

Unit 19D East Wolf Predation Control Implementation Plan and Activities  
Report to the Alaska Board of Game  
February 2004

***Background***

The 19D East wolf predation control implementation plan involves both research and management components. As part of our efforts, we have established an Experimental Micro Management Area (EMMA). This area encompasses the highest density of moose in 19D East and was established as a treatment area where predator population manipulations and other management actions could be tested. The EMMA is 528 mi<sup>2</sup> and is within a 20 mi radius of McGrath.

***Plan Implementation Activities***

The Department conducted a bear removal project in May 2003. During that time 78 black bears and 9 grizzly bears were captured and moved from the EMMA and surrounding area. Current data obtained from radiocollared moose and from fall moose surveys indicates that survival of moose calves within the EMMA has increased, likely as result of this removal project. After resolution of a legal challenge in Alaska Superior Court, the Department initiated a wolf reduction program on December 5, 2003. In this program, private individuals are permitted by the ADF&G to take wolves from aircraft within a 1728 mi<sup>2</sup> area within and around the EMMA. Three permits are currently active, and 2 additional permits have been approved but not yet issued. To date, no wolves have been taken under this program.

***Status of Prey and Predator Populations***

**Research Component.** Prey/predator research in Unit 19D East included the following objectives and results during March 2001 – January 2003.

OBJECTIVE 1A: Estimate moose numbers and population composition in Unit 19D East.

In October 2001 we completed a high intensity moose survey in the EMMA and a standard intensity survey in the 19D East moose survey area (a 5,204 mi<sup>2</sup> portion of 19D East, called here after the 19D East MSA). No moose surveys were conducted in 2002 due to poor survey conditions. In November 2003 we completed a survey in the EMMA, but because of weather constraints, we were unable to complete a reliable survey of moose numbers in the remainder of the 19D East MSA, although we do provide data from that survey (Table 1).

Table 1. Results of 2001 and 2003 moose surveys in the EMMA, the remainder of 19D East MSA, and combined results for the 19D East MSA total. The three values given are the lower 90% confidence interval, the estimate, and the upper 90% confidence interval.

Year	Area (mi <sup>2</sup> )	Population estimate	Calves:100 Cows	Bulls:100 Cows	Yearling bulls:100 cows
2001	EMMA (528)	479,531,605	29,34,40	15,18,21	2,5,8
2003	EMMA (528)	457,580,736	39,57,79	12,19,28	6,8,9
2001	Remainder 19D East MSA (4,676)	1135,2005,2912	10,24,45	20,47,88	1,7,15
2003	Remainder 19D East MSA (4,676)	692,1084,1528	21,53,99	5,29,60	0,2,4
2001	19D East MSA (5,204)	1652,2536,3469	14,25,42	19,39,66	3,7,13
2003	19D East MSA (5,204)	1219,1664,2195	30,53,84	13,23,37	0,3,13

**OBJECTIVE 1B: Determine primary causes of mortality of moose calves.**

In May 2001 we captured and radiocollared 67 newborn moose calves in Unit 19D East, 51 of those were captured within or near the EMMA. We monitored radiocolared calves through their first year of life and investigated causes of mortality for those individuals. The overall survival rate for our collared sample of calves was 26% (17 of 66). We attributed 18 deaths (37%) to black bears, 17 deaths (35%) to grizzly bears, 12 deaths (24%) to wolves, 1 (2%) death to drowning, and 1 death (2%) to nonpredation cause. The survival rate for only those calves captured within or near the EMMA was 33% (17 of 51). Within the EMMA we attributed 18 deaths (53%) to black bears, 5 deaths (15%) to grizzly bears, 9 deaths (26%) to wolves, 1 (3%) death to drowning, and 1 death (3%) to nonpredation cause.

In May 2002 we captured and radiocollared 81 newborn moose calves, and visually monitored an additional 4 calves, within and near the EMMA. Survival for those calves through their first year of life was 26% (22 of 85 lived). We attributed 21 deaths (33%) to black bears, 12 deaths (19%) to grizzly bears, 28 deaths (44%) to wolves, and 2 deaths (3%) to nonpredation cause.

In May 2003 we captured and radiocollared 53 newborn moose calves in the EMMA. Survival for those calves through 26 January 2004 was 58% (29 of 53 lived, 2 calves were censored from the study in mid-summer). We attributed 8 deaths (36%) to black bears, 4 deaths (18%) to grizzly bears, 7 deaths (32%) to wolves, and 3 deaths (14%) to nonpredation causes.

