

# ***CENTRAL KUSKOKWIM MOOSE MANAGEMENT PLAN***



*Prepared by:*

**Alaska Department of Fish and Game  
Division of Wildlife Conservation**

*In cooperation with:*

**Central Kuskokwim Moose Management Planning Committee**



**June 2004**

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Drawings in this plan are by Michael Williams from Beaver, Alaska.

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## MISSION STATEMENT

The purposes of this plan are to restore and maintain the Central Kuskokwim moose population to ensure reasonable subsistence opportunities, provide for high levels of human consumptive use, provide for a diversity of other uses of the moose resource, manage predators and moose habitat, and maintain the overall health of the ecosystem.

## EXECUTIVE SUMMARY

This plan has been developed by the Alaska Department of Fish and Game (ADF&G) in cooperation with the Central Kuskokwim Moose Management Planning Committee (CKMC). The CKMC is an advisory group that includes representatives of the Central Kuskokwim and other Fish and Game advisory committees, guides, transporters, conservationists and Native organizations. The CKMC sought to achieve consensus on moose management recommendations to the ADF&G, the Alaska Board of Game (Alaska Board) and the Federal Subsistence Board (FSB). The committee agreed on a broad mission for the plan, the main issues of concern, overall goals and many specific action recommendations. The Alaska Board and FSB adopted regulatory proposals and endorsed the plan during their spring 2004 meetings.

Lack of current moose population information contributed to a situation where people with differing viewpoints could interpret the data differently and reach differing conclusions on the appropriate actions to be taken. Consensus was not reached on the topics of moose harvest regulations or wolf predation control. Where consensus was not achieved, ADF&G supported recommendations of the majority of the committee members but also ensured that minority viewpoints were provided to the Alaska Board. There was no disagreement over federal subsistence hunting regulation proposals considered by the FSB.

The preliminary ideas of the CKMC were circulated for public review and comment in July and August 2003. The draft plan was available for public review and comment from November 2003 through February 2004. There was additional opportunity for public comment through the Alaska Board and FSB regulatory processes.

The draft Central Kuskokwim Moose Management Plan (CKMMP) presented two alternative approaches to moose harvest management for public review and comment. Both moose harvest management alternatives proposed a reduction of hunting opportunity as part of the program to rebuild the moose population in Units 19A and 19B. Both alternatives included the same recommendations for Alaska resident moose hunting regulations. Alternative A was designed to maintain a greater diversity of hunting opportunities while Alternative B proposed greater reductions in nonresident moose hunting opportunity, including closing Unit 19A to nonresident hunting.

After much debate and discussion the Alaska Board adopted the CKMC majority recommendations with a few minor revisions. The Alaska Board adopted a modified version of Alternative B that closed Unit 19A to nonresident moose hunting with a 1-year

sunset provision. The Alaska Board requested ADF&G continue to monitor the moose populations in Units 19A and 19B and report back to them at the March 2005 meeting so the need for the nonresident closure in Unit 19A can be reevaluated. The harvest management strategies in the plan recommend that once the moose population increases, restrictions on harvest should be relaxed and hunting opportunities increased.

The draft plan also presented two alternative viewpoints on wolf predation control. In keeping with the recommendation of the majority of planning committee members, a proposal for a Wolf Predation Control Implementation Plan was prepared and circulated for public review and comment as part of the draft plan and through the Alaska Board public review process for proposed regulations. The Alaska Board adopted the regulatory proposal for a Central Kuskokwim Wolf Predation Control Plan under 5 AAC 92.110 and adopted findings to authorize airborne or same-day-airborne shooting of wolves in Unit 19A. The Alaska Board will review the wolf predation control program at their March 2005 meeting and consider if changes are needed.

The plan includes a strategy to support legislation to establish a Big Game Commercial Services Board that would have authority to limit the total number of guides, transporters and clients in each game management unit. With no limits on the number of commercial operators in specific areas, the main tool available to control hunting pressure is through adjusting resident and nonresident seasons and bag limits and methods and means. Legislation to establish a Big Game Commercial Services Board was introduced during the 2003–04 legislative session but did not pass.

Successful implementation of the plan and new hunting regulations will require an active wildlife regulation enforcement program in the area. It will be critical for the Alaska State Troopers, Bureau of Wildlife Enforcement (formerly the Division of Fish and Wildlife Protection) to have the support necessary to maintain and/or improve enforcement capabilities in the area.

The CKMC should remain involved in monitoring implementation of the plan and making recommendations to the Alaska Board and FSB. The CKMC can continue to serve a role in developing balanced and quality wildlife management recommendations by considering new information that becomes available and developing recommendations for changes, if needed. As with the process to develop this initial plan, recommendations of the planning committee will be brought before the Central Kuskokwim Advisory Committee (CKAC), other interested advisory committees, federal subsistence councils, and the public for review and comment.

The CKMC has done an excellent job of identifying issues of concern, reviewing all available data, exploring different alternatives to address the issues, and seeking to reach consensus on recommendations to ADF&G and the Alaska Board. The Division of Wildlife Conservation greatly appreciates the dedication of extensive time and effort by the committee members in their months of deliberations. While agreement has not been reached on all issues, committee members listened to each other with respect and people with diverse interests in wildlife management learned to understand each other better.

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August 2003 Central Kuskokwim Moose Management  
 Planning Committee meeting participants

Starting at the lower left corner and moving clockwise: Leo Morgan (KNA, Aniak), Jeff Denton (BLM, Anchorage), George Siavelis (Professional Guide, Aniak), Greg Roczicka (ONC, Bethel), Evan Savage (Central Kuskokwim AC, Lower Kalskag), Steve Hill (transporters, Aniak), Jennifer Hooper (AVCP, Bethel), Harry Allain (Central Kuskokwim AC, Aniak), Jim Harrower (Anchorage AC, Anchorage), Toby Boudreau (ADF&G, McGrath Area Biologist), Ted Spraker (Alaska Board of Game, Soldotna), Patrick O’Connor (Matanuska Valley AC, Palmer), Randy Rogers (ADF&G Wildlife Planner, Fairbanks), Karen Deatherage (Conservationists, Anchorage), Jim Simon (ADF&G, Division of Subsistence, Fairbanks), Thomas Willis (Central Kuskokwim AC, Stony River).

## INTRODUCTION

This plan was written to guide the management of moose and related wildlife in the Central Kuskokwim River region in Southwest Alaska (Figure 1). This plan addresses moose management in Units 19A and 19B encompassing an area of approximately 17,680 mi<sup>2</sup>. The area is located approximately 120 air miles west of Anchorage and 75 air miles east of Bethel. The plan is intended to be comprehensive in that it addresses moose hunting regulations, moose habitat, management of predation on moose, commercial guiding and transporting of moose hunters, information needs and public education needs. The plan has been prepared through a cooperative effort involving hunters, guides and transporters, Native organizations, conservationists and others. The planning process was initiated by the Alaska Department of Fish and Game (ADF&G), Division of Wildlife Conservation (DWC) but has included involvement and coordination with the Division of Subsistence, Alaska Board of Game (Alaska Board), federal land managers and the Federal Subsistence Management Program.

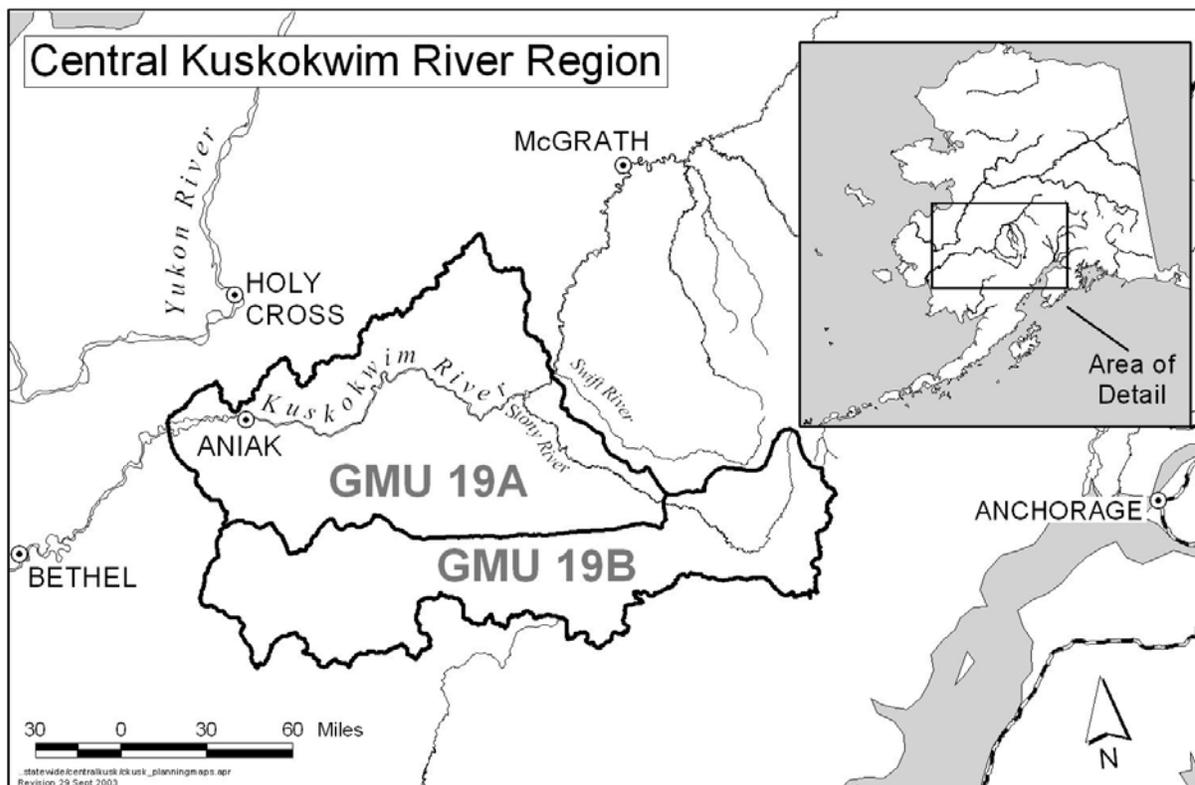


FIGURE 1 Central Kuskokwim region

Moving from west to east, communities in the planning area include Kalskag, Aniak, Chuathbaluk, Red Devil, Sleetmute, Stony River, and Lime Village (Figure 2). Other smaller communities and settlements are also found along this portion of the Kuskokwim River.

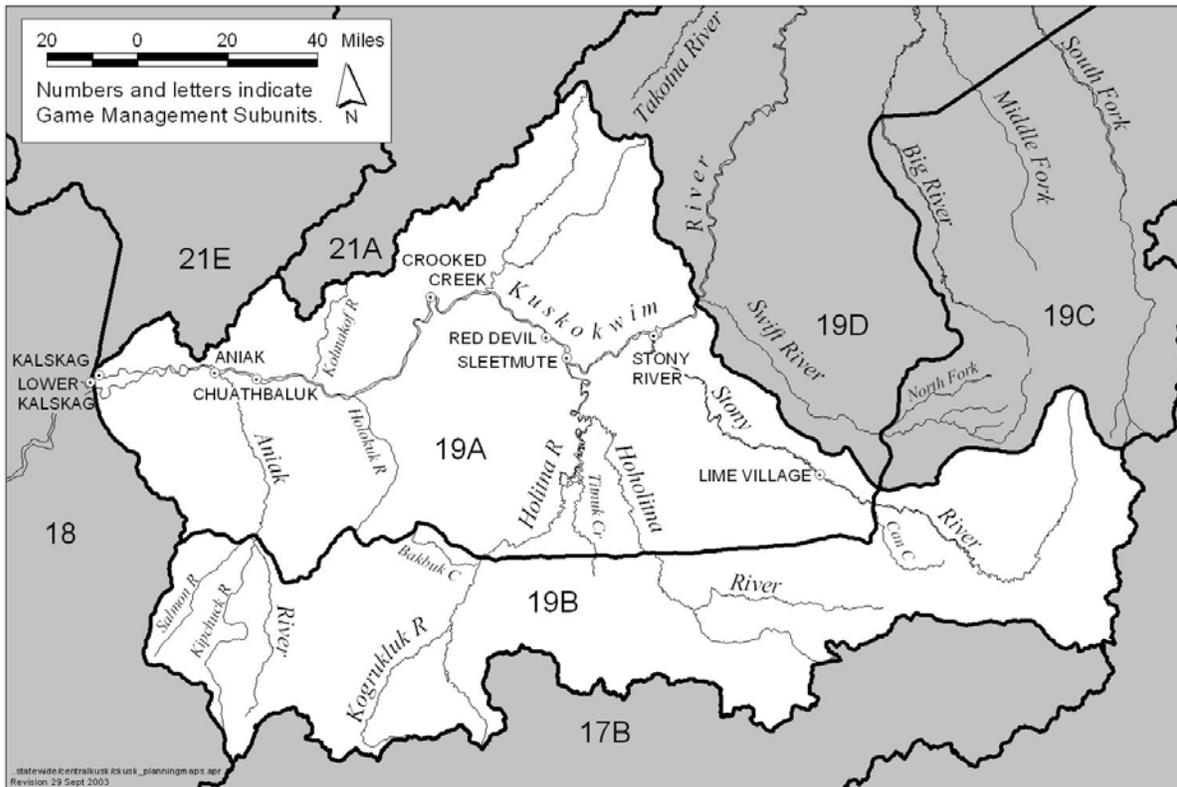


FIGURE 2 Communities and game management units in the planning area

The state of Alaska is the major landowner in the area with approximately 13,360 mi<sup>2</sup> (Figure 3). The southeastern edge of Unit 19B includes approximately 840 mi<sup>2</sup> of Lake Clark National Park and Preserve and the western edge of Unit 19A includes approximately 394 mi<sup>2</sup> of the Yukon–Kuskokwim Delta National Wildlife Refuge. The Bureau of Land Management (BLM) has approximately 1,840 mi<sup>2</sup> of land and approximately 1,245 mi<sup>2</sup> are in private ownership, primarily by Native corporations.

Many people hunt moose in Units 19A and 19B. Residents of local villages from Lower Kalskag to Lime Village depend on moose for subsistence. Many people from villages in the Yukon–Kuskokwim Delta and the City of Bethel travel upriver to hunt for moose in Units 19A and 19B. The area is fairly accessible from Anchorage, and residents of Alaska and nonresidents fly in to hunt. Many different guides and transporters operate in Unit 19.

Historically, the boundary between Units 19A and 19B was drawn according to distinct differences in moose habitat, user access and hunting practices. The lowland areas along the Kuskokwim River and its major tributaries are primarily used by residents of the central and lower Kuskokwim region. The main means of access is by boat. The higher elevation portions of Units 19A and 19B are accessed primarily by aircraft and are used mainly by nonresident hunters and resident hunters from outside the Kuskokwim region.

