

2016 Field Report for Ivittuut Greenland to NUNAVIS



Adult bull muskoxen at the abandoned mining town of Ivittuut in shore. Photo C. Cuyler

Ivittuut muskoxen minimum count & demographics 23 June – 02 July, 2016

Christine Cuyler

Greenland Institute of Natural Resources



29 June 2017

**2016 Field Report for Ivittuut Greenland for NUNAVIS
Muskox Minimum Count & Demographic
Ivittuut Region, 23 June – 02 July, 2016**

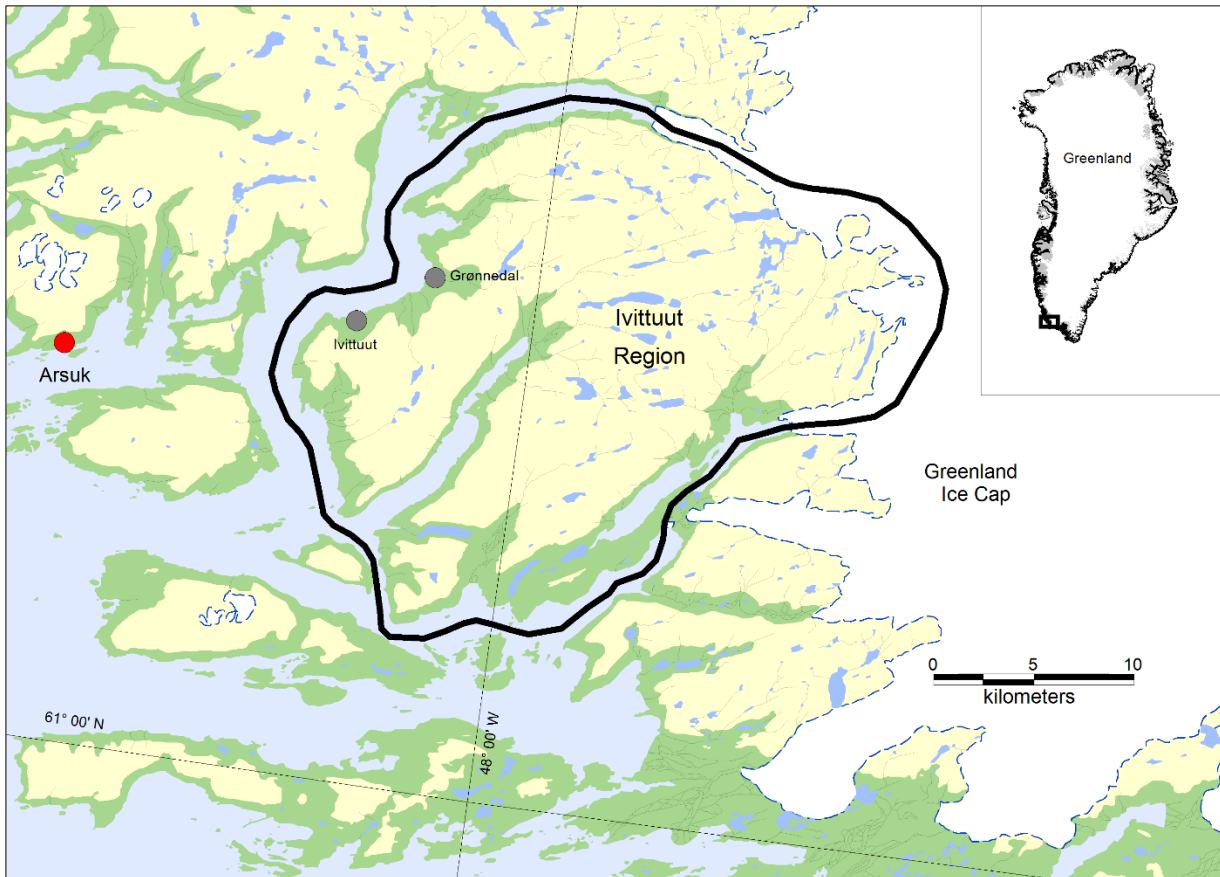


Figure 1. Ivittuut regions borders and communities.

A minimum count of the Ivittuut muskoxen (*Ovibos moschatus*) population was completed for NUNAVIS by the Greenland Institute of Natural Resources (GN) in cooperation with three persons from the Greenland Fisheries and Licensing Control (GFLK) and local commercial hunters from the Arsuk community. This count included detailed demographics for a portion of the total number of muskoxen observed.

The Ivittuut region is a ‘round’ peninsula bounded to the west and north by the Arsuk Fjord (Ilorput), which ends at the Greenland Ice Cap’s Sermeq Arsuk glacial tongue (Figure 1). To the south and east is the Qoornoq fjord, which after the ‘narrows’ becomes Qinngerlersivaq and also ends at the Greenland Ice Cap with the Nordre Qoornoq glacial tongue (Figure 2).

Muskoxen were located sailing open outboard boats along the coastline and by hiking up into the principal valleys. To avoid double counting, an area (coastline, fjord, valley) was only begun if we could finish it within a few hours the same day. We did not count observed muskoxen if doubt existed. Given the stationary nature of the muskoxen and our method, double counting (i.e., counting animals twice) did not occur. Regardless, in 2015 and again in 2016, the muskoxen often fled from our approach as we hiked into the terrain. They ran further into the valleys, where they mixed with other groups. Solutions include either

occasional heavy winds made sailing difficult. Spring green-up was well underway, and many of the willows and birch were already leafy and green.

The 2016 muskox count observed over 300 fewer muskoxen than observed in 2015. Given the period for the 2016 count, most calves would have been born before the 2016 count occurred. Remarkably, there were few calves. Similar to 2015, most muskoxen were at elevations under 100 m.