**OBJECTIVE 1C: Determine condition, movements, and mortality rates of yearling and adult moose.**

In March 2001 we captured 25 adult and 15 short-yearling moose within the study area. In March 2002 we captured 15 adult and 15 short-yearling moose, and in March 2003 we captured 15 short-yearling moose. During processing, moose had a blood sample taken, a

tooth pulled (adults only), morphometric measurements obtained, rump fat determined via ultrasound (adults only in 2001 and 2002), weight taken (yearlings only), and a radio collar affixed. These collared individuals were then monitored to determine reproductive indices, movements, and mortality rates.

Year	Observed adult rate of parturition (%)	Observed twinning rate (%)	10-month calf weight in kg	Average adult rumpfat depth in cm (median)
2001	70	30	179.1	0.71 (0.55)
2002	92	59	191.8	1.51 (1.58)
2003	95	25	179.5	-- --

Monthly locations of study animals indicated that moose within the EMMA are relatively nonmigratory, and no discernable large-scale movement pattern was evident. However, some moose that reside in the Pitka Flats (east of the EMMA) during calving season are apparently migratory, spending spring and summer in the Pitka Flats and then moving to the Farewell Burn/Alaska Range foothills in fall and winter.

Survival of collared yearlings from May 2001 to May 2002 was 83% (10 of 12). Survival of collared yearlings from May 2002 to May 2003 was 67% (18 of 27). The greatest component of yearling mortality during each year of this study was attributed to wolves with legal harvest and unknown cause accounting for additional deaths.

Survival of collared adult females from May 2001 to May 2002 was 88% (30 of 34). Survival of collared adult females from May 2002 to May 2003 was 89% (31 of 35). Wolves were the greatest mortality factor during these 2 time periods, with illegal take and nonpredation cause also accounting for some mortality.

OBJECTIVE 1D: Determine twinning rates and age at first reproduction of moose in Unit 19D East.

Twinning rates for collared adult females are listed under Objective 1c. In addition to collared individuals, we recorded sightings of uncollared cows with calves that we saw within the study area. Twinning rates observed for these uncollared moose was 39% (18 of 46) in spring 2002 and 36% (14 of 39) in spring 2003.

As of this time, we have not observed any parturient radiocollared 2-year-old moose. In spring 2003, 5 of 9 radiocollared 3-year-old moose were observed with calves, giving an observed parturition rate of 56% for that age class. One of these 5 births was a set of twins and the other 4 were single calves.

OBJECTIVE 1E: Obtain data snow depth and density within the EMMA.

Data collected by the National Weather Service on snow depth within the EMMA and adjacent areas has been obtained. Results have not been summarized.

OBJECTIVE 2: Characterize winter moose browse in Unit 19D East.

Browse surveys were conducted in March 2003 via helicopter and snowmobile throughout the EMMA. A total of 39 locations and 236 plants were sampled within the area. Browse biomass removal in the EMMA was 20%, which falls between the range seen in areas of high moose browse use and low moose browse use. Birch, poplar, and willow species were all present in the survey area, although willow species tend to be the most preferred winter browse species in the EMMA. This is similar to most areas in Interior Alaska.

OBJECTIVE 3A: Estimate wolf numbers in Unit 19D East and identify wolf packs that hunt moose within the EMMA.

In a March 2001 survey, 103 wolves (no estimate of survey precision was possible) were estimated in Unit 19D East, and 19 wolves were taken from the area prior to the survey. Results of this survey indicate that 33 wolves in 5 “core packs” were largely resident within the EMMA.

Since the March 2001 survey no additional wolf survey data has been obtained. Information collected incidentally during other fieldwork and from local trappers indicates that the EMMA is still inhabited by approximately the same number of wolves, although the yearly numbers within the EMMA fluctuate because of its small size.

OBJECTIVE 3B: Determine reproductive rates and condition of wolves in Unit 19D and compare rates with other wolf populations in Alaska.

We purchased 25 hunter- and trapper-killed wolf carcasses for necropsy between June 2001 and July 2002 and 30 wolf carcasses between June 2002 and July 2003. Necropsies were performed in spring 2002 and 2003. Data collected from carcasses and reproductive tracts indicate wolves from Unit 19D have normal condition parameters.

OBJECTIVE 4: Document the distribution of black bear and grizzly bears numbers within and adjacent to the EMMA and characterize bear predation on moose calves.

In a collaborative project with Pennsylvania State University, we captured 20 black bears during May and June 2002 within the study area. Preliminary analysis of data obtained by monitoring these bears indicates that most black bears use riparian areas within the central portion of the study area in spring and summer and then move to higher elevations in fall. Most of these bears also denned in back spruce forests near the areas where they spent time in the fall.

