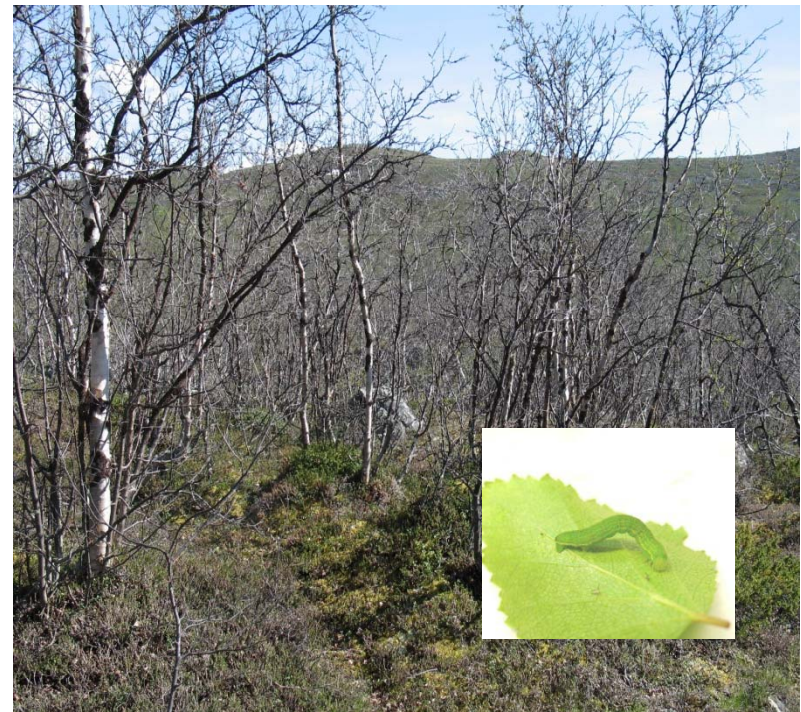


