

GAME MANAGEMENT UNITS 12 AND 20E

TOK AREA OFFICE

Area Biologist: Jeff Gross
Assistant Area Biologist: Jeff Wells
Seasonal Wildlife Technician: Bob Gingue
Seasonal Administrative Clerk: Tess Faulise

DESCRIPTION

GAME MANAGEMENT UNIT 12

Game Management Unit 12 is located along the Yukon, Canada border in eastern Interior Alaska. It measures approximately 10,000 mi², of which 9,000 mi² is wildlife habitat.

LAND OWNERSHIP: Over 80% of the land is managed by the National Park Service (Wrangell–St. Elias National Park and Preserve), the U.S. Fish and Wildlife Service (Tetlin National Wildlife Refuge) or is privately owned by Native corporations or villages. The Tok Management Area (TMA) is the only state special management area in Unit 12 and there are no controlled use areas. Approximately 2,000 people live in 6 communities and villages within the unit.

ACCESS: The Glenn and Alaska Highways, Nabesna Road, and the Tanana, Tok, and Nabesna rivers are primary access routes into Unit 12. There are few trails suitable for off-road vehicles. Due to the combination of limited access and landowner policies, hunting pressure is low in most of the unit.

HUMAN USE: The Dall sheep population in Unit 12 is the most intensively hunted in the state. Guided nonresident Dall sheep hunting is common, but most moose hunting is by local residents (>70% of the hunters) who take >40% of the harvest. Trapping, primarily for marten and lynx is economically important.

FISH AND GAME ADVISORY COMMITTEES: Upper Tanana–Fortymile and Tok Cutoff–Nabesna Road Advisory Committees.

SPECIAL MANAGEMENT AREAS:

TOK MANAGEMENT AREA: The TMA was created in 1974 to provide sheep hunters with the opportunity to hunt large-horned Dall sheep under uncrowded conditions. It is one of the top 3 areas in Alaska in terms of Dall sheep horn growth, and hunt objectives were designed to enhance horn growth potential. The TMA is the only sheep hunting area

in Alaska specifically established for trophy sheep management. It is very popular among sheep hunters and is one of the most sought-after sheep permits in the state.

GAME MANAGEMENT UNIT 20E

Unit 20E is located north of Unit 12 along the Yukon, Canada border. It encompasses about 11,000 mi² of diverse wildlife habitat.

LAND OWNERSHIP: Most of the land in Unit 20E is in state (about 50%) or Native corporation (30%) ownership. State special management areas include the Ladue River and Glacier Mountain Controlled Use Areas. The remaining land is under federal management either within the Yukon–Charley Rivers National Preserve (National Park Service) or the Fortymile National Wild and Scenic River System (Bureau of Land Management.) About 220 people reside in the 3 communities in Unit 20E.

ACCESS: The Taylor Highway, several extensive off-road vehicle trails, and the Yukon, Charley, and Fortymile rivers are the primary access routes in Unit 20E. Portions of central Unit 20E can be accessed by float plane. Most of western, eastern, and northern Unit 20E is inaccessible, except from a small number of landing areas.

HUMAN USE: Caribou in the Fortymile herd are the most sought-after wildlife species in Unit 20E. Moose hunting participation and harvest increased significantly between 2001 and 2003, exceeding historic records, but has since declined to levels observed during the 1990s. Trapping, primarily for marten and lynx is economically important. Grizzly bear hunting regulations have been liberal since 1981 in an attempt to reduce grizzly bear predation on moose and caribou calves.

FISH AND GAME ADVISORY COMMITTEES: Eagle and the Upper Tanana–Fortymile Advisory Committees.

CONTROLLED USE AREAS:

Glacier Mountain Controlled Use Area (CUA). The Glacier Mountain CUA encompasses about 600 mi² and was formed in 1971 to afford greater protection for the Dall sheep population on Glacier Mountain. Methods of access are restricted during August 5–September 20. Access was originally limited to walk-in hunters only. In 1981, the restriction on use of pack animals was eliminated. This CUA continues to provide needed protection for the Dall sheep population as originally intended, and more recently, has provided opportunity for walk-in hunters to hunt Fortymile caribou for a large portion of the fall season.

Ladue River CUA. The Ladue River CUA encompasses about 1,375 mi² and was formed in 1994 to afford greater protection to the low density (<0.5 moose/mi²) moose population. Motorized access is limited to designated trails and airstrips during August 24–September 20. The area is achieving its purpose of protecting moose in this area from overharvest.

The board reduced the size of the LRCUA to 1,115 mi² during the March 2010 meeting. The Upper Tanana–Fortymile and Eagle Fish and Game Advisory Committees continue to support retaining the LRCUA for continued protection of the low density moose population.

During 2006–2012, the moose density in the LRCUA area averaged 0.62 moose/mi². Average ratios were 69 bulls:100 cows and 18 calves:100 cows. If the LRCUA was eliminated, additional trail pioneering would likely occur and could lead to increased harvest pressure on this low density moose population. If harvest increases, additional season and bag limit restrictions could become necessary to maintain bull:cow ratios above the management objective of 40 bulls:100 cows.