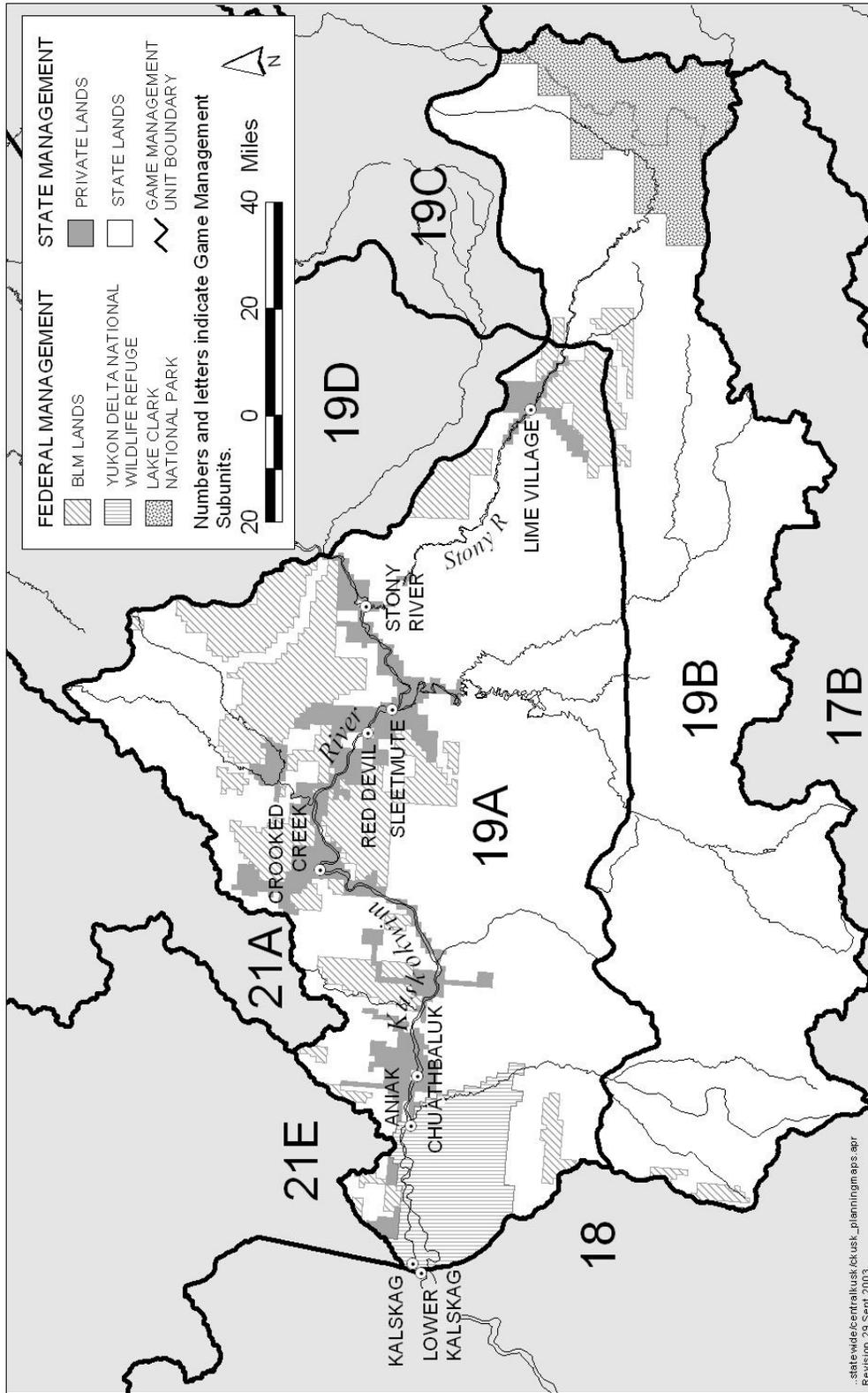


FIGURE 3 Landownership in the planning area

There is currently not enough moose available for harvest in the Central Kuskokwim region to

satisfy the needs of all hunters. Most people feel that the moose population has declined in recent years and predation on moose has increased. With fewer moose available, local subsistence hunters feel the state subsistence priority must be put into effect. Subsistence hunters from the Lower Kuskokwim region (Unit 18) use moose in Units 19A and 19B and want to maintain their hunting opportunities. The Lower Kuskokwim Advisory Committee recommended a moratorium on moose hunting for the Kuskokwim drainage in Unit 18. The Alaska Board adopted the proposed moratorium and closed the Kuskokwim drainage in Unit 18 to all moose hunting. Residents of Unit 19A are concerned about a possible increase in hunting pressure in their area from downriver residents displaced by the moratorium. The Kuskokwim Corporation has closed its lands to hunting by nonshareholders due to concern about the moose population. Resident hunters from other parts of the state and nonresidents come to hunt in the Kuskokwim and would like to continue to do so. Guides and transporters operate primarily in the uplands of Unit 19B and would like to maintain their ability to make a livelihood. Conservationists are concerned that wolves and bears are blamed for declines in moose populations and not enough attention is given to managing harvest and habitat.

For several years the Central Kuskokwim Advisory Committee (CKAC) expressed concern to the Alaska Board about declining moose numbers in Units 19A and 19B. Over the years the committee submitted several regulation proposals and recommended wolf predation control to boost moose numbers in the area. In 2000 the February season was closed by emergency order in all of Unit 19A. In 2001 the February season was closed by emergency order in the portion of Unit 19A upstream of the Holokuk and Kolmakof Rivers. These closures were implemented by the DWC at the request of the CKAC based on the committee's concern about the moose population.

In March 2002 the Alaska Board considered a wide array of moose proposals for the area from the CKAC and other users. Guides who operate in the area were strongly opposed to a nonresident drawing permit hunt system that was to go in place in fall 2002. The board adopted a compromise that closed the main river corridors to nonresident hunters in Units 19A and 19B and allowed the use of snowmachines to take wolves in Unit 19, provided that the animals are not shot from a moving snowmachine. The river corridor closure was designed to benefit subsistence hunters who travel mainly by boat and hunt along the river and to allow other residents and nonresidents to continue to have the opportunity to hunt in the uplands, away from boat-accessible areas.

These actions were viewed as partial solutions. The Alaska Board and others concerned with moose in the area urged ADF&G to initiate a planning process that would involve all users and thoroughly address moose management issues in Units 19A and 19B.

### **THE PLANNING PROCESS**

ADF&G launched the effort that led to this plan with the Aniak Regional Moose Summit held in October 2002. More than 75 people attended to learn more about the moose populations in the Kuskokwim and Lower Yukon region and to voice their concerns and ideas. Participants at the summit reviewed a moose planning proposal prepared by ADF&G and supported establishing a planning committee to develop a Central Kuskokwim Moose Management Plan.

Following the Aniak Moose Summit, ADF&G accepted nominations for participants in the Planning Committee from advisory committees and other interest groups. The Central Kuskokwim Moose Planning Committee (CKMC or Planning Committee) is primarily composed of state Fish and Game advisory committee members. All the members of the Central Kuskokwim Advisory Committee that expressed an interest in participating were included in the Planning Committee. The CKMC also includes representatives from the Lower Kuskokwim, Anchorage and Matanuska Valley ACs, guides, transporters Native organizations, and conservation groups. Members of the CKMC, where they live, and the interests they represent are:

1. Harry Allain, Aniak, CKAC
2. Joe Bobby, Lime Village, CKAC
3. Karen Deatherage, Anchorage, conservationists
4. Jim Harrower, Anchorage, Anchorage AC
5. Steve Hill, Aniak, big game transporters
6. Oscar Larson, Kwethluk, Lower Kuskokwim AC
7. Mark Matter, Aniak, CKAC
8. Leo Morgan, Aniak, local subsistence hunters
9. Patrick O'Connor, Palmer, Matanuska Valley AC
10. Greg Roczicka, Bethel, Yukon–Kuskokwim Delta Regional Advisory Council
11. Evan Savage, Lower Kalskag, CKAC
12. Gail Vanderpool, Red Devil, CKAC
13. Kelly Vrem, Chugiak, big game guides
14. Thomas Willis, Stony River, CKAC

Greg Roczicka was appointed to the Yukon–Kuskokwim Regional Advisory Council during the planning process. George Siavelis, a guide living in Aniak, attended nearly all Planning Committee meetings and served as an alternate for Kelly Vrem at the October 2003 meeting. Mr. Siavelis was appointed to the Western Interior Regional Advisory Council during the planning process. Either Dario Notti or Jennifer Hooper attended nearly every meeting on behalf of the Association of Village Council Presidents. Charlie Gusty served as an alternate representative from Stony River in some meetings. The Alaska Board appointed Ted Spraker from Soldotna as their liaison to the committee and he attended all Planning Committee meetings. The primary agency personnel that have participated in the planning effort include:

- Toby Boudreau, ADF&G, McGrath Area Biologist
- Shelly Szepanski, ADF&G, McGrath Assistant Area Biologist
- Roy Nowlin, ADF&G, Region III Management Coordinator
- Randy Rogers, ADF&G, Region III Wildlife Planner

- Jim Simon, Caroline Brown, and Tracie Krauthoefer, ADF&G, Division of Subsistence
- Jim Pagel, Alaska State Troopers, Bureau of Wildlife Enforcement
- Jeff Denton, Bureau of Land Management, Wildlife Biologist

The CKMC conducted meetings in Aniak in February, March, April, August, and October 2003 to develop the draft plan. They met in February 2004 to review public comment on the draft plan and develop final recommendations to the Alaska Board. The Planning Committee operated with a collaborative, consensus, decision-making process. Where consensus was not reached provision was made to present majority and minority viewpoints to decision-makers (see Appendix A for additional detail on the planning process, alternative points of view, alternatives included in the draft Central Kuskokwim Moose Management Plan [CKMMP] and public comment received).

After much debate and discussion, the Alaska Board adopted the CKMC majority recommendations with a few minor revisions. The Alaska Board and Federal Subsistence Board (FSB) adopted regulatory proposals and endorsed the plan during their spring 2004 meetings (see Appendix C: Alaska Board of Game and Federal Subsistence Board Plan Implementation Documents).

### **ISSUES OF CONCERN IDENTIFIED BY THE PLANNING COMMITTEE**

During the Aniak Regional Moose Summit and meetings of the CKMC many issues of concern were identified. These were grouped into main issue categories and the CKMC developed the following list of the primary issue questions. The goals, strategies and recommendations in the Management Recommendations section of this plan are designed to identify how these issues can best be resolved.

#### **Overall Problem the Plan is Intended to Address:**

***How can the moose population in Units 19A and 19B be restored to avoid impending Tier II hunting restrictions and to maintain opportunities for human use of the resource?***

Moose Harvest Management: How can harvest regulations be designed to ensure conservation of the moose resource, provide reasonable opportunities for subsistence hunting and provide opportunities for other uses?

Moose Habitat: How can we ensure the moose habitat is maintained at adequate levels?

Predation on Moose: How can predation be reduced to increase moose survival and restore overall productivity of the population?

Regulation of Guides and Transporters: How can the level of guiding and transporting be managed in Units 19A and 19B to ensure conservation of the moose resource, quality hunt experiences for clients and minimize conflicts with subsistence users?

Information and Education: What kind of information and education programs are needed to keep the public informed of management actions and concerns?

Need for Additional Data: What additional data is needed to provide the information necessary for sound management decisions in Units 19A and 19B and how can that data best be obtained?

Using the Knowledge of Resource Users: How can we obtain and include traditional knowledge and knowledge of all users in management decision-making to improve overall knowledge of wildlife populations?

## **BACKGROUND INFORMATION**

This section provides an overview of some of the key information considered by the Planning Committee in developing their recommendations. Several of the main legal considerations involved in decisions affecting central Kuskokwim moose management are described in Appendix B. Information available at the time of the planning effort was not as complete and clear as desired. For example, ADF&G has been unable to conduct moose population estimation surveys in recent years due to insufficient snow cover to enable good visibility of moose. In addition, failure to report harvest is a chronic problem. Harvest reporting is thought to be better among urban residents and nonresidents, perhaps because they are more accustomed to dealing with regulations and may be more likely to encounter Bureau of Wildlife Enforcement officers when they travel by aircraft. Because harvest report data from the Central Kuskokwim area is incomplete, staff from the DWC and Division of Subsistence and the Planning Committee have been forced to estimate the actual subsistence harvest. This required substantial guesswork to define how many moose are needed to provide for subsistence and how many are available for other uses.

While all the information desired by the Planning Committee was not available, this is not an unusual situation for natural resource management decision-making. Therefore, the CKMC developed recommendations based on the best information available from all sources, and identified priorities for obtaining additional information. Funding is limited for initiating new research programs in this area. However, ADF&G is attempting to work within existing survey and inventory budgets and possibly obtain some additional funding from outside sources to conduct projects to improve knowledge of wildlife populations, moose harvest, and moose habitat conditions in the area. As new data becomes available it will be important to provide mechanisms to incorporate that information and adjust the management program, if necessary. This process is outlined in the final section of this plan under “Plan Monitoring and Updates.”

### **MOOSE POPULATION STATUS**

ADF&G survey data is limited and traditional ecological knowledge and the knowledge of all users has played an important role in judging the status and trend of the moose population. A summary of the most recent moose survey data follows.

A moose population estimate conducted in March 1998 indicated a density of 1.25 moose/mi<sup>2</sup> in the Holitna and Hoholitna drainages where moose are most abundant (Figure 4). A March 2001 population estimate in a broad area around the Aniak River indicated a density of 0.7 moose/mi<sup>2</sup>.

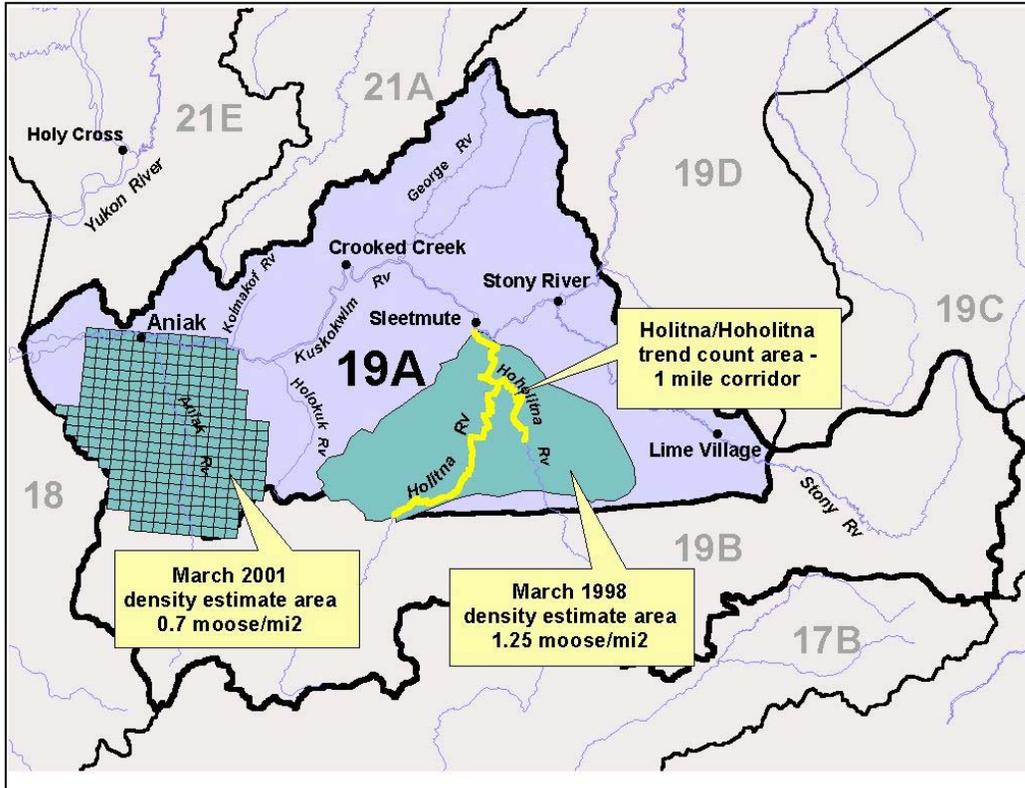


FIGURE 4 Moose population survey areas in Units 19A and 19B

Caution must be used in comparing spring and fall moose population estimates. Seasonal movements are a major consideration. Moose tend to congregate in riparian areas in spring and that can give the illusion of a high density of moose, compared to fall surveys when moose may not be so tightly congregated. With that qualification, for comparison in fall 2001 the density of moose in a 5,200-mi<sup>2</sup> area in Unit 19D East near McGrath was estimated at 0.4 moose/mi<sup>2</sup>, a 3,000-mi<sup>2</sup> area in eastern Yukon Flats was estimated at 0.2 moose/mi<sup>2</sup> and a high-density moose population in 5,000 mi<sup>2</sup> in Unit 20A south of Fairbanks was estimated at 2.5 moose/mi<sup>2</sup>.

The greatest concern about the moose population in Units 19A and 19B is based on the low calf:cow and bull:cow ratios. A November 2001 trend count conducted in a 1-mile wide corridor along the Holitna–Hoholitna Rivers indicated only 8 calves per 100 cows and 6 bulls per 100 cows. Survey conditions or other factors may have biased these numbers, it is nevertheless alarming because it is consistent with all other information. For comparison, in a fall 2001 survey in Unit 19D East, there was an estimated 15–43 calves per 100 cows, at least twice as many calves per 100 cows as in the Holitna River area. Fall calf:cow ratios in Unit 25D East on the Yukon Flats have ranged from 37 to 59 calves per 100 cows. Calf:cow ratios in Unit 20A on the Tanana Flats were 33:100 in fall 2000 and 26:100 in fall 2001.

ADF&G intended to conduct a moose survey in the Central Kuskokwim drainage during winter 2002–03. However, the snow cover was never sufficient enough to get a quality survey completed. Limited late winter surveys to estimate calf survival were conducted on April 8 and 9 after a late winter snowfall but survey conditions were still not ideal. The resulting estimate was 7.6% calves ( $n = 116$ ) in the Holitna–Hoholitna drainage and 8.9% ( $n = 67$ ) in the Aniak drainage. These numbers support the belief that calf survival in the moose population is very low and a decline in moose numbers is occurring. In order to maintain the moose population, late winter calf survival should be at least 10%; 15% calf survival or more is needed to promote population growth.

