

**Emergency Regulations - 5 AAC 92.125(d) Unit 16 Predation Control Area:**

**92.125 (d): Unit 16 Predation Control Area:** the Unit 16 Predation Control Area is established, which is focused primarily on mainland Unit 16(B), and consists of all lands within the mainland portion of Unit 16(B) and that portion of Unit 16(A) west of a line beginning at the confluence of the Yentna and Susitna Rivers, then northerly along the western bank of the Susitna River to the confluence with the Deshka River, then northerly to 61° 48.80' N. lat., 150° 21.77' W. long., then west to 62° 01.47' N. lat., 150° 24.06' W. long., then north to the northern end of Trapper Lake at 62° 01.47' N. lat., 150° 16.67' W. long., then west to 62° 01.47' N. lat., 150° 24.06' W. long., then north to 62° 09.65' N. lat., 150° 24.06' W. long., then west to the southwestern end of Amber Lake at 62° 09.65' N. lat., 150° 33.42' W. long., then north to 62° 18.03' N. lat., 150° 33.42' W. long., then west to 62° 18.03' N. lat., 150° 51.04' W. long., then north to 62° 27.97' N. lat., 150° 51.04' W. long., then west to the Denali National Park boundary at 62° 27.97' N. lat., 151° 09.22' W. long., encompassing approximately 11,105 square miles; this predator control program does not apply within National Park Service lands unless approved by the federal agencies; notwithstanding any other provision in this title, and based on the following information contained in this section, the commissioner or the commissioner's designee may conduct a wolf population reduction or wolf population regulation program in the Unit 16 Predation Control Area, and conduct a black bear population reduction or black bear population regulation program in the Unit 16 Predation Control Area:

(1) the discussion of wildlife population and human use information is as follows:

(A) prey population information is as follows:

(i) the moose population for mainland Unit 16(B) was estimated in fall 2005 to be 3,193 - 3,951 moose, based on aerial surveys in 2003 - 2005 in the unit; this population is composed of subpopulations that reside wholly in the unit; however, a subpopulation from the flanks of Mount Yenlo and in the upper Lake Creek drainage mixes in winter with moose from Unit 16(A) in the Kahiltna River drainage, and a subpopulation from the flanks of Mount Susitna and the drainages of Alexander Creek and lower Yentna River winters with moose from Units 14(A), 14(B), and 16(A) in the lower Yentna and Susitna Rivers;

(ii) habitat does not appear to be limiting the moose population, or a factor in calf survival, and is not expected to limit the moose population at objective levels; while the majority of the unit is covered with mature forests, moose habitat has changed little since the high moose densities of the early 1980s; prescribed burning has been the only economically viable option for improving moose habitat and opportunities to conduct controlled burns are limited by climate, access, and privately-owned lands with structures dispersed throughout the unit; the minimum moose density objective is 1.0 moose per square mile for mainland Unit 16(B) based on the intensive management objective of 6,500 - 7,500 moose; there are approximately 6,500 square miles of

available moose habitat; presently, mainland Unit 16(B) moose population estimates place the moose density at .55 moose per square mile;

(iii) the age structure of the population is believed to have shifted towards the older age classes in the 1990s as the moose population declined; the number of spike-fork bulls estimated in the mainland Unit 16(B) survey data from 1999 - 2005, which is approximately the same as the number of yearling bulls in the population, showed ratios of three to eight yearling bulls to 100 cows; assuming these numbers to be half of the year's cohort, this indicates an approximate recruitment rate of 6 - 16 percent; given estimated moose mortality rates in the mainland Unit 16(B) population, the decline in numbers and lack of recovery is expected to continue without active predation control activities;

(iv) the bull-to-cow moose ratio for mainland Unit 16(B) in fall 2003 - 2005 was estimated to be 23 - 35 bulls per 100 cows; this is similar to average bull-to-cow ratios of 24 - 44 observed in the unit in the mid-1990s; thus, the herd is presently above the management objective for this parameter;