Currently, moose hunting seasons and bag limits are aligned throughout Unit 20E. If season and bag limit changes resulted from elimination of the LRCUA additional hunter confusion is likely to occur.

BLACK BEAR

STATUS: Black bears are present in all suitable habitats in Units 12 and 20E. Based on limited radiotelemetry data collected in Unit 12 and other units with comparable habitats, the estimated black bear density is 1 bear/4–7 mi² of black bear habitat. The estimated number of black bears in Units 12 and 20E combined is 2,000–2,500. The black bear population is productive and the reproductive interval is similar to other Interior Alaska black bear populations. Historically, black bear harvest has been low in both units. The primary users in Unit 12 are local residents (>70% of the harvest) and primary users in Unit 20E are Alaska residents (>50% of the harvest). Local residents take black bears primarily during the spring for meat.

MANAGEMENT/RESEARCH ACTIVITIES: Harvest data are obtained through sealing of bears killed in defense of life or property and hunter-harvested bears. The impact of hunting black bears over bait is monitored through mandatory registration of all bait stations in combination with harvest tickets and harvest reports.

ISSUES: There are no biological or social issues at this time. Units 12 and 20E black bear populations exist at densities considered natural for Interior Alaska black bear populations and harvest and habitat are not limiting.

GRIZZLY BEARS

STATUS: Grizzly bear populations are estimated to be stable at 350–425 (46.6–56.7 bears of all ages/1,000 mi²) in Unit 20E and 320–394 bears (29.9–36.9 bears of all ages/1,000 mi²) in Unit 12. These estimates are based on the our DNA-based mark–recapture surveys and extrapolations from point estimate surveys we conducted in Unit 20E and other units with similar type habitats, radiotelemetry data, and harvest statistics. Hunting regulations have been liberal since 1981 to allow hunters to take more grizzly bears in an attempt to reduce grizzly bear predation on moose calves. Strategies used to increase grizzly bear harvest and grizzlies killed in predation control programs included: 1) a public awareness campaign; 2) increased bag limit to 1 bear per regulatory year (1 July through 30 June) in Unit 12 and 2 bears per regulatory year in Unit 20E since regulatory year 2004–2005 (RY04; e.g., RY04 = 1 Jul 2004 through 30 Jun 2005); 3) lengthened seasons; 4) waived resident tag fee in Unit 20E during RY84–RY90 and RY02–RY09 outside the Yukon–Charley Preserve and waived tag the resident fee in all of Region 3 (including Unit 12 and 20E) starting in RY10; 5) a grizzly bear predation control program in southern Unit 20E during RY05–RY08 that included baiting as a method for bear control permittees and allowed sale of untanned hides with claws attached and skulls as an incentive for the public to participate in the predation control program; and 6) allow baiting for grizzly bears under normal hunting regulation in both Units 12 and 20E since RY12. In Unit 12, harvest declined in 1989 and remained stable (avg.=18 bears annually during RY89–RY11), but increased to an average of 25 during RY12–RY15, including an average of 6/year (range 3–8) taken over bait during RY12–RY15. In Unit 20E, grizzly bear take remained low (avg.=15 bears annually during RY81–RY15), including an average of 3/year (range 2–4) taken over bait during RY12–RY15, despite liberal harvest regulations and predator control efforts. The population has not been reduced to levels adequate to increase moose calf survival. Grizzly bear harvest by hunters combined with predation control kills in Units 12 and 20E has been below maximum sustainable levels. Grizzly bears are a significant cause of moose calf mortality in Unit 12 and are an important factor limiting the Unit 20E moose population.

MANAGEMENT ACTIVITIES: Management activities include monitoring grizzly bears killed, and evaluating data to track changes in bear numbers. During RY04–RY08 we also implemented the Unit 20E grizzly bear predation control program. A total of 14 bears were harvested and sealed in the Alaska Department of Fish and Game (ADF&G) office in Tok under this control program during the 5 years it was active. In 2006, ADF&G research staff conducted a grizzly bear population survey in a 2,005-mi² area in southern Unit 20E. In February 2009, we analyzed grizzly bear and moose population data in Unit 20E to evaluate the effects of bear densities on moose calf survival. No statistical relationship was found at current bear densities. The grizzly bear portion of the predation control program was suspended on July 1, 2009 because it was ineffective at reducing bear numbers. In 2012 the Board of Game passed a proposal to allow baiting of grizzly bears under hunting regulations in Units 12 and 20E.

ISSUES: The Board of Game designated the Fortymile caribou herd and the moose populations in Units 12 and 20E as important for high levels of human consumptive use

under the Intensive Management Law (AS 16.05.255(e)–(g)). This designation means that the board must consider intensive management if regulatory action to significantly reduce harvest becomes necessary because the population is depleted or has reduced productivity. Past research has shown that grizzly bear predation is the primary cause of moose calf mortality in Unit 20E and would have to be reduced before the moose population could meet its population goals. Liberal grizzly bear harvest regulations since 1981 and the recent grizzly bear predation control program in Unit 20E have been ineffective at reducing the grizzly bear population enough to allow for increased moose calf survival.

