

Wolverine caching behavior: 2013-2015 - Progress report – Jan 2014

Scandinavia – Nord-Trøndelag

The aim of this study is to investigate caching behavior of wolverines under different ecological conditions in Scandinavia. Specifically we intend to answer the following questions: How does the source of food influence wolverine caching behavior? For instance, do they behave different if is a prey killed by a wolverine, another carnivore or if the ungulate died from other causes (e.g. accident)? How strong is the competition between wolverines and other scavengers? And which factors influence the strength of the intra- and interspecific competition at kill and cache sites?

The wolverine caching behavior project is kindly funded by the Wolverine Foundation Inc. and is a part of large ongoing projects by the Scandinavian lynx project at Norwegian Institute for Nature research (<http://scandlynx.nina.no/>) and The Swedish wolverine project (www.wolverineproject.se) at Grimsö Wildlife research Station, Swedish University of Agricultural Sciences. Data on wolverines have been collected by these projects since 1993 in Sweden and since 2008 in Norway and the projects have been cooperating since 2008.

Update of activities

To study the caching behaviour of wolverine, we purchased 24 VHF-transmitters (16 Telonics mod-050, 30 g, 5.6x1.7cm and 8 ATS, 16g, 4.8x1.7cm) and 25 wildlife cameras (Reconyx PC900 HyperFire Professional High Output Covert IR). The VHF-transmitters were placed into a PVC tube, to better resist damage caused by wolverine biting, following Magoun 2012 (Bone transmitter study, final report).

As a part of the Scandlynx project (scandlynx.nina.no), 4 wolverines (2 males, 2 females) were fitted with GPS-collars (Vectronic Aerospace GmbH, Berlin, Germany; Fig. 1) between February and March 2013. These collars transmit data as text messages using the cell phone net (Global System for Mobile Communications [GSM]). One additional male (J1201) was fitted with a downloadable UHF/VHF communication GPS collar.

We performed predation studies on the wolverines between 15th of March and 13th of April where the GPS-collars were programmed to take 1 GPS-location every hour. Before and after the intensive periods the collars were programmed to only take 2 locations a day. Unfortunately, the bone transmitters were not delivered until March 8th, thus it was only possible for us to use clusters of GPS-locations from the wolverines for a couple of weeks to find carcasses for fitting bone transmitters. Another problem that arose was that wolverine J1305 (F) left the study area on

April 11th and wolverine J1302 (F) had left the area already on Feb 13th (Fig. 1). In addition, the collar of wolverine J1304 (M) seldom sent any data and was not possible to work with and then the collar most likely ran out of battery on April 22th. Data from the collar of wolverine J1201 (not included in Fig.1) was not downloaded until the end of the intensive period. This left us with only 1 collared wolverine to work with (J1303, M) for this particular study period.

On April 14th we found a moose carcass by visiting a cluster of wolverine GPS-locations (Fig. 2) that was in many ways suitable for fitting transmitters. However, it was frozen to the ground making it difficult, not only for us to attach transmitters, but also for the wolverine to remove larger parts of the carcass. A camera was set up, which took 337 pictures during 27 visits of the collared wolverine (Fig. 3). The pictures revealed that no parts of the carcass were removed, and the wolverine was just feeding on the carcass. As soon as the carcass was defrosted enough, we fitted 5 transmitters to different parts (on April 29th). The wolverine continued to utilize the carcass every day until May 11th, but unfortunately he did not remove any larger parts with transmitters. The last visit of the wolverine to the carcass was documented on May 23th. We removed the transmitters and the camera on June 6th. The GPS-collars of J1303 stopped working shortly after (June 30th). All other clusters of GPS-locations from J1303 were visited in the field but none of the clusters that were connected with the carcass (i.e. wolverine movement back and forth, Fig. 2) was caching sites, only bed sites. Thus no camera was placed on this spots. We have, in addition, frozen 5 Telonics-transmitters into blocks of slaughter remains from moose, each weighing between 1.5 – 3.3 kg. On Jan 9th 2014 we started a second trial by placing these blocks in an area known to be used by unmarked wolverines. All blocks were placed in the same spot together with a head of a roe deer with an ATS-transmitter attached to it. So now we are waiting and hoping on the wolverines to arrive.



Figure 1 GPS-locations of four wolverines fitted with GPS-collars in Nord-Trøndelag, Norway, 2013.