To provide information to the CKMC and to facilitate the on-going collection of composition, calving, and recruitment data, ADF&G captured 38 moose (29 adult females, 9 adult males) and fitted them with radio collars during October 3–8, 2003. The effort was focused along the lower Holitna River (9 cows), the upper Hoholitna (10 cows, 9 bulls), and the Aniak River drainage (10 cows). The moose were fitted with radio collars to allow monitoring their locations on a regular basis for the next several years. The lower Holitna River, one of the trend areas ADF&G tries to survey each spring for calving–twinning information, is heavily forested and finding radiocollared individuals will help to complete this survey work. Radiotelemetry flights will be conducted as often as possible to obtain locations of the 38 moose. ADF&G hopes to add an additional 22 radio collars on moose in the near future.

The following are theoretical estimates (sometimes referred to as extrapolations) of the moose population, based on best professional judgment and the limited survey data available at the time the plan was written. These estimates will be refined as additional information becomes available and should not be taken as absolute numbers. The numbers are, however, consistent with observations of ADF&G staff, local residents, and hunters who report the moose population has declined significantly in the past several years.

Unit 19A: 4,300–6,900 moose

Unit 19B: 2,500–4,400 moose

### **HUNTER NUMBERS AND MOOSE HARVEST**

The Planning Committee recognized the need to improve harvest reporting (see Goal 6, Recommendation 6.3). Division of Subsistence staff estimate that reported harvest is 28–50% of the actual harvest. Numbers of reported hunters and moose harvested have declined substantially since the 1994–1995 season (Table 1). In Unit 19A, the number of moose reported harvested by local residents and other Alaska residents declined from 138 moose to 48 moose, approximately 65% between 1994–95 and 2002–03. Very few people (0–3) who live in Unit 19A have reported moose hunting in Unit 19B. Hunting in Unit 19B by nonlocal Alaska residents has declined from 199 hunters who harvested 71 moose in 1994–95 to 80 hunters who harvested 14 moose in 2002–03. Numbers of moose taken by nonresident hunters declined in Units 19A and 19B over the last several years, but not as severely as the decline in harvest by Alaska residents. In 1994–95 there were 245 nonresident hunters who harvested 101 moose in Units 19A and 19B and in 2002–03 there were 194 nonresident hunters who harvested 83 moose in Units 19A and 19B (Table 1).

Reported harvest under state of Alaska Tier II permits in the Lime Village Management Area has also declined over the last several years. Since 1992 the highest number of moose reported harvested was 12 in 1993–94. Prior to this planning effort there was a village harvest quota of 40 moose under federal subsistence management regulations. Lime Village federal subsistence harvest is reported to BLM. Federal harvest data indicates an approximately 50% decline in moose harvested by Lime Village between the years 1994–95 and 2001–02 (36 moose to 18 moose). The federal reported harvest during 2002–03 dropped even further to 8 moose. Roughly one-third of the Lime Village federal harvest has been cow moose.

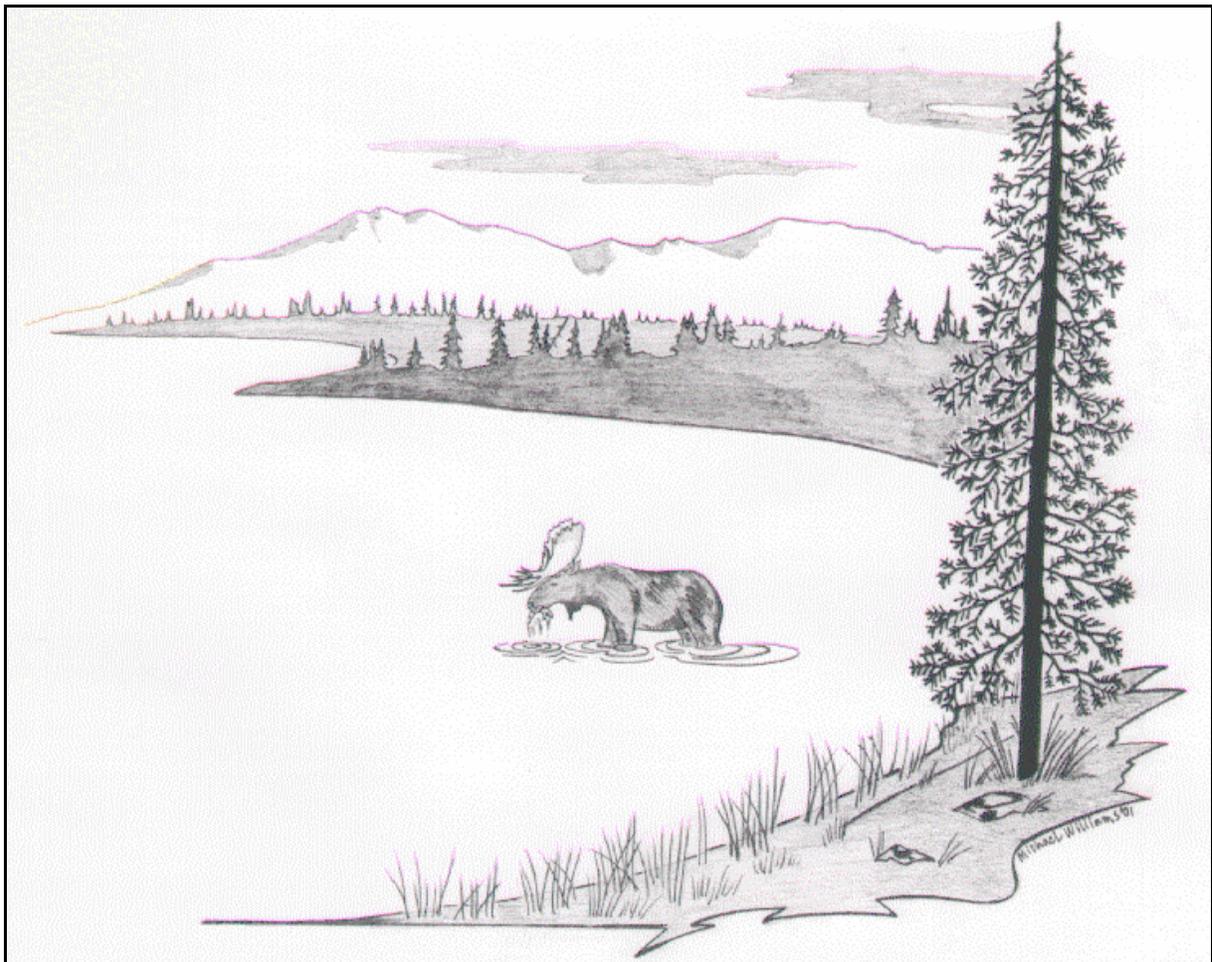


TABLE 1 Reported moose hunter numbers and harvest according to residency

Unit/ Regulatory year <sup>b</sup>	Local resident hunters (live in communities within Units 19A&B)			Nonlocal Alaska resident hunters (live in Alaska outside Units 19A&B)			Nonresident hunters (live outside of Alaska)			Total number of moose hunters and moose taken <sup>a</sup>	
	No. of moose hunters	No. of moose taken	Success rate	No. of moose hunters	No. of moose taken	Success rate	No. of moose hunters	No. of moose taken	Success rate	No. of moose hunters	No. of moose harvested
UNIT 19A <sup>c</sup>											
1994–95	117	56	48%	189	82	43%	49	23	47%	364	168
1995–96	87	28	32%	173	83	48%	38	23	60%	304	141
1996–97	93	42	45%	205	119	58%	38	20	53%	339	184
1997–98	77	44	57%	145	77	53%	54	19	35%	280	142
1998–99	80	56	70%	154	65	42%	51	19	37%	292	146
1999–00	99	45	45%	123	46	37%	45	20	44%	277	117
2000–01	70	18	26%	123	53	43%	91	32	35%	292	108
2001–02	64	22	34%	167	53	32%	50	11	22%	293	95
2002–03	80	19	24%	119	29	24%	49	18	37%	253	67
UNIT 19B											
1994–95	0	0	0%	199	71	36%	196	88	45%	408	163
1995–96	0	0	0%	147	66	45%	177	69	39%	330	136
1996–97	0	0	0%	132	54	41%	210	107	51%	350	166
1997–98	0	0	0%	124	41	33%	259	114	44%	394	159
1998–99	0	0	0%	128	48	37%	275	100	36%	414	153
1999–00	2	1	50%	120	43	36%	218	59	27%	354	112
2000–01	0	0	0%	165	60	36%	248	88	35%	419	153
2001–02	3	1	33%	148	42	28%	202	68	34%	358	112
2002–03	2	1	50%	80	14	18%	145	65	45%	229	81

<sup>a</sup> Includes reports with “unknown” residency.

<sup>b</sup> Regulatory year begins July 1 and ends June 30.

<sup>c</sup> Harvest reporting is low in many areas of rural Alaska. Actual harvest in rural areas is estimated to be 50–72% greater than reported harvest.

## WOLF AND BEAR NUMBERS AND HARVEST

There are an estimated 180–240 wolves in Unit 19A in approximately 24–28 packs. In Unit 19B there are an estimated 160–215 wolves in approximately 21–25 packs. Wolf population numbers are theoretical estimates based on extrapolations from surveys conducted in adjacent areas, trapper interviews, prey density estimates, and habitat. Wolf harvest is based on sealing certificate data. In Unit 19A the harvest is approximately 22 wolves/year and in Unit 19B approximately 30 wolves/year.

The population estimate for grizzly bears in Units 19A and 19B is a theoretical extrapolation from estimates in other units, prey density, habitat and hunter–guide interviews. Based on the information from all these sources the grizzly bear population is likely 250–500 bears, greater than 2 years old. Grizzly bear harvest in Units 19A and 19B has normally ranged from 20–30 bears with a high of nearly 60 bears harvested in 2001.

The black bear population estimate for Units 19A and 19B is a theoretical extrapolation from estimates in other units, prey density, habitat and hunter–guide interviews. Based on the information from all these sources the black bear population is likely 1700–2500 bears. Since 1990, the total reported harvest of black bears for all years combined was 91, with 13 taken in Unit 19A and 78 taken in Unit 19B. There are no sealing or reporting requirements for black

bears except for bears exported from Alaska. Reported harvest of black bears is likely much lower than actual harvest.

### **MOOSE HABITAT CONDITIONS**

Based on the limited data available, habitat does not seem to be a likely factor limiting population growth in moose in the central Kuskokwim region. A browse survey in Unit 19D (near McGrath) during spring 2001 found that moose were removing only about 18% of available forage. A browse survey in autumn 2002 below Lower Kalskag on the Kuskokwim River (Unit 18) found that 78% of shrubs were unbrowsed and none were heavily browsed by moose. Twinning rates of 32% observed in spring 2000 on the Holitna and Hoholitna Rivers suggest cows are in average or better body condition. If observations of browsing upriver and downriver from Unit 19A, and limited observations of twinning are indicative of the situation in Unit 19A, habitat enhancement alone is unlikely to cause a significant population increase in moose in the foreseeable future.

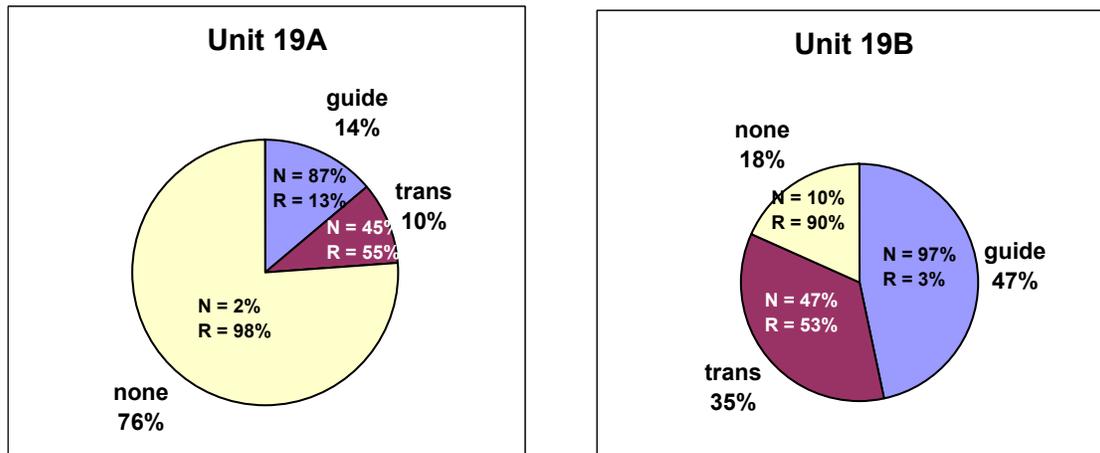
Maintaining abundant willows in the floodplain and nearby upland sites may reduce calf and adult losses to starvation during a severe winter (prolonged period of deep snow). Allowing disturbance by the natural forces of wildland fire is a good strategy for keeping habitat productive. The most cost-effective way to maintain productive moose habitat is by encouraging landowners to change the fire management options under the Alaska Interagency Wildland Fire Management Plan to allow fires to restore natural disturbance patterns on the landscape. Habitat rejuvenation allows future options for increasing moose numbers in the region if other limiting factors (such as hunter harvest of cows or predation by bears and wolves) are reduced.

### **COMMERCIAL GUIDING AND TRANSPORTING OPERATIONS**

There are many different guides and transporters that operate in Units 19A and 19B. A higher proportion of hunters use the services of guides and transporters in Unit 19B than in Unit 19A. In Unit 19B most nonresidents use the services of guides and there is a significant number of Alaska resident hunters who use transporter services (Figure 5).

Big game commercial guiding and transporting operations in Alaska are regulated by the Department of Commerce, Division of Occupational Licensing. There are presently no limits in the state system on the number of guides and transporters that can operate in any one area. The main tool available to the Alaska Board is to limit nonresident and resident hunting opportunity through seasons and bag limits, methods and means, or registration and drawing permit systems. A drawing hunt has been strongly opposed by commercial operators in Units 19A and 19B because there are so many operators that any one business may not have a sufficient number of clients who draw permits to be economically viable.





(N = nonresident, R = resident; trans = transporter)

FIGURE 5 Moose harvest by commercial service and hunter residency in Units 19A and 19B, 1992–2001.

#### KEY REGULATIONS IN PLACE BEFORE THE PLANNING PROJECT

Units 19A and 19B were originally split to provide separation between the primarily subsistence hunting by boat in Unit 19A, and the fly-in hunting in Unit 19B. In the past several years the Alaska Board took several actions to manage moose hunting, to reduce conflicts between user groups, and to promote increased harvest of wolves. A few of the provisions that remain in the regulations are listed below.

Holitna–Hoholitna Controlled Use Area: This area consists of the mid to lower portions of the Holitna and Hoholitna Rivers and Titnuk Creek. It is closed to the use of any boat equipped with inboard or outboard motor(s) with an aggregate horsepower in excess of 40 horsepower for the taking of big game, including transportation of big game hunters, their hunting gear, and/or parts of big game, during the period August 1–November 1.

Upper Holitna–Hoholitna Management Area: The area consists of all portions of Unit 19B within the Aniak, Kipchuk, Salmon, Holitna and Hoholitna River drainages. All hunters in the area passing a checkstation established by ADF&G must stop at the checkstation. A moose or caribou taken in the area by a hunter accessing the area by aircraft must be transported out of the area by aircraft.

Nonresident Closed Areas in Units 19A and 19B: The Kuskokwim River and all the main tributaries, with the exception of the Stony River, are closed to the taking of caribou and moose by nonresidents.

Nonresident Hunter Orientation: A nonresident hunter in Unit 19B must attend a ADF&G approved hunter orientation course (to include trophy recognition and meat care) or must be accompanied by a registered guide or resident family member within second-degree kindred.

Meat on the Bone Requirement: Meat taken prior to October 1 in Unit 19A within the Holitna–Hoholitna Controlled Use Area, and Unit 19B must remain on the bones of the front quarters and hindquarters until removed from the field or processed for human consumption.

Use of a Snowmachine to Take Wolves: A snowmachine may be used to take wolves in Unit 19, provided that wolves are not shot from a moving snowmachine.

## MANAGEMENT RECOMMENDATIONS

This section includes the goals, objectives, strategies and recommendations to address each of the main issues identified by the planning committee. Appendix A provides additional detail on the alternatives presented in the draft plan and the majority and minority opinions of members of the CKMC, where consensus was not reached. The determinations of the amounts of moose necessary for subsistence and intensive management population and harvest objectives are included in this section because of their importance in Alaska Board regulatory decisions. These numbers were carefully reviewed during the planning and board processes but were not changed. Changes in hunting regulations and other actions taken by the Alaska Board and FSB during their spring 2004 meetings are described in this section.

### MOOSE HARVEST MANAGEMENT

Goal 1: Manage moose harvest through regulations designed to conserve and enhance the moose resource, provide reasonable opportunities for subsistence hunting, and provide opportunities for other users to harvest moose when the moose population is sufficient to provide them.