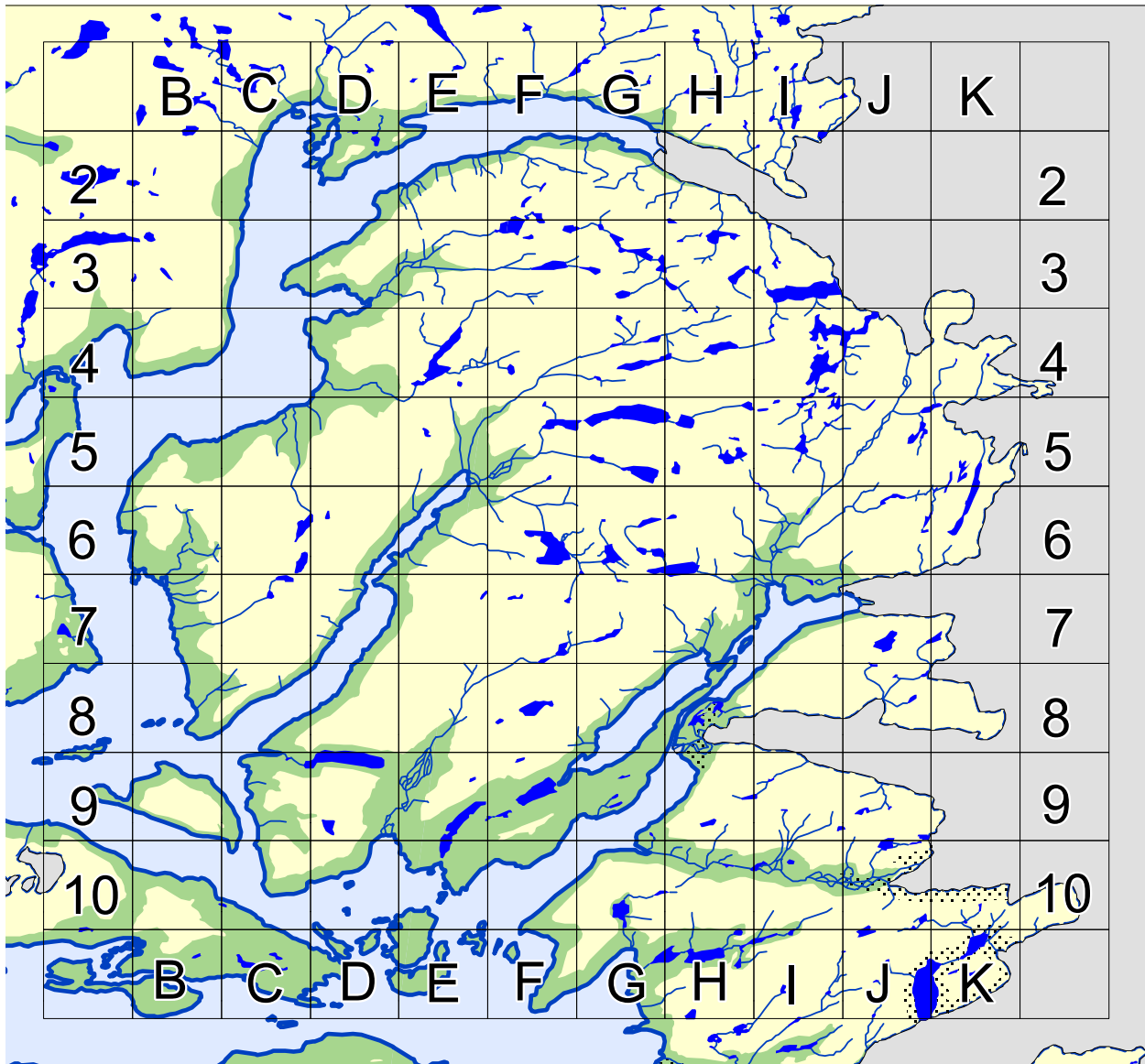


Figure 3. Ivittuut region grid cells, 3 x 3 km, generated using MapInfo software.

PRELIMINARY RESULTS: Minimum Count & Demographics Ivittuut Muskoxen

West Greenland, 23 June – 02 July, 2016

TOTAL muskoxen observed: 917
TOTAL muskoxen observed in just Ivittuut: 917
TOTAL muskoxen seen outside of Ivittuut: 0
 [2 DEAD muskoxen (bull in Laksebund mountaintop area + old cow inside Paradiset Valley)]

2016 Number of observations: 190
 Maximum muskoxen group size: 26
 Median group size: 4
 AVERAGE muskoxen group size: 4.83 ± 4.12 SD

Total number muskoxen sexed & aged: 806 (out of 917)
 Total number both sex & age unknown: 28
 Total number adults sex unknown: 34
 Total number 1-2 year olds sex unknown: 49

Table 1. Summary of the 2016 Ivittuut muskoxen minimum count and demographics

Muskox sex & age	Observed Sexed & Aged	Only of Sexed & Aged	Estimated observed	Estimated %
calf	97	12.03 %	97	10.58 %
Cow \geq 3-years	349	43.30 %	389	42.42 %
Cow 2-years	29	3.60 %	37	4.03 %
Cow 1-year	77	9.55 %	98	10.69 %
Bull \geq 5-years (Trophy)	105	13.03 %	117	12.76 %
Bull 4-years	17	2.11 %	18	1.96 %
Bull 3-years	30	3.72 %	31	3.38 %
Bull 2-years	49	6.08 %	63	6.87 %
Bull 1-years	53	6.58 %	67	7.31 %
TOTAL	806	100 %	917	100 %
Recruitment (calves / 100 cows)	-	27.8	-	24.94
Bull (\geq 5-yrs) / cow (\geq 3-yrs)	-	0.30	-	0.30

Miscellaneous observations: 8 arctic hare (at Paradiset), 2 arctic fox, at least 5 sea eagles and about 25 reindeer (including 2 calves).

Field Journal 20 June – 7 July 2016: Ivittuut muskox count

Monday 20 June:

Departure Maniitsoq

22:30 Morten Lyberth departed Maniitsoq bound for Nuuk.

Tuesday 21 June:

Departure Nuuk

Departure from Nuuk 14:30 with Sarfaq ittuk coast boat. Boarding was at 13:30. Met Morten Lyberth and Ejnar Jakobsen, who were already aboard.

Wednesday 22 June: Storm winds, 6-8 m waves, lots of icebergs clogging the route. Rain and low cloud.

Arrival Arsuk

Expected arrival into Arsuk was 13:00, however, actual arrival was 15:30 due to storm, sea ice and icebergs. After taking the small 'ferry' boat from Sarfaq ittuk to shore. We only had a few minutes to buy groceries before the Pilersuisoq shop closed at 16:00. I obtained a 5 kg propane tank and groceries. When we arrived, the hunting officers Per Nukaaraq Hansen (Nuuk) and Thomas Petersen (Upernavik) were in Arsuk with the hunting officer cabin boat with inboard engine. They sailed us to the cabin at Laksebunden (Eqaluit). They themselves were staying at Per's cabin in Taylershavn. Because the Laksebund cabin is unlocked and open to anyone, there is no heater or fuel for the gas stove, nor were there many kitchen utensils or pots. Per attached the propane tank and checked that the stove functioned and then he and Thomas sailed for Taylershavn. There is a creek running behind the Laksebund cabin, which is the fresh water source. The outhouse is perched over that same creek where it meets the shore. There is an excellent view out over the Laksebund Fjord bay from the door of the outhouse. This evening, I readied the gear and datasheet for beginning the minimum count tomorrow morning.

Thursday 23 June: Mist and cloud over the mountains, calm.

Arsuk Fjord: Total 17 muskoxen (including 1 calf)

06:25 we were up and getting ready. Morten looked about but saw no muskoxen. There are plenty of mosquitoes.

09:10 Per and Thomas arrived to pick us up. We sailed all the way into the Arsuk fjord today, almost to the Ice Cap's glacier tongue itself. We anchored to shore about 2/3 of the way along and climbed the steep mountainside on the south side of Arsuk Fjord. There were many black flies and mosquitoes during our climb. We observed 1 arctic fox and several sea eagles in the area.

