

Project information

Keywords

Moose (*Alces alces*), space use, migrations, habitat use, resource selection, monitoring, management, ecosystem services

Project title

Moose in Finnmark – spatial ecology and management in a changing landscape

Year

2018

Project leader

Erling Meisingset, Norwegian Institute of Bioeconomy Research (NIBIO)

Geographical localization of the research project in decimal degrees (max 5 per project, ex. 70,662°N and 23,707°E)

70.144°N, 28.391°E

Participants

Erling Meisingset, NIBIO

Rolf Rødven, UiT – Arctic University of Norway

Erling J. Solberg, Norwegian Institute for Nature Research (NINA)

Rolf Ims, UiT– Arctic University of Norway

Flagship

Terrestrial

Funding Source

FRAM, Regionalt forskningsfond Nord, Finnmark fylkeskommune, Finnmarkseiendommen, NIBIO

Summary of Results

The overall purpose of the project is to investigate spatial use of moose in Finnmark, focused on large-scale seasonal movements, and small-scale habitat use and resource selection.

As described in the application, the main focus in so far has been capturing and marking moose with GPS collars. The fieldwork in 2018 was carried out in March and 12 individual moose were marked. Together with 41 individuals marked in 2016 and 2017, the project has now marked all together 53 moose; 15 males and 38 females. In 2018 moose were captured in Stabbursdalen in Porsanger municipality (see figure 2 for latest positions). The animals were tracked by helicopter, and darted from the helicopter using a dart-gun (CO₂-powered rifle; see figure 1). The marked moose's age were estimated to be from 1,5 to 8,5 years old, and other relevant measures and samples was taken. Capturing caused no significant complications for the moose's; neither could we notice deviating movement patterns the subsequent couple of days after capture and release. However, the collar on one cow has not sent any positions after marking. Capturing and marking was approved by the Norwegian Environment Agency (Miljødirektoratet) and the Norwegian Animal Research Authority (Mattilsynet).



Figure 1. Darting of moose from helicopter.

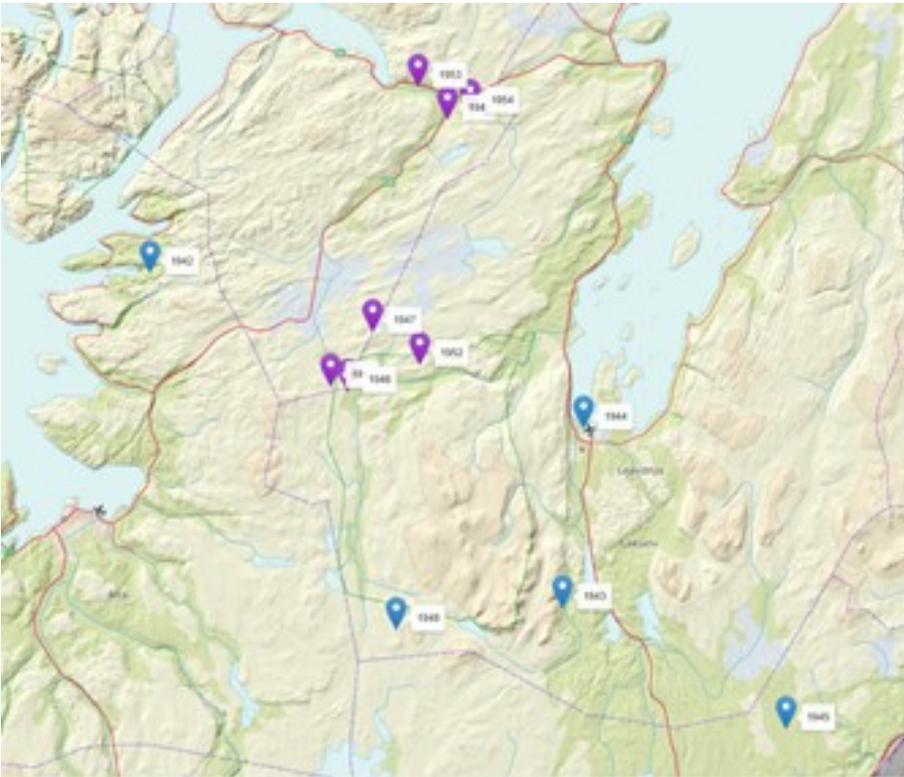


Figure 2. Latest positions of marking sites of the 12 marked moose in Finnmark 2018.

