WP14-55 Executive Summary	
General Description	Proposal WP14-55, requests the closure be lifted for non-Federally qualified users in the Firth, Mancha, and Upper Kongakut river drainages (upstream and including Drain Creek) for the harvest of moose in Unit 26C**. T**he remaining Federal public lands in Unit 26C and Unit 26B remainder would remain closed to the harvest of moose, except by residents of Kaktovik. *Submitted by the Alaska Department of Fish and Game*
Proposed Regulation	**Unit 26B-remainder and 26C—Moose** *Units 26B-remainder and 26C—1 moose by Federal registration permit by residents of Kaktovik only. The harvest quota is 3 moose (2 antlered bulls and 1 of either sex,) provided that no more than 2 antlered bulls may be harvested from Unit 26C and cows may not be harvested from Unit 26C. You may not take a cow accompanied by a calf in Unit 26B. Only 3 Federal registration permits will be issued. Federal public lands are closed to the taking of moose except by a Kaktovik resident holding a Federal registration permit and hunting under these regulations* ***except as permitted under State of Alaska Regulations 5AAC 92.010 and 5AAC 92.012****.* *July 1–Mar. 31*
OSM Preliminary Conclusion	**Oppose**
North Slope Regional Council Recommendation	
Interagency Staff Committee Comments	
ADF&G Comments	
Written Public Comments	**1 Oppose**

DRAFT STAFF ANALYSIS
WP14-55

ISSUES

Proposal WP14-55, submitted by the Alaska Department of Fish and Game (ADF&G), requests the closure be lifted for non-Federally qualified users in the Firth, Mancha, and Upper Kongakut river drainages (upstream and including Drain Creek) for the harvest of moose in Unit 26C (**Map 1).** The remaining Federal public lands in Unit 26C and Unit 26B remainder would remain closed to the harvest of moose, except by residents of Kaktovik.