(v) limited flights to count newborn calves and natality data from radio collared moose indicated that 80 percent of adult cows gave birth, with 50 percent of these having twins; together, these data indicated a birth rate of 122 calves per 100 cows;

(vi) the calf-to-cow moose ratio during fall moose surveys from 2003 to 2005 ranged between 14 and 23 calves per 100 cows, with estimated over-winter calf mortality of 40 percent, resulting in a recruitment rate of 8 - 14 moose per 100 cows; information collected from radio collared moose in December following parturition indicate a calf survival rate of eight percent and a calf-to-cow ratio of 10:100, which is lower than the ratio of 14 calves per 100 cows counted during the November survey of the population in the study area; the reason for the difference between natality and recruitment appears to be largely due to predation;

(vii) the harvestable surplus for 2008 is estimated to be 171 bulls, well under the minimum of 199 - 227 harvestable moose needed to meet the amount necessary for subsistence; this number is a reflection of the overall decline of the moose population even though bull-to-cow ratios have been consistently at or above objective; as a result, the moose herd has provided only limited resident-only harvest for several years;

(viii) the intensive management population objective established by the board for the mainland Unit 16(B) moose population is 6,500 - 7,500 moose, and the intensive management harvest objective is 310 - 600 moose;

(ix) the decline in the mainland Unit 16(B) moose population is attributed to poor calf survival, high adult mortality, and the inability of the population to recover from the impacts of recurring deep snow winters; snow depths below the 1,000-foot elevation have exceeded 35 inches in 21 of 35 winters; the mainland Unit 16(B) moose population is considered to be reduced substantially from the early 1980s when estimates ranged from 8,500 -

10,000 moose, and is currently at about half of the intensive management population objective;

(x) without an effective wolf predation control program and an effective bear predation control program, moose in the mainland Unit 16(B) are likely to persist at low numbers or continue to decline; results from moose mortality studies, and predator and prey studies, conducted throughout Alaska and similar areas in Canada indicate that reducing the number of wolves and bears in Unit 16(B) can reasonably be expected to increase survival of calves as well as older moose, particularly yearlings;

(B) the human use information for prey population is as follows:

(i) reported subsistence harvest has varied from 30 to over 120 moose, and some additional subsistence harvest occurs within the general fall hunting season (Tier I) when one is held; during the regulatory year 2003 - 2004, Tier II subsistence harvest was 80 moose and Tier I harvest was 83; in regulatory year 2004 - 2005 the Tier II subsistence harvest was 79 moose and Tier I harvest was 85; in regulatory year 2005 - 2006 the combined subsistence harvest was 138 moose; in regulatory year 2006 - 2007 the combined subsistence harvest was 109 moose;

(ii) high demand for subsistence moose is demonstrated by the 750 - 1,100 applicants who annually apply for the up to 400 Tier II permits available for mainland Unit 16(B); additional subsistence demand exists within the unit and is captured by the limited general resident-only hunting opportunity that has occurred in September in recent years;

(iii) all general season and fall Tier II moose bag limits were reduced in 1993 to one bull with a spike or fork or 50-inch antlers or antlers with three or more brow tines on one side; nonresident moose hunting opportunity was first reduced to a portion of Unit 16(B) in 1993 and completely eliminated in 2001; all general season hunting was closed in 2001 and 2002 and only a limited Tier I subsistence (resident-only) season was allowed in 2003 - 2005; the average general season harvest was 388 from 1983 - 1989 and declined to 168 from 1990 - 1999;

(iv) there is a small, limited demand for moose to provide for rural federal subsistence hunting on federal lands within mainland Unit 16(B); there is some interest in moose for viewing opportunities in portions of the unit where guides and other operations provide services that promote wildlife viewing;

(v) it is unlikely that the demand in mainland Unit 16(B) for moose for subsistence and general hunting opportunity will decline; given the increasing human population in the nearby Anchorage and Matanuska-Susitna Valley areas, as well as historic local subsistence use, it is probable that demand will match any increase in harvestable surplus gained through active management of the moose herd;

(C) the predator population information is as follows:

(i) the fall 2005 wolf population in mainland Unit 16(B) was estimated to be 85 - 114 wolves in 10 - 12 different packs; a density of approximately 0.82 - 1.1 wolves per 100 square miles; the spring 2006 population

estimate for black bears in Unit 16(B) was 1,500 - 2,000; the estimate for brown bears in Unit 16(B) was 625 - 1,250;

(ii) habitat carrying capacity for wolves and bears is dependant on prey and food availability and competition from other predators; carrying capacity for wolves and bears in mainland Unit 16(B) has not been determined; however, harvest from sealing records, supplemented by reports from trappers, hunters, and others, have indicated that the wolf population had increased and the black bear and brown bear populations had stabilized or increased; the average annual harvest from sealing records for wolves during 1984 - 1988 was 6.6 wolves compared to a single year harvest in 2002 - 2003 of 60 wolves; the average annual harvest from sealing records of black bears during 1990 - 1994 was 85.6 compared to 124.6 during 2000 - 2004; the average annual harvest from sealing records of brown bears during 1990 - 1994 was 50.6 compared to 83.2 during 2000 - 2004;

(iii) in mainland Unit 16(B), the current wolf-to-moose ratio is between 28 and 46 moose per wolf; the pre-control estimated ratio for 2003 was as low as 17:1; historically, estimates have ranged as high as 250 moose per wolf in this unit;

(iv) alternate prey include caribou, sheep, beaver, and hare; for most wolves in mainland Unit 16(B), there are few options for alternate prey; small populations of caribou and sheep exist in the higher elevations of the western side of the unit; however, pack territorial structure probably prohibits most wolves from accessing this resource, thus, limiting them to smaller prey such as beaver and hare; black and brown bears typically feed on salmon when available and forage on a variety of vegetation throughout the summer and fall; moose and caribou calves are often prey during the spring when inexperience with predators and limited mobility makes them particularly vulnerable; the limited numbers and distribution of caribou make them unavailable to most predation in mainland Unit 16(B); brown bears also take black bears as prey and this has been reported in numerous observations by hunters, trappers and others in mainland Unit 16(B);

(v) the number of moose that are killed by wolves in any given year in this area is highly dependent on the depth of winter snowfall, competition with other predators, and the abundance of alternate prey; in Alaska and areas of Canada where moose are the primary prey of wolves, studies documented kill rates ranging from four to seven moose per wolf per winter; using this range with our current population estimate of wolves in mainland Unit 16(B), wolves are estimated to be capable of taking between 340 and 798 moose per winter; research elsewhere in Alaska has indicated that up to 52 percent of neonate moose calves were killed by brown bears; other work has shown significant increases in calf survival following black bear removal and population reduction;

(vi) mortality factors affecting wolves in mainland Unit 16(B) include human harvest, other wolves, and disease; harvest of wolves in the unit has increased from a low of two wolves in the winter of 1990 - 1991 to 50 wolves in the winter of 2003 - 2004; the total wolf take for 2004 - 2005 was 115

wolves, with 91 of those wolves taken in the predator control program that was initiated in January 2005;

(vii) it is the intent of this plan to maintain wolves and bears as part of the natural ecosystem within the geographical area described for the plan; however, studies in Alaska and elsewhere have repeatedly concluded that large, annual reductions in wolf populations are required to reduce wolf population levels and predation on their prey; wolf harvest objectives in mainland Unit 16(B) have been set in order to achieve a reduction of at least 60 - 80 percent of the pre-control wolf population estimate of 175 - 180 wolves; to achieve the desired reduction in wolf predation, but ensure that wolves persist within the plan area, the wolf population objective for mainland Unit 16(B) is set at between 22 and 45 wolves; reductions in brown and black bear populations that have resulted in increased calf survival have been shown in other parts of Alaska and Canada; harvest objectives for black and brown bears in mainland Unit 16(B) were set with consideration for maintaining stable but lower populations of both species and reducing predation on moose calves;