CARIBOU

FORTY MILE CARIBOU HERD

STATUS: Fortymile caribou are an important food source for many Alaska and Yukon communities. Management decisions are guided by recommendations from the Fortymile Caribou Harvest Management Coalition which includes members from Alaska state and federal advisory committees and the Yukon First Nations. Support is provided from state and federal managers representing Alaska and Yukon.

Range for the Fortymile caribou herd includes portions of the upper Tanana and Yukon River drainages in Alaska and Yukon, Canada. During the 1920s, the Fortymile was Alaska's largest caribou herd, estimated at more than 250,000 animals. The herd later declined to 10,000–20,000 in the 1930s, and has grown from a low of 6,000 animals in 1973 to more than 50,000 in recent years.

Good calf survival to fall (37 and 33 calves:100 cows in October 2007 and 2008) and mild conditions in winter 2007–2008 allowed the herd to continue to grow. Following a July 2009 photocensus, the herd was estimated at approximately 46,500 caribou. Composition data from 2009–2011 indicate the herd likely experienced similar calf survival to fall as observed in 2006–2008. Following the July 2010 photocensus, the herd was estimated at 51,675 caribou. Initial analysis of two partial census surveys completed in July 2015 and 2016 indicate herd numbers are likely similar to 2010 levels at 50,000–54,000.

MANAGEMENT/RESEARCH ACTIVITIES: During 1996–2000, the herd was managed under the Fortymile Caribou Herd Management Plan that was developed through a public planning process. Since 2001, harvest has been guided by three Harvest Management Plans (2001-2006, 2006-2013, and 2013-2019), all endorsed by the Board of Game. The first harvest management plan (2001-2006) was developed by a coalition of 5 Fish and Game Advisory Committees (Central, Delta Junction, Eagle, Fairbanks and Upper Tanana–Fortymile). The current plan (2013-2019) was developed by an international coalition (Harvest Management Coalition) of stake holders consisting of members of the Anchorage, Central, Delta, Eagle, Fairbanks, Matanuska Valley, and Upper Tanana-Fortymile state fish and game advisory committees, the Federal Eastern Interior Regional Subsistence Advisory Council, Yukon Fish and Wildlife Management Board, Yukon Department of Environment, and Yukon First Nations, in cooperation with

Bureau of Land Management and the ADF&G. It retains the primary goals of managing for herd growth and restoring the Fortymile herd to its historic range in both Alaska and Yukon to the extent possible without compromising herd health.

Wolf control to enhance herd growth began in 1998 and has since included nonlethal and lethal applications. In spring 2006, the Board of Game added the Fortymile Caribou Herd to the Upper Yukon–Tanana Predator Control Program. The board reauthorized this predation control program in spring of 2009 for 5 years and again in spring 2014, for another 5 years. A paper published in the *Journal of Wildlife Management* by ADF&G makes headway toward identifying the effects that wolf control has had on herd growth and how much more the herd should grow.

“Demography of an Increasing Caribou Herd with Restricted Wolf Control,” by state biologists Rod Boertje, Craig Gardner, Martha Ellis, Torsten Bentzen, and Jeff Gross, identifies potential signs of nutritional limitations – including decreased caribou birthrates and reduced calf weights – when the Fortymile herd approached and exceeded 50,000 animals. In the paper, we note that over the course of a 25-year study that low-intensity wolf removal has not promoted measurable changes in Fortymile caribou herd growth.

Our research concludes that wolf control efforts were compromised because wolf numbers were not reduced adequately over enough of the calving and summer range. Wolf control is scheduled to continue through 2018 and ADF&G will use that time to conduct additional research to determine the effect wolf reduction has on caribou survival, harvest, and increasing the herd’s numbers and range.

Management and research efforts in recent years have primarily focused on the nutritional status of the herd as it reached and exceeded 50,000. It’s not clear whether a decrease in birthrates and weights observed by ADF&G biologists was caused by increased caribou numbers or a few years of unfavorable environmental factors.

For a summary of Fortymile caribou herd history and management see *The Comeback Trail, 2016 at:*
http://www.adfg.alaska.gov/static/home/library/pdfs/wildlife/comeback_trail/comeback_trail_2016.pdf

ISSUES: Herd nutrition related to herd size and harvest management of this road accessible herd, will continue to be the primary issues with the Fortymile herd. As the herd grows, ADF&G biologists will monitor the herd and collect data to better understand nutritional shortfalls the herd may be exhibiting and will work with Alaska stakeholders and our Canadian partners to evaluate long-term goals for herd size, distribution and harvest management strategies.