During May 2003, we captured and moved 78 black bears (all older than 1-year old) and 9 grizzly bears (including 2 cubs-of-the-year) from the EMMA and surrounding area. Bears were captured using both helicopter darting and ground based snaring, and translocated using fixed-winged aircraft to areas at least 150 miles from McGrath. Twenty-three (22 black bears and 1 grizzly bear) of these translocated bears were fitted with radio collars for continued monitoring. To date, of the radiocollared bears; 5 have returned to the EMMA or the immediate vicinity, 2 have been harvested by hunters, and

one died from non-predation/hunting cause. All the bears that returned to the EMMA were adult males.

In the near future, the bear capture and observation data gathered during 2002 and 2003 will be used to formulate better estimates of bear density in the Upper Kuskokwim Area.

### **Management Component.**

Based on the March 2001 population estimate, trapper interviews, and the ongoing moose mortality study, the wolf population density is moderate in 19D East and the EMMA. Although a formal population estimate has not been conducted, black bears are abundant within the EMMA and surrounding area, similar to most riparian habitats in interior Alaska, and data gathered from radiocollared bears in 2002 and from the spring 2003 removal program confirm this. In addition, the grizzly bear population appears to be at least at moderate levels relative to the habitat.

The 3 year average reported harvest of moose in Unit 19D East under the registration permit system is 82 per year. It is likely that the noticeable spike in harvest in 2002 is an effect of the summer 2002 fires that caused a temporary redistribution of some moose into the unburned riparian areas where they were more vulnerable. Another possible reason for the higher harvest is the increase in money in the village from the fire fighting income that enabled hunters to purchase more fuel for transportation. The 2003 harvest was similar to 2001 because moose were likely more normally distributed and hunters had less cash to buy fuel than in 2002. The total number of permits has been declining each year. Possible reasons could be that hunters under the age of ten are no longer allowed a permit and that the number of hunters with low expectation of hunting coming into get a harvest permit has also decreased. Overall the registration permit system has worked to increase reporting rates and is being accepted by the 19D hunters.

Unit 19D East registration permit hunt (RM650) results, 2001-2003.

Year	Successful	Unsuccessful	Did not hunt/ Report	Total permits issued
2001-2002	73	137	83	293
2002-2003	98	127	50	275
2003-2004	75	115	67	256

The effort by trappers in Unit 19D to harvest wolves has been high. Harvests have been variable since 1997-1998. The majority of the Unit 19D harvest has been in Unit 19D East and has been highly variable within the EMMA. Pelt quality of most 19D East wolves is low, which reduces the financial returns on harvested wolves from the sale of hides. Several hides and a carcass have been studied to look for reasons for the poor pelt condition, but no clear reasons have been found. However, the desire of local trappers to help reduce predation on moose, and a private wolf harvest incentive program have helped to maintain a relatively high level of trapping effort. For example, during the

2002 season when very little snow made wolf trapping more difficult, however, trappers still harvested wolves.

Reported wolf harvest in 19D, 19D East, and EMMA; 1997–2002

	Wolf harvest			% 19D East harvest in EMMA
	19D	19D East	EMMA	
1997 – 1998	30	29	22	76%
1998 – 1999	21	14	3	21%
1999 – 2000	40	34	12	35%
2000 – 2001	37	36	17	47%
2001 – 2002	29	23	7	30%
2002 – 2003	35	35	15	43%
Total	192	171	76	44%
6-year mean	32	28	13	46%

Only 3 black bears have been sealed since sealing became mandatory in July 2001. No fall baiting permits were issued, in 2001, 2002 or 2003. The average harvest of brown bears was 5 per year. Harvest averaged 2 per year prior to implementation of the brown bear resident tag fee exemption in 1998.

As a result of 2 major wildfires that occurred during summer 2002, moose habitat within 19D will improve as early succession plant species replace spruce forests that were burned in the fires. One fire south of McGrath covered 209,000 acres and primarily burned in 19D East south of the EMMA. The second fire was north of Medfra and covered 31,000 acres.

### ***Plans for 2004***

Plans for 2004 include the continuation of the ongoing moose research project. The principal research activities for 2004 will be monthly monitoring of radiocollared moose, capture and processing of short-yearling moose in March, a calf mortality study starting in May, and moose surveys in fall. In addition, like 2003, we plan to move black and grizzly bears out of the EMMA starting in May. In reference to management activities, we plan to begin the phase of closing moose hunting in the EMMA in fall 2004. This phase has the support of local hunters who want to see the moose population grow.