(viii) without a predation control program in the mainland Unit 16(B), it can be expected that the wolf and black bear populations will increase to numbers at or above historic high levels; current trends in fuel prices, low fur prices, and low quality of wolf pelts in the unit due to the louse infestation, have resulted in a decrease in the wolf hunting and trapping effort in the area; thus, removing the major cause of wolf mortality; difficult access, thick cover, and the availability of other bear hunting opportunities have resulted in a failure to meet harvest objectives in the general season; continuing the predator control program and expanding it to include black bears is expected to reduce the predator populations and subsequently allow the moose population to increase toward the intensive management population objective;

(D) the human use information for predator population is as follows:

(i) annual harvest of wolves in mainland Unit 16(B) with a firearm, excluding same-day-airborne take, has been highly variable since the early 1980s and has ranged from 0 - 27 wolves; from 2000 to 2004, firearms have accounted for an average of 18 wolves annually, or 36 percent of the harvest; harvest of wolves with the use of a snare or trap has similarly been highly variable and has ranged from 1 - 48; from 2000 to 2004, traps and snares have accounted for 23 wolves annually, or 44 percent of the harvest;

(ii) mainland Unit 16(B) receives less trapping pressure than some other areas of the state; the hunter harvest of wolves has always been opportunistic, and is difficult to predict; the trapper harvest of wolves is limited by the number of trappers willing to spend the time targeting this furbearer amidst variable winter travel conditions; winters have begun later, and have been highly variable in temperature and snowfall in recent years creating hazardous conditions for winter hunters and trappers; in addition to open creeks and regular overflow, many large rivers in the area have stayed open until late-winter, or even year-round, completely eliminated trapping pressure from remote areas of the unit;

(iii) most Unit 16(B) trappers will continue to pursue wolves in the unit regardless of same-day-airborne wolf control efforts; trappers in the unit pursue many different furbearers and do not consider the control program a detriment to their opportunities; if the wolf control program were to be discontinued trapper harvest would likely increase to some extent; hunters that take wolves in mainland Unit 16(B) do so opportunistically and would not be seriously affected by the status of the wolf control program;

(iv) annual harvest of black bears in mainland Unit 16(B) has been variable but consistently below the objective of a minimum harvest of 225 bears; average annual harvest 1980 - 1989 was 103.0 bears, from 1990 - 1999 it was 92.0 bears, and from 2000 - 2004 it was 124.6 bears; annual harvest of brown bears in mainland Unit 16(B) has increased and recently reached the objective of allowing human use to result in a three-year average harvest of 28 females older than two years for all of Unit 16; from 2002 - 2004 the average harvest was 23.3 bears; since 1961, the only three-year average harvest reported with greater than 27 females taken was in 1999 - 2001 with an average of 28 females and 2003 - 2005 with 32 females reported;

(v) most Unit 16(B) bear hunters will continue to hunt bears in the unit regardless of bear control efforts; in fact, many hunters have reported hunting in the unit due to recently increased opportunities to take black and brown bears; guide use and resident hunter effort has not shown a decline since the board has authorized increased bag limits for brown bears, more black bear bait-hunting opportunities, and expanded seasons;

(2) the predator and prey population levels and population objectives, and the basis for those objectives, are as follows:

(A) the fall 2005 moose population was estimated to be 3,193 - 3,951 moose, compared to the intensive management objective of 6,500 - 7,500 moose; the intensive management objective was developed by the board based on historical moose population size and trends, habitat condition, sustainable harvest levels, and human use;

(B) the pre-control population of wolves in the fall of 2003 was 160 - 220 wolves; studies in Alaska and elsewhere have repeatedly concluded that large, annual reductions of wolves are required to diminish wolf population levels and predation by wolves on their prey; consistent with scientific studies and department experience, the objective of this plan is to substantially reduce wolf numbers compared to the pre-control level in order to relieve predation pressure on moose and allow for improved recruitment to the moose population; this plan also has as a goal to maintain wolves as part of the natural ecosystem within the described geographic area; to achieve the desired reduction in wolf predation, but ensure that wolves persist within the plan area, the wolf population in mainland Unit 16(B) will be reduced to no fewer than 22 wolves;