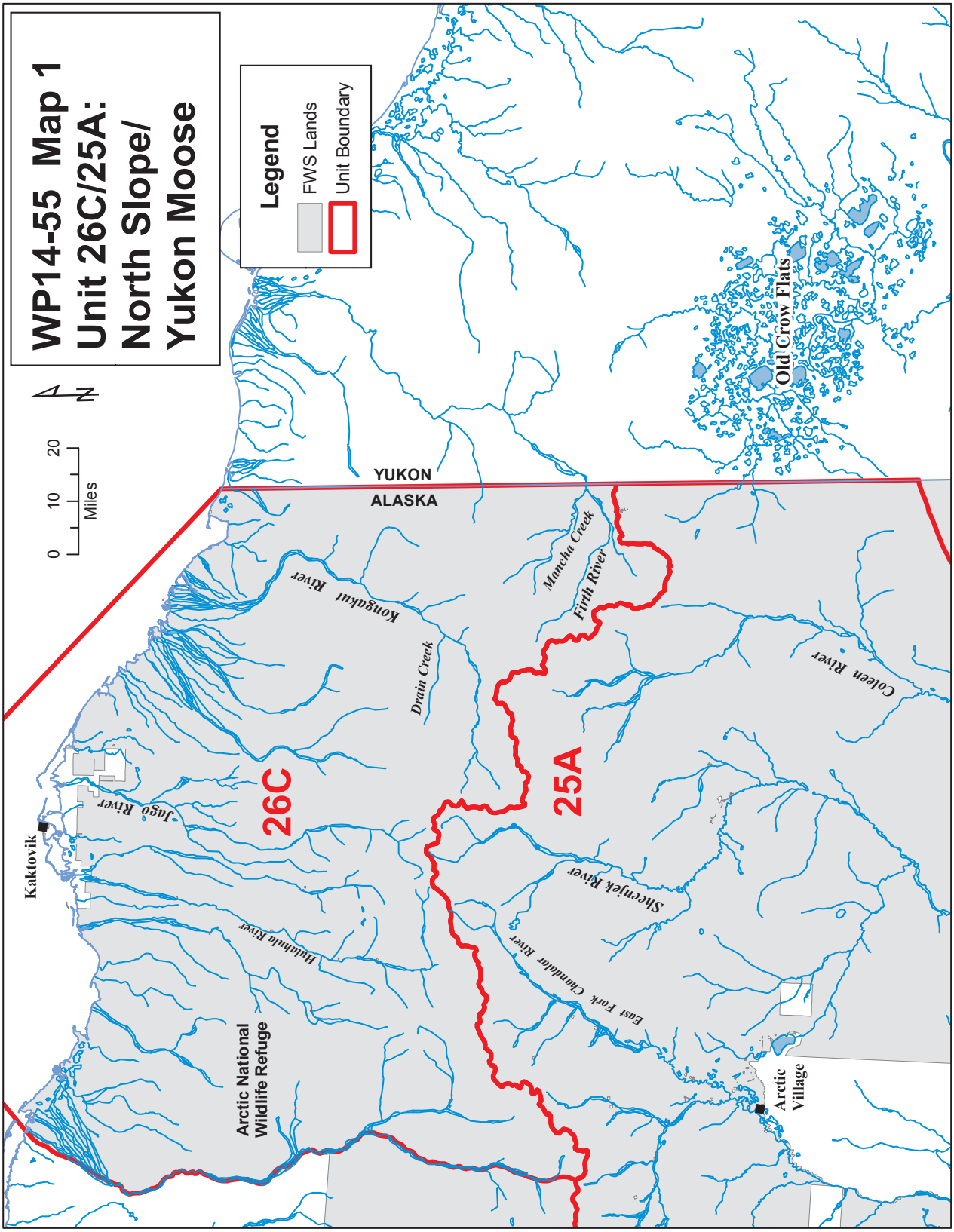
DISCUSSION

A moose season in a portion of Unit 26C was established under State regulations by action of the Alaska Board of Game at their March 2–11, 2012 meeting; however, the hunt area is entirely on Federal public lands which are closed to the harvest of moose, except by Federally qualified subsistence users.

The proponent states that there is a harvestable surplus of moose in the Firth, Mancha, and Upper Kongakut river drainages in Unit 26C based on a fall 2011 survey conducted by the ADF&G, which indicated the moose population in this area increased from 227 in 2002 to 339 in 2011 (Caikoski 2011). The proponent states, that based on a 3% harvest rate and a population of 339, the harvestable surplus of moose in the Firth, Mancha, and Upper Kongakut river drainages is estimated to be 10 bull moose. If the Federal closure is lifted in the area requested, hunting under State regulations could occur in the area.

Existing Federal Regulation

Unit 26B—remainder and 26C—Moose *Units 26B—remainder and 26C—1 moose by Federal registration permit by residents of Kaktovik only. The harvest quota is 3 moose (2 antlered bulls and 1 of either sex,) provided that no more than 2 antlered bulls may be harvested from Unit 26C and cows may not be harvested from Unit 26C. You may not take a cow accompanied by a calf in Unit 26B. Only 3 Federal registration permits will be issued. Federal public lands are closed to the taking of moose except by a Kaktovik resident holding a Federal registration permit and hunting under these regulations.*	*July 1–Mar. 31*


WP14-55 Map 1
Unit 26C/25A:
North Slope/
Yukon Moose
Legend
FWS Lands
Unit Boundary
N
0
10
20
Miles
YUKON
ALASKA
Old Crow Flats
Mancha Creek
Firth River
Kongakut River
Drain Creek
Colville River
26C
25A
Jago River
Kaktovik
Sheenjek River
Hulahula River
East Fork Chandalar River
Arctic National
Wildlife Refuge
Arctic
Village

Proposed Federal Regulation

Unit 26B-remainder and 26C—Moose

Units 26B-remainder and 26C—1 moose by Federal registration permit by residents of Kaktovik only. The harvest quota is 3 moose (2 antlered bulls and 1 of either sex,) provided that no more than 2 antlered bulls may be harvested from Unit 26C and cows may not be harvested from Unit 26C. You may not take a cow accompanied by a calf in Unit 26B. Only 3 Federal registration permits will be issued. Federal public lands are closed to the taking of moose except by a Kaktovik resident holding a Federal registration permit and hunting under these regulations ***except as permitted under State of Alaska Regulations 5AAC 92.010 and 5AAC 92.012****.*	*July 1–Mar. 31*

Existing State Regulation

Unit 26B—Moose

Unit 26B, excluding the Canning River drainage	***Resident Hunters****: one bull by permit (DM996);*	*Sept. 1–Sept. 14*
	OR one bull during Feb. 15 – April 15, up to a 14-day season may be announced by emergency order	*May be announced*
	Nonresident hunters*:*	*No open season*
Unit 26B-remainder		*No open season*

Unit 26C—Moose

*Unit 26C, that portion in the drainages of Firth River and Mancha Creek and the Upper Kongakut River, upstream from and including Drain Creek****	***Resident Hunters****: 1 bull by drawing permit only; up to 30 permits may be issued;*	*Sept. 1–Sept. 25*
	Nonresident hunters*: 1 bull with 50-inch antlers or antlers with 4 or more brow tines on at least one side; by drawing permit only; up to 30 permits may be issued;*	*Sept. 1 – Sept. 25*
Unit 26C-remainder		*No open season*

****Note****: Although a moose season in this portion of Unit 26C was established in State regulations by action of the Alaska Board of Game at their March 2–11, 2012 meeting, the hunt area is entirely on Federal public land and currently Federal lands are closed to the harvest of moose, except by Federally qualified subsistence users.*

Extent of Federal Public Lands

Approximately 98% of the lands in Unit 26C are comprised of Federal public lands managed by the U.S. Fish and Wildlife Service (USFWS). Approximately 29% of the lands in Unit 26B are comprised

of Federal public lands consisting of approximately 23% USFWS managed lands, 4% Bureau of Land Management managed lands, and 3% of National Park Service managed lands.