Strategy 1.1: Manage moose harvest conservatively to reduce human-caused mortality while the moose population is low and rebuilding. As the moose population and harvestable surplus increases, reduce restrictions on harvest to increase hunting opportunities.

Strategy 1.2: As the first priority for moose harvest, ensure reasonable opportunities for subsistence harvest of moose by Alaska residents are provided.

Strategy 1.3: Seek to maintain opportunities for nonsubsistence harvest of moose, as can be supported by the moose population at any point in time. As the moose population increases, harvest opportunities for all users should be increased accordingly.

#### *Amounts Necessary for Subsistence*

The Alaska Board made a positive finding on customary and traditional subsistence use of moose in Unit 19 (Appendix B). The board identified two populations of moose in Unit 19 for subsistence management purposes, the Lime Village Management Area (LVMA) and the remainder of Unit 19, including Units 19 A, B, C, and D. The Amounts Necessary for Subsistence (ANS) numbers adopted by the Alaska Board are 30–40 moose within the LVMA

and 400–700 moose for the remainder of Unit 19 outside of the LVMA. The total ANS for Unit 19 is 430–740 moose.

*Intensive Management*

The Alaska Board found that moose in Units 19A and 19B are important for providing high levels of human consumptive use. The current moose population estimates and moose harvest levels are well below the lower range of the Intensive Management population and harvest objectives established by the Alaska Board (See Appendix B for further detail on the legal requirements for Intensive Management). The estimated moose harvest numbers shown in the right column below include unreported harvest.

Intensive Management objectives for Units 19A and 19B (5 AAC 92.108)	Current estimated moose population and harvest for Units 19A and 19B
Population: 13,500–16,500 moose	Population: 6,800–11,300
Harvest: 750–950 moose	Harvest: 200–300

*Moose Population Management Objectives*

The following objectives are recommended by the CKMC and, if achieved, should promote growth in the moose population.

- Minimum fall posthunt bull:cow ratio of 25–30 bulls:100 cows.
- Minimum fall posthunt calf:cow ratio of 30–40 calves:100 cows.
- No less than 20% short yearlings (calves from the previous year) in late winter surveys.

*Moose Hunting Regulation Changes*

The CKMC considered a wide range of alternatives for possible changes to the moose harvest regulations in Units 19A and 19B. Options considered ranged from no changes in moose hunting regulations, to recommending limiting hunting to subsistence hunting only through a Tier II permit system, to a complete moratorium on moose hunting.

Two alternatives for reducing moose harvest to help promote growth in the moose population were described in the draft CKMMP. Both alternatives proposed eliminating the resident winter moose hunting seasons. Both alternatives proposed establishing a dual system for resident hunting in the fall using either harvest tickets with antler restrictions or registration permits for any bull. The main difference between the two alternatives was the degree to which nonresident hunting opportunities would be reduced. The two alternative moose harvest management approaches circulated for public review in the draft plan are outlined in Appendix A.

In their meeting following the public comment period on the draft plan, the CKMC did not reach consensus on one nonresident harvest management approach to recommend to the Alaska Board. Several members of the CKMC and the public commented that the reductions in nonresident hunting proposed under the first alternative were not sufficient considering that the winter resident seasons that are very important for subsistence hunters were proposed for complete elimination, success of local residents in the fall seasons has been very low in recent years, and the fall hunt for residents would be further restricted with registration permits and antler restrictions.

The CKMC majority recommendation was to close Unit 19A to nonresident hunting and reduce the nonresident season in Unit 19B by 10 days to September 1–15. The minority viewpoint on the CKMC was to maintain the nonresident river corridor closures in Units 19A and 19B and restrict nonresident hunting in Unit 19A through a registration permit system with a harvest quota of 15 bull moose. Under the minority opinion the nonresident moose hunting season in Unit 19B would have been reduced by 5 days to September 1–20. For resident hunters, the only change from the draft plan recommended by the CKMC in the February 2004 meeting was to delete the option of using harvest tickets for bulls with spike-fork or 50 inch antlers and include only the option of using registration permits for any bull in Unit 19A. Both hunt options would remain available in Unit 19B.

During the Alaska Board deliberations the topic of nonresident hunting was very contentious. There was public testimony both for and against continuing nonresident moose hunting in Unit 19A. The board carefully weighed the majority and minority opinions of the CKMC, public testimony, moose population data and information on subsistence needs before adopting the regulatory changes described below. With regard to the federal subsistence hunting proposals, the Western Interior and Yukon–Kuskokwim Delta Regional Subsistence Advisory Councils both endorsed the regulation proposals for resident moose hunting and these items were passed by the FSB on the consent agenda at their May 2004 meeting.

### **Actions taken:**

The following describes the changes to the moose hunting regulations in Units 19A and 19B adopted by the Alaska Board and FSB in spring 2004.

#### **Unit 19A.**

- All the winter moose hunting seasons in Unit 19A were closed under both state and federal regulations with the exception of the Tier II hunt in the LVMA and the federal subsistence season for residents of Lime Village.
- The bag limit for the state Tier II hunt in the LVMA was changed from two moose to two antlered bulls (Since the LVMA includes a November 20–March 31 season there is a portion of the year when bulls have shed antlers but harvest remains restricted to antlered bulls. This likely occurred as an oversight when the Alaska Board added the antlered bull requirement for all moose hunts in Units 19A and 19B.).

- Under federal regulations the village harvest quota for residents of Lime Village was changed from 40 moose to 28 bulls.
- Registration permits are required for the September 1–20 season. The bag limit is “any antlered bull.” Permits will only be issued in Unit 19A communities and will not be available after August 26, 5 days before the hunting season begins.
- The Alaska Board closed Unit 19A to nonresident moose hunting with a 1-year sunset provision. The board requested ADF&G bring the Unit 19A nonresident moose hunting closure back for reconsideration at their March 2005 meeting

#### Unit 19B.

- The resident season was reduced by 5 days from September 1–25 to September 1–20.
- The nonresident season was reduced by 10 days from September 1–25 to September 5–20. Nonresident hunting in Unit 19B will still be managed with harvest tickets with antler restrictions. The bag limit remains one bull with 50-inch antlers or antlers with four or more brow tines on at least one side.
- In the fall season resident hunters in Unit 19B can use either of two options:
  1. Hunting under a harvest ticket for bulls with spike–fork or 50-inch antlers or antlers with four or more brow tines on at least one side or;
  2. Hunting under a registration permit for any bull. Permits will only be issued in Unit 19A communities and will not be available after August 26, 5 days before the hunting season begins.

#### **MOOSE HABITAT**

Goal 2: Ensure moose habitat is maintained at adequate levels so that habitat does not limit moose population growth while the moose population is rebuilding and that habitat is not overused once the moose population has increased.

Strategy 2.1: Encourage landowners and fire management agencies to modify the Alaska Interagency Wildland Fire Management Plan to provide for a natural fire regime to the greatest extent practicable.

Strategy 2.2: Monitor moose use of browse, particularly as the moose population grows, to ensure that habitat does not become overused or become a factor limiting the moose population.

Strategy 2.3: Identify key moose habitat areas and ensure that those areas continue to be available and occupied by moose to the greatest extent possible.

Recommendation 2.1: Division of Wildlife Conservation staff should continue working with The Kuskokwim Corporation, BLM, the Alaska Department of Natural Resources and other

landowners to designate appropriate lands for limited fire suppression in the Alaska Interagency Wildland Fire Management Plan.

Recommendation 2.2: Conduct qualitative moose browse surveys in the central Kuskokwim valley to compliment data from the McGrath and lower Kuskokwim areas and to ensure that habitat is not limiting moose productivity.

### **PREDATION ON MOOSE**

As shown by past proposals submitted to the Alaska Board by the Central Kuskokwim Advisory Committee, many local people who depend on moose as a subsistence resource support wolf control to help rebuild the moose population. Several people advocated wolf control at the Aniak Regional Moose Summit and the Planning Committee meetings. People have also noted the importance of predators as part of the ecosystem and the need to be cautious about possible overharvest of bears and wolves. Some people have expressed opposition to wolf predation control, except possibly in the most severe circumstances. Appendix B outlines provisions of the Alaska Constitution that require the state to manage resources for the maximum benefit of its people. The general goal and strategies for addressing predation on moose established by the committee follow.

Goal 3: Reduce predation on moose to increase moose survival, and to restore the overall productivity and abundance of the moose population while also recognizing that predators are an integral part of the ecosystem.

Strategy 3.1: Establish short- and long-term management objectives for predators to provide assurances that if predators are reduced, that overall populations of predators will be maintained and managed as an integral part of the ecosystem (see Appendix C for wolf population reduction objectives for Unit 19A and the minimum wolf population to be maintained during wolf predation control activities, as established by the Alaska Board).

Strategy 3.2: Promote hunting regulations with seasons and bag limits designed to encourage increased harvest of bears and wolves by the public.

Strategy 3.3: Establish an intensive management program to help rebuild the moose population using all appropriate management techniques including predator control.

Wolf predation control was the most controversial aspect of predator management the Planning Committee encountered in its discussions. In their April 2003 meeting Planning Committee members and agency staff began to discuss the circumstances under which wolf control might be applied. The committee discussed questions such as:

- How much information on moose and wolf populations is necessary to justify wolf control?
- Should there be a prerequisite to conduct detailed scientific studies that might take several years and be very expensive?

- How much weight should be given to the knowledge of local residents and other hunters that have observed the decline in moose numbers and increase in the wolf predation?
- How much weight should be given to the concerns of people who live outside the area and may never visit but have philosophical concerns about manipulating wildlife populations through wolf control?
- If wolf control were to be implemented, should it be conducted by members of the public or by ADF&G staff?
- What areas should be prioritized for wolf control?
- What objectives should be set for increases in the moose population to define when predation control efforts would be discontinued?
- What techniques could hunters and trappers use following a wolf control program to regulate the wolf population and maintain the benefits of the control effort?

Although it is relatively easy to make general statements in favor or against wolf control, it becomes much more difficult to develop specific recommendations for a control program that can be biologically effective, affordable and acceptable to the broadest possible range of people interested in wildlife management. Following their discussion of the many aspects of wolf control, the Planning Committee sought to achieve consensus on a statement in support of a wolf predation control program. There was not consensus among the members of the committee. The two differing viewpoints are presented in Appendix A.

While the committee did not achieve consensus on the topic of recommending wolf predation control, Recommendation 3.1 reflects the viewpoint of the majority of the committee members. Since the April CKMC meeting when the majority of the committee approved a statement supporting a wolf predation control program initially being conducted by ADF&G personnel, the committee discussed the policy of Governor Murkowski to not allow predation control to be conducted by department personnel. The majority of the committee recommended using the alternative means of wolf control of issuing permits to the public for aerial wolf control as provided for in the Same Day Airborne Hunting Act (AS 16.05.783, see Appendix B). Aerial wolf predation control will not occur on lands managed by the National Park Service or the U.S. Fish and Wildlife Service unless these agencies consent to the program and that is not likely to occur under current National Park Service legal mandates and USFWS policies.

Recommendation 3.1: The Alaska Board should approve a Wolf Predation Control Plan under 5 AAC 92.125 and it should be given expedited implementation so the program can be initiated in spring 2004.

**Actions taken:***Alaska Board of Game Authorization for Wolf Predation Control*

The Alaska Board approved the regulatory proposal included in the draft CKMMP to establish a Central Kuskokwim wolf predation control plan for Units 19A and 19B (Appendix C and 5 AAC 92.125[7]). The regulation authorizes the commissioner to conduct a wolf population reduction or regulation program in Units 19A and 19B for up to 5 years beginning July 1, 2004. The Alaska Board also issued findings to authorize ADF&G to conduct airborne or same-day-airborne shooting of wolves in the Unit 19A portion of the Central Kuskokwim Wolf Predation Control Area (Appendix C; Findings of the Alaska Board of Game 2004-150-BOG). The board findings direct ADF&G to seek to accomplish an approximate 80% reduction in the wolf population in Unit 19A for a period of 5 years. At no time is the population of wolves in Units 19A to be reduced to fewer than 40 wolves. These board directives provide some of the wolf population management objectives recommended in Strategy 3.1 above.

Recommendations 3.2 and 3.3 are designed to liberalize brown bear regulations to provide greater hunting opportunity and may also help reduce predation on moose. Brown bear harvest rates are higher in Unit 19B and Recommendation 3.3 to lengthen the brown bear season does not include that area. The CKMC did not recommend changing black bear hunting regulations because the existing no closed season and limit of three black bears per year are sufficiently liberal.

Recommendation 3.2: Allow resident and nonresident hunters to harvest one brown bear each year in Units 19A and 19B. Bears taken in Units 19A and 19B will not count against the one bear per 4-year limit that applies in some other parts of the state.

Recommendation 3.3: Extend the brown bear season in Unit 19A to August 10–June 30.

Recommendation 3.4: Encourage hunters to increase harvest of black bears under the existing year-round season and bag limit of three bears.

Both the Alaska Board and FSB adopted proposals to allow hunters to harvest one brown bear each year in Units 19A and 19B and it does not count against the one bear per 4-year limit that applies in some other parts of the state. The brown bear season in Unit 19A was extended to August 10–June 30.

**REGULATION OF GUIDES AND TRANSPORTERS**

Goal 4: Manage the level of guiding and transporting in Units 19A and 19B to ensure conservation of the moose resource, quality hunt experiences for clients and to minimize conflicts with subsistence users.

Strategy 4.1: Manage the number of guided and transported hunters through the existing hunt management authorities of ADF&G and the Alaska Board that apply to all resident and nonresident hunters.

Strategy 4.2: Support efforts to pass legislation that would establish a Big Game Commercial Services Board that would limit the total number of guides, transporters and clients in each unit.

As previously noted, the Alaska Board reduced opportunity for guiding nonresident hunters in March 2002 through establishing the nonresident closed areas along the Kuskokwim River and major tributaries. Because ADF&G does not have authority to regulate guides and transporters and there are presently no limits on these operations, numbers of guided and transported hunters can only be managed by seasons, bag limits, methods and means, and permit requirements that apply to resident and nonresident hunters. At their March 2004 meeting the Alaska Board reduced the length of the nonresident season in Unit 19B and closed the nonresident season in Unit 19A, with a 1-year sunset provision. Legislation to establish a Big Game Commercial Services Board was introduced during the 2003–04 legislative session but did not pass.

#### **INFORMATION AND EDUCATION**

Goal 5: Prepare and distribute information to keep the public informed about the Central Kuskokwim Moose Management Plan to gain public understanding, support and involvement in the effort to rebuild the moose population.

Strategy 5.1: Prepare and distribute information to better inform hunters and other users about the problem of the low moose population in Units 19A and 19B and ways they can contribute to the effort to rebuild the population.

Information provided to hunters and local residents should include the status of the moose population, the impacts of killing cow moose, predator–prey dynamics, the impacts of illegal cow harvest, the benefits of increasing the harvest of predators, the need to minimize wanton waste of moose, and the importance of harvest reporting.

Recommendation 5.1: ADF&G should develop an informational brochure to educate people about the importance of cow moose survival for maintaining productivity of the moose population when the population is low.

Recommendation 5.2: ADF&G should make educational materials about wildlife and moose management available to teachers in the Kuspuk School District and other areas where interest is expressed.

Strategy 5.2: Prepare and distribute information to better inform the general public about the effort to rebuild the Central Kuskokwim moose population.

Public information topics should include the importance of moose to subsistence hunters, the overall purpose of the plan to maintain opportunities for all users, the role of predation control in rebuilding the moose population, and the intent to maintain populations of predators as an integral part of the ecosystem even if efforts are made to increase moose survival by reducing predator numbers.

**Actions taken:**

- In spring 2004 the ADF&G Region III Wildlife Education Specialist assembled a moose biology and management educational curriculum for rural high school students in the Central Kuskokwim region. The curriculum was provided to teachers in all the schools in Unit 19A communities.
- An issue of the Central Kuskokwim Moose Planning News was distributed in April 2004 to inform local residents, hunters, and others about the actions taken by the Alaska Board. The April newsletter included an article about the new requirement for registration permits.
- DWC staff prepared informational posters on the changes in moose hunting regulations and use of registration permits. The posters were distributed to every community in Unit 19A and Unit 18 within the Kuskokwim River drainage.

**Recommendation 5.3:** ADF&G should develop a public information and education program on predator–prey management in Alaska so intensive management, including wolf predation control, is better understood.

**NEED FOR ADDITIONAL DATA**

**Goal 6:** Identify and obtain additional data needed to make sound management decisions for Units 19A and 19B moose management.

**Strategy 6.1:** Continue efforts to improve baseline biological information on the status of the moose and predator populations as part of the routine management program.

**Strategy 6.2:** Beyond routine biological monitoring programs, identify the most crucial data omissions and seek to conduct research to meet priority data needs.

