Nowitna/Sulatna confluence TCA, and 8 cow:calf pairs in the Nowitna River TCA in cooperation with USFWS.

Activity: Assist US Fish and Wildlife Service in the operation of a hunter checkstation on the Nowitna River.

Provided support to hunter checkstation and checked 208 hunters.

Unit 21C

Activity: Conduct trend area surveys.

No surveys completed because money was allocated to Unit 21D to complete an adequate survey in that unit.

Activity: Conduct a hunter checkstation on the Koyukuk River.

Registered 596 hunters at checkstation on the Koyukuk River and checked 248 moose, in combination with Units 21D and 24.

Unit 21D

Activity: Conduct fall trend area surveys.

Counted 586 moose in the Three Day Slough TCA, 235 in the Dulbi River TCA, 372 moose in the Koyukuk River Mouth TCA, 227 moose in the Squirrel Creek TCA, 130 moose in the Kaiyuh Slough TCA and 259 moose in the Pilot Mountain Slough TCA in cooperation with USFWS.

Activity: Conduct spring twinning surveys.

Counted 50 cow:calf pairs in the Three Day Slough TCA

Activity: Conduct a hunter checkstation on the Koyukuk River.

Registered 596 hunters at checkstation on the Koyukuk River and checked 248 moose, in combination with Units 21C and 24.

Unit 24

Activity: Conduct fall trend area surveys.

Counted 354 moose in the Huslia Flats TCA, 338 moose in the Treat Island TCA, 67 moose in the Henshaw Creek TCA, 62 moose in the Kanuti Canyon TCA, and 104 moose in the Middle Fork TCA in cooperation with USFWS and BLM.

Activity: Operate a hunter checkstation on the Koyukuk River.

Registered 596 hunters at checkstation on the Koyukuk River and checked 248 moose in combination with Units 21D and 21C.

Units 25A, 25B, and 25D

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

Lack of snow precluded fall moose surveys, but a moose population survey was conducted during March 19-21, 2004 in eastern Unit 25D. The moose population in a 2936 mi^2 survey area was estimated at 382$\pm$20% (90% CI). Estimated population density averaged .13 moose/mi^2. Calves comprised 20% of the moose observed and an estimated 21% of the total population.

Activity: Conduct fall trend area surveys.

No trend area surveys were conducted because geostatistical population estimates were conducted.

Activity: Conduct moose management planning.

Moose management issues and strategies outlined in the Yukon Flats Cooperative Moose Management Plan were discussed at a variety of public meetings, including the Board of Game and fish and game advisory committee meetings. A moose management newsletter was distributed to local residents in spring 2004.

Units 26B and 26C

Activity: Conduct riparian zone minimum direct count surveys.

Conducted a survey during April in Unit 26B. We counted 378 moose with 9% short yearlings (calves) in the sample.

Other activities funded by Federal Aid on this project:

Unit 20E: Conducted a moose twinning survey in southwestern Unit 20E to evaluate nutritional condition of habitat for moose.

Units 21B, 21D, 24: Estimated the age of 203 harvested moose.

Units 21D and 24: Evaluated quality of salvaged meat from 199 moose.

Units 21D and 24: Surveyed 80 hunters regarding non-consumptive uses of wildlife.

Stewardship Investment items purchased:
$9,758 boat purchased for moose management programs in conjunction with bison, brown bear, and black bear management in the McGrath Area.

Total Regional Segment Period Project Costs (in thousands): $554.4

Submitted by: Doreen Parker McNeill, Assistant Management Coordinator

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

Regionwide

Activity 1: Prepare a biennial regional moose management report.

A moose management report was prepared during this reporting period.

Activity 2: Provide information on moose to the Board of Game.

During the November 2003 Board of Game (BOG) meeting, the Department provided information regarding population status of moose in Units 18, 23, 22, and 26A. We commented on and provided additional information at the board's request on 3 proposals in Unit 18, 5 proposals in Unit 22, 2 proposals in Unit 23, 1 proposal in Unit 26A.

Unit 18

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

We conducted fall aerial sex and age composition surveys between mid-November and mid-January. The calf:cow ratio dropped from 47.1 calves:100 cows in mid-November to 21.9 calves:100 cows by mid-January and the mid-November bull:cow ratio was 34.8 bulls:100 cows. The percent of adults with antlers dropped from 25.8% on 13 November, to 16.3% on 12 December to 11.3% on 15 December to 0% on 12 January.

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.

We conducted a spring calf production survey along the Yukon River downriver from Mt. Village on 28 May. Among 103 moose, we found 5 bulls, 22 adult cows, 11 2-year old cows, 49 yearlings of undetermined sex, 6 single calves, and 10 sets of twins. These data help support our assessment that the population in this area will continue to increase.

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 geostatistical population estimation survey along the Lower Kuskokwim River during March 2002 and estimated the moose population at 69.6 ± 32.4% and the density at 0.08 moose/mi^2.

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.