Customary and Traditional Use Determinations

Residents of Unit 26 (except the Prudhoe Bay–Deadhorse Industrial Complex), Anaktuvuk Pass, and Point Hope have a positive customary and traditional use determination for moose in Unit 26. An ANILCA Section 804 analysis further prioritized these users and Federal public lands in Unit 26B-remainder and Unit 26C were closed to non-Federally qualified users and those with recognized customary and traditional uses, except the residents of Kaktovik.

Regulatory History

Federal and State moose seasons in Units 26B and 26C were closed in 1996 due to low population of moose following declines in the early 1990s (Mauer 1997, Lenart 2010). These declines were probably due to a combination of factors including weather, predation by wolves and grizzly bears, disease, and possibly insect harassment (Lenart 2008).

The Federal closure was temporarily lifted in 2003, when the Federal Subsistence Board (Board) approved Special Action WSA03-04 with modification to allow residents of Kaktovik to harvest one moose in Units 26B and 26C for their Thanksgiving Feast and one moose for their Christmas Feast; however, only one moose could be harvested in Unit 26C.

In 2004, the Board adopted Proposal WP04-86b with modification to allow a harvest quota of 3 moose (2 bulls and 1 of either sex), provided that no more than 2 bulls may be harvested in Unit 26C and a prohibition on taking cows in Unit 26C. The analysis for Proposal WP04-86 included an ANILCA Section 804 analysis (WP04-86a) to give priority to the residents of Kaktovik for harvesting moose in Unit 26C.

Proposals WP06-67a and WP06-67b requested that residents of Unit 25A be added to the customary and traditional use determination for the Firth and Kongakut river drainages of Unit 26C (WP06-67a) and set a harvest limit of two moose per drainage (WP06-67b). Proposal WP06-67a was rejected by the Board because the residents of Arctic Village and the surrounding area did not have a demonstrated pattern of moose in Unit 26C. Proposal WP06-67b was rejected by the Board (FSB 2006) based on conservation concerns.

In 2007, the Board adopted Proposal WP07-63 with modification, to lift the closure of Federal public lands to non-Federally qualified users in the portion of Unit 26B outside of the Canning River drainage based on increasing moose populations in that portion of the unit (FSB 2007). Except for residents of Kaktovik, the Board retained the closure of Federal public lands in Unit 26C and areas within the Canning River drainage in Unit 26B.

Proposal WP08-54 requested a modification of the moose harvest quota in Unit 26C to 5 bulls (4 bulls and 1 of either sex) and the season be shortened from July 1 to March 31 to July 1 to December 31 for Kaktovik residents in Unit 26C and the proposal also requested lifting the closure in the Canning River drainage of Unit 26B (Unit 26B remainder). The Board adopted the proposal with modification to keep the closure in place, except for residents of Kaktovik, but changed the harvest quota from 3 moose (2 bulls and 1 of either sex) to 3 moose (2 antlered bulls and 1 of either sex) for conservation concerns (FSB 2008). Changing the harvest limit to antlered bulls was done to protect cows from being harvested later in the season when bulls have shed their antlers. The restriction on harvesting a cow accompanied by a calf was retained.

In March 2012, the Alaska Board of Game adopted Proposal 174A to establish a State moose season in a portion of Unit 26C which includes the Firth River, Mancha Creek and the Upper Kongakut River drainages; however, there has been no State season because the area consists of Federal public lands that are currently closed to the harvest of moose, except by Federally qualified subsistence users. A State season is contingent on the Federal Subsistence Board lifting the closure in the portion of Unit 26C in the Firth River, Mancha Creek, and the Upper Kongakut River drainages. In March 2013, the ADF&G, requested the closure to non-Federally qualified users in the Firth, Mancha, and Upper Kongakut river drainages (upstream from and including Drain Creek) for the harvest of moose in Unit 26C be lifted. Based on this proposal the remaining Federal public lands in Unit 26C and Unit 26B remainder would remain closed to the harvest of moose, except by residents of Kaktovik.

On April 3, 2013, the Board adopted Emergency Special Action (WSA12-12) with modification to allow Kaktovik residents to harvest one additional moose in Unit 26B-remainder and to extend the season through April 14, 2013.

Current Events Involving the Species

Federal Wildlife Closure Review WCR12-31, which assessed the closure of Federal public lands in Units 26B-remainder and 26C for moose harvest, was presented at both the Eastern Interior and the North Slope Subsistence Regional Advisory Council (Council) meetings held in February 2013. Both Councils deferred action on this closure review until their fall 2013 meetings.