I keyed-in today's data onto my computer. Discovered that the GPS will no longer download tracks onto my computer. The new computer update is the likely problem.

Friday 24 June: Low cloud, rain, calm in the morning, cleared by midday.

Arsuk: Shopping and discussion with Arsuk Resource Council (ARC) members

Laksebund Valley: Total 96 muskoxen (including 8 calves)

07:30 Per and Thomas arrived at the Laksebund cabin. We discussed what to do. Counting muskoxen this morning is not a good idea due to the weather. It is not possible to live in Arsuk, because there is a large confirmation ceremony this Sunday and 23 guests are in town using all available housing. We sailed to Taylershavn, where there was a group of muskoxen (2 calves, 2 yearlings, 5 cows (one an old silverback) and 1 unknown). We picked up something for Per and then sailed immediately to Arsuk. I bought some necessary items for the Laksebund cabin (TP, black garbage bags, kitchen utensils), fueled boat and reserve tanks, and picked up the key for the Heksested cabin. I spoke with Jonathan Rasmussen (ARC member) on his boat, asking if he will be participating. Apparently, neither he nor Knud Mikaelson (ARC) can help on the minimum count. This Sunday, two of their children will be confirmed in church. Ejnar Jakobsen (ARC) has problems with back pain and also may not be able to participate on the count. Jørgen (ARC) will be on holidays.

The ARC members appeared to have little information from the Department for Fisheries and Hunting (APN) about this year's count and subsequent meeting, so I called the ARC chairman, Jørgen (Anni) Christensen. I gave him information about the arrival on 4-5 July of Øystein Slettemark (APN), Nuka Møller Lund (APN), Bjarne (Ababsi) Lyberth (KNAPK) and Martin Enghoff (NordEco). Further, that a meeting of the Arsuk Resource Council with the aforementioned would be on 6 July. I asked if Jørgen if he could arrange a meeting location



Figure 4. Morten Lyberth (Maniitsoq hunting office assistant, GFLK) among the willow bushes in bottom of Laksebund Valley on 24 June. Bark is stripped and leaves are absent, although rest of valley is blooming. Photo C. Cuyler.

12:00 the weather had cleared and we sailed for the Laksebund cabin to eat lunch and then begin counting in the Laksebund river valley.

14:00 Ejnar joined us and we headed into the Laksebund Valley. About ½-way in Per and Thomas hiked up onto the high mountain plateau between here and Grønnedal Valley. They went in as far as the ridge above Langesø. Per and Thomas observed many animals up there. Meanwhile Ejnar, Morten and I continued into the Laksebund Valley, taking the Lakselv valley arm that swings over to the SE up to the Trip Trap Træskosøer. We penetrated ca. 4.5 km into the valley from the cabin.

Per and Thomas observed 1 dead bull muskox on the high mountain plateau.

The willows in the Laksebund Valley exhibit heaving browsing by muskoxen. Valley bottom willows were stripped and trampled (Fig. 4, 5). The mountainside willows also evidenced browsing (Fig. 6). The muskoxen are affecting the willow community.

18:00 we were back at the Laksebund cabin. Ejnar's knees and back were painful now. Per and I sat down together to exchange our observation data. There seems to be few observations of calves. Per, Thomas and Ejnar sailed to their respective 'homes'. Given we now had black garbage bags; I went around the area of the Laksebund cabin picking up all the garbage lying about.



Figure 5. Remains of mature willows in the bottom of Laksebund Valley on 24 June. Ejnar Jakobsen (Arsuk Resource Council member and local KNAPK hunter / Trophy agent) in the background. Photo C. Cuyler.



Figure 6. Willows on the mountainsides of Laksebund Valley on 24 June. Despite the date and full green-up, results of muskox browsing are evident in the observed scant foliage and ‘naked’ branches. Photo C. Cuyler.

Saturday 25 June: Very low cloud, calm in the early morning, then Rain, Rain, Rain

Grønnedal Valley: Total 50 muskoxen (including 4 calves)

07:55 Per and Thomas arrived at the Laksebund cabin to pick up Morten and me. We sailed to Grønnedal, anchored behind the big wharf there and walked up into the valley using the gravel road. We crossed the river and continued up the road and onto the mountainside. Sexing and ageing is a low priority among the APN and ARC participants, so I alone use a 32-x magnification telescope in addition to a 10-x magnification binocular. The others often depart while I am still in the middle of sexing and ageing groups, or continue advancing towards a new group when the telescope could have been used to advantage. The latter often resulted in the group fleeing into the low cloud cover before we could properly count them. We saw 1 fox in Grønnedal. It was up near a group of seven muskoxen lying on a snow patch. We returned to the boat in a drenching rain.

11:25 Per dropped me off at Laksebund cabin. Morten went back to Taylershavn with Per and Thomas for a Minke whale supper. Morten will overnight with them. I keyed-in the data from today and yesterday. There are 172 muskoxen to date and only 12 calves. 22:30 bedtime.

Sunday 26 June: Low cloud, rain, calm. Then heavy winds. Sunshine in evening.

Ivittuut & Taylershavn: Total 96 muskoxen (including 13 calves)

Awoke at 06:30 and ready to go by 07:15 as agreed with Per yesterday.

08:30 Per, Morten and Thomas arrived. Per had decided that we must all be at his Taylershavn cabin tonight to make the best start of things tomorrow. As quickly as possible, all was packed and stowed onboard the hunting officer boat.

09:30 we sailed for the abandoned mining town of Ivittuut. We observed 15 animals there. When we sailed from Ivittuut, the winds were strong, making difficult waves, which tossed the boat about and sea spray swept over us repeatedly. Per had to sail slowly to make headway. We arrived at Taylershavn and anchored the boat safely on Per's 'anchor' ropes in the small cove there.

We hiked up into the valley behind Per's Taylershavn cabin. There were many muskoxen and a fair number of calves relative to what we have observed up until now. The winds remained strong and made holding steady the binoculars or telescope difficult. Sheltering behind boulders was necessary to use the 32-x magnification telescope. When I suggested Thomas try using the telescope, he was unable to locate muskoxen with it and refused to try further. The willows and grassy tussocks in the valley behind Taylershavn were well grazed (Fig. 7) in contrast to the immediate area surrounding Per's cabin..



Figure 7. Grassy tussocks (foreground) and willows (background) in the valley behind Taylershavn on 25 June. The grass is closely cropped and the willows well browsed by muskoxen. Photo C. Cuyler

Per and I went through the observation data and found that our numbers did not match by 12 animals. We found the problem lay in observations he had given me from the Laksebund mountain plateau walk he and Thomas had taken on Friday 24 June. There was a discrepancy of 77 versus 89 muskoxen. After ca. 1 hour and input from Thomas' notes, which also recorded 77 animals, we all agreed to a total of 77 muskoxen for their mountain plateau observations.

Monday 27 June: Clear sunny, with strong winds out of the north.