CHISANA CARIBOU HERD

STATUS: The Chisana herd is a small, mostly nonmigratory caribou herd. Its primary range encompasses the Nutzotin and northern Wrangell Mountains between the Nabesna

River in Alaska and the Generec River in Yukon, Canada. During the 1980s, the Chisana herd grew from an estimated 1,000 to about 1,900 caribou in 1988. The herd was estimated to have declined from 1,800 in 1989 to 315 by 2002. However in fall 2003, the U.S. Geological Survey (USGS) completed a more intensive census than had been done previously, which resulted in 603 caribou observed and a population estimate of 720 caribou. In addition, the adult bull:cow ratio was estimated to be 37:100 in 2003 versus 25:100 in 2002, indicating that previous surveys may have underestimated these population parameters. The USGS census in 2005 yielded a population estimate of 656–733. In the 2007 USGS census, 719 caribou were observed, with 13 calves:100 cows and 50 bulls:100 cows. A census was not attempted in 2008 and 2009; however, 21 calves:100 cows and 35 bulls:100 cows were observed in the fall 2008 composition survey. The fall 2010 census indicated the population remained stable at an estimated 651–743 caribou based on 622 observed caribou. During 2009–2011 and 2013–2016 The herd composition has averaged 20 calves:100 cows and 45 bulls:100 cows.

Habitat and harvest do not appear to be limiting herd growth. Based on percent lichen in the diet of these caribou, winter range conditions are adequate in most of the herd's range. Pregnancy rates (>80% per year) and median calving date indicate nutritional status is adequate. During 1950–1993, harvest was limited to bulls, and the annual harvest rate (<2.5%) did not limit the herd's ability to increase. In 1994 harvest of Chisana caribou in Alaska was stopped. Herd management was reviewed by an international working group comprised of members from Government of Yukon, ADF&G, White River First Nation, Kluane First Nation, U. S. National Parks Service (NPS), and the U. S. Fish and Wildlife Service. The working group developed a cooperative management plan that was completed in 2012.

MANAGEMENT ACTIVITIES: Between 2003 and 2008, the USGS lead cooperative research with the NPS, ADF&G, and Yukon Department of Renewable Resources to evaluate various population parameters to determine why this herd declined by more than 60% since the late 1980s. In 2003–2006, 20–50 adult caribou cows were captured in Yukon by the Yukon Department of Renewable Resources and placed in a pen during late winter through early June to provide protection from predators during and immediately following calving. ADF&G maintained a cooperative technical role in these efforts. ADF&G, in cooperation with the NPS and Yukon Department of Environment, conducted fall composition surveys in 2008, 2009, 2011 and 2013–2016, and completed a successful census in 2010. The management plan recommends that the herd can support a 2% bulls only harvest split between Yukon and Canada, as long as the herd maintains ≥ 15 calves:100 cows and ≥ 35 bulls:100 cows.

In 2010 the Board of Game passed a proposal to open a joint state/federal bulls-only drawing hunt for Chisana caribou following the recommendations of the draft management plan. However, the entire hunt area occurs on federal lands and in spring of 2012, the Federal Subsistence Board approved a federal hunt open to federal qualified subsistence users only. In the first 5 years of this federal hunt, a total of 8 bulls (0-3 annually) were harvested in RY12–RY16. All harvest occurred in Alaska on NPS lands. No state harvest from this herd is anticipated in the near future.

ISSUES: The most critical issue to Chisana caribou herd management is to maintain the ability to monitor the herd as the number of radiocollared cows declines. The herd management plan recommends the herd can support a limited bulls-only harvest. This small caribou herd will need yearly monitoring if state or federal harvest continues.

FURBEARERS

STATUS: Marten and lynx are the most economically important furbearers in Units 12 and 20E. During population highs, muskrats are also economically and socially important in Unit 12. Trapping effort has decreased in the last couple of years with decreased fur prices. Trapping effort for coyote, red fox, mink, otter, beaver, ermine and wolverine (except in a portion of southern Unit 12) remains relatively low for these less valuable or less abundant furbearers. Furbearer populations are primarily monitored using trapper questionnaire reports. The snowshoe hare and lynx populations are currently nearing a high in their population cycles. Beginning in early winter 2009, hares were reported to be declining or absent in many parts of Units 12 and 20E; lynx harvest declined from 424 in RY09 to a low of 72 by RY14, but lynx harvest appears to be on the increase again as hare numbers increase toward peak levels in the eastern portions of Units 12 and 20E. Marten numbers increased between 2002 and 2005, but declined during 2006–2008 and remain low in most of Units 12 and 20E. However, marten appear to be more plentiful in portions of the areas burned in Unit 20E during 2004 and 2005. Wolverine numbers appear to have increased since the early 2000s, possibly in response to large numbers of caribou wintering in Units 12 and 20E.

MANAGEMENT ACTIVITIES: Wolverine, lynx, and otter harvest are monitored through mandatory sealing and harvest reporting. A trapper questionnaire is sent to area trappers each year to assess their impression of population trends. This information, along with trapper interviews, field observations and sealing records is used to develop management direction for furbearers in Units 12 and 20E.

ISSUES: No biological concerns currently exist for furbearer populations in Units 12 and 20E.