Biological Background

Unit 26C contains at least two distinct moose populations: the first occurring on the coastal plain and foothills in the central portion of Unit 26C (North Slope Population), and the other in the Firth, Mancha, and Upper Kongakut river drainages (Old Crow Flats population) (Mauer 1998). A majority of the moose population in the eastern portion of Unit 26C in the Brooks Range, calve and spend the summer in Old Crow Flats in the Yukon Territory and migrate to the Firth, Mancha, and Upper Kongakut river drainages in Unit 26C, and the Sheenjek, and Coleen river drainages in Unit 25A during the fall and winter. Some moose in the Old Crow Flats population move between drainages during the fall or spring migration (Mauer 1998, Cooley 2013, pers. comm.).

Moose in Unit 26C are at the northern limits of their range in Alaska. The lack of quality habitat severely limits the potential size of moose populations. Moose are generally associated with the narrow strips of shrub communities along drainages, except during calving and summer when some seasonal movement occurs away from the riparian habitat (Lenart 2010). In winter moose are limited almost entirely to the riparian shrub habitat, which is the only area where they have access to willows. Moose populations on the North Slope may also experience significant natural declines due to a combination of factors such as weather, predation by wolves and grizzly bears, disease, and insect harassment. During surveys in the 1970s and 1980s, small numbers of moose were observed in the Sadlerochit, Hulahula, Okpilak, Okerokovik, Jago, Aichilik and Egaksrak drainages and larger concentrations of moose were found on the Canning River and between the Sagavanirktok and Kavik rivers, west of the Canning River. The moose population in Units 26B and 26C peaked during the late 1980s at approximately 1,400 moose (Mauer and Akaran 1991; Lenart 2004, 2008), then declined in the early 1990s, and remained at approximately 700 animals throughout the remainder of the 1990s (Mauer 1998, Lenart 2008).

State management goals for moose in Units 26 are to maintain viable populations throughout their historic range in the region, provide sustained moose harvest opportunity, and provide opportunity for moose

photography and viewing (Lenart 2010). Specific State management objectives for Unit 26C are as follows (Lenart 2010):

- Unit 26C, maintain a population of at least 150 moose with short-yearlings comprising at least 15% (3-year average) of the population.
- Maintain bull:cow ratios of at least 35 bulls:100 cows when hunting seasons are open.

A comprehensive moose survey has not been conducted for Units 26B and 26C, however smaller scale surveys have been conducted in areas where moose concentrate to assess population trends. These trend surveys account for a large percentage of the moose in the units as habitat is limited in the region (Lenart 2010). Although minimum counts have the potential to capture a large percentage of the moose due to limited habitat distribution and aggregations as suggested by Lenart (2010) moose may occasionally use marginal habitat (Suitor 2013, pers. comm.). For example, during the 2013 survey of North Slope moose populations in the Richardson Mountains in Yukon Territory, significant numbers of moose were relocated in high alpine basins and tundra valleys with scrub willow (*Salix sp)* that was often almost completely covered with snow and had not traditionally contained moose on previous surveys (Suitor 2013, pers. comm.).

The North Slope moose population was surveyed every two years between 2003 and 2011 by Arctic National Wildlife Refuge staff (Wald 2011). The North Slope moose population occurs in the Coastal Plain from the Canadian border to the Canning River and from the Beaufort Sea coast to the foothills of the Brooks Range. The moose are usually concentrated in the drainages of the Sadlerochit, Hulahula, Okpilak, Okpirourak, Jago, Aichilik, Egaksrak, Ekaluakat, and the lower part of the Kongakut rivers (Wald 2011). Forty adults and 8 short-yearlings (10–11 month old calves), were counted during the surveys conducted in April, 2011. Short-yearling composition was 17% of all moose observed in the 2011 survey. The trend counts suggest the North Slope population was relatively stable but at low numbers between 2003 and 2011 *(***Figure 1).**

The Old Crow Flats population that includes the Firth River, Mancha Creek, and Upper Kongakut River drainages in the Brooks Range was sporadically surveyed between 1991 and 2011 (**Table 1**). The data from the composition surveys in **Table 1** are minimum counts. Based on limited survey data, the moose population in this portion of Unit 26C has fluctuated. Although the data from the 2011 is suggestive that an increase may have occurred since 2000 and 2002, subsequent surveys using similar methods are required to determine if this is the case. Although the bull:cow ratio was substantially lower in 2011than previous surveys, all surveys in the area have indicated a high bull to cow ratio (70–118 bulls:100 cows) (Table 1). However, differences in the survey aircraft and flight time limit the ability to make direct comparisons between surveys conducted in 2002 and 2011 (Caikoski 2011, unpublished data).