We conducted moose trend surveys along the Kuskokwim River and compared that to the number of moose found along the Yukon River within the Paimiut survey area using number of moose seen per hour as the metric for comparison. We found 10.3 moose per hour along the Kuskokwim and 411.5 moose per hour along the Yukon. Since the

habitats are similar in both areas, our assessment is that the Kuskokwim population has considerable room for growth.

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.

We established a moose trend count area within the upper portion of the Kwethluk River drainage and counted 14 moose during a spring survey. We also have public reports of moose numbers increasing throughout all of the upper drainages of the Kilbuck Mountains.

Activity 6: Monitor overall hunting activity through hunter checkstations, harvest reporting, hunter contacts, and field observations.

No moose hunter check stations were operated during this reporting period. We analyzed harvest reports and found that 202 of 227 moose reported taken in Unit 18 came from the Yukon River drainage. 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 hunting moose during moose composition surveys. We received reports from hunters/trappers and the public regarding wolf kills, particularly along the Yukon River drainage, in the Kilbuck Mountains, and from the area between Bethel and 3 Step Mountain.

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

During this reporting period we prepared for a moose browse assessment survey to be conducted early during the next reporting period (July 2004).

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.

We considered the effect of a moose hunting moratorium in Unit 18 on upriver communities; nominated downriver participants to a working group dealing with Unit 19 moose; and 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.

We used newspaper articles, radio media, 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 11: 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. We conducted a prize drawing offering hooded sweatshirts with this logo emblazoned on the front using harvest reports

as entry in the drawing to promote better harvest reporting and we utilized this logo repeatedly in newspaper articles and public meetings to improve understanding of the importance of cow moose for population growth.

Activity 12: 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 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. Federal agencies followed with an equivalent change to their regulations.

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 and as part of that strategy agreed an emergency order was necessary to close the moose season within that area, leaving it closed until we are able to count 200 moose there.

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 March 2004 Department staff completed a moose census in a portion of Unit 22B west of the Darby Mountains (~ 2400 mi^2 censused) and all of Unit 22C (1368 mi^2) using the spatial census technique developed by VerHoef. The Unit 22B census area yielded an estimate of 586 moose. This is a 64% decrease in population size since 1987, and a 27% decrease since 1999. The calf: adult ratio was 10 calves per 100 adults, and the recruitment rate was 9%.

The census in Unit 22C provided an estimate of 530 moose, which represents a 5% decline since the 2001 but is not statistically significant. The calf: adult ratio was 23 calves: 100 adults and the recruitment rate was 19%. The population in Unit 22C is still above the Department's management goal of 480 moose. An antlerless moose hunt in Unit 22C allowing up to 20 cows to be taken each fall is being used to slightly reduce the population and prevent over utilization of the habitat.

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.

In November 2003 Nome staff completed fall composition surveys in areas of Unit 22D, including the Agiapuk and Kuzitrin River drainages. In the Agiapuk drainage, which

includes the American River, 223 moose were observed. We observed 24 bulls: 100 cows, 27 calves: 100 cows, and 18% calves.

There were 232 moose observed and classified in the Kuzitrin drainage which includes the Kougarok and Noxapaga rivers. We obtained a bull: cow ratio of 26 bulls: 100 cows, a calf: cow ratio of 15 calves: 100 cows and 10% calves.

Activity 3: Monitor human and natural mortality factors affecting the population.

Human harvest was monitored through the harvest ticket/registration permit reporting system and community-based harvest assessment surveys. No surveys were attempted to determine natural mortality rates of Seward Peninsula moose. In much of Unit 22 winter conditions during 2003–2004 appeared to have been relatively mild and moose generally survived the winter in good condition. Anecdotal evidence indicates that bear predation on moose calves is depressing moose populations in much of the unit, specifically in areas of Units 22A and 22B.

Department staff began evaluating moose habitat in areas of Unit 22. Department, Federal, and volunteer staff surveyed sites in March, April, and June in Units 22B, 22C and 22D. Preliminary analysis indicate Unit 22C range is heavily browsed by moose in some areas, but willows are generally responding by producing new growth and browsing has not resulted in substantial shrub mortality. Further data collection in Units 22B and 22D is necessary before analysis.

Activity 4: Evaluate hunting mortality by analyzing all moose harvest data.

For the fall hunt, 508 hunters registered to hunt, 354 (70%) hunters participated in the hunt, 78 (22%) hunters harvested bulls, 98% reported their harvest, no cows were harvested, and hunter success rate was 22%. For the winter hunt, 28 hunters registered to hunt, 21 (75%) hunters participated in the hunt, 7 (33%) hunters harvested bulls, 100% reported their harvest, no cows were harvested, and hunter success rate was 33%.

For the fall hunt (RM847) in Unit 22B west of the Darby Mountains the season was 10 Aug. –23 Sept., harvest quota was 48 bulls, and 38 bulls were harvested. For the winter hunt in this area (RM849) the season was opened by emergency order from 1 Jan.-31 Jan., harvest quota was 10 bulls, and 7 moose were harvested.