ADF&G is and will continue to attempt to obtain funding to meet priority data needs. Realistically, budget limitations will likely not allow for significant implementation of research in this area and management decisions will have to be made based on the data available and the collective judgment of those involved.

**Recommendation 6.1:** ADF&G should modify the current moose survey and inventory strategy so that data on moose population status and trends can be more reliably obtained.

Use of radio collars on moose should be considered to help identify seasonal movement and distribution information and adult mortality rates. Seasonal movement information will then facilitate collecting composition data (bull:cow and calf:cow ratios). Seasonal movement information will also be used to describe wintering areas, a point that is important to further management decisions. Moose distribution information will help to provide a better understanding of the relationship between moose in Unit 19A and Unit 19B. One of the key questions to management of moose in this area is: Does harvest of moose in Unit 19B occur at the expense of harvest in 19A?

**Action taken:**

- ADF&G fitted 38 moose with radio collars in October 2003. Radio collars were distributed on moose in Unit 19A in the lower Holitna River (10 collars), and the lower Aniak River drainage (10) and in Unit 19B in the upper Holitna and Hoholitna drainages (18). Flights to track the locations of these radiocollared moose have been conducted on a regular basis since they were put in place and the preliminary results have been reported in the Central Kuskokwim Moose Planning News.

Recommendation 6.2: Conduct surveys to estimate wolf numbers both as baseline information and to monitor changes in wolf populations if wolf predation control is applied to ensure that wolf predation control efforts do not exceed minimum wolf population objectives.

Strategy 6.3: Improve harvest reporting through a combination of distributing information on the importance of harvest data, considering use of registration or other permit hunts, and supporting a household subsistence use survey for moose.

Recommendation 6.3: Work with the ADF&G Subsistence Division to seek funding to conduct household big game subsistence harvest surveys and implement the survey projects if funding is obtained.

If possible, the household survey project should be coordinated with the Kuspuk School District. This approach has the additional benefit of helping to educate children in local communities about wildlife management and moose management issues in particular.

**Action taken:**

- ADF&G Subsistence Division applied for and received a grant from the U.S. Fish and Wildlife Service/Office of Subsistence Management to conduct household surveys of big game harvest in Unit 19A communities. Subsistence Division staff worked with teachers in the Kuspuk School District to involve students in collecting the household subsistence use data. Subsistence Division staff traveled to schools in each community in Unit 19A (except Lime Village) to help familiarize students with the moose management educational curriculum and provide training in the methodology used to conduct the household surveys.

**USING THE KNOWLEDGE OF RESOURCE USERS**

Goal 7: Integrate traditional knowledge and the knowledge of all users in wildlife management decision-making.

Strategy 7.1: Use the advisory committee, regional council and other public meeting forums to seek out and document user knowledge and recommendations about wildlife resources and uses in the Central Kuskokwim area.

Recommendation 7.1: Increase support for the state Fish and Game advisory committee system so that rural advisory committees can meet more regularly, particularly when the Alaska Board is considering issues in their region.

## PLAN MONITORING AND UPDATES

The Alaska Board and FSB have taken action to implement the recommendations of the CKMMP. Nonetheless, it will remain important for the CKAC and CKMC to stay involved in monitoring the implementation of the plan and making recommendations for updates, as necessary. The plan must be flexible with processes built in to accommodate necessary changes. This is particularly important because the biological information available at the time the plan was prepared was not as definitive as desired. The CKMC, CKAC, and other advisory committees, the public, and eventually the Alaska Board have all exercised their best judgment based on available scientific information and the knowledge and input of wildlife users. As new information becomes available it may necessitate changes in harvest or predation management or other aspects of the plan. The collective judgment of wildlife users will be needed to evaluate new information and develop recommendations for the most appropriate management response.

Recommendations and decisions for changes in harvest regulations will be made through the combined efforts of ADF&G, CKMC, CKAC, other advisory committees, federal regional advisory councils, the public, the Alaska Board, and FSB. The general process to be used is outlined below.

1. The Area Biologist's evaluation of the moose population indices (bull: cow and calf: cow ratios, yearling overwinter survival rates, etc.) and his or her recommendation on allowable harvest levels within sustained yield.
2. The CKMC's review of the Area Biologist's recommendations and the committee's recommendations for specific harvest management approaches, based on the allowable harvest rate and state harvest allocation procedures.
3. Review of CKMC recommendations by the CKAC, other advisory committees and the public.
4. Advisory committee and public review and comment on regulation proposals through the Alaska Board public process.
5. Decisions by the Alaska Board on appropriate moose hunting regulations based on biological considerations and input from advisory committees and the public.
6. Moose hunting regulation proposals will also be coordinated with federal subsistence advisory councils and the FSB to maintain consistency between state and federal regulations.

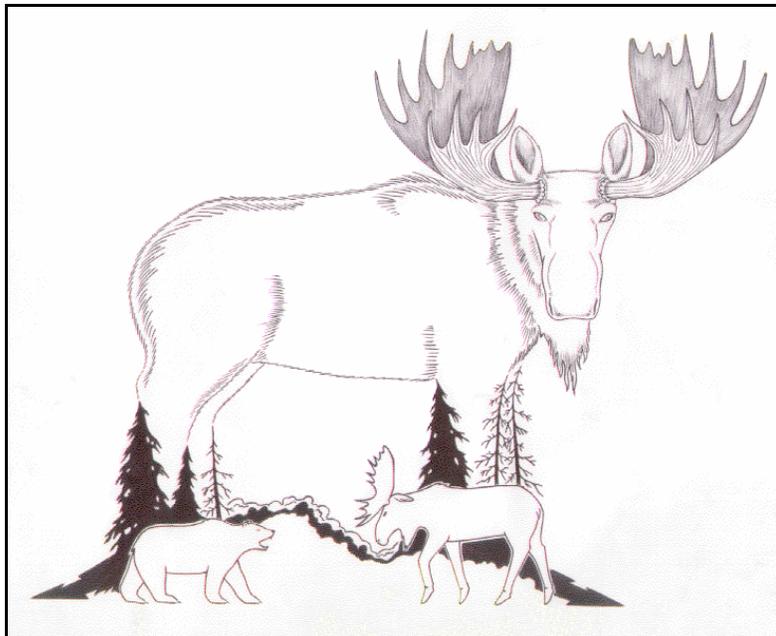
The CKMC provides the forum for diverse users, including representatives of several fish and game advisory committees to discuss new data and seek agreement on recommendations to advisory committees and the Alaska Board. The planning committee will remain involved for a minimum of 2 years after adoption of the initial plan. Meetings will be conducted annually following acquisition of new moose and other wildlife data, or as needed.

A meeting of the CKMC will be organized in winter 2004–05 so the plan, its implementation, and any new information available can be reviewed. A follow-up report to the Alaska Board will be prepared for their March 2005 meeting and will address, at a minimum, the 1-year sunset on the nonresident moose hunting closure in Unit 19A and the wolf predation control implementation plan. Because public notice will have to be given of possible changes to the moose hunting regulations in Unit 19A, a “placeholder” proposal will be submitted to continue the nonresident closure in Unit 19A. This will allow the Alaska Board to review any new information on moose populations and harvest levels and provide the latitude needed to maintain, alter or eliminate the nonresident moose hunting closure in Unit 19A as the board determines appropriate.

A report on the plan will also be provided to the Alaska Board at its next Interior Alaska meeting that is scheduled for March 2006. If the need for regulatory changes outside the normal schedule of Alaska Board deliberations occurs, a change of agenda request to the board to address Units 19A and 19B moose issues may need to be considered.

After the March 2006 Alaska Board meeting the need to maintain the CKMC will be evaluated. Over time the planning committee will be phased-out as is appropriate according to the need for the committee and availability of funding. The CKAC, other advisory committees and federal subsistence councils will continue to provide recommendations to the Alaska Board and FSB.

This plan will be updated in the future, as needed, according to new data, identification of issues that require further resolution, and the input of the planning committee and others. The plan will remain in place as long as it serves a useful function of helping to guide moose management in the Central Kuskokwim region.



**APPENDIX A** — Additional detail on the planning process

The CKMC conducted meetings in Aniak in February, March, April, August and October 2003 to develop the draft CKMMP. They met in February 2004 to review public comment on the draft plan and develop final recommendations to the Alaska Board of Game (Alaska Board). The planning committee operated with a collaborative, consensus, decision-making process. Where consensus was not reached provision was made to present majority and minority viewpoints to decision-makers.

At their first meeting in February 2003 Central Kuskokwim Moose Management Planning Committee (CKMC) members agreed to a joint statement on the status of the moose population in Units 19A and 19B. At their April meeting the CKMC added “available scientific information” to this statement. At that time the committee’s conservation representative, Karen Deatherage withdrew her support for the statement due to her belief that scientific data does not indicate the moose population is low (For further detail see Karen’s dissenting view on wolf predation control). The statement supported by the other members of the CKMC follows.

Based upon traditional ecological knowledge, the knowledge of all users, and available scientific information, the Planning Committee agrees to the following:

“There is a major concern that the moose population in Units 19A and 19B will not meet the needs of local subsistence users and other consumptive users. Local observations and available scientific data indicate that the moose population has substantially declined and in some areas is very low and will continue to jeopardize subsistence and other uses. The group agreed that additional state surveys would enhance local knowledge and help when recommendations are brought to the public for further review.”

The preliminary ideas of the CKMC were circulated for public review and comment in the July 2003 Central Kuskokwim Moose Planning News. Over 70 public comments were received and, overall, were very supportive of the mission of the plan to restore the moose population in the Central Kuskokwim area. Comments strongly favored wolf predation control and supported eliminating the November and February winter seasons to reduce cow harvest. Some respondents supported a December bulls only season when travel conditions are better than November and many bulls still have their antlers. Many written comments urged reduction or elimination of nonresident hunting opportunities.

**HARVEST MANAGEMENT ALTERNATIVES PRESENTED IN THE DRAFT PLAN**

The CKMC struggled with the difficulties of trying to maintain hunting opportunities for a variety of users the moose population is low and likely in decline. In March 2002 the Alaska Board reduced hunting opportunities for nonresidents through establishing nonresident closures along the main river corridors in Units 19A and 19B. Despite this restriction, in the first year of implementation of this regulation during the 2002–03 hunting season, nonresident harvest in Units 19A and 19B increased somewhat. While the Planning Committee recommended reductions in harvest as part of the plan to rebuild the moose population, the

majority of the Planning Committee members feel that cutbacks or even total elimination of hunting opportunities alone will not reverse the decline in moose populations.

The CKMC considered a wide range of alternatives for possible changes to the moose harvest regulations in Units 19A and 19B. Options considered ranged from no changes in moose hunting regulations, to recommending limiting hunting to subsistence hunting only through a Tier II permit system, to a complete moratorium on moose hunting.

Some members of the Planning Committee expressed a desire to maintain some winter hunt opportunity in Unit 19A for residents. To minimize impact on the productivity of the moose population the season would have to be bulls only and this could best be accomplished with a December season while some bull moose still have their antlers and the bag limit could be set as “antlered bulls only.” In considering how a winter hunt might be provided, Planning Committee members expressed concern about the recent closure of the winter season in Unit 21E, the moose hunting moratorium in Unit 18 within the Kuskokwim River drainage and the possible result of very high hunting pressure in Unit 19A if it has the only remaining winter season opening in the region.

Two alternatives for reducing moose harvest to help promote growth in the moose population were described in the draft plan. Both alternatives proposed eliminating the resident winter moose hunting seasons. Both alternatives proposed establishing a dual system for resident hunting in the fall. One option was to use a registration permit with a bag limit of any bull. Registration permits were proposed to be available only in communities within Unit 19A and would not be issued after a date 5 days before the moose hunting season begins. This would allow managers to closely monitor harvest by giving them a preview of the number of hunters and distribution of hunting pressure likely to occur. The second option was to use a harvest ticket with antler restrictions. Under a harvest ticket the bag limit was proposed as one bull with spike-fork antlers or antlers 50 inches wide or greater or 4 or more brow tines on at least one side. The main difference between the two alternatives was the degree to which nonresident hunting opportunities would be reduced. The two alternative moose harvest management approaches circulated for public review in the draft plan are outlined below.

**Alternative A: Reduce Harvest While Maintaining Diverse Hunting Opportunities**

1. Require registration permits for nonresident hunting in Unit 19A and implement a maximum harvest quota of 15 bulls. Maintain the current nonresident antler restrictions of 50-inches or greater or 4 brow tines on one side.

Nonresident harvest is not very high in Unit 19A with most harvest occurring in uplands adjacent to the border of Unit 19B. This registration hunt will allow a limited nonresident hunt in Unit 19A and also establish a maximum harvest quota to ensure that nonresident harvest does not increase significantly. A short reporting requirement will be applied so that, if necessary, the season can be closed by Emergency Order.

2. Close the Stony River to nonresident hunting from its confluence with the Kuskokwim River to Stink Creek (2 miles from either side of the river).

This action will include the Stony River corridor in the system of river corridors already closed to nonresident moose hunters and may help reduce nonresident harvest or reduce conflicts.

3. Take 5 days off the end of the resident and nonresident seasons in Unit 19B.

This will help reduce harvest and make the resident and nonresident seasons in Unit 19B September 1–20, the same as Unit 19A. This will make it possible to use one resident registration permit for both Units 19A and 19B.

4. Continue managing nonresident hunting in Unit 19B through harvest tickets and antler restrictions. Maintain the current nonresident antler restrictions of 50-inches or greater or 4 brow tines on one side.

5. Provide 2 options for the fall resident hunt in Units 19A and 19B:

- a. Hunting under a harvest ticket for bulls with spike–fork or 50-inch antlers or antlers with 4 or more brow tines on one side or;
- b. Hunting under a registration permit for any bull. Permits will only be issued in Unit 19A communities and will not be available after August 26 (5 days before the hunting season begins).

Implementing these two options will help to reduce harvest while still providing opportunities for both local and nonlocal Alaska resident hunting. The registration hunt would be oriented towards residents that hunt by boat and would help to improve harvest reporting. The general harvest ticket hunt would be available for those who do not want to stop in a Unit 19A community to pick up a registration permit and would be oriented more towards fly-in hunters from the rail belt area who are more accustomed to spike–fork 50” hunting regulations. These measures are also viewed as being less onerous than managing harvest through a Tier II permit system. No one on the Planning Committee has advocated use of Tier II permits.

6. Close the resident winter seasons in Unit 19A.

This will eliminate the November and February resident seasons and also the January season under federal subsistence hunting regulations. The main intent of this proposal is to reduce cow moose harvest. The November season is not used much because river ice conditions are generally not safe for travel. By January and February bulls have dropped their antlers and a high proportion of cow moose are taken.

7. Change the bag limit for the Tier II hunt in the Lime Village Management Area from 2 moose to 2 bulls. Reduce the federal Lime Village harvest quota from 40 moose to 28 bulls.

These actions are intended to reduce cow moose harvest to help improve productivity of the moose population. Lime Village has not reported harvesting 28 or more moose since 1998–99. This action is not intended to reduce overall harvest, however, it may have that affect

because it will be more difficult to harvest moose if harvest is limited to bulls only. The committee feels that harvesting bulls only in the LVMA is a necessary conservation measure to help the moose population rebuild.

***Alternative B: More Conservative Management With Greater Reductions in Hunting Opportunity***

This option is based on the premise that the moose population and the indications of low productivity require a lower level of harvest to remain within sustained yield and greater preference must be given to harvest by Alaska residents. Resident seasons and the options for using harvest tickets with antler restrictions or registration permits for any bull would be the same as in Alternative A. Additional reductions in nonresident hunting would include:

1. Completely eliminate the nonresident season in Unit 19A.

The current system of river corridors closed to nonresident hunting would only apply to small portions of the rivers in Unit 19B, since all of Unit 19A would be closed to nonresidents.

2. Shorten the nonresident season in Unit 19B to September 5–15.

This would reduce the current September 1–25 season by 15 days.

The draft plan identified the preferred alternative of the Planning Committee for moose harvest management as Alternative A, if adopted in conjunction with approval and implementation of a wolf predation control program.

**ALTERNATIVE VIEWPOINTS ON WOLF PREDATION CONTROL**

Although it is relatively easy to make general statements in favor or against wolf control, it becomes much more difficult to develop specific recommendations for a control program that can be biologically effective, affordable and acceptable to the broadest possible range of people interested in wildlife management. Following their discussion of the many aspects of wolf control, the Planning Committee sought to achieve consensus on a statement in support of a wolf predation control program. There was not complete consensus among the members of the committee. The two differing viewpoints are presented below.

All members of the committee present except one supported the following statement:

“The Central Kuskokwim Moose Management Planning Committee recommends that a wolf predation control implementation plan be prepared and approved for Units 19A and 19B and given expedited implementation. The first priority for predation control should be the river corridors that are currently closed to nonresident hunting. Moose in that area are an essential subsistence resource for local hunters.