The Old Crow Flats population which occurs in the Firth, Coleen, Sheenjek, and Upper Kongakut River drainages of the eastern Brooks Range (Units 25A and 26C) are known to be migratory (**Map 1**) (Mauer 1998; Cooley 2013, pers. comm.). These migratory moose calve and/or summer in the Old Crow Flats of the Yukon Territory in Canada and then move into the Brooks Range drainages to rut and winter. The Old Crow Flats population also includes some moose which winter in the Sheenjek and Coleen river drainages in Unit 25A. Since 2000, moose abundance declined and has remained at fairly low levels in both the Coleen and Sheenjek river area of the Old Crow Flats population (Bucholtz 2002, Mauer 2013). Mauer (1998) conducted a collared moose study to examine migration patterns. The study determined that moose migrated from their respective winter ranges in the Firth (96%), Kongakut (86%), and Coleen (75%) river drainages, but fewer (43%) moose migrated from the Sheenjek River drainage. Most moose began moving from Old Crow Flats to wintering areas during August and early September, and moved out

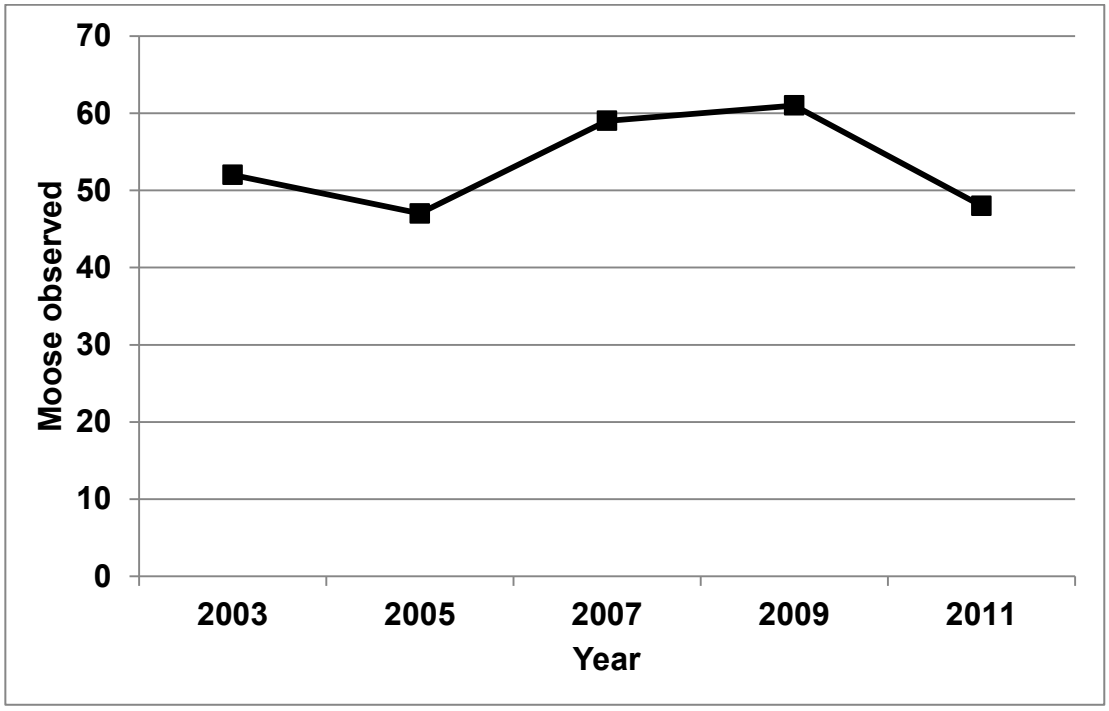


Figure 1. Moose observed during aerial surveys of trend count areas, conducted every other year, for the North Slope population of Unit 26C, 2003–2011 (Wald 2011).

Table 1. Moose observed during aerial population composition surveys conducted in the Firth River, Mancha Creek, and upper Kongakut River drainages of Unit 26C (Caikoski 2011, unpublished data).

	Moose observed				Ratio (per 100 cows)	
Year	Cows	Calves	Bulls	Total	Calves	Bulls
1991[a]	167	63	176	406	38	105
2000[a]	62	22	73	157	35	118
2002[a]	96	23	108	227	24	113
2011[b]	169	52	118	339	31	70

[a] Survey conducted by the USFWS (Buchholtz 2002).
[b] Survey conducted by the Alaska Department of Fish and Game, and differed from previous surveys in regard to search time, search area, and moose classification protocol.

of winter range in late March and April (Mauer 1998). During migration, some moose moved between the Sheenjek and Coleen river drainages in Unit 25A and the Firth, Mancha, and Kongakut river drainages in Unit 26C (Mauer 1998).

An additional study was conducted in the area in 2007–2009 using satellite collars to track individual moose movements (10 bulls 9 cows) at finer temporal and spatial scales than Mauer's (1998) study (Cooley 2013, pers. comm.). Data analysis is not complete, but preliminary results corroborate the seasonal movements identified by Mauer (1998). The more detailed movement data provide insight into the amount of time moose spent in each drainage during winter. After the moose arrived in a drainage and the bulls went through rut, they generally remained in the same area (Cooley 2013, pers. comm.).