For the fall hunt (RM847) in the Kuzitrin River drainage portion of Unit 22D the season was 20 Aug.-14 Sept., harvest quota was 33 bulls, and 37 bulls were harvested. There was no winter hunt in this area.

For the fall hunt (RM847) in Unit 22D Southwest the season was 10 Aug.-23 Sept., harvest quota was 8 bulls, and 2 bulls were harvested. For the winter hunt in this area (RM849) the season was opened by emergency order from 1 Jan.-31 Jan., harvest quota was 3 bulls, and no moose were harvested.

In Unit 22C, for hunt RM850 in the Nome and Snake River drainages, 5 hunters registered to hunt, 5 (100%) hunters participated in the hunt, 2 (40%) hunters harvested cows, 1 (20%) hunter harvested an antlerless bull,100% reported their harvest, and hunter

success rate was 60%. For hunt RM852, the remainder of Unit 22C, 15 hunters registered to hunt, 15 (100%) hunters participated in the hunt, 9 (60%) hunters harvested cows, 100% reported their harvest, and hunter success rate was 60%.

The total reported harvest from Unit 22 was 182 moose (171 males and 11 females). The reported bull harvest for each portion of the unit was: Unit 22A –17; Unit 22B –45; Unit 22C –45, Unit 22D –58; and Unit 22E –6. In Unit 22C, 11 cows were taken by registration permit. Of the 679 individuals who reported hunting in Unit 22, 640 (94%) were residents of Alaska, 565 (83%) were residents of Unit 22, 23 (3%) were nonresidents, and 16 (2%) were of unknown residency. Hunter success rate was 27%.

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 and at village meetings. Better registration hunt reporting has greatly improved data collection in the registration hunts in the Nome area; however village surveys remain a far more effective method of obtaining village harvest data. Analysis of harvest survey data collected in Shaktoolik and St. Michael shows 9 moose were harvested in Shaktoolik and 4 moose in St. Michael. Residents of Shaktoolik and St. Michael only reported 4 (44%) of these moose through harvest ticket hunt reports.

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

The Department recommended regulatory changes in Units 22A, 22C and 22D. In November 2003 the BOG adopted the recommended changes.

Activity 7: 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 four Advisory Committee meetings, and two Regional Advisory Council meetings and held four public meeting in Unit 22A villages to discuss moose population status and possible changes to moose regulations in Units 22A, 22C and 22D to accomplish this activity. Three newspaper articles were written to improve public understanding of Unit 22 moose management.

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 in that portion of Unit 23 west of and including the Buckland River drainage during March 2004. Density of adult moose was 0.12 moose/mi^2 and the calf:adult ratio was 12:100.

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 system, Community-based Harvest Assessments, public contacts and field observations. Three hundred fourteen hunters reported taking 136 moose through the statewide harvest ticket system. Community-based harvest assessments suggested residents of Unit 23 have taken 350-400 moose annually during recent years, substantially more than indicated by harvest ticket hunt reports.

Activity 3: 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 >200 individuals to improve the accuracy of moose harvest data.

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 trend count along the Colville, Chandler and Anaktuvuk Rivers on 5-7 April 2004. We counted a total of 522 moose within the trend count area. There were 407 adults and 115 short yearlings that had survived the winter (22%), including 14 sets of twins.

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

We conducted a fall sex and age composition survey from 25-27 October 2003. We observed 288 moose, including 93 bulls (75 bulls:100 cows), 124 cows, and 71 calves (57 calves:100 cows). There were 14 sets of twins. Antler spreads were estimated and 10% were less than 30 inches, 28% were 30-39 inches, 17% were 40-49 inches, 29% were 50-59 inches, and 26% were over 60 inches.

Activity 3: Conduct spring, summer, and fall radio telemetry surveys to examine calf production and survival and adult distribution and mortality rates.

We conducted fall radiotracking surveys on 25-27 October 2003 and observed 12 cows with 9 calves that had survived the summer (75 calves:100 cows) and 2 sets of twins. During spring radiotracking surveys on 5-8 April 2004, we observed 16 cows with 11 short yearlings that had survived the winter (69 calves:100 cows), including 1 set of twins. We flew calving surveys on 7 June 2004, and observed 15 collared cows which had a total of 9 calves (60 calves:100 cows) and we observed 3 sets 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, since all of these animals were captured in 1996-1997.

Activity 4: Monitor predator populations by logging bear and wolf observations during moose surveys and other mortality factors through field observations and public contacts.

We observed 2 wolves, 1 bear and 5 wolverines during fall surveys.

Activity 5: 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 6: 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.

Other activities funded by Federal Aid on this project:

Stewardship Investment items purchased: None.

Total Regional Segment Period Project Costs (in thousands): $ 188.7

Submitted by: Peter Bente, Management Coordinator

Statewide Project Costs (in thousands):
State Share = $ 285.18 Federal Share = $855.53 Total Costs = $ 1140.7