The plan should initially be conducted by ADF&G personnel using the most effective means available and should be implemented as soon as possible. Once the moose population has begun to recover, the focus should shift to public efforts to regulate the wolf population.

The Alaska Board of Game has reduced harvest opportunities in Units 19A and 19B and the committee recommends further reductions in harvest. The committee further recognizes that bear predation should also be reduced, and is developing recommendations to do so (see Recommendations 3.2–3.4). However, in the absence of lethal aerial wolf control any efforts to reverse the decline in the moose population will be futile.”

Karen Deatherage, the conservation representative on the Planning Committee provided the following statement to explain her disagreement with other committee members on recommending wolf control in Units 19A and 19B:

“I do not agree with the CKMC recommendation that a wolf control plan should be prepared and implemented for Units 19A and 19B. While I support the use of moose resources by local subsistence users, I believe a lethal wolf control plan in this area would be premature, and entirely inappropriate. Limited scientific data for Units 19A and 19B show that moose populations are not low. Further, no real data exists for wolf populations; current estimates are based on anecdotal information.

I support the less controversial recommendations already in the plan, which include eliminating winter harvests to protect cows, creating ways to share meat from nonlocal hunters with villages, enhancing habitat along important river corridors through controlled burns or mowing, and when necessary, reducing nonresident harvests to increase moose available for local subsistence, among others. Unlike lethal predator control, these recommendations would provide long-term, community driven solutions without grossly manipulating important ecological systems that both rural residents and wildlife depend upon.

Lethal predator control should only be considered when other less controversial means have been attempted to restore moose populations, and only in cases where moose numbers are more seriously depressed; otherwise, a proliferation of plans will occur all over the state that are simply not achievable. If a lethal predator control plan is implemented for Units 19A and 19B, I do agree with the CKMC it should be conducted by ADF&G personnel using the most effective means available.”

#### **PUBLIC REVIEW OF THE DRAFT PLAN**

The draft CKMMP was distributed in November 2003 and open for public review and comment through February 2004. The draft plan included a regulatory proposal to establish a Wolf Predation Control Implementation Plan in Units 19A and 19B and draft state and federal regulatory proposals to change moose hunting regulations and increase brown bear hunting opportunity. The December 2003 issue of the Central Kuskokwim Moose Planning News included a summary of some of the key provisions of the draft plan and a public comment response form. The newsletter included both the majority and minority opinions of the CKMC on the issue of wolf predation control and alternative viewpoints on moose harvest management. Twenty-seven public comment response forms were returned. Of these, 14 respondents favored moose hunting regulation Alternative A, 8 favored Alternative B and 25

supported a wolf predation control program. There were no comments received that were in opposition to the proposed wolf predation control program.

The draft plan was discussed at several state fish and game advisory committee and federal subsistence council meetings. In addition, a public meeting was conducted in Sleetmute and a short presentation was given at the Kuskokwim Native Association Tribal Gathering in Kalskag. A list of the public meetings where the draft plan and regulation proposals were discussed follows.

Public Meetings on the draft plan:

October 10 – Central Kuskokwim Advisory Committee, Aniak: No quorum, only general discussion of the plan and harvest alternatives.

October 13 – Western Interior and Y-K Delta Regional Subsistence Advisory Councils in Wasilla: Randy Rogers and Toby Boudreau provided a report on the planning process and informed the councils of the federal proposals to be submitted as part of the plan.

October 28 – Lower Yukon Advisory Committee, Mountain Village: An informational memorandum was provided to the committee. No action was taken.

October 29 – Lower Kuskokwim Advisory Committee, Bethel: Randy Rogers, Greg Roczicka, and Oscar Larson were present. Randy provided an overview of the draft plan and described the proposed resident registration permit system in detail, including the provision to make permits available only in Unit 19A communities up to 5 days before the season begins. LKAC unanimously passed a motion to support the plan and wolf predation control.

November 18 – Anchorage Advisory Committee: Randy Rogers, Mark Matter, Karen Deatherage and Greg Roczicka were present. There was not a quorum but there was a good discussion of the plan. Committee members present supported Alternative A.

November 19 – Matanuska Valley Advisory Committee, Wasilla: Patrick O'Connor, Randy Rogers, Mark Matter, and Greg Roczicka were present. The committee favored Alternative A but did not pass a formal motion at this meeting.

January 27, 2004 – Sleetmute: Mark Matter, Toby Boudreau, Brett Gibbons (Alaska State Troopers) and Randy Rogers were present. Approximately 12 residents of Sleetmute attended. Participants in the meeting agreed by consensus to the following points:

- There should be a wolf predation control plan – without that nothing will work to increase moose numbers.
- Support legalizing the sale of black bear hides and parts and allowing trapping.
- There should be no nonresident hunting in Unit 19A.
- Extend the nonresident river corridor closure on the Hoholitna River up to the mouth of the South Fork in Unit 19B.

- Support closure of the winter resident moose hunting seasons. The winter hunts should be brought back as soon as the moose population can support them.
- Support the registration hunt proposal with permits available only in Unit 19A communities.
- Recommend the Planning Committee consider adding a 5-day season in late July or early August with a Monday through Friday schedule.
- Support the recommendation to pass legislation to regulate guides and transporters and limit the number of clients in different areas.
- The plan should contain a statement of concern about the possible impacts to critical moose habitat in the Holitna–Hoholitna basin due to the proposed coal bed methane gas production.

January 28 – Kuskokwim Native Association Tribal Gathering, Kalskag: Evan Savage, Mark Matter, Gail Vanderpool and Randy Rogers were present. There was not a quorum. Randy provided a brief update on the draft plan and encouraged KNA and the various tribal councils to provide input on the plan.

February 4 – Central Kuskokwim Advisory Committee, Aniak: The CKAC voted unanimously to support a revised moose harvest management Alternative B. The committee recommended a nonresident season in Unit 19B of September 5–20 and providing residents hunting in Unit 19A only the option of registration permits for any bull. The CKAC unanimously supported the proposal for a Wolf Predation Control Implementation Plan.

March 3–4 – Yukon Kuskokwim Delta Regional Advisory Council, St. Mary's: The Y–K Delta RAC voted to support the federal regulatory proposals related to the draft CKMMP.

March 10–11 – Western Interior Regional Advisory Council, Huslia: The Western Interior RAC voted to support the federal regulatory proposals related to the draft CKMMP.

During the February 2004 meeting the CKMC reviewed advisory committee and public comment and develop final recommendations to the Alaska Board of Game and Federal Subsistence Board. The final CKMC majority recommendations supported a modified Alternative B that involved closing Unit 19A to nonresident hunting. This was a change from the draft plan and the December newsletter where Alternative A was identified as the preferred alternative.

Additional public comment opportunities were available as part of the Alaska Board and FSB public processes. There were no written comments submitted to the FSB on proposals related to the draft CKMMP. Approximately 25 comment letters were submitted to the Alaska Board of Game on the CKMMP and related proposals. Several of the comments came from the Kuskokwim Native Association, local village councils, guides who operate in the area and the Alaska Professional Hunters Association. The main issues raised were the need to protect subsistence hunting and arguments in favor of maintaining nonresident hunting and guiding

businesses. The Alaska Professional Hunters Association and several guides were strongly opposed to closing Unit 19A to nonresident moose hunting. The villages of Lower Kalskag, Sleetmute and Lime Village submitted packages of survey forms that village residents had filled out to document how few moose were taken by local subsistence users during the fall 2003 moose hunting season.

The only comment submitted to the Alaska Board in opposition to the proposal for a wolf predation control implementation plan came from Defenders of Wildlife. Defenders of Wildlife also submitted a letter signed by several environmental organizations supporting protection of subsistence moose hunting opportunities over nonresident hunting.

After much debate and discussion, the Board adopted the CKMC majority recommendations with a few minor revisions. The Alaska Board and FSB adopted regulatory proposals and endorsed the plan during their spring 2004 meetings (see Appendix C: Alaska Board of Game and Federal Subsistence Board Plan Implementation Documents).

The Alaska Board requested ADF&G continue to monitor the moose populations in Units 19A and 19B and report back to them at the March 2005 meeting so the need for the nonresident closure in Unit 19A can be reevaluated. The board will also review the wolf predation control program at their March 2005 meeting and determine if changes are needed.



**APPENDIX B — Laws and regulations affecting moose management****CONSTITUTIONAL REQUIREMENTS**

Several sections of the Alaska Constitution are pertinent to decisions about moose management in Units 19A and 19B and, for that matter, throughout the state. Section 8 applies to Natural Resource use. Sections 8.1 and 8.2 provide the Statement of Policy and the General Authority as follows:

“It is the policy of the State to encourage the settlement of its land and the development of its resources by making them available for maximum use consistent with the public interest.”

“The legislature shall provide for the utilization, development, and conservation of all natural resources belonging to the State, including lands and waters, for the maximum benefit of its people (emphases added).”

The Intensive Management statute (A.S. 16.05.255 (e) – (h), see section below for further detail) can be viewed as the legislative implementation of the constitutional requirement for the legislature to provide use of natural resources for the maximum benefit of its people. Under this statute consumptive use of big game prey populations is designated as the preferred use.

Article 8, Section 8.3, the common use clause states:

“Wherever occurring in their natural state, fish, wildlife, and waters are reserved to the people for common use.”

In 1988 the Alaska Supreme Court rejected the state’s system of Exclusive Guide Areas citing the common use clause (*Owsichek v. State, Guide Licensing*). Since that time, no action has been taken to establish a system to regulate the number of guides and transporters that operate in any given area in a manner that does not violate the common use clause. Lacking a system to regulate the number of guides and transporters in one area, the only tools available to the Alaska Board of Game to control levels of hunting supported by these commercial activities is indirectly through managing nonresident and resident seasons and bag limits and methods and means of access. AS 16.05.256 provides the Alaska Board of Game with authority to limit nonresident hunting through permits if needed to provide opportunities for state residents in accordance with sustained yield.

The common use clause was also cited in a 1989 Supreme Court of Alaska decision that found that the statute granting preference to rural residents to take fish and game for subsistence purposes violates the Alaska Constitution (*McDowell v. State*). Based on this ruling, all residents of the state, whether living in rural or urban areas, are potentially qualified as subsistence users. The state cannot directly give preference to local rural residents in making subsistence allocation decisions.

Section 8.4 - Sustained Yield, states:

“Fish, forests, wildlife, grasslands, and all other replenishable resources belonging to the State shall be utilized, developed, and maintained on the sustained yield principle, subject to preferences among beneficial uses (emphasis added).”

The constitutional requirement for sustained yield management is a paramount consideration of the Alaska Board of Game when making harvest management regulations. AS 16.05.255(i)(5) defines sustained yield as:

“sustained yield” means the achievement and maintenance in perpetuity of the ability to support a high level of human harvest of game, subject to preference among beneficial uses, on an annual or periodic basis.”

In an August 2003 decision, the Supreme Court of Alaska stated: “The board must first identify game populations customarily and traditionally taken or used for subsistence – the so-called “C&T” designation. It must then determine whether a portion of a game population given a positive C&T designation under AS 16.05.258(a) can be harvested consistent with sustained yield (emphasis added). If so, the board must then determine the amount of the harvestable surplus reasonable necessary for subsistence. The board then calculates the amount, if any, available for nonsubsistence uses.” (Koyukuk River Basin Moose Comanagement Team v. Alaska Board of Game and State of Alaska).

The Uniform Application clause of the Alaska Constitution, Section 8.17 provides:

“Laws and regulations governing the use and disposal of natural resources shall apply equally to all persons similarly situated with reference to the subject matter and purpose to be served by the law or regulation.”

Taken as a whole, Section 8 of the Alaska Constitution and the intensive management statute adopted by the legislature can be interpreted to mean that active management of predation is legally required to provide for maximum use of the moose resource.

## **SUBSISTENCE MANAGEMENT**

### **State and Federal Subsistence Priorities**

State allocation of hunting opportunities must be done according to the subsistence use and allocation criteria laid out in AS 16.05.258. As noted above, under state law all Alaska residents are potentially eligible as subsistence hunters. This conflicts with the federal requirement in the Alaska National Interest Lands Conservation Act for a subsistence priority for rural residents only.

In 1990, because the state was not in compliance with the federal rural subsistence priority, the federal government assumed management of subsistence hunting on federal lands in Alaska. Federal control of subsistence could be exerted on federal lands in the planning area if state management does not adequately provide for rural subsistence uses, however, lands are not predominately under federal ownership in Units 19A and B.

### Alaska Board of Game Allocation Procedures

In making allocation decisions, the Alaska Board must first consider if there are customary and traditional subsistence uses of the game population. If there is a positive customary and traditional finding, the board must determine if a portion of the game population can be harvested consistent with sustained yield (“harvestable surplus”). If a harvestable surplus for the particular population exists, then the Board must determine the amount reasonably necessary for subsistence uses. The board then adopts regulations to provide a reasonable opportunity for subsistence uses. Hunting regulations for other uses may be adopted by the board after regulations are adopted to provide a reasonable opportunity for subsistence. Taking of moose by residents for personal or family consumption has preference over taking by nonresidents (AS 16.05.255(d)).

The Alaska Board makes allocation decisions within a four-level framework based on the harvestable surplus of the wildlife resources consistent with sustained yield and the level of hunting demand. The four levels are:

1. Determination of sufficient harvestable surplus for all consumptive uses.
2. Sufficient harvestable surplus for subsistence and some, but not all, other uses.
3. Sufficient harvestable surplus to provide reasonable opportunity for subsistence uses only (Tier I).
4. Insufficient harvestable surplus to provide a reasonable opportunity for all subsistence use. Allocations must be made among subsistence users (Tier II).

In March 2004 the Alaska Board determined there is not a sufficient harvestable surplus of moose in Unit 19A to provide for nonresident hunting. As hunter demand continues to increase and/or if the moose population declines, additional steps in the allocation process may need to be considered. The board has some degree of discretion in determining when and how these additional steps are taken; it is not a simple formula decision. For example, where there are sufficient harvestable animals for all subsistence uses, the board has discretion to determine the allocation of general hunting opportunities between residents and nonresidents, so long as provision is made for residents to take moose for personal or family consumption.

When the level of harvestable animals is sufficient to provide a reasonable opportunity for subsistence uses, but not other uses, opportunities for nonresidents are completely eliminated. This situation is referred to as “Tier I.” Tier I management might limit the business of guides and transporters who may depend largely on out-of-state customers. Tier I would not, however, limit the number of Alaska residents who use guides or transporters to access the area. When there are not sufficient harvestable animals to provide a reasonable opportunity for subsistence use, then a Tier II management program is required. Under Tier II it is necessary to distinguish among subsistence users. Again, under existing state law all Alaskans are potentially eligible for subsistence. The criteria used to determine who receives Tier II hunting permits are:

- Customary and direct dependence on the game population by the subsistence user for human consumption as a mainstay of livelihood.

- The ability of the subsistence user to obtain food if subsistence use is restricted or eliminated.

The additional criteria for allocation of Tier II permits in AS 16.05.258(b)(4)(B)(ii), “the proximity of the domicile of the subsistence user to the stock or population...” was found by the courts to violate the Alaska Constitution and, therefore, can no longer be applied. Most recently there has been a legal challenge to the state’s Tier II permit scoring criteria (Manning v. State of Alaska Department of Fish and Game). The court ruled that Tier II points awarded based on “availability of alternative sources of game to the applicants household” [5 AAC 92.070(b)(1)] is unconstitutional. Currently the 20 points that can potentially be awarded in Tier II application scoring under these criteria have been excluded from the scoring so the maximum score is 80 points. The Alaska Board is considering ways the Tier II scoring might be further revised to comply with the court’s ruling and state subsistence laws.

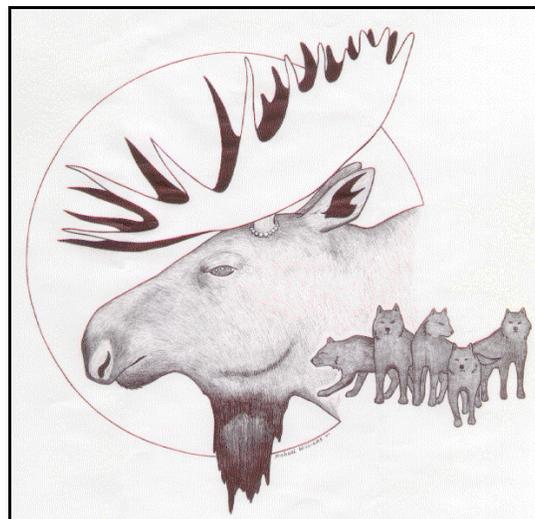
#### Customary and Traditional Use Determinations and Amounts Necessary for Subsistence

A positive customary and traditional (C&T) means that the Alaska Board of Game has identified the wildlife population as being important for subsistence use. It does not define who is eligible to participate as a subsistence hunter. All Alaska residents are potentially eligible for subsistence hunting. The Amount Necessary for Subsistence (ANS) for moose established by the Alaska Board is:

Unit 19 (out of the Lime Village Management Area): positive, 400–700 moose

Unit 19 (within the LVMA): positive, 30–40 moose

These ANS numbers are based on a per capita formula for moose needed by residents of Unit 19 communities and a rough estimate of what is needed for Unit 18 residents. Even though all Alaska residents are potentially eligible as subsistence users under state law, the numbers do not factor in subsistence needs of Alaska residents living outside of Units 18 and 19.