The distances between the seasonal ranges of the Old Crow Flats moose population are at the upper extreme for Alaska moose populations (Mauer 1998). Deep snow in the prime feeding areas of Old Crow Flats during the winter probably make it difficult for moose to find exposed willow patches and move between prime feeding areas, and it may also make them more vulnerable to wolf predation. The effects of predation on the Old Crow Flats moose population are unknown as no estimates of the effects of predation have been conducted to date. Population sizes of migratory populations often are greater than sedentary populations due to ability to maximize the use of food resources (moving to areas where food is seasonally abundant and/or available) and reduced vulnerability to predators (Tambling and Du Toit 2005). Knowledge about seasonal residency in and movement among, drainages will be important for interpretation of past surveys, future survey design, and development of a comprehensive management strategy for the Old Crow Flats population.

Habitat

The Coastal Plain in Unit 26C is characterized by tundra intersected by rivers that flow into the Arctic Ocean. The moose population is limited by extreme weather, restricted riparian habitat along the rivers, and predation. During the winter, moose are limited almost exclusively to exposed willow patches along river drainages because this is the only area where food is available (Lenart 2010). Although minimum moose counts in this region have the potential to capture a large percentage of moose due to limited habitat distribution and aggregations that occur (Lenart 2010), moose may utilize what would be considered marginal habitats and thus not detected on surveys. For example, during the 2013 moose survey in the Richardson Mountains in Yukon, Canada, significant numbers of moose were found in high tundra valleys and alpine basins that had not contained moose on previous surveys (Suitor 2013, pers. comm.). The willow, which is the primary food source in these high mountain areas, was almost completely covered by snow (Suitor 2013, pers. comm.).

The valleys in the Kongakut and Sheenjek drainages were carved by glaciers and are bordered by steep mountains. They differ from the Firth and Coleen valleys, which show little evidence of glaciation and are bordered by moderate slopes. The Sheenjek, Coleen, and Firth valleys are characterized by open white spruce forests (*Picea glauca)* along the sides of the valleys at the lower elevations and alpine tundra at the higher elevations. The Upper Kongakut River, which flows into the Arctic Ocean, occurs beyond the northern limits of white spruce forests. Feltleaf willow (Salix alaxensis) is the dominant shrub on the gravel bars and low terraces along the floodplains of the Sheenjek, Coleen, Firth, and Kongakut. In addition to feltleaf willow, there are isolated stands of balsam popular *(Populus balsamifera)* on the floodplains of the Kongakut. Small lakes and ponds, which are common in the lower part of the Sheenjek River valley, are rare in the Kongakut, Coleen, and Firth river valleys (Kessel and Schaller 1960, Drew and Shanks 1965, Mauer 1998).

Harvest History

Harvest quotas for North Slope moose populations which occur at low densities at the northern extent of their range, are currently determined using a 3% harvest rate (preferably bulls only) (Lenart 2013, pers comm,Wald 2013, pers. com.). Moose harvest on the affected Federal public lands in Units 26B and 26C has been limited to residents of Kaktovik since 2004, with up to three permits issued annually and a harvest quota of 3 moose (2 bulls in Unit 26C and 1 moose in Unit 26B). Since 2004, 9 bull moose have been reported harvested, with an average of 1 moose harvested per year (**Table 2**).

Jacobsen and Wentworth (1982:43) conducted research on subsistence land use values in the Arctic National Wildlife Refuge in Kaktovik during the late 1970s. At that time moose were harvested opportunistically by Kaktovik residents but not specifically targeted (Jacobson and Wentworth 1982:43). The movement of moose into the North Slope is relatively recent and the Inupiaq focused more on other large mammals such as caribou, sheep, and whale, than they do on moose. The primary moose

Table 2. Federal registration permits issued and used by residents of Kaktovik to harvest moose in Units 26B and 26C (OSM 2013, Twitchell 2013, pers. comm.). Federal public lands in Unit 26B remainder and 26C are currently closed to the harvest of moose, except by residents of Kaktovik. Up to three permits are issued annually.

Year	Permits issued	Permits used	Harvest
2004/2005	3	1	1
2005/2006	3	2	2
2006/2007	3	2	2
2007/2008	3	- [a]	- [a]
2008/2009	3	2	1
2009/2010	3	2	- [a]
2010/2011	2	1	1
2011/2012	3	2	0
2012/2013	3	2	2

[a] Data not available for the report.

harvest area for Kaktovik residents was in the Sadlerochit Valley and in the foothills along Old Man Creek, Okpilak River, and Okpirourak River. Moose, at that time, were more commonly seen along the Sadlerocit River, even at its mouth, than along the Hulahula River. Occasionally moose were seen along the Kekiktuk River and on the Sadlerochit side of Kikiktat Mountain. Moose tended to congregate in the Ignek, Ikiakpaurak and Ikiakpuk valleys, and along the Canning River between these valleys. People would make hunting trips to this area in the spring and occasionally people would travel to the other side of the Canning River along the Kavik River and in the foothills near its headwaters (Jacobson and

Wentworth 1982:43). Jacobson and Wentworth (1982:43) talked with three Kaktovik hunters who had traveled far up into the Firth River and shot two or three moose near the U.S. – Canada border.