Narsaq, Ikka, Blæseren: Total 319 muskoxen (including 38 calves)

Per lit a candle at the breakfast table, because his daughter's birthday is today. The weather is clear, with a very strong north wind, which created strange shaped lenticular clouds over the mountaintops. Per turned his generator on and I charged up the computer, camera and cell phone. Initially the winds were too strong for sailing; however, later they seemed worth a try. We packed our gear, food and sleeping bags.

09:00 we sailed from Taylershavn. Today we sailed along the shore south to Ikapynt Point and into the Ikka Fjord/Ikka Bund. We anchored on the SE shore of the bottom of the Ikka Bund and hiked up to overlook Sødal from the ledge above a riverbed full of boulders and rocks. This also gave us a view of all of the north and west sides of Ikka Bund (all the way up to Tourist Kløften and Forkærte Kløften). We made all our observations from that single vantage point. Last year, 2015, we hiked across the valley bottom and up towards the Tourist and Forkærte Kløften. Per had even gone much further up the Tourist Kløft trail to the elevations above. This year we observed from only this one vantage point.

We sailed the south side of Ikka Fjord/Ikka Bund and anchored in the bay at Blæseren (Eqaliguarsivit). The winds were blowing and gusting so strongly at this time that Per stayed with the boat, because the anchor might drag and the boat drift away. Morten, Thomas and me hiked in to our 2015 vantage point up at the west end of the lake. We observed 33 muskoxen. We also saw one sea eagle, which flew over us repeatedly, all the while 'clucking' at us. It seemed perturbed and may have had a nest nearby our hiking route. When we returned to the boat, Per had decided to sail to the Heksested cabin. We sailed the Kangaarsuk Løb and shoreline, scanning for muskoxen.

16:30 arrived at Heksested cabin. We unloaded the gear into the cabin. There was one arctic fox, two reindeer and several muskoxen nearby. Per, Thomas and Morten sailed away [to fish for Arctic Char, which they ate], returning at 20:30. I updated the observation database on my computer. There is no stove diesel for the heater furnace in the Heksested cabin, so Per and Thomas slept on the heated boat. They have stove fuel onboard. Morten and I slept in the unheated Heksested cabin.

Tuesday 28 June: Steady rain and low cloud cover, occasionally heavy winds

Heksested cabin (Fig. 8)

It was raining. The cabin was unheated, damp and chilly. Morten boiled up some water for coffee to warm us up. Per and Thomas came to the cabin at 07:40. We discussed what to do. No counting today. We will try to finish it all tomorrow. The weather forecast indicates improvement tomorrow, or at least no rain. Since Morten must sail north on the Sarfaq Ittuk coastal ferry on Thursday afternoon, we have only today and tomorrow to finish the count with him involved.

09:30 an East wind came up and by 10:00 the wind was from the SE and strong, creating whitecaps out in the Kangaarsuk Løb. It would not be nice in a boat. The cloud ceiling is about 40 m out over the bay and inland it is higher, ca. 200 m.

12:20 the cloud cover is down to ground level everywhere. The rain is steady and the wind now weak and from the north somewhat. Per and Thomas sailed to Arsuk to tank up fuel for the boat and then returned to Taylershavn for the night.

Morten and I ate lunch and supper at the Heksested cabin and updated our observation databases. It turned out we had almost identical tallies, 579 (Morten) and 578 (me). Morten is using my datasheets to make his observations. Per uses a small black notebook, as he always has in the past.

18:00 the winds picked up again from the south with whitecaps out on the bay. We are cold in this chilly damp cabin. Morten and I got the heater furnace lit with the little bit of lighter spirit that remained at the cabin. There was only enough diesel left in the fuel line for about 15 minutes worth of heat. 18:46 we attached the propane tank to the gas heater in the kitchen. After an hour and fifteen minutes, the temperature inside the cabin was comfortable. This evening the wind continued to blow up from the south but the whitecaps were gone. The fog/cloud was right down to the ground and the rain continued unabated.



Figure 8. The Heksested cabin. Photo Per N. Hansen.

Wednesday 29 June: Sunny but windy

Heksested, Oksedalén: Total 163 muskoxen (including 14 calves)

05:30 up and about. The weather looked better, however, by 07:00 a North wind arrived. It was bitter cold and brought the fog down the mountainside so that it rolled into the valley and across the bay to hide the little islands. We sat and wrote in our journals to pass the time.

07:45 Per and Thomas arrived in the boat. Owing to the strong winds, they fastened the boat to both anchor and land, and they brought the rubber dinghy well up above the high tide water line.

Today, we hiked the broad long Oksedalen and penetrated about 5½ km. There were no leaves on the mature willows in the bottom of the 1st valley, although willows were a leafy green on the mountainsides and 'saddle' leading to the 2nd valley (Fig. 9).



Figure 9. View on 29 June behind the Heksested cabin, looking NE into the 1st valley and towards the 'saddle' pass that separates the 1st valley from the 2nd valley beyond. The mature willows in the bottom of the 1st valley (foreground) lack leaves. There dark spots center photo in the distance are three muskoxen grazing. Photo C. Cuyler.

We did the 1st valley together. When we came over the 'saddle' into the 2nd valley we split into two groups. Morten and I did the west side of the river to far past the 'pyramid' and into the gully and ravine terrain that ended in snow. Per and Thomas took the east side all the way up into the snow. This meant Morten and I had to cross the river several times. We both got wet feet.

16:00 we were back at the Heksested cabin. Per and Thomas had arrived before us. Heavy winds were blowing the boat towards land. The anchor had slipped. Per and Thomas went out and reset the anchor. Per told me that there is accommodation in Arsuk next week for only Øystein, Nuka, Martin and Ababsi. I will stay at the Heksested cabin instead. Per always has stove fuel oil onboard his boat, and this evening lent us some for the heater in the Heksested cabin. Then Per and Thomas sailed to Taylershavn for the

night. Using Per's fuel, Morten and I got the stove heater going. It worked like a charm and the cabin became 'toasty'.

22:30 the fuel stove ramped up into overdrive. It was receiving too much fuel. We adjusted the fuel line and air intake several times, and it was finally burning nicely again by 23:04. At least we were warm tonight and so slept well.

Thursday 30 June: Sunny with Northwest wind.

Heksested:

06:30 up and getting ready. There were 9 muskoxen behind the cabin (cow with calf, 1-year, 2-year, 3 bulls and two unknowns). 08:00 waiting for Per and Thomas to arrive as agreed. Morten is all packed and ready-to-go. He is to catch the ferry north today. There is a strong North wind blowing, creating whitecaps on the channel outside our bay.

09:00 Jørgen (Anni) Christensen arrived in his boat. He is replacing Per's pickup of Morten. Apparently, last night in Taylershavn, Per's hunting officer boat took on a lot of water (up to the floor boards) and almost sank. Per and Thomas are working to save it now. Jørgen took us aboard with Morten's gear and sailed to Taylershavn. Per and Thomas were still busy with the boat. They have patched things up and pumped out most of the water. Thomas stayed behind with the boat in Taylershavn, while Per sailed with us to Arsuk. I bought a 25 l of furnace oil (diesel) and new groceries for my further stay at Heksested cabin. Per tried to contact his GFLK boss, Niels Lauritzen, regarding the serious leak on the hunting officer boat. He was unsuccessful. I spoke with Jørgen about possible accommodation in Arsuk at the public school on the night of the 5-6 July. I will need to be there for the ARC meeting and to catch the Sarfak Ittuk coastal Steamer on 7 July. He agreed to pick me up from the Heksested cabin on either the 5th or 6th July.