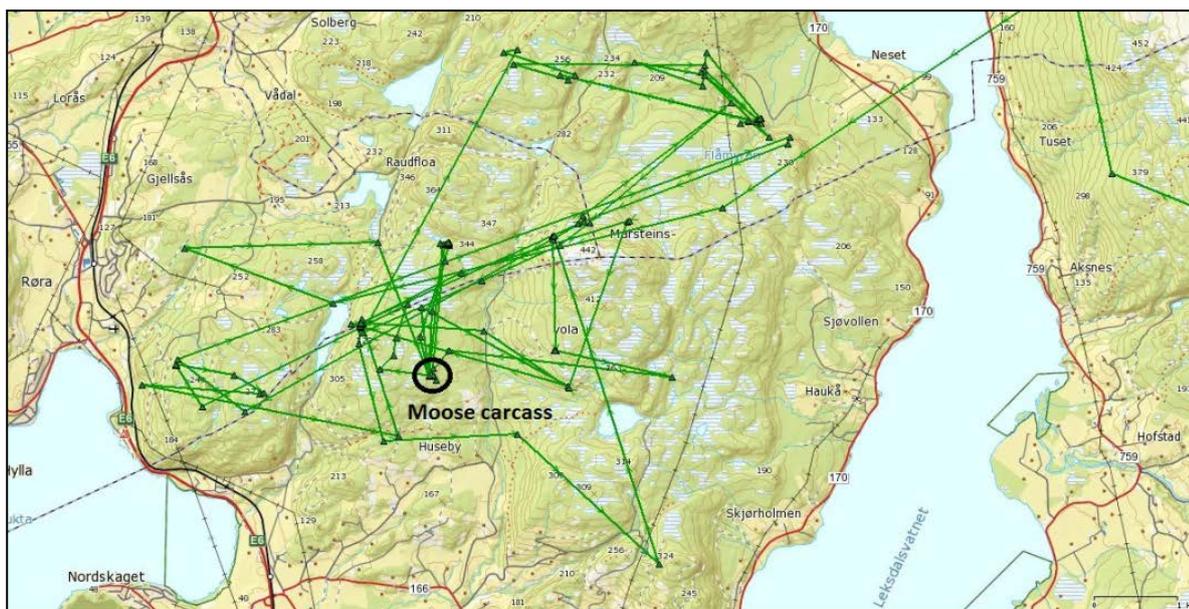


Figure 2 GPS-locations from J1303 showing the behaviour around a moose carcass. J1303 first visited the carcass on April 9th and continued to visit it at least until May 23rd.

Data collection in the field will continue during 2014 and 2015, primarily during winter but if possible also in summer. Final report will be submitted in the end of 2015.

Additional information

Because of poor GSM coverage in the area of study it sometimes takes several weeks before we receive data from the GPS-collars so when we found carcasses visited by the wolverines, most of the meat and bones have already been removed. We will still continue trying to attach transmitter on carcass found during predation studies but will in addition also attach transmitters to frozen blocks of reindeer/moose slaughter remains. This will be done both in areas without and with collared wolverines. In areas with collared wolverines we will not put out any additional food resource, to not effect predation data, but use bait station already present in the area (as a part of an Artic fox project). There will be a new period of marking wolverines in Feb 2014 and we will continue putting out bone-transmitters during the year. If we manage to radio-collar a denning female, we will try to primary work in her area.

Semi-domestic reindeer, the primarily food resource for wolverines in this area, is private property, thus we have to ask for permission from owners in order to put bone transmitter on reindeer carcasses. The ones we have been in contact with have in general been positive but to make the process quicker and easier we will primarily use moose carcasses.

Equipment and transport cost for this project are covered by the grant from Wolverine Foundation while all salaries for people involved, the cost of marking the wolverines with GPS-collars, and the cost for the predation studies are fully financially covered by other resources.



Figure 4 Wolverine J1303 on the moose carcass, April 16th – 26th. Bottom, right pictures is taken after fitting the transmitters to the carcass (April 30th).

Submitted by: Jenny Mattisson^a, Gjermund Gomo^b, John Odden^a and Jens Persson^c

^aNorwegian Institute for Nature Research, Trondheim, Norway (jenny.mattisson@nina.no; john.odden@nina.no)

^bNord-Trøndelag University College, Steinkjer, Norway

^cGrimsö Wildlife Research Station, Swedish University of Agricultural Sciences, Riddarhyttan, Sweden.