MOOSE

UNIT 12

STATUS: The moose population in Unit 12 increased slowly from 1982 to 1989, remained relatively stable during 1989–1993, and due primarily to increased calf survival, grew slightly during 1994–1997. The most substantial increase was in northwestern Unit 12 within the area affected by the 1990 Tok wildfire (155 mi²). This area supported 0.19 moose/mi² in 1989, 0.6 moose/mi² in 1994, and 0.8–1.2 moose/mi² during 1997–2012. Northwestern Unit 12 has not been surveyed in its entirety since 2012 due to budget constraints (2013–2014) and poor snow conditions (2015–2016). However,

based on all available information, the population has likely remained stable at 0.8–1.2 moose/mi².

Moose densities currently range from 0.03 moose/mi² in the Northway Flats to >2.0 moose/mi² along the north side of the Nutzotin Mountains. Between 1997 and 2000, calf and yearling bull recruitment declined and the population remained stable or declined slightly. Based on fall moose surveys in 2003, the Unit 12 population was estimated at 2,900–5,100 moose (0.6–0.7 moose/mi² of suitable moose habitat). The most recent Unit 12 population estimate of 4,300–5,600 moose (0.6–0.7 moose/mi² of suitable moose habitat) was developed from fall 2008 surveys.

In November 2011 a 1,602 mi² portion on Units 11 and 12 accessible from the Nabesna Road and adjacent trail system, mostly within the Wrangell St Elias Park and Preserve, was surveyed in cooperation with the National Park Service. The population in this area was estimated at 1,009–1,536 moose (0.8 moose/mi²).

Past research indicated that predation was the primary factor limiting the Unit 12 moose population at low density. However, land ownership patterns preclude the use of predator control in most of the unit. Moose numbers are expected to remain stable at low densities (0.3–1.2 moose/mi²) in most of the unit.

Hunter participation and moose harvest in Unit 12 remained stable during 2002–2013, with an average of 560 hunters (range = 474–626) harvesting an average of 125 (range = 100–159) moose annually. Hunter numbers and success increased in 2014 and 2015, with 653 and 670 hunters harvesting 169 and 163 moose in these years respectively. It is too early to draw conclusions about the 2016 hunting season, but preliminary numbers indicate hunter numbers and harvest was likely similar to 2014 and 2015. This increased harvest appears to be due to a combination of a moderate increase in hunter numbers and success rate.

Most of Unit 12 is difficult to access and harvest has little effect on the bull population. The unitwide bull:cow ratio exceeds the population objective of 40 bulls:100 cows. Most moose are harvested along the Tok, Little Tok and Tanana Rivers in western Unit 12 where access is easiest. In these areas, bull:cow ratios have declined to 20–40 bulls:100 cows. In response, regulations that limit hunters to bulls with spike, fork, or 50-inch antlers, or antlers with 4 brow tines on at least 1 side were enacted in the Little Tok River drainage in 1993 and a portion of the main stem of the Tok River drainage in 2006. Bull:cow ratios have improved in these areas and hunters support these restrictions. There is little local interest in antler restrictions as a form of harvest management in other areas of Unit 12.

MANAGEMENT ACTIVITIES: In 2005 and 2006, we conducted moose surveys in northwestern Unit 12, primarily to monitor bull:cow ratios within the Upper Tok River drainage and the population status north of the Alaska Highway, within the portion of Unit 12 included in the Upper Yukon–Tanana Predation Control Area. In cooperation with Tetlin National Wildlife Refuge, we conducted a Geospatial Population Estimation

survey in 2008 to estimate population size, and sex and age composition of moose in more than 90% of the moose habitat in Unit 12. This information was extrapolated to develop a unitwide population estimate.

Signs are posted along area roads and primary trails to inform hunters about hunting regulations and boundaries. Greater enforcement effort occurs in the Little Tok River area to ensure hunters comply with antler restrictions.

Use and availability of browse is periodically monitored within important wintering areas along the Tok and Tanana Rivers. Habitat enhancement has been conducted in Unit 12 since 1982. Since 1982, over 1,800 acres of decadent willows have been intentionally disturbed to stimulate crown sprouting of new leaders. This has produced more than 2 million pounds of additional browse each year for wintering moose. In 2003, a 40,000-acre wildfire burned in the Black Hills on the Tetlin Refuge National Wildlife Refuge. In 1998, we mechanically crushed 275 acres of decadent willow and aspen within the Tok River Valley. We cooperated with Department of Natural Resources, Division of Forestry to implement a 1,000 acre timber sale in 2008 in the Tok River Valley to enhance moose habitat. Cut areas were planned based on number of marketable trees, historic winter use by moose, and potential to regenerate quality moose browse species. In addition, we are assisting in designing and implementing site-specific scarification techniques that will promote willow and aspen regeneration following logging. Cut areas will be 80–200 acres in size. Wildfire burned an additional 17,000 acres of mature spruce forest within the Tanana river valley in 2010.

In January 2005 the Upper Yukon–Tanana Predation Control Program was implemented in an effort to reduce mortality in the southern Unit 20E moose population by providing conditions to allow the Unit 20E moose population to increase to meet Intensive Management objectives. A small portion of northwestern Unit 12 was included in the wolf portion of the predation control program in 2004–2006. In May 2006, the board modified the Upper Yukon–Tanana Predation Control Program to include all of Unit 12 north of the Alaska Highway in the wolf predation control program. The grizzly bear predation control portion of the program was suspended in July 2009 because it was ineffective at reducing grizzly bear predation on moose calves. The wolf predation control program is still in place.