11:40 Jørgen sailed Per and I back to Taylershavn again. The waves were heavy going initially. Per got off at Taylershavn. Jørgen continued on to Heksestedet with me. The winds worsened around the mouth Ikka Fjord and through the Kangaarsuk Løb.

13:00 Jørgen set me ashore at Heksested cabin and departed immediately for Arsuk because the weather is getting worse. The solar cell recharged the Kindle completely today. The winds remained exceedingly strong all day. I re-waterproofed my hiking boots. They soaked up the oil like parched desert sands. I hiked about taking photos of the willow shrub and muskoxen. A sea eagle was flying about. The furnace heater burned nicely and kept the Heksested cabin dry and warm, day and night. Fresh water is available in the Oksedal River, which is about 300 m west of the cabin.

16:30 Morten sailed north to Maniitsoq aboard the Sarfaq Ittuk coastal steamer.

Friday 01 July: Sunshine and calm.

Lake area E of Heksested & Coast + Blindtarm: Total 145 muskoxen (including 18 calves)

This is the first nice weather day we have had since we arrived in the Ivittuut region. The solar cell charges up the 4AA battery pack, which again runs the computer for about 55 minutes.

10:40 Per and Thomas arrived by boat, which is repaired. We talked about plans over coffee. I will do the lake area east of the Heksested cabin, while Per and Thomas take the shoreline around to Qoornoq Fjord. At high tide, they will sail the narrows to Paradiset to do Blindtarm. They will overnight in the Paradiset cabin and return tomorrow.

There were 37 muskoxen in the lake area east of the Heksested cabin. This evening I updated the observation database. A healthy arctic fox came visiting the tidal zone in front of the cabin.

Per and Thomas counted the coast of Qoornoq Fjord and Blindtarm. They also looked inside the Qoororsuaq Valley. Per and Thomas saw not a single muskoxen there, but they had black clouds of mosquitoes and black flies around them as they walked. They overnighted at the Paradiset cabin. There were 8 arctic hares and some muskoxen nearby. They did not see any reindeer, however, they noted a few tracks. 00:00 Per and Thomas were finally sleeping at the Paradis cabin (Fig. 10).



Figure 10. Paradis cabin. Photo Per N. Hansen.

Saturday 02 July: Low cloud covers the mountains, winds calm

Paradis Hoveddal: Total 31 muskoxen (including 1 calf)

03:00 Per and Thomas were up hiking into the Hoveddal Valley behind the Paradiset cabin. They observed one dead old cow muskoxen up in the Hoveddal Valley.

07:00 Per and Thomas were out of the narrows and

08:21 Per and Thomas arrived and stayed for about 1 hour eating breakfast at the Heksested cabin. They had done the coast, Qoororsuaq Valley and Blindtarm yesterday, and Paradiset in the early hours of this morning.

The count of muskoxen is now finished for this year. 09:45 Per and Thomas sailed for Taylershavn cabin. Before going, we agreed that Per would speak with Jørgen about picking me up from Heksestedet any time after 09:00 on Wednesday. If the weather forecast is bad for Wednesday, but better Tuesday, then pickup will be Tuesday.

03 – 05 July: Hiatus for all concerned until the Arsuk Resource Council Meeting on 6 July.



Figure 11. Arsuk Resource Council meeting 6 July 2017, from left to right: Morten Enghoff, Øystein Slettemark, Frank Feldmann, Per Nukaaraq Hansen, Jørgen (Anni) Christensen, Jonathan Rasmussen, Bjarne (Ababsi) Lyberth, Knud Mikaelsen; Not in photograph: Ejnar Jakobsen, Nuka Møller Lund and Christine Cuyler. Photo C. Cuyler.

Wednesday 06 July: Gorgeous sunshine, little wind

Heksested cabin to Arsuk:

10:30 Jørgen arrived for pickup and transport to Arsuk.

11:30 arrived into Arsuk. I returned the Heksested cabin keys to Ingeborg Sørensen (Arsuk mayor) at the town office. There was still nowhere for me to overnight. Jørgen suggested the public school, for which I was grateful and said thank you. (Next year I'll bring a tent). Jørgen drove my gear up to the school and mattresses provided. I updated the observation database and readied for the ARC meeting.

12:30 Sarfaq Ittuk arrived from Nuuk with Øystein, Martin, Nuka and Bjarne. They told me that the ARC meeting is tonight at 19:00, and held in the public school.

19:00 – 23:00 Meeting of the Arsuk Resource Council (ARC) (Fig. 11). See Appendices 4 and 5 for details.

Thursday 07 July: Great weather, sunshine, little wind

Departure Arsuk:

I was up early and preparing the kits of blood strips (pathogen testing) and DNA vials for Frank Feldmann and others on the ARC to use when they take trophy bulls.

09:00 The ARC members came to speak with Øystein and me regarding this year's trophy harvest.

13:00-14:30 The ARC members (Jørgen, Jonathon, Ejnar, Knud and Frank) returned to speak with Øystein and me regarding this year's trophy harvest. They are worried about the low number of juvenile bulls observed on the count this year. I gave them the blood strips with DNA vial packages. Jørgen Christensen received the responsibility of handing these out to the other trophy agents and hunters. I suggested closing the winter (March) harvest, which is solely for the local hunters. This would likely benefit calf production, and ultimately the trophy harvest +5-years later. Discontinuing the March harvest (by skidoo) will reduce disturbance of the population and likely benefit pregnant cows, which can begin to birth from mid-April. The calf percentage was low this year, 11%. Either the green budding willows hid the calves from our eyes, or calf production this year was exceedingly poor.

15:00 Jørgen carried my gear to the dock with his ATV. Frank, Øystein and I stood around talking until the Sarfaq Ittuk arrived. Ejnar came by occasionally and was talkative.

16:30 Øystein, Nuka, Bjarne, Martin and me were aboard the Sarfaq Ittuk and sailing north for Nuuk. Per and Thomas will sail north later this month in the Hunting Officer boat.

Friday 08 July:

Arrival Nuuk:

We arrived in Nuuk harbor at 14:30.