The extrapolated estimate of the moose population of Unit 19 is 13,900–23,000. If a 5% harvest rate is applied, the harvestable surplus is 695–1,150 moose. It is important to keep in mind that many people do not believe there are this many moose in Unit 19 and only a lower harvest can be supported within sustained yield. Nonetheless, using these population estimates that are the only numbers available, the lower end of the moose population estimate and the associated harvestable surplus (695) is less than the upper ANS figure (740) and is therefore in the range where Tier I harvest restrictions could be considered (Figure 1). A harvestable surplus of 740 to 1,150 moose exceeds the upper ANS and is in the range where the Board can provide for hunting opportunities other than subsistence. Taken as a whole, these numbers give the Board leeway to apply discretion in setting hunting regulations in Unit 19.

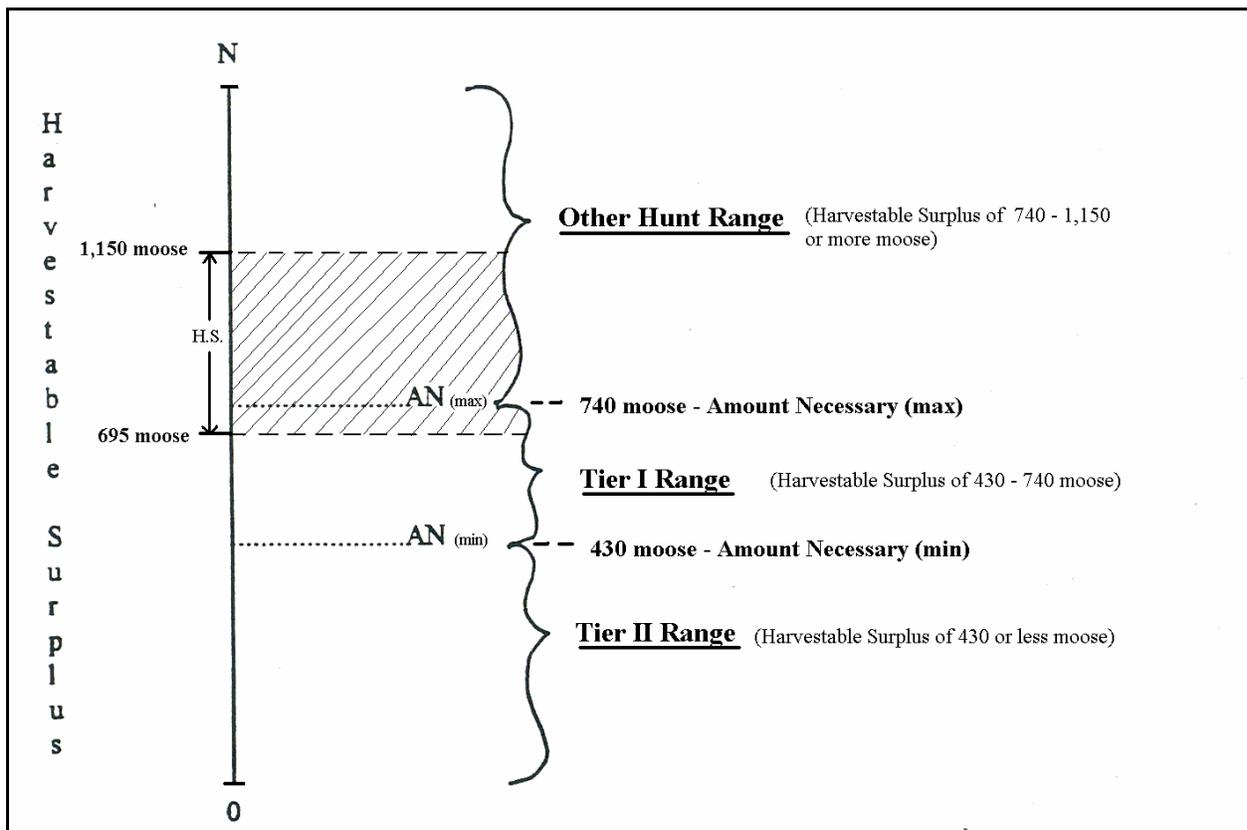


FIGURE 1 Amounts necessary for subsistence and harvestable surplus of moose for all of Unit 19

Explanation of Figure 1: This figure depicts a method the Alaska Board of Game has used in the past to help frame discussions and decision-making when setting bag limits in regulations. It must be emphasized that this is not an absolute formula and the board has discretion in making allocation decisions. A harvestable surplus of 430 moose or less would require board consideration of Tier II subsistence restrictions. A harvestable surplus of 430 to 740 moose is in the range where Tier I restrictions that would eliminate opportunities for nonresident hunters are considered. A harvestable surplus of 740 to 1,150 exceeds the upper Amount Necessary for Subsistence and is in the range where the board can provide for hunting opportunities other than subsistence.

### Federal Customary and Traditional Determinations

Federal C&T decisions apply only to federal subsistence management on federal public lands. The federal C&T decision identifies who is eligible as a federally qualified subsistence user on federal public lands.

Units 19A and 19B: Rural residents of Unit 18 within the Kuskokwim River drainage upstream from, and including, the Johnson River, and rural residents of Unit 19.

Unit 19B, west of the Kogruklu River: Rural residents of Eek and Quinhagak.

### Potlatch Harvest Regulations

Hunting and taking of big game customarily and traditionally taken or used for subsistence purposes outside of established seasons and bag limits is authorized for use in customary and traditional Alaska Native funerary or mortuary religious ceremonies, if consistent with sustained yield (5 AAC 92.019). Under these regulations ADF&G is directed to publicize a list of big game populations or areas, if any, where the taking of big game would be inconsistent with sustained yield principles. A written permit is not required to take big game under this regulation, however, the tribal chief or other officer must make prior notification to the department that a hunt will take place and provide additional information.

### **INTENSIVE MANAGEMENT**

Alaska Statute 16.05.255(e)–(g), the Intensive Management statute, requires the Alaska Board of Game to adopt regulations providing for intensive management to achieve high levels of human consumptive use. Section (h) of the law defines intensive management as “management of an identified big game population consistent with sustained yield through active management measures to enhance, extend, and develop the population to maintain high levels or provide for higher levels of human harvest, including control of predation and prescribed or planned use of fire and other habitat improvement techniques.”

The Alaska Board determined that moose in Units 19A and 19B are important for providing high levels of human consumptive use and established intensive management population and harvest objectives. Intensive management population and harvest objectives are listed in the Management Recommendations section of this plan and provide the board a means to readily determine if a population has been depleted or has reduced productivity.

### Same Day Airborne Hunting

In 2003 the legislature revised AS 16.05.783 to clarify the legal requirements for same-day-airborne methods to take wolves under an approved predator control program. The current law states:

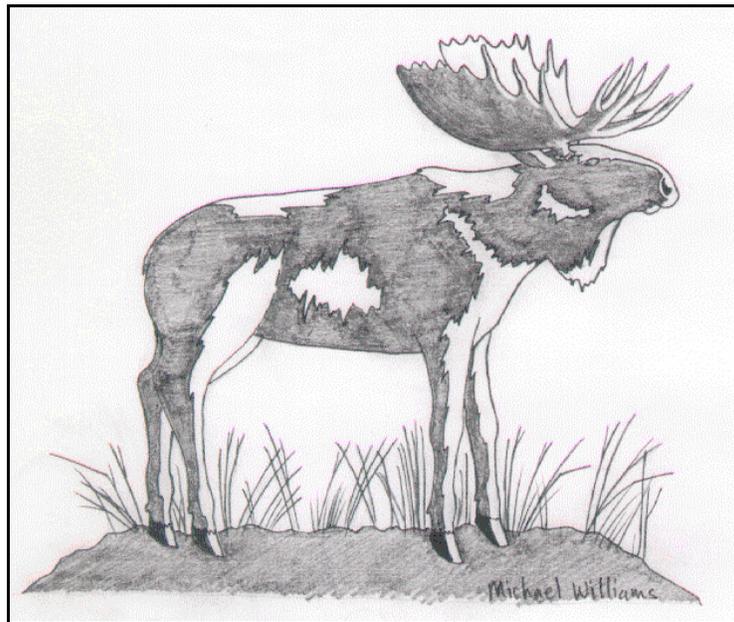
“...the Board of Game may authorize a predator control program as part of a game management plan that involves airborne or same day airborne shooting if the board has determined based on information provided by the department

(1) in regard to an identified big game prey population under AS 16.05.255(g) that objectives set by the board for the population have not been achieved and that predation is an important cause for the failure to achieve the objectives set by the board, and that a reduction of predation can reasonably be expected to aid in the achievement of the objectives...”.

Subsection 2(d) provides:

“When the Board of Game authorizes a predator control program that includes airborne or same day airborne shooting, the board shall have the prerogative to establish predator reduction objectives and limits, methods and means to be employed, who is authorized to participate in the program, and the conditions for participation of individuals in the program.

Subsection 2(e) indicates that “The use of state employees or state owned or chartered equipment, including helicopters, in a predator control program is prohibited without the approval of the commissioner.”



## **APPENDIX C — Alaska Board of Game and Federal Subsistence Board Plan Implementation Documents**

### **WOLF PREDATION CONTROL IMPLEMENTATION PLAN**

(7) a Central Kuskokwim wolf predation control area is established and consists of Units 19(A) and 19(B) in accordance with 5 AAC 92.110, the commissioner or the commissioner's designee may conduct a wolf population reduction or wolf population regulation program in Units 19(A) and 19(B) wolf predation control area consistent with the following objectives, constraints, and requirements:

(A) the objective of the program is to initiate and increase toward the intensive management moose population objective of 13,500 - 16,500 moose with a sustainable annual harvest of 750 - 950 moose; progress towards increasing the moose population and sustainable harvest shall be evaluated every two years or no later than before the expiration of this wolf predation control program and a recommendation shall be made, to the extent practicable, to the Board of Game concerning the need for continuation of the program;

(B) when the commissioner or the commissioner's designee conducts a wolf population reduction or wolf population regulation program, the program must be conducted in the following manner to achieve the objectives in (A) of this paragraph:

(i) for up to five years beginning July 1, 2004, the commissioner may reduce the wolf population in Unit 19(A) and 19(B); however, the commissioner may not reduce the wolf population within the area to fewer than 50 wolves;

(ii) the commissioner shall reduce the wolf population in an efficient manner, by any means, but as safely and humanely as practical;

(iii) the commissioner may issue public aerial shooting permits or public land and shoot permits as a method of wolf removal pursuant to AS 16.05.783;

(C) hunting and trapping of wolves by the public in Unit 19(A) and 19(B) during the term of the program may occur as provided in the hunting and trapping regulations set out elsewhere in this title, including the use of motorized vehicles as provided for in 5 AAC 92.080; however, if the wolf population is reduced to 50 wolves, the commissioner shall stop all taking of wolves until the wolf population increases;

(D) annually, the department shall to the extent practicable, provide to the board at the board's spring board meeting, a report of program activities conducted during the preceding 12 months, including implementation activities, the status of moose, caribou, black bear, brown bear, and wolf populations, and recommendations for changes, if necessary, to achieve the plan's objective;

(E) justification for the program, and wildlife population and human-use information, is as follows:

(i) the board determined the moose population in Unit 19(A) and 19(B) is important for providing high levels of human consumptive use; the board established objectives for population size and annual sustained harvest of moose in Unit 19(A) and 19(B) consistent with multiple use and principles of sound conservation and management of habitat and all wildlife species in the area;

(ii) the wolf predation control area is established as part of the overall program to rebuild the moose population in Units 19(A) and 19(B) recommended in the Central Kuskokwim Moose Management Plan (CKMMP); the mission of the CKMMP is to restore and maintain the central Kuskokwim moose population to ensure reasonable subsistence opportunities, provide for high levels of human consumptive use, provide for a diversity of other uses of the moose resource, manage predators and moose habitat, and maintain the overall health of the ecosystem.

(iii) the Central Kuskokwim Moose Management Planning Committee (CKMC) considered many alternatives to rebuild the moose population in Units 19(A) and (B), including reducing moose harvest, habitat improvement, reducing wolf predation through wolf hunting and trapping seasons and bag limits and reducing black bear and grizzly bear predation; the CKMMP includes recommendations involving moose harvest reductions, habitat management, wolf predation control, brown bear and black bear hunting, public education needs, and acquisition of additional biological data; the CKMC also consider alternative methods of wolf predation control in addition to issuing permits to the public for aerial shooting or land and shoot wolf removal; ground based trapping is not likely to achieve the desired reduction in wolf numbers due to the remoteness of the region and the limited number of trappers relative to the size of the area.

(iv) the department has conducted two moose density estimates within Units 19(A) and 19(B) since 1998; one estimate was in late March 1998 in Unit 19(A) within a portion of the Holitna Drainage; the estimated density was 1.25 (plus or minus 14 percent at an 80 percent confidence interval) moose per square mile; this yielded a population estimate of 2,183 (plus or minus 314) moose; the second density estimate was completed in March 2001, in the Aniak River drainage in Unit 19(A); the area covered was 1,731 square miles and the estimated density was 0.70 (plus or minus 17 percent at an 80 percent confidence interval) moose per square mile; the resulting population estimate was 1,200 moose (plus or minus 204); using those two surveys and extrapolating to the rest of the units we currently estimate the entire Units 19(A) and 19(B) moose population of 6,800 - 11,300 moose (0.38 - 0.63 moose per square mile);

(v) moose hunting seasons and bag limits have been reduced in Units 19(A) and 19(B); the nonresident season in Unit 19(A) has been closed; resident hunters in Unit 19(A) will be required to have a registration permit; the resident season in Unit 19(B) has been reduced by five days and the nonresident season in Unit 19(B) has been reduced by 10 days; resident hunters with general harvest tickets in Unit 19(B) are restricted to spike-fork bulls or bulls with 50-inch antlers or antlers with four or more brow tines on one side; resident hunters in Unit 19(B) must possess a registration permit to shoot any antlered bull; nonresident hunters are restricted from hunting within two miles on either

side of major tributaries of the Kuskokwim River in portions of Unit 19(B) and may only take bulls with 50-inch antlers or antlers with four or more brow tines on one side; the resident winter moose hunting seasons in Unit 19(A) have been eliminated to reduce overall harvest and eliminate incidental cow harvest to improve the reproduction potential of the population; the overall reported number of moose taken in Unit 19(A) has declined by over 60 percent from 168 in 1994 - 1995 to 67 during 2002 - 2003; overall reported harvest in Unit 19(B) has decreased from 163 in 1994 - 1995 to 81 taken in 2002 - 2003;

(vi) the estimated moose population and harvest levels in Units 19(A) and 19(B), including unreported harvest, are well below the intensive management population and harvest objectives established for the units;

(vii) habitat quality in Units 19(A) and 19(B) is not currently believed to be a significant factor limiting the moose population; wildfires are common and fire suppression efforts are limited; all indications are that habitat in this area is capable of sustaining the higher densities need to meet the intensive management objectives; effort to increase moose populations through habitat manipulation would likely be of little value;

(viii) black and brown bear densities have not been estimated in Units 19(A) and 19(B), but based on observations of local residents and anecdotal information are thought to be moderate to high; research from Unit 19(D)-East suggests that black and brown bear predation is likely a factor that contributes to limiting the moose population in Units 19(A) and 19(B);

(ix) the wolf population in Units 19(A) and 19(B) was estimated using an extrapolation technique combined with anecdotal observation; the population in the 18,000 square mile entire area is estimated at 340 - 455 wolves in 45 - 53 packs; that is approximately 1.9 - 2.5 wolves per 100 square miles; wolves are believed to be major limiting factor for moose;

(x) available moose and wolf population estimates suggest the current moose-to-wolf ratio is between 15:1 and 33:1; if the moose population has decreased since the 2001 survey, moose-to-wolf ratios could be lower; with the influence of the Mulchatna caribou herd and other prey in Units 19(A) and 19(B), wolf predation rates on resident moose are high; moose can be expected to persist at low densities with little expectation of increase, unless moose calf and adult survival increase;

(xi) hunting and trapping of wolves in the area have not exceeded sustainable levels; the department can continue trapper education efforts in local villages, but previous trapper education programs in the area had little effect on wolf harvest; a regulation adopted in 2002 to allow wolves to be taken with the use of snowmachines has not significantly increased wolf harvest; economic factors are a major obstacle to reducing wolf numbers through hunting and trapping; if the wolf population is to be reduced to achieve prey population objectives, measures beyond normal hunting and trapping will have to be employed.