The migratory moose population which calve and summer in Old Crow Flats in Yukon Territory, Canada have a very limited harvest from Yukon residents due to challenges accessing the area and thus the cumulative harvest is not a significant concern presently. However, members of the Vuntut Gwich'in have the right to harvest moose in this population without limit at this time. The Regional Biologist for the North Yukon Region recommended that communication between wildlife managers on both sides of the border continue to ensure that overharvest does not occur on this small a potentially vulnerable migratory population (Suitor 2013, pers. comm.).

Effects of the Proposal

If this proposal is adopted, Federally qualified subsistence users from Kaktovik would still have the ability to harvest from the Old Crow Flats moose population in the eastern portion of Unit 26C. However, Kaktovik hunters typically harvest moose from the North Slope population in Unit 26C (Jacobson and Wentworth 1982, OSM 2013) which is closer to the village of Kaktovik than the Canning River drainage in Unit 26B or the Old Crow Flats population in southeastern portion of Unit 26C. The proponent anticipates a highly regulated hunt through the use of drawing permits which would allow managers to monitor and control the number of bull moose harvested (NSSRAC 2013).

The impacts of partially lifting the closure on the Old Crow Flats moose population are difficult to predict because of the lack of information on the population size, herd composition, habitat use, and current migration patterns. The proponent recommends allowing a harvest of 3% of the population, which is common for moose populations that occur in low densities at the northern extent of their range. The limited availability of habitat confines moose to riparian habitat, which makes them very susceptible to harvest pressure. In addition, the migratory behavior of the population complicates management because the population may be exposed to harvest pressure in multiple areas, including portions of the Old Crow Flats, Yukon and Unit 26C and Unit 25A in Alaska.

Federally qualified subsistence users would still be able to harvest up to a total of two bull moose in Unit 26C from the North Slope population or the Old Crow Flats population.

OSM PRELIMINARY CONCLUSION

Oppose Proposal WP14-55.

Justification

Survey results in the Firth River, Mancha Creek, and Upper Kongakut River drainages indicate the Old Crow Flats population may be growing. However, interpreting the status of the Old Crow Flats population and developing sustainable harvest limits with, essentially, a single recent data point is questionable. Although the data suggests that an increase may have occurred, subsequent surveys using similar robust methods are needed to determine if this is a trend. The closure should be maintained to give biologists and managers from the Arctic National Wildlife Refuge and the Alaska Department of Fish and Game more time to obtain additional information on the population. Understanding the overall population dynamics, migratory patterns, climate, predation, and harvest is important to maintaining a healthy population.

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WRITTEN PUBLIC COMMENTS

Oppose Proposal WP14-55. I am writing in support of WP14-48 because it would limit the harvest of moose in the upper Sheenjek, Coleen and Old Crow river drainages where populations have significantly declined. I am opposed to WP14-55 because it would increase hunting pressure on the same population. This is a critical conservation concern that warrants appropriate actions by the Federal Subsistence Board in order to restore a unique migratory moose population that is especially vulnerable to harvest pressure.

During the period of 1981to 2002, I worked as a wildlife biologist with the Arctic National Wildlife Refuge where I was responsible for studies and monitoring of caribou, Dall sheep, and moose populations. From 1995 to 1999 I led a study of moose movements within the area addressed by WP14-48 and WP14-55. Results of the study revealed that most moose inhabiting this area migrate to Old Crow Flats in Canada where they give birth, remain through the summer season, and return to the upper drainages of the Coleen, Sheenjek rivers in Game Management Unit (GMU) 25A, and the Firth and Kongakut rivers in GMU 26C where they rut and spend the winter (Mauer 1998). These migrations are the longest that have been reported for moose in North America.

Moose numbers in the upper Sheenjek, Coleen, Kongakut and Firth drainages have been monitored by consistent aerial survey methods since 1977. From 1977 to 1991,moose numbers were relatively stable, however, a significant decline was detected in 2000 when overall numbers for these areas were down by 57%. This decline coincided with a widespread decline in moose throughout northern Alaska. The Alaska Board of Game closed all of GMU 26 (including the Kongakut and Firth areas) to moose harvest in 1996. Moose hunting in the upper Sheenjek and Coieen river drainages, however, has remained open. Results of surveys conducted since 2000 show that moose numbers in the upper Sheenjek have remained very low during the past 13 years (21to 26 moose counted). This represents an 84% decline from previous levels. For the Coleen area, the number of moose counted has dropped from a previous average of 229 during 1977 to 1991, to 79 in 2012, representing a decline of 65%. During this same period, moose counts in the Kongakut and Firth areas, where hunting has remained closed, show increases of 53% and 92% respectively.