Appendix 1 - Data Sheets [Greenlandic / Danish]

Ulloq	Sumiiffik	#	Umimmaat Amerlas- suiat	Inersimasut ?	Piaraq inunngorpog 2016	Arnaviaq Køer ♀♀			Angutiviaq Tyre ♂♂					
Dato	Kort Nr.	#	Total Antal i gruppen	Ukendt Køn / Alder	Født 2016 KALV	ukiut / år 1	ukiut / år 2	ukiut / år ≥ 3	ukiut / år 1	ukiut / år 2	ukiut / år 3	ukiut / år 4	ukiut / år ≥ 5	ukiut / år ≥ 10
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Appendix 2

Telephone numbers

Christine Cuyler:	48 23 23 (Greenland Institute of Natural Resources /researcher)
Per Nukaaraq Hansen:	48 73 68 (GFLK Hunting Officer Nuuk)
Morten Lyberth:	48 76 40 (GFLK Hunting Officer Assistant Maniitsoq)
Ejnar Jakobsen:	54 86 65(Commercial hunter & Trophy outfitter)
Jørgen 'Anni' Christensen:	53 81 57 (Commercial hunter & Trophy outfitter)

Appendix 3

Observation routes taken in 2016 – sailing & hiking

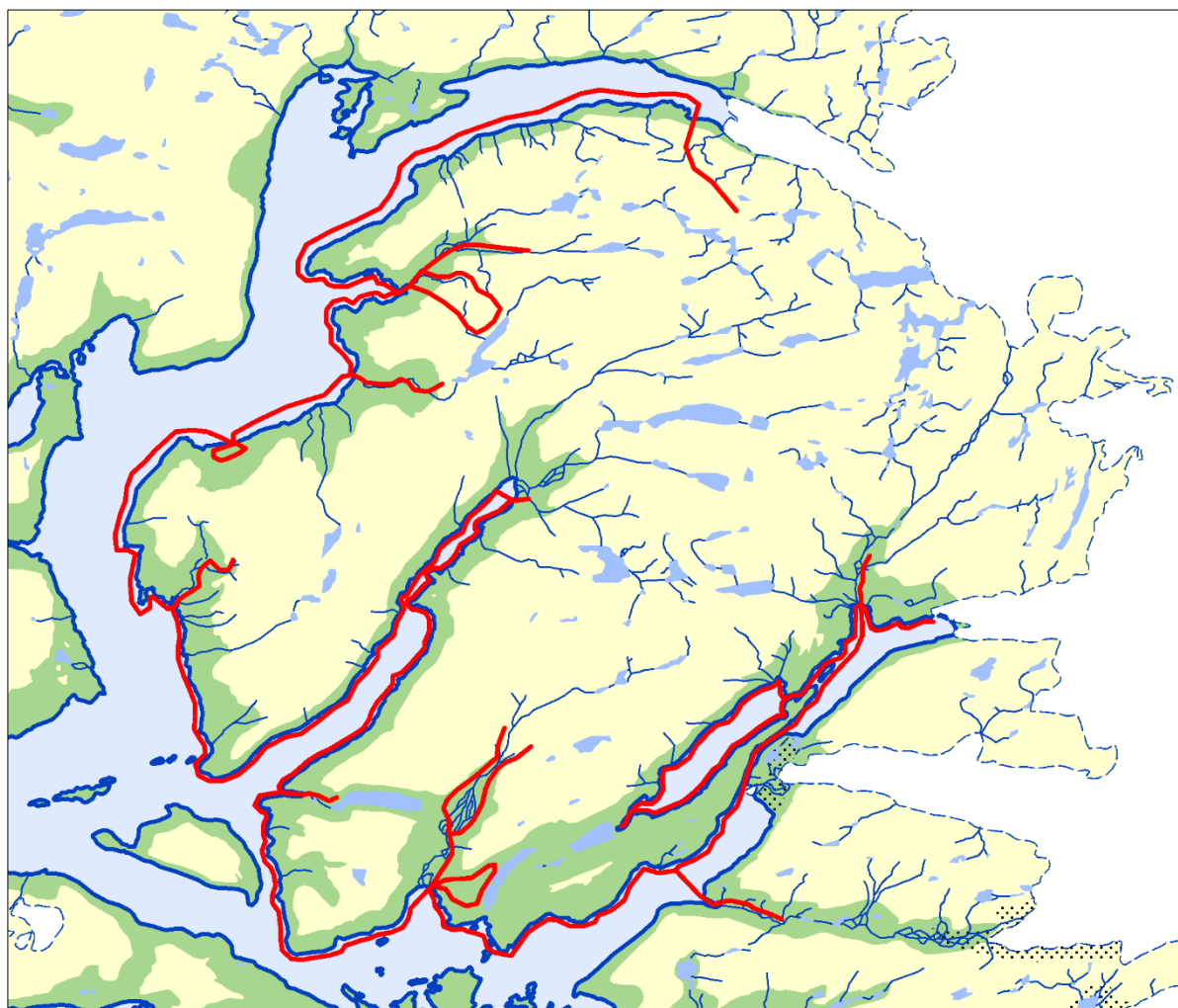


Figure xx. Observations routes taken by sea and land for the 2016 muskox minimum count of the Ivittuut region.

Appendix 4

Arsuk Resource Council (ARC) Meeting

Date: 06 July 2016

Time: 19:00

Location: Arsuk Public Grade School Cafeteria

Participants:

From the Arsuk community - Local commercial hunters / trophy agents, Jørgen (Anni) Christensen, Ejnar Jakobsen, Jonathan Rasmussen, Frank Feldmann and Knud Mikaelson.

From the Greenland Fisheries and Licensing Control (GFLK) - Nuuk Hunting Officer Per Nukaaraq Hansen.

From the Commercial Hunters Union (KNAPK) – Bjarne (Ababsi) Lyberth, M.Sc.

From the Government Department for Fisheries and Hunting (APN) – Øystein Slettemark and Nuka Møller Lund.

From NordEco, Denmark – Martin Enghoff

From the Greenland Institute of Natural Resources - Research Scientist Dr. Christine Cuyler.

Notes about the dialog during the ARC Meeting:

Jonathon: thought November was a better month to do a minimum count.

Per N Hansen: was not in agreement with Jonathon.

Frank and **Knud** seem to see fewer animals this year.

Shooting bulls during the rut is causing the poor calf production.

Knud: when we begin the muskox hunt 1 August then we also begin with reindeer hunt. He has noticed from 15-30 august that the muskox gather in groups in the terrain. Perhaps better to count during the rut when they are in groups.

Jonathon: last year he thought too many muskox in relation to the area and vegetation. It is very visible that the vegetation has been hard grazed. Jørgen Christensen was in agreement with this comment about the vegetation.

Per N Hansen: Since 1993 he cannot see the big reduction in the vegetation. He thinks there is very good growth in vegetation out in the terrain. Muskoxen move about from year to year. Since 2012 when he moved to Nuuk he can see a big change in the muskox pop in Ivittuut. He does NOT think that the changes we see now are caused by the vegetation (i.e., overgrazing or lack thereof).

Move more [muskox] to Nanortalik, to reduce the number in Ivittuut.

Jonathon: Arktisk Kommando is in Grønnedalen, boat and helicopter and shoot in April-May, or it was Dec, Jan, Feb and March.

Frank and others: Some say that Stefan Magnusson drives a skidoo around Ivittuut region to get his reindeer during the winter.