**FINDINGS OF THE ALASKA BOARD OF GAME****Findings of the Alaska Board of Game  
2004-150-BOG****Authorizing Wolf Predation Control in the Unit 19(A) Portion  
of the Central Kuskokwim Wolf Predation Control Area  
With Airborne or Same Day Airborne Shooting****March 10, 2004****Purpose and Need**

This action of the Board of Game (Board) is to authorize a wolf predation control program in the Game Management Unit 19(A) portion of the Central Kuskokwim Wolf Predation Control Area in accordance with AS 16.05.783, Same day airborne hunting, 5 AAC 92.039, Permit for taking wolves using aircraft, and 5 AAC 92.110, Control of predation by wolves. This authorization does not currently include the Unit 19(B) portion of the Central Kuskokwim Wolf Predation Control Area.

There is no expectation that the Intensive Management population and harvest objectives for moose will be achieved in a reasonable time frame unless wolf predation on moose is reduced through a wolf predation control program.

**Identified Big Game Prey Population and Wolf Predation Control Area**

The Central Kuskokwim Wolf Predation Control Implementation Area includes both Units 19(A) and 19(B) and encompasses approximately 17,680 mi<sup>2</sup>, including all land ownerships. The Board has identified moose populations in Units 19(A) and 19(B) as important for providing high levels of harvest for human consumptive use in accordance with the Intensive Management statute and regulations (AS 16.05.255(e)–(g) and 5 AAC 92.106 and 5 AAC 92.108).

The Board of Game's present authorization for wolf control using airborne or same-day-airborne shooting includes those portions of the Kuskokwim River drainage within Unit 19(A) defined in 5 AAC 92.450(19)(A), encompassing approximately 9,969 mi<sup>2</sup>.

**Background**

Unit 19(A) encompasses the Central Kuskokwim River and the communities of Lower and Upper Kalskag, Aniak, Chuathbaluk, Crooked Creek, Red Devil, Sleetmute, Stony River, Lime Village and other smaller settlements. Residents of Unit 19(A) depend on moose as a primary subsistence food source. Residents of communities in Unit 18 travel up the Kuskokwim River to harvest moose for subsistence and other uses, as do other Alaska residents who access the area by aircraft.

Unit 19(B) is also included in the Central Kuskokwim Wolf Predation Control Area. It encompasses the upper portions of several tributaries to the Kuskokwim River. Although there are no communities in the unit, the area provides moose that are important for subsistence use and personal consumption of moose by Alaska residents. Units 19(A) and (B) have also provided hunting opportunities that are important for non-resident hunters and the guiding and transporting industries.

For several years the Central Kuskokwim Fish and Game Advisory Committee (CKAC) has expressed concern to the Board about declining moose numbers in Units 19(A) and 19(B). The committee has submitted several regulation proposals and recommended wolf predation control to stop the decline of the moose population and boost moose numbers in the area. In response to the concerns of the CKAC and other users, the Alaska Department of Fish and Game (ADF&G) initiated a comprehensive planning process for the area with a citizen based planning committee composed of a broad cross-section of stakeholders in Units 19(A) and (B) wildlife management. Upon reviewing information on the moose populations the majority of the Central Kuskokwim Moose Management Planning Committee (CKMC) agreed:

***“There is a major concern that the moose populations in Units 19(A) and 19(B) will not meet the needs of local subsistence users and other consumptive users. Local observations and available scientific data indicate that the moose population has substantially declined and in some areas is very low and will continue to jeopardize subsistence and other uses.”***

The Central Kuskokwim Moose Management Plan developed by the CKMC is a comprehensive plan for the area that includes a recommendation for a wolf predation control program for Units 19(A) and (B). The control program is one component of a multifaceted plan to rebuild the moose populations in the Central Kuskokwim region. The CKMC recommended that the first priority for wolf predation control efforts should be the areas most important for providing moose for subsistence uses. Unit 19(A) is where the majority of subsistence moose hunting by local residents and residents of Unit 18 occurs.

#### Status of the Moose Population

A moose population estimate conducted in Unit 19(A) in March 1998 indicated a density of 1.25 moose per mi<sup>2</sup> in the Holitna and Hoholitna drainages where moose are most abundant. Moose densities are much lower in surrounding areas of lower habitat quality. A March 2001 population estimate in Unit 19(A) in the Aniak River area indicated a density of 0.7 moose per mi<sup>2</sup>. The Aniak survey area is surrounded by other areas of lower habitat quality where moose densities are much lower. Extrapolation of the 1998 and 2001 survey data results in a population estimate of 6,800 – 11,300 moose for Units 19(A) and 19(B). If the moose population has decreased since the last (2001) population estimation survey as is suggested by other moose survey data and observations of local residents and others, the population is probably lower.

There is a great deal of concern about the low calf:cow and bull:cow ratios in the moose population in Unit 19(A). A November 2001 trend count conducted in a relatively small area

along the Holitna/Hoholitna Rivers that is heavily hunted indicated only 8 calves per 100 cows and 6 bulls per 100 cows (sample size 196 moose).

A late winter survey to estimate calf survival conducted in April 2003 in Unit 19(A) resulted in an estimate of 7.6% calves in the moose population in Holitna/Hoholitna drainage (sample size 107 adults and 9 short-yearlings) and 8.9% in the moose population in the Aniak drainage (sample size 61 adults and 6 short-yearlings).

The calf:cow ratios in fall and percent of calves found in spring surveys support the belief that calf survival in the moose population is very low, a decline in moose numbers is occurring, and the actual number of moose is likely lower.

The Department's data is specific to 19(A), but the information is indicative of the entire Central Kuskokwim Wolf Predation Control Area.

### Trends in Moose Harvest

Numbers of reported hunters and moose harvested have declined substantially since the mid 1990s (Figure 1). Total reported moose harvest in Units 19(A) and (B) has declined 48% from the 1994-95 season (331 moose) to the 2002-03 season (148 moose). In Unit 19(A), the number of moose reported harvested by local residents and other Alaska residents declined approximately 65% (from 138 moose to 48 moose) between 1994-95 and 2002-03. Hunting in Unit 19(B) by non-local Alaska residents has declined from 199 hunters who harvested 71 moose in 1994-95 to 80 hunters who harvested 14 moose in 2002-03. Numbers of moose taken by nonresident hunters declined in Units 19(A) and (B) from 101 moose taken in 1994-95 to 83 moose taken in 2002-03. If estimated unreported harvest is added to these figures, the trend of harvest having declined by approximately 50% over the last 8 years is unchanged.

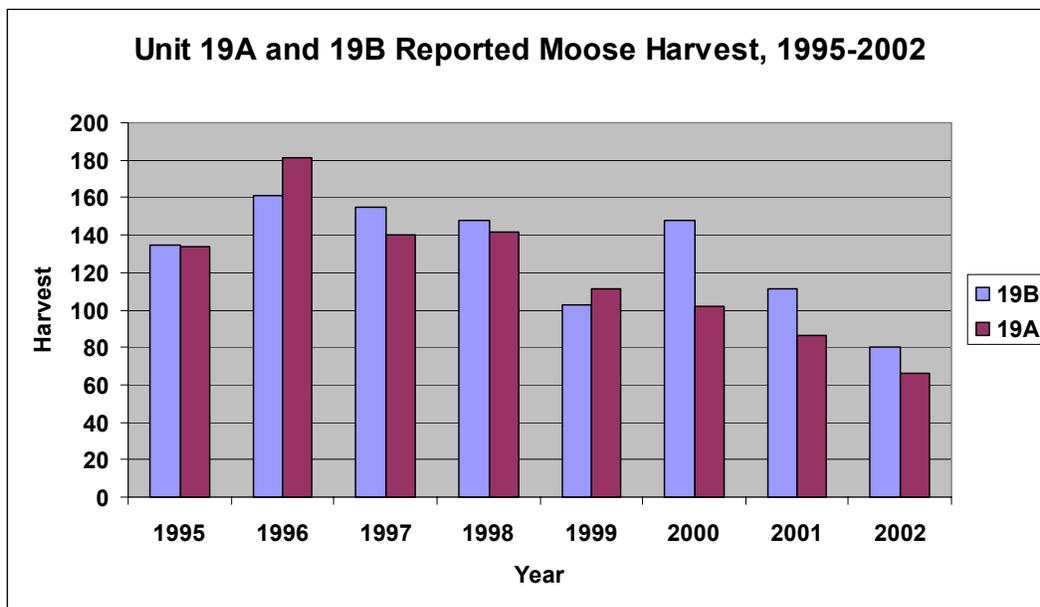


Figure 1. Decline in reported moose harvest in GMUs 19(A) and 19(B) since 1995.

**The Objectives For The Big Game Prey Population Established By The Board Of Game Have Not Been Achieved**

<u>Intensive Management Objectives for Units 19(A) and 19(B) (5 AAC 92.108)</u>	<u>Current Estimated Moose Population and Harvest (reported and unreported) for Units 19(A) and 19(B)</u>
Population: 13,500 – 16,500 moose Harvest: 750 – 950 moose	Population: 6,800 – 11,300 Harvest: 200 – 300

The current estimate of the moose populations and harvest levels are well below the population and harvest objectives established in 5 AAC 92.108, Identified big game prey populations and objectives. The estimated harvest number provided above includes both reported and unreported moose harvest.

**Predation is an Important Cause for the Failure to Achieve the Population and Harvest Objectives Established by the Board of Game**

The wolf population in Unit 19(A) is estimated at 180-240 wolves in 24-28 packs; that is approximately 1.8-2.4 wolves per 100 square miles. Wolf population estimates are extrapolated from other areas based on average pack size, land area, and estimated prey biomass and also take into account observations of local hunters and trappers, and department observations not associated with wolf surveys. Extrapolated estimates of moose and wolf populations suggest the current moose-to-wolf ratio is between 18:1 and 24:1. Moose can be expected to persist at low densities with little expectation of increase unless moose calf and adult survival improve. These data, information gained from studies on moose mortality in Unit 19(D)-East and other similar areas of Alaska, and observations of local residents suggest that wolves are currently a major limiting factor for moose in the Central Kuskokwim Wolf Predation Control Area.

**Reduction of Predation Provides a Reasonable Expectation of Achieving the Population and Harvest Objectives**

Data from moose mortality and predator/prey studies conducted throughout Alaska and similar areas in Canada suggest that reducing the number of wolves in the Central Kuskokwim Wolf Predation Control Area can reasonably be expected to increase the survival of calf as well as older moose. Mortality studies conducted in Unit 19(D)-East have shown that wolves accounted for 37% of calf mortality and 40% of yearling and adult mortality. In terms of the total population, wolves killed approximately 26% of the calf population and 8% of the adult and yearling population annually. Reducing wolf predation on moose, in combination with reducing harvest (particularly of cows), can reasonably be expected to initiate an increase of the moose population towards the population and harvest objectives.

**The Board Establishes and Recommends the Following:**

1. The first priority for wolf predation control activities in the Central Kuskokwim Wolf Predation Control Area are the areas most important for providing moose for subsistence harvest by residents of the region. In general, Unit 19(A) is the most important for providing moose for subsistence purposes.
2. Methods and means to take wolves may include land and shoot or shooting from aircraft as designated by the Department and in accordance with 5 AAC 92.039. The present Board of Game authorization for airborne or land and shoot taking of wolves is for Unit 19A only.
3. Permits shall be issued to members of the public qualified to operate within the constraints of the program, and be able to accomplish the objectives of the program as designated by the Department.
4. The Department should seek to accomplish an approximately 80 % reduction in the wolf population in the Unit 19(A) portion of the Central Kuskokwim Wolf Predation Control Area for a period of 5 years beginning on July 1, 2004. Based on the wolf population estimate of 180-240 wolves, approximately 140-190 wolves should be taken the first year of the program.
5. At no time should the wolf population in the Central Kuskokwim Wolf Control Implementation Area be reduced to fewer than 40 wolves.
6. The Board recognizes that the CKMC recommendation for a wolf predation control program is based on available scientific data that indicates low survival in the moose population and the observations of local residents and other users who report significant declines in the moose population. This is the best information currently available. The Board encourages the Department to continue efforts to obtain additional moose population information to increase knowledge about the population and to evaluate the progress of the wolf predation control program.
7. The Department should establish a program to monitor the wolf population that will make maximum use of data obtained from pilots involved in the wolf reduction program. The Department should also conduct wolf surveys to provide additional assurances that the minimum wolf population will be maintained and to measure the success of the program.
8. The wolf predation control program should be re-evaluated after a 5-year period or when the moose population is estimated to reach the Intensive Management population objectives, whichever occurs the soonest.
9. The Board of Game endorses the Central Kuskokwim Moose Management Plan, as modified by regulatory actions taken in the March 2004 meeting, as a general guide to moose management in Units 19(A) and 19(B). In particular, the Board endorses the mission of the plan to increase the moose population of the Central Kuskokwim region to provide for high levels of human consumptive uses of moose. The Board also endorses the strategy of

restoring hunting opportunities as soon the moose population can sustain additional harvest. The Board recognizes that the Central Kuskokwim Moose Management Plan may require revisions in the future as additional information is obtained and implementation of the revised regulations is evaluated.

10. The Board requests that the Department provide a progress report on implementation of wolf predation control in Unit 19(A) and other aspects of the Central Kuskokwim Moose Management Plan at its spring 2005 meeting. At that time, the Board will consider if the present authorization for airborne or same day airborne shooting of wolves is sufficient to achieve the objectives of the Central Kuskokwim Wolf Predation Control Implementation Plan and whether the authorization needs to be expanded to include Unit 19(B) or modified in any other way.

Vote: 6/1  
March 10, 2004  
Fairbanks, Alaska

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Mike Fleagle, Chair  
Alaska Board of Game



Photo By Bob Stephenson, ADF&G

**FEDERAL SUBSISTENCE BOARD RESOLUTION OF SUPPORT****Resolution: 04-1  
Federal Subsistence Board  
Dated May 20, 2004****RESOLUTION TO ENDORSE THE CENTRAL KUSKOKWIM  
MOOSE MANAGEMENT PLAN**

**Whereas;** We the Federal Subsistence Board have reviewed the Central Kuskokwim Moose Management Plan November 2003, as presented in May 2004; and

**Whereas;** The Central Kuskokwim Moose Management Plan has been developed by a diverse group of users and managers including: representatives of the Central Kuskokwim and other Fish and Game Advisory Committees, guides, transporters, conservationists, Native organizations and state and federal wildlife and land management agencies; and

**Whereas;** The purposes of the plan are to restore and maintain the Central Kuskokwim moose population to ensure reasonable future subsistence opportunities, provide for high levels of human consumptive use, provide for a diversity of other uses of the moose resource, manage predators and moose habitat, and maintain the overall health of the ecosystem; and

**Whereas;** The plan has been developed carefully, over time, to ensure that a wide range of views and opinions have been expressed and considered; and

**Whereas;** The Federal Subsistence Board recognizes that the recommendations in the plan as a comprehensive compromise package and acknowledges that Planning Committee members honored the values of other members in reaching conclusions; and

**Whereas;** The Federal Subsistence Board understands that the plan includes implementation of actions that are within and outside the Board's jurisdiction and is yet within the terms of the Interim Memorandum of Understanding with the State and Federal Subsistence Board; and

**Whereas;** The plan promotes coordination with both state advisory committees and federal regional advisory councils;

Therefore be it resolved that the Federal Subsistence Board:

1. Supports the Central Kuskokwim Moose Management Plan as presented in May 2004.
2. Recommends the members of the Central Kuskokwim Moose Management Planning Committee meet periodically and maintain and update the plan as needed.

3. Encourages members of the Central Kuskokwim Moose Management Planning Committee, the affected Regional Advisory Councils, and the public at large to, carefully monitor implementation of the plan and the status of the Central Kuskokwim drainage moose populations to ensure the mission and goals expressed in the plan are adhered to, and should the need arise, work cooperatively to develop recommendations or proposals for changes to the plan and/or state and federal regulations.
4. Recommends when possible, the public and/or agencies consult with the Planning Committee when submitting regulatory proposals that impact the plan in order to protect the integrity of plan and the cooperative efforts of the Planning Committee.
5. Expresses our appreciation for the work of all members who have voluntarily contributed their time, their effort and their creativity to this worthy endeavor.



Mitch Demientieff, Chair