In 2018, additional three individual moose cow's to were equipped with cameras attached to the GPS collars. Together we now have data from six individual cows, with the purpose to study behavior and diet selection in areas which important browse vegetation for moose has been heavily attacked by geometrid moths. The cameras was able to store up to 16 hours with recordings, and were programmed to record 20 seconds video-sequences every 3 hour from first of May to October. The collars (with cameras) will be released from the moose's in December with a drop-off function in the collar. The data from 2017 is now ready for analyses and will together with the data from 2018, give new insight to fine scale diet and habitat selection of moose in northern climate and landscapes.

Initial analyses of moose space use shows that about 60 % of the moose may be classified as migratory, which mean they migrate from a distinct winter area to a summer area. About 30 % of the moose seems to be sedentary all year, whereas about 10 % had a nomadic space use. Migratory moose migrated between 8 and 80 km (Euclidean distance or straight-line distance) from the winter-areas to the summer-areas, with a mean of about 20-25 km. This shows that the moose cover quite large area through the year and many moose's has large home ranges. As a significant proportion of the individuals showed high mobility, whereas other stayed sedentary most of the year, which may be a considerably challenge for management of the moose population.



Figure 3. Female moose equipped with a camera GPS collar.

Master and PhD-students involved in the project

None at the moment, but master projects may be included at a later stage in the project. Especially may this be relevant for the video-recording data.

For the Management

The project is strongly focused on management of moose in Finnmark, both regarding novel knowledge on seasonal movement patterns in the northernmost moose population, as well as coherence between seasonal movement patterns and management areas. In addition, the project will provide information on how moose utilize areas infested by geometrid moths, as well as investigating the use of camera traps as a supplement or replacement of GPS collars.

Published Results/Planned Publications

The project aims to publish three peer-reviewed papers: (i) spatial habitat use of moose in an changing ecosystem, (ii) habitat use, resource selection and life history of moose, and (iii) GPS collars versus camera traps – methodological comparisons (eg. *Journal of Animal Ecology*, *Journal of Wildlife Management*, *Wildlife Biology*).

The project has been promoted in both national, local and social media:

The project has established the Facebook page *Elg i Finnmark*. The page has 749 followers and posts has reached as many as 15 000 users. The facebook page is used as two-way communication to answer questions as well as receiving observations, etc. We also arranged several promotions with ex. foto competitions.

Our marked moose were also promoted on the TV serie "Elgorado" which has been sent at Nrk1 during autumn 2018. <https://tv.nrk.no/serie/elgorado>

Rødven, R. Her er kanskje Norges lateste elg. News article, NRK, 28.09.2018

Rødven, R. Forskerne fryktet elgen var død – så oppdaget de hva som hadde skjedd. TV2 nett. 28.09.2018

Other publications may have occurred in local and regional media as well.

The project has been presented orally on meetings:

Rødven, R. Elgmerkeprosjektet – områdebruk og forvaltning i et landskap i endring – resultater så langt (oral presentation). Finnmark JFF årsmøte. Alta, 10.03.2018.

Article in a Norwegian journal:

Meisingset, Erling, Rødven, Rolf & Solberg, Erling. 2018. Elgen i Finnmark – områdebruk og forvaltning i et landskap i endring. *Hjorteviltet* 28: 58-61.

The project will cooperate with other projects in the area, like *COAT* and *After the pest*, when

analyzing and publishing the data

Budget in accordance to results

The funding has been used as planned in the application.

Could results from the project be subject for any commercial utilization

No

Conclusions

The project *Moose in Finnmark – spatial ecology and management in a changing landscape* has successfully captured and equipped 53 moose with GPS collars 2016-2018.. To our knowledge, this is the northernmost population of moose ever been GPS collared, and may hence provide novel knowledge on spatial use by moose living in the edge of their natural habitats. So far, the project has reveal that about 60 % of moose is migratory, with large home ranges over a year. Movement patterns indicate considerably movements across management borders, indicating challenges to local management. Marking of moose with “camera collars” was successful and will give important additional knowledge to the “ordinary” GPS collaring of moose.

The project will continue next year with focus on synthesis of results and writing of papers. The project would like to thank the terrestrial flagship for vital funding to gain novel knowledge on probably the worlds northernmost moose population!