Nuka: says they (APNN) can do something about Arktisk Kommando's helicopter flying.

Per N Hansen: said that if the Admiral orders the helicopter pilots to fly at a certain height then they obey.

Per N Hansen: In the past the people got clear guidance about NOT disturbing the pregnant cows and how best to behave around the muskoxen, but not now. There should be a serious hunting officer presence in Ivittuut during the hunting season.

Christine: suggested the possibilities of 'deputies' to act as quasi-hunting officers.

Per N Hansen: Thinks that the minimum counts must continue, at least one more year, i.e., a count in 2017 so that so many as possible can participate. That did not happen this year. 1-15 June, keep those dates in mind to 2017.

Jonathan: would like tips and advice on how to get funds to the Resource Council for future counts.

Jonathan: saw one sick animal (muskox) this year.

Per N Hansen: saw 2 dead muskoxen on this minimum count. One up in Laksebunden high mountains and one in Paradise Dalen.

Jonathan & Ejnar: the fat depth was less in November 2015 than was normal / usual.

Frank: did NOT agree, he thought they were just as fat as usual.

Martin Enghoff. Asked...Poaching is a problem? What is the tendency?

Per N H: there were 3 in 2011 that were shot without a licence, the hunters came from south Greenland.

Jørgen: Thinks that when it begins to get dark in September, then the poachers from South Greenland come and shoot the muskoxen in the evenings.

Martin: Perhaps licenses should be given out here from Arsuk bygdekantor (town office), since one does not know how many of the quota are actually shot. Last year, 2015 the quota was 300, but no one knows how many were actually shot.

Øystein: doesn't think that [licenses given out from Arsuk town office] is lawfully possible just now, but will look into it.

Ejnar: Most important because of those coming from south Greenland, necessary to have a better hunting officer control, rather than that they have to get their hunting licenses from Arsuk town office.

Martin: asked so how is it possible to have better control of the hunt.

Ejnar replied that it should be a hunting officer like Per Nukaaraq. That is the 'control' that is needed. Per needed from 1 August for length of season. People from Arsuk know what they should shoot and where, but the South Greenlanders don't know the muskoxen and often shoot the wrong animals. Per N H has used a lot of time instructing South Greenlanders on hunting muskoxen.

Per N H means there are lots of wrong things done by South Greenlanders, they have a license for a 2-year old but shoot a big bull.

Christine: Make hats/caps, 'Muskox Security', for the honorary 'game wardens' / 'wildlife officers' so they look official.

Per N H thought this was a good idea. He thought poachers and folks from South Greenland would be shocked and taken aback by those hats on people 'patrolling' Ivittuut for illegal hunters.

Øystein: needs to make sure that the NordEco form/skema (from last year) is translated to Greenlandic. He was supposed to have done it last year, and 'forgot'.

Jonathan: if one got 20 out of the total quota of 400, then one could divvy the harvest of them up better, and they could watch for poaching better too, since that begins from 1 August. Those that should have licenses should have to go to the Arsuk town office to get their licenses. Then we would know who was in the area hunting and when. There are several of his older colleagues and yet they also get the same number of muskoxen allocated. It would be better that these get only 5 licenses and return the rest to the Arsuk town office so that others like himself can use them.

Knud: He often has had sport hunters come and ask him what animals to shoot and how. He can often see a real need for a hunting officer. Last year he went in to get muskoxen and it took only 1 hour from they went in to when they came back.

Martin: Made a clear point for how important to hold meetings 3- 4 times per year and fill out the forms (those that Øystein was to make in Greenlandic). These will keep track of their observations and tendencies and will keep a record of their knowledge.

Per N H: Told how in the past they did a min count 2x per year, once in June and then again at the end of October to see if somewhat the same or not.

Martin. The problem with skidoo driving in winter is the responsibility of Sermersooq municipality. A bylaw (vedtægt) needs to be addressed. The skidoos must all be registered too.

Øystein: Forvaltningsplan / Management plan needs to be developed. Caps for deputy game wardens can be a part of it.

Martin: Said that the Mgmt Plan that he is talking about would be **10 pages long max**, and NOT one of those 1-2 inch thick tomes that are common.

Lack of Calves June 2016

Ejnar: thought reason for the lack of calves was the snow, icing, thaw refreeze, and because bulls are shot during the rut and removed from their harems before they can impregnate the cows, and because skidoo/helicopter use in winter (March/April). March harvest is 'normal' for Arsuk, now most use skidoos.

Ivittuut Reindeer

Ejnar said that in the 1990's reindeer began to arrive into Ivittuut region from Isortoq reindrift station. It is difficult to control reindeer, so cannot be managed. They can also 'sneak' around by the inland ice and go further north. Once north they can mate with the wild indigenous caribou in the Paamiut region.

This was in response to Martin Enghoff's's repeated (ca. 10x) question about what the Resource Council wanted to do regarding management of the reindeer in Ivittuut in the future. Martin never did get an answer – other than that they all agreed that they wanted the border for the reindeer harvest to extend right up to the border of the Isortoq reindeer area. They wanted no hunting of reindeer in Ivittuut region except for Trophy that they could profit by. They hoped to keep South Greenland reindeer hunters out of Ivittuut this way and it would seem also 'punish' Stefan Magnusson as kill any reindeer that step over the 'border'. They signed a petition to that effect during the meeting.

Sick muskoxen

Jonathan shot one animal in Oct-Nov 2015 that seemed to be sick. It was a 1½-year old female that he thought was lying down sleeping. She was just too sick to move. She smelled bad. Even after a few days of hanging to cure, she smelled very bad. They did not eat her. He could not see anything wrong with her (liver, lungs or anything, all looked fine).

Meat quality of bulls in rut

When asked at the meeting, Ejnar, Jørgen (Anni), Jonathan, Knud and Frank also said that bull muskoxen stank and tasted bad during the rut. They meant from 15 September onwards until end of October.

Appendix 5 – *Official* Minutes Arsuk Resource Council meeting

written by Øystein Slettemark, Department for Fisheries & Hunting

18-07-2016
Sags nr. 6744
Dok. nr. 3181898

Postboks 269
3900 Nuuk
Tlf. (+299) 34 50 00
Fax (+299) 34 63 55
E-mail: apnn@nanoq.gl
www.naalakkersuisut.gl

Naalisagaq Referat

Sumi Sted	Arsuk skole onsdag den 6/7 kl. 18-22
Sammisag Emne	Møde med Naturressourcerådet i Arsuk vedr. projektet Nordisk Ressourceforvaltning
Peqataasut Deltagere	Naturressourcerådet i Arsuk v/ Jørgen Christensen, Knud Mikaelson, Frank Feldmann, Ejnar Jakobsen og Jonathan Rasmussen. KNAPK v/ Bjarne Lyberth. Grønlands Naturinstitut v/ Christine Cuyler. GFLK v/ Per Nukaaraq Hansen og Thomas Petersen. NORDECO v/ Martin Enghoff. APNN v/ Nuka Møller Lund og Øystein Slettemark.
Najuutinngitsut Fraværende	Medlemmer af Naturressourcerådet; Peter Albrechtsen, Kålêrak Sørensen, Gerhardt Frederiksen og Lassinnguaq Mikaelson
Ataatsimiinnermik imaqarniliortoq Referent	Øystein Slettemark (APNN)

Mødet blev indledt med at Christine Cuyler fortalte om resultatet af de minimumstællinger hun lige har gennemført sammen med jagtbetjentene og nogen af medlemmerne af rådet. Derefter blev rådets opgaver og rapportering gennemgået. Til sidst blev punkter til en fremtidig forvaltningsplan fremlagt og diskuteret.