ISSUES: The primary management challenge for Unit 12 moose is managing this predator-limited, low density moose population that is subject to high harvest near roads and rivers, within sustainable levels.

The Board of Game has identified the moose population within Unit 12 as important for high levels of human consumptive use under the Intensive Management Law (AS 16.05.255(e)–(g)). This designation means that the board must consider intensive management if regulatory action to significantly reduce harvest becomes necessary because the population is depleted or has reduced productivity. The Unit 12 moose population (4,300–5,600 moose) is likely at the lower end of the board’s population

objective of 4,000–6,000 moose. Population densities remain low near villages and roads, while remote portions of Unit 12 have good moose densities relative to available habitat.

Research we conducted in Unit 12 in the mid 1980s identified wolves as the primary predator on moose. Wolf control in most of the unit is not an option because of land ownership. Prescribed burns are the best option for intensively managing for moose in areas where predation control is not possible, but in northwestern Unit 12 the moose population can be intensively managed with a combination of predation control and habitat enhancement.

Taking moose for funerary or mortuary potlatches is difficult to quantify. Most potlatch harvest occurs near villages roads. Harvest reporting has improved in recent years, but is not always consistent. Therefore it remains difficult to determine the effects of this harvest. We are currently working with local villages to improve reporting.

UNIT 20E

STATUS: Between 1981 and 1988, the moose population in Unit 20E increased 5–9% annually, reaching a density of 0.3–0.5 moose/mi². Between 1988 and 2000, the population stabilized at an estimated 0.5–0.6 moose/mi². Between 2001 and 2004, the moose population experienced the lowest calf and yearling recruitment in 25–30 years. In 2004, the estimated density of moose in Unit 20E was 0.4–0.5 moose/mi². Our analysis of 2004–2012 fall moose survey data from the 4,630-mi² moose survey area in southern Unit 20E indicates this moose population increased. The fall 2012 density estimate in southern Unit 20E was 0.8–1.0 moose/mi². This survey area has not been flown since fall 2012, but favorable weather in most years has likely allowed the population to remain relatively stable.

ADF&G research has shown that predation by wolves and grizzly bears is the primary factor maintaining the Unit 20E moose population at low density (0.2–1.0 moose/mi²) and that hunting and habitat quality are minor limiting factors. Moose density vary, ranging from approximately 1.0 moose/mi² in southcentral and southwestern Unit 20E, associated with several large 30-year-old burns (500,000 acres), to 0.2 moose/mi² in northern Unit 20E along the Yukon River. During 2005–2016, fall bull:cow ratios were above management objectives (≥ 40 bulls:100 cows).

Hunter participation and harvest increased in Unit 20E between 1993 and 2002 and reached a peak of 944 hunters who harvested 170 moose in 2002. Beginning in 2003, hunter numbers and harvest declined through 2006 when 695 hunters harvested 130 moose. Hunters and harvest increased in 2007, when 749 hunters harvested 144 moose, and in 2008 when 770 hunters harvested 179 moose. Hunter numbers remained stable during 2011–2015 (range 826–858), but increase slightly in 2015 and 2016 (888–949). Harvest averaged 170 (range 140 – 187) during 2011–2013, but increased during 2014–2016 averaging 234 (range 222–245). This increased harvest appears to be due to a combination of a moderate increase in hunter numbers and success rate.

MANAGEMENT ACTIVITIES: We monitor population trends and composition annually. Survey areas are primarily in southern Unit 20E, but occasionally the National Park Service (NPS) conducts surveys in the Yukon–Charley Rivers National Preserve in northern Unit 20E. ADF&G samples browse availability and use every 2–3 years in important wintering areas and prescribed burn sites.

Since 2001, moose hunting in most of Unit 20E has been under a registration permit that requires the hunter to select either moose or caribou. The moose hunting season in most of Unit 20E is separated into a 5-day hunt in August and a 10-day hunt in September.

During 2004 and 2005, over a million acres of moose habitat burned in Unit 20E. This burn varied widely in severity and left significant unburned inclusions. It will provide exceptional improvements in moose habitat for many years.

In 2005, the Upper Yukon–Tanana Predation Control Program was implemented in an effort to reduce moose mortality from predation in southern Unit 20E and thereby stimulate an increase toward meeting Intensive Management population objectives. In May 2006, the Board of Game expanded the control program to include all of Unit 20E, although the NPS does not allow predation control within the Yukon–Charley Rivers National Preserve. The grizzly bear portion of the control program was suspended in July 2009 because it was ineffective at reducing grizzly bear numbers and predation on moose. The wolf control portion of the program is still in place.

ISSUES: The greatest challenge in Unit 20E is to manage for an increase in moose numbers in this predator-limited population that is also subject to high harvest along roads and rivers.