There has been a steady increase in hunting pressure in the Sheenjek and Coleen areas that is having a significant negative influence on recovery of the moose population. A long-time local resident to the Coleen area reported increasing numbers of hunters and decreasing numbers of moose. Since 2000 i have had the opportunity to visit the Sheenjek, Coleen and Firth areas on several occasions during the summer season and have observed evidence of moose abundance such as intensity of browsing, shed antlers, and pellet groups that are consistent with the low moose counts for the Sheenjek and Coleen areas, and the higher counts of moose in the Firth and Kongakut areas.

I am concerned that some may claim that action on WP14-48 should be postponed due to uncertainties and variability of the survey data. I would like to point out that the aerial survey methodology that has been applied in this region was developed during the 1970's by biologists of both the Alaska Department of Fish and Game (ADF&G) and the Arctic Refuge working under the guidance of Dr. William Gasaway, a renowned moose research scientist at ADF&G. Further refinements were provided by Dr. Roy Nowlin (ADF&G) and Dr. Gerald Garner (Arctic Refuge) in the 1980's, which resulted in the survey trend areas that are currently used. Because of the sparse forest and open tundra environments found here, moose are highly visible under favorable snow conditions. I have reviewed all moose survey reports for the period of 1977 to 2012 and find a high degree of consistency and therefore conclude that the data is sufficiently reliable to base management decisions. Confidence in the reliability of this multi-year data set has been significantly enhanced by moose movement studies completed during 1995- 1998 and more recently with

studies conducted by the Yukon Renewable Resources Department using GPS technology (2007–009). Both studies verified that most moose of this region are migratory, and that individuals demonstrate a very high degree of fidelity to seasonal ranges and migratory routes. Therefore, changes in moose count data in the trend areas are not likely due to shifts in moose from one area to another in different years, but are indicative changes in moose numbers.

Within the area addressed by WP14-48 we have a unique situation where moose are predominately migratory, a strategy that enables moose to optimize the use of seasonal habits and achieve significantly higher population density that would be afforded by a non-migratory strategy. Prior to the decline of moose during the 1990's,a minimum number of moose that wintered in the upper Sheenjek, Coleen, Kongakut and Firth river areas was over 800 animals. Aerial surveys of neighboring areas to the south, where no migratory strategy has been detected, found much lower densities of moose.

It is imperative to consider that while the moose migration that has been documented is capable of attaining relatively high densities, they are extremely vulnerable to hunting pressure due to the open nature of the landscape, and the highly predictable movement of moose during the hunting season. Studies have shown that moose consistently move along the same trails and migration routes every fall when hunters are present. Thus, it is possible for hunting to continue to show relatively high success rates even when the number of moose are declining, as is the case for moose destined for the Sheenjek and Coleen areas. As these moose populations dwindle, the possibility of extermination of moose having the migratory tradition becomes greater.

It is also important to consider that the State of Alaska is recommending that the current wildlife closure of moose hunting in the upper Kongakut and Firth areas be lifted by the Federal Board (WP14-55). Moose movement studies have documented that many of the migratory moose that are destined for the Sheenjek and Coleen areas, where moose numbers are very low,pass through the Firth and Kongakut areas during the fall hunting season. WP14-55 would expose these moose to additional hunting pressure at a time when the Sheenjek and Coleen population is already susceptible to further decline. Therefore, I am opposed to WP14-55. Instead, I support development of a conservation plan that addresses the unique nature of moose migrations in northeast Alaska and northwest Canada and integrates regulatory actions focused to sustain populations at a healthy level rather than the current piecemeal approach that threatens this important resource.

In 1995 I had the opportunity to discuss the moose migrations of northeast Alaska with the late Dr Gasaway. He concurred with the concern for migratory moose of this region being especially vulnerable to hunting pressure. Dr Gasaway also indicated that excessive hunting in the Yukon Flats during the 1950's and 1960's by hunters accessing the area with floatplanes in August, extirpated or severely depleted formerly robust moose migrations in the Flats. Today, we find very low densities of mostly non-migratory moose in the Yukon Flats.

There is still time to prevent such a loss for the Sheenjek and Coleen areas. By enacting the provisions of WP14-48 and maintaining the wildlife closure in the Kongakut and Firth areas, the Federal Subsistence Board would be taking significant conservation actions that would help to restore the moose population and enable a sustainable harvest in the future.

Reference: Mauer, F.J. 1998. Moose migration: northeastern Alaska to northwestern Yukon Territory, Canada. Alces Vol. 34(1): 75-81.

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