Resultater fra årets minimumstællinger og diskussion af disse.

Der kommer en feltrapport fra tællingerne, men kort fortalt blev der set mange færre moskusokser dette år, sammenlignet med sidste år. 917 dyr blev set. Deraf kun 11% kalv fra i år. De fleste af disse havde gamle mødre. Til sammenligning var der 17% kalv i 2015. Det blev understreget at det observerede antal er et minimumstal, og ikke et bevis for at der er færre moskusokser end sidste år. Det blev også konstateret dårlig tilvækst af trofædyr som forklares med at jagten har været koncentreret om tyre, medens køerne i mindre grad er jagtet.

Årsagen til den faktiske nedgang i kalveandel og en mulig nedgang i totalantal blev diskuteret uden at det blev konkluderet.

Som mulige forklaringer på nedgangen i kalveandel blev nævnt følgende:

- mulig nedsat fertilitet som følge af overgræsning,
- trofæjagts forstyrrelser i efteråret,
- vinterjagts forstyrrelser,
- forstyrrelser fra forsvarets helikopterflyvning i foråret, og
- rensdyravlers snescooterkørsel omkring sydgrænsen.

Som forklaring på at der blev set færre dyr totalt i år end sidste år blev følgende nævnt;

- mulig illegal jagt ved sydgrænsen (skud sent om aftenen)
- mulig høj naturlig dødlighed siden sidste år (dog ikke observeret under tællingen)
- mulig udvandring mod syd og nord
- måske flere dyr oppe i fjeldet end sidste år fordi tællingerne i år var senere på året og der var meget mindre sne under optællingen

Det blev snakket om det måske ville være bedre at lave minimumstællinger i efteråret når dyrene samles i større flokke. Christine bemærkede at der er problemer med at lave tællinger samtidig med der er jagt. Men en kontroltælling efter trofæjagten til efteråret kan være gavnlig. Ikke mindst for at vurdere om den fastsatte kvote på 80 trofædyr i 2017 er passende, eller skal justeres ned.

Det blev spurgt til om nogen mente at der på baggrund af årets minimumstælling var grundlag for at revurdere de kvoter og jagtperioder som for nyligt var besluttet. Der var enighed om at vegetationen ikke kan bære den tæthed af moskusokser der har været i Ivittuut, og at den bør reduceres til ca. 600-700 dyr.

Jagtbetjenten har ikke observeret de store ændringer siden 1993. Dyrene flytter sig langs de samme ruter som før. Det er først i år han ser en nedgang. Der blev observeret mindre end 30 rensdyr i området. I den forbindelse blev rensdyr og moskusoksers sameksistens diskuteret og der var uenighed om rensdyrene har en negativ påvirkning på moskusoksens græsningsmuligheder. Christine forklarede at forskere endnu ikke har kunnet påvise en negativ påvirkning fra rensdyr selv om der er lavet flere studier på det.

En mulig reduktion i kvote og jagtperiode blev diskuteret, men der blev ikke konkluderet. Det var enighed om at muligheden skal undersøges og at APNN, GN og Naturressourcerådet skal mødes til telefonmøde om sagen.

I forhold til fordelingen af de fastlagte kvoter sagde Bjarne Lyberth at fangerne fra Sydgrønland har meget svære betingelser og at det fra KNAPK's side var ønskeligt om et kvoten til disse fangere kunne øges således at en fanger får mulighed for at nedlægge flere dyr. Det vil kunne gøre turen rentabel. I den forbindelse mente jagtbetjenten at der måske kunne flyttes flere moskusokser til Nanortalik.

Der var enighed om at have opmærksomhed på de faktorer som kan have påvirket kalveandelen og at bestanden bør reduceres til den er i balance med føderessourcen.

Jagtbetjenten nævnte at kontrollen med jagten var bedre tidligere år. Christine anbefaler at en større del af licenserne forbeholdes unge køer.

Det ønskes fra Naturressource rådets side at tællinger ledet af Naturinstitutet og oplæring af lokale fortsætter i et år mere. Martin Enghoff lovede at se om der findes midler til dette indenfor projektets budget. Det kan blive en udfordring fordi projektet efter planen skal afsluttes i foråret 2017.

Rådets opgaver og rapportering.

På sidste års møde blev Naturressourcerådet enige om hvad de vil holde øje med omkring moskusokse- og rensdyrressourcen. Et skema er udarbejdet for at lette arbejdet i rådet og for at gøre rapporteringen til kommune eller APNN nemmere. Skemaet har desværre ikke foreligget på grønlandsk. Oversættelse blev

lovet. Rådet har afholdt et møde i december og et i april. Referater fra disse er sendt til APNN. Rådet opfordres til at afholde møder hvert kvartal, og benytte rapporteringsskemaet fremover.

Skitse til forvaltningsplan med indhold.

Martin forelagde for rådet et skelet til en forvaltningsplan hvor det ønskes indspil fra rådet. Der kom flere indspil, men på grund af tidsnød blev vi enige om at der skulle fremsendes et rådkast til plan med spørgsmål omkring forvaltningen som Naturressourcerådet kan diskutere på deres næste møde.

Konkrete ønsker til planen fra Arsuk Naturressourceråd:

- Man ønsker en stabil, stor bestand i balance med føderessourcen (ca 250 køer).
- Man ønsker at tilgodese trofæjagt, erhvervsjagt og fritidsjagt og at optimere fangstudtaget.
- Man ønsker at den skal omfatte hele region 11 (se kort), og omfatte moskusokse og rendyr og de aktiviteter som påvirker disse.
- Man ønsker at udstedelse af licenser skal ske fra bygdekontoet i Arsuk, og at brugte licenser også skal returneres dit.
- Der ønskes bedre kontrol i området, særlig fangere som kommer sydfra. Et frivilligt korps af Naturopsyn e.l. foreslået.
- Forvaltningsgrænsen ønskes rykket sydpå. Til dels fordi fangere sydfra som er på rendyrjagt ikke skal tage helt til Ivittuut. Og fordi moskusokserne er rykket syd for Ivittuut forvaltningsområde.
- Det bør sikres at fritidsjægere fra Arsuk får én licens til moskusokse inden resten af kvoten fordeles til fritidsjægere andre steder fra.
- Mulighed for at omfordele ubenyttede licenser.

Øystein Slettemark, referent