Currently, much of Unit 20E is inaccessible because there are few trails or suitable aircraft landing sites. However, hunters using all-terrain and off-highway-vehicles are increasingly pioneering new trails from the Taylor Highway. We expect this proliferation of trails to new areas to increase as moose numbers increase. This increased hunter access is likely to cause the bull component of the population to decline below 40 bulls:100 cows in portions of the unit; however, we expect the unitwide bull:cow ratio to remain above the minimum management objective of 40 bulls:100 cows. The split hunting season and the requirement that hunters choose either to hunt moose or caribou appears to have stabilized harvest in most areas but this may not be sufficient as hunter numbers and off-road vehicle use increases in key areas.

The Board of Game has identified the moose population within Unit 20E as important for high levels of human consumptive use under the Intensive Management Law (AS 16.05.255(e)–(g)). This designation means that the board must consider intensive management if regulatory action to significantly reduce harvest becomes necessary because the population is depleted or has reduced productivity. The Upper Yukon–Tanana Predation Control Program in Unit 20E began in January 2005 and was reauthorized in spring of 2009 for 5 years and again in spring 2014, for another 5 years.

DALL SHEEP

STATUS: There are three distinct sheep areas in Units 12 and 20E: 1) northern Wrangell, Mentasta, and Nutzotin Mountains; 2) Tok Management Area (TMA); and 3) Tanana Hills.

The sheep population in Wrangell, Mentasta, and Nutzotin Mountains traditionally exists at relatively high densities in typically rugged, glaciated habitats. This area produces rams with horns below average size, compared with other sheep populations in Alaska. The consumptive use management goal in this area is to provide the greatest opportunity to participate in sheep hunting. This population grew throughout the 1980s, declined during the early 1990s, and appeared to be stable or growing slowly during 1994–1998. Unfavorable winter weather occurred in 1999 and 2000, and lamb recruitment was low. The number sheep likely increased during 2001–2008 due to favorable weather conditions. Severe winter conditions in 2008–2009, 2011–2012 and 2012 – 2013 resulted in a declines in the sheep population in portions of the area. However, mild winter conditions in 2009–2010, 2010–2011, and since 2013–2014 have allowed the sheep population to rebound; however, the population remained at a reduced level through the fall 2016 hunting season.

This area receives some of the highest harvest in the state; 117–152 rams per year during 2002–2008. Following the severe winter of 2008–2009, harvest declined during 2009 – 2014, with 67–95 rams harvested per year. In 2015 and 2016, harvest increased (109 and 136 respectively) to levels similar to those prior to the 2008–2009 winter.

Sheep in the TMA exist at low to moderate densities but produce large-horned rams. This population grew during the 1980s until 1992. The population declined during 1992 and 1993 due to adverse weather. Weather conditions were mild to average from 1994 to 1998, and based on lamb and yearling survival data, the population increased slowly. Winters 1999–2000 and 2000–2001 had greater-than-average snow depths and lamb survival was low. During 2001–2004, mild winters and moderate snow depth allowed good lamb production and recruitment. The number of legal rams increased between 2001 and 2004 due to favorable weather conditions in the mid 1990s and good survival of rams to 7–8 years of age. During winter 2004–2005, portions of the TMA experienced deep snow with layers of ice from early winter rains, resulting in die-offs in the eastern portions. Mild weather during winters 2005–2006 to 2007–2008 allowed good lamb recruitment. However, severe winter conditions in 2008–2009 caused further declines in some areas. The population increased during 2009–2010 and 2010–2011, but moderately severe winter and spring conditions in 2011–2012 and severe conditions in 2012 – 2013 resulted in a decline in the sheep population. Mild winter conditions since 2013–2014 have allowed the sheep population to begin to rebound; however, the population remained at a reduced level through the fall 2016 hunting season.

The TMA is designated for trophy sheep management. The primary consumptive use goal is to provide the opportunity to pursue large-horned trophy rams under uncrowded

hunting conditions. This goal is attained through a limited number of drawing permits. Maintaining low hunter density has increased the number of large trophy rams and created high quality hunting experiences. All harvest objectives were met in the TMA during 2004–2006. In 2007, the average horn size fell below the management objective of at least a 36 inch average, and in 2008 and 2009, the percentage of harvested rams with horns 40-inch or greater fell below the management objective of 7–10% of harvested rams with 40-inch or greater horns. Due to concerns about numbers of trophy quality rams in the TMA, the number of permits was reduced from 100 to 80 in 2010. Following the population decline in 2012–2013, both the mean horn size and percentage of harvested rams with horns 40-inch or greater again fell below management objectives. Permit numbers were reduced to 61 total for all TMA hunts to aid in achieving management objectives. During 2014–2016, the percent of rams with horns 40 inches or greater was 0%, 5%, and 15% respectively. Management objectives were achieved in 2016 and 2016 surveys indicated sheep numbers in the TMA had rebounded enough to increase the number of permits issued for fall 2017 to 81 total permits. The TMA permit is the most sought-after sheep permit in the state, with over 5,000 applicants applying for DS102 (first half of the season) and DS103 (second half of the season) permits in 2012–2016.

