

PROPOSAL 137A - 5 AAC 92.108. Identified big game prey populations and objectives.
 Modify the Intensive Management population and harvest objectives for moose in Unit 20A as follows:

This proposal would set the population and harvest objectives at levels that population and harvest parameters suggest are more in line with the carrying capacity of the habitat and sustainable harvest over the long term. In addition, a wider range for the population objective better accommodates the typical sampling error of approximately $\pm 16\%$ associated with population estimates of moose in Unit 20A.

Population	Finding	Population Objective	Harvest Objective
Moose			
...			
GMU 20(A)	Positive	<u>10,000–15,000</u> [12,000–15,000]	<u>500–900</u> [900–1,100]
...			

What is the issue you would like the board to address and why? During deliberations of the Feasibility Assessment for Maintaining or Increasing Sustainable Harvest of Moose in Game Management Unit 20A (Unit 20A Feasibility Assessment) at the February 2015 Board of Game (board) meeting in Wasilla, the board directed the department to provide an updated Unit 20A Feasibility Assessment in 2016 and recommended that the Intensive Management (IM) population and harvest objectives for moose in Unit 20A be revisited at that time. The current IM population and harvest objectives are 12,000–15,000 and 900–1,100 moose, respectively.

We recommend an IM population objective of 10,000–15,000 moose. This broad range takes into account: 1) Current estimates of moose abundance, and typical sampling error associated with abundance estimates in Unit 20A; 2) potential management-related adjustments to moose abundance based on the population’s nutritional condition and habitat quality; and 3) potential short-term changes in moose abundance caused by annual variability in productivity and survival. Overall, our goal is to use these objectives to assist in sustaining the health and habitat of the moose population over the long term without being constrained by an arbitrarily narrow range.

We also recommend an IM harvest objective of 500–900 moose, which is a reported harvest rate of 5%–6% of the recommended population objective of 10,000–15,000 moose. The population declined during RY03–RY06 when estimated harvest (reported and unreported) was 6%–8% of the population. So, we predict population stability at harvest rates of 5%–6% (harvest rates of males at 4%–5% and females at 1%–2%).

We determined these population and harvest objectives through investigation into the Unit 20A moose population dynamics as outlined below. Recent discussions with the Fairbanks and Middle Nenana Fish and Game Advisory Committees resulted in both committees supporting an IM population objective for Unit 20A moose of 10,000–15,000.

The number of moose was estimated at 17,766 ($\pm 16\%$ @ 90% Confidence Interval [CI]) in 2003. Research indicated this high-density moose population was experiencing density-dependent effects, including low productivity, relatively light calf weights, and high removal rates of winter forage. The objective beginning in regulatory year 2004–2005 (RY04) was to reduce moose numbers to the upper end of the IM population objective of 10,000–12,000 and stabilize the population at that level, unless indicators of moose condition showed signs of improvement at higher densities – which they did not. In 2012, the population was estimated at 12,193 ($\pm 16\%$ @ 90% CI) moose and, at that lower population level, we did not detect any improvements in the nutritional status of the moose population based on annual twinning rates. Also worth noting is that, in 2012, the IM population objective was raised from 10,000–12,000 to 12,000–15,000 moose.

In 2013, the Unit 20A population was estimated at 10,156 ($\pm 15\%$ @ 90% CI) moose. This estimate was below the lower limit of the recently adopted IM population objective of 12,000 moose, although we speculated that it was biased low due to poor sightability. Unfortunately, we were unable to conduct a population estimate in 2014 due to the lack of sufficient snow. However, in 2015, we again estimated the population at just over 12,000 (12,315; $\pm 14\%$ @ 90% CI) moose. Since 2004, when the moose population reduction program began and moose abundance was lowered significantly, we have not yet detected any significant, positive trends in the nutritional condition of the moose population, although we have observed several isolated cases of potential improvements in productivity (i.e., higher twinning rates in 2011 and 2015; small increases in weights of 10-month females; large increases in weights of a small sample of 10-month males). If nutritional condition shows no further improvement (or declines), the department proposes to continue monitoring nutritional indicators while stabilizing the population at about 12,000 moose.

This recommendation also takes into account sampling error, which in Unit 20A averaged $\pm 16.5\%$ (@ 90% CI) since we began conducting GeoSpatial Population Estimates (GSPE) in 1999. For a hypothetical population of 12,000 moose, this equates to roughly $\pm 2,000$ moose. In other words, if the true population in Unit 20A was 12,000 moose and we were to conduct 10 GSPE surveys, the point estimate would likely fall between 10,000 and 14,000 moose 9 times and outside that range 1 time. Thus, an IM population objective with a wider range better takes sampling error into account and reduces the likelihood of obtaining a point estimate outside the bounds of the IM population objective when, in fact, the true population is within.

PROPOSED BY: Alaska Department of Fish and Game (ACR-C15-13)