(C) the spring (late winter) wolf population objective for Unit 16(B) was set at 22 - 45 wolves based on prior estimates of the wolf population size in the area when the moose population achieved high densities in the past;

(D) in spring 2006, the brown bear population for mainland Unit 16(B) was 625 - 1250 bears; the black bear population for mainland Unit 16(B)

was 1,500 - 2,000 bears; significant reductions in the brown bear population would reduce the amount of predation on moose while being consistent with the management goal of reaching a desirable predator-to-prey ratio by allowing the brown bear population to decline; the human-use objective for black bear in Unit 16(B) was for a three-year average annual harvest of greater than 225 bears with greater than 30 percent being female; the average annual harvest for Unit 16(B) between 2002 and 2005 was 129 bears and the average annual percentage of females was 26.2 percent;

(E) based on research in Alaska and Canada, up to a 60 percent reduction in the bear population within the predation control area specified in this program is expected to result in an increase in moose survival; to achieve the desired reduction in bear predation, but ensure that bears persist within the predation control area, the minimum black bear population objective for the control area is 600 black bears, which represents 60 percent reduction from the pre-control minimum estimated population of 1,500 black bears;

(3) the justifications for predator control implementation plan are as follows:

(A) the board determined that the moose population in mainland Unit 16(B) is important for providing high levels of human consumptive use; the board established objectives for population size and annual sustained harvest of moose is consistent with multiple use and principles of sound conservation and management of habitat and all wildlife species in the area; the objectives of the predation control program are to halt the decline of the moose population within the predation control area and to increase the fall (post-hunt) moose population to the intensive management objective of 6,500 - 7,500 moose, providing a sustainable annual harvest of 310 - 600 moose;

(B) the population objectives for moose in mainland Unit 16(B) are not being met, largely due to high predator numbers and the inability of the moose population to recover given the high predation rates;

(C) a reduction in predator numbers is necessary to enhance survival of mainland Unit 16(B) moose, to halt the population decline, and to achieve population objectives in the predation control area; during the 1970s and 1980s, same-day-airborne hunting of wolves by the public, at little or no cost to the department, effectively kept the wolf population at levels well below present levels, both black and brown bear densities were low, and moose populations were increasing or stable; trapper and hunter harvests in the last 10 years have averaged less than 2.5 wolves per trapper and hunter;

(D) moose population objectives are not being met, although trapper and hunter harvests of wolves and harvests of black and brown bears have increased over the last 10 years for mainland Unit 16(B); maximum harvest opportunity appears to have been provided although the wolf numbers have been above the population objective since the early 1990s; the current spring population objective in the control area is 22 - 45 wolves in 3 - 5 packs, and the fall 2005 wolf population estimate is 85 - 114 wolves in 10 - 12 packs; the current population objective in the control area is 600 black bears and 250 brown bears;

(E) previous programs utilizing same-day-airborne hunting of wolves effectively kept the wolf population at levels well below present levels, and moose populations were increasing or stable; airplane-based control of wolf populations is necessary to reduce numbers over short periods of time and allows for a more timely recovery of the moose population; during moderate to severe winters wolves and moose congregate in river corridors; expansion of the control program into Unit 16(A) is necessary to effectively reduce wolves that occupy these corridors;

(F) multiple measures have been taken to improve survival of moose within mainland Unit 16(B); general predator hunting and wolf trapping seasons alone have failed to result in sufficient reductions of predators and increased numbers of moose; liberalization of seasons, bag limits, and other restrictions on harvest for bears and wolves have shown no detectable effect on the moose population in the unit; currently there is a year-round season for black bear with a three bear limit and no tag required for brown bear with a two bear limit;

(G) presently known alternatives to predator control for reducing the number of predators are ineffective, impractical, or uneconomical in the Unit 16(B) situation; hunting and trapping conducted under authority of ordinary hunting and trapping seasons and bag limits is not an effective reduction technique in sparsely populated areas such as Unit 16(B); numbers of hunters and trappers are relatively low and so far have been unsuccessful in increasing the harvest of wolves or bears to the extent of having a positive effect on the moose population; the inherent wariness of wolves, difficult access, and relatively poor pelt prices also explain low harvest rates; application of the most common sterilization techniques, including surgery, implants, or inoculation, are not effective reduction techniques because they require immobilization of individual predators, which is extremely expensive in remote areas; relocation of wolves or bears is impractical because it is expensive and it is very difficult to find publicly acceptable places for relocated predators; habitat manipulation is ineffective because it may improve the birth rate of moose in certain circumstances, but it is poor survival, not poor birth rate that keeps moose populations low in rural areas of mainland Alaska; supplemental feeding of wolves and bears as an alternative to predator control has improved moose calf survival in experiments; however, large numbers of moose carcasses are not available for this kind of effort and transporting them to remote areas of Alaska is not practical; stocking of moose is impractical because of capturing and moving expenses; any of the alternatives to a predation control program are not likely to be effective in achieving the desired level of predator harvest;

(4) the permissible methods and means used to take predators are as follows:

(A) hunting and trapping of wolves by the public in the Unit 16 Predation Control Area during the term of the program will occur as provided in the hunting and trapping regulations set out elsewhere in this title, including use of motorized vehicles as provided in 5 AAC 92.080;

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

(C) hunting of black and brown bears by the public in the Unit 16 Predation Control Area during the term of the program will occur as provided in the hunting regulations set out elsewhere in this title, including use of motorized vehicles as provided in 5 AAC 92.080;

(D) the commissioner may reduce the black bear population within the Unit 16 Predation Control Area by means and direction included in the Board of Game Bear Conservation and Management Policy (2006-164-BOG), dated May 14, 2006, and incorporated by reference, including the following methods and means under a department developed control permit:

(i) legal animal is any black bear, including sows and cubs;

(ii) no bag limit;

(iii) same-day-airborne taking of black bears if the permittee is at least 300 feet from the aircraft, including the use of any type of aircraft to access black bear baiting stations from April 15 through June 30 and August 10 through October 15;

(iv) sale of unmounted, tanned black bear hides if the sale tag remains attached;

(v) April 15 through June 30 and August 10 through October 15 baiting season for black bears; up to four black bear bait stations per permittee; black bear baiting allowed along the Unit 16 shorelines of the Susitna River, Yentna River below the confluence with the Skwentna River, the Deshka River (Kroto Creek) below the confluence with Trapper Creek, and Alexander Creek outside a 100-yard buffer on each side of the river; black bear baiting within one mile of a cabin if the cabin is on the opposite side of a major river system from the black bear baiting station and other permit conditions are met;

(E) the board finds that recent liberalizations in hunting regulations for brown bear appear to be achieving the board's reduction objectives for the present;

(5) the anticipated time frame and schedule for update and reevaluation are as follows:

(A) for up to five years beginning on July 1, 2007, the commissioner may reduce the wolf and black bear populations in the Unit 16 Predation Control Area;

(B) 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, wolf, and bear populations, and recommendations for changes, if necessary, to achieve the objectives of the plan;

(6) other specifications that the board considers necessary are as follows:

(A) the commissioner will suspend wolf control activities

(i) when wolf inventories or accumulated information from permittees indicate the need to avoid reducing wolf numbers below the management objective of 22 - 45 wolves specified in this subsection;

(ii) when spring conditions deteriorate to make wolf control operations infeasible; or

(iii) no later than April 30 in any regulatory year;

(B) the commissioner will suspend black bear control activities

(i) when black bear population inventories or accumulated information from permittees indicate the need to avoid reducing black bear numbers below the management objective of 600 black bears specified in this subsection;

(ii) no later than June 30 during any regulatory year;

(C) predator control activities will be terminated

(i) when prey population management objectives are attained; or

(ii) upon expiration of the period during which the commissioner is authorized to reduce predator numbers in the predator control plan area;

(D) the commissioner will annually close wolf hunting and trapping seasons and bear hunting seasons as appropriate to ensure that the minimum population objectives are met.