The Tanana Hills sheep population occurs at low density and is discontinuous due to the physical geography of the Tanana Hills, which is atypical sheep habitat. The Tanana Hills were not glaciated during the most recent glacial advance and underwent little uplift. Overall elevations are low, and the range has a rolling rather than rugged physiography. The sheep population has remained at low densities, but maintains enough legal rams to provide adequate opportunity for hunters who access the area from a few small aircraft landing strips or by walking into the Glacier Mountain Controlled Use Area (Glacier Mountain CUA). The management objective is for uncrowded hunting conditions. Most of this area is very difficult to access, and due to sheep distribution, is very difficult to hunt. The portion of the area accessible from the Taylor Highway was designated the Glacier Mountain Controlled Use Area, and the most accessible fly-in area (Mount Harper) is managed by drawing permit. Annual harvest has ranged from 1 to 8 full-curl rams annually during the 2009–2016 seasons, and the management objective is being met.

MANAGEMENT ACTIVITIES: Status of the sheep population and quality of hunting experience in Units 12 and 20E are evaluated by analyses of harvest reports, periodic aerial and mineral lick surveys and interviews with area guides and hunters. During 2012 through 2016 we conducted aerial surveys in portions of the TMA, the Mentasta/Nutzotin Mountains, and the Glacier Mountain CUA in all five years. During 2012–2016, the Tok ADF&G office sealed 40–56 rams annually.

ISSUES: There are currently no biological issues with the sheep populations in Units 12 and 20E.

SMALL GAME

STATUS: The status of the small game populations in Units 12 and 20E are not rigorously monitored. Most information is collected from incidental sightings made during surveys for other animals and from discussions with hunters, trappers, hikers, and other outdoors enthusiasts. Overall, it appears that the 3 grouse species (spruce, ruffed and sharp-tailed) and ptarmigan increased during 2014–2016. Sharp-tailed grouse numbers are highest in areas associated with large scale burns that occurred in 2004 and 2005. Hares have increased substantially during 2014–2016 and are likely close to reaching a high in their population cycle.

MANAGEMENT ACTIVITIES: We continue to survey area hunters, trappers, hikers and other outdoors enthusiasts concerning numbers and locations of grouse, ptarmigan and hares.

ISSUES: No biological concerns currently exist for small game populations in Units 12 and 20E.

WOLVES

STATUS: The wolf population in Unit 20E numbered at least 227–238 wolves in 1996. The population remained relatively stable between fall 1997 and fall 1998, but declined slightly by fall 1999 due to a combination of nonlethal wolf control and public trapping. The wolf population increased slightly during 2000, except in western and central Unit 20E where effects of nonlethal wolf control continued. By 2004, most of the effects of the nonlethal control program had subsided as the sterilized pairs died and their territories were overtaken by unsterilized wolves. Recovery of sterilized packs, increased numbers of Fortymile caribou throughout most of Unit 20E, and increased numbers of wintering Nelchina caribou in southern Unit 20E resulted in an overall increase in the number of wolves in Unit 20E during 2001–2004. The Unit 20E wolf population was estimated to be 250–310 wolves in August 2004.

Using data inputs from information gathered during predator control activities and wolf surveys conducted in March 2010, models indicate the fall 2011 wolf population estimate in Unit 20E was 179–195 wolves. No further estimate has been developed; however, the Unit 20E population is likely below 2004 levels, primarily due to ongoing lethal wolf control and an increase in efforts by several trappers in southcentral Unit 20E during 2005–2015.

Historically, the Unit 20E wolf population has been lightly harvested. The fur market primarily affects wolf trapping intensity. Most wolf harvest in northwestern Unit 12 and southern Unit 20E is associated with the predator control program and efforts of 3–4 area trappers, while traditional trapping efforts are the primary source of human harvest in the remainder of these units. Demand for wolf pelts has been moderate to low during the past few years, resulting in light trapper efforts for wolves. Most wolves trapped in these units were taken incidental to other furbearer species and harvest by trappers remains moderate to low.

In spring 2008 we estimated the Unit 12 fall wolf population to be 217–229 wolves. No further estimate has been developed, but with light harvest and a similar food base as in 2008, the current population is likely similar to 2008 levels except within the portion of northern Unit 12 included in the Upper Yukon–Tanana Predation Control Program.

MANAGEMENT/RESEARCH ACTIVITIES: Population trends are monitored by aerial surveys and hunter and trapper reports in both Units 12 and 20E, and by predator control permittees in the Upper Yukon–Tanana Predation Control Program. Harvest is monitored from mandatory sealing and harvest reporting in both units and by closely monitoring wolves killed in the predator control program. In addition, ADF&G personnel conducted aerial wolf control from helicopters in March 2012–2016, resulting in 179 wolves killed within the Upper Yukon–Tanana Wolf Predation Control Area, 76 of which were killed in Unit 20E.

ISSUES: Lethal wolf control within the Upper Yukon–Tanana Predation Control Area in Unit 20E and a portion of Unit 12 continues to be monitored and evaluated by Tok ADF&G staff. A report on the status of the wolf control program will be provided to the board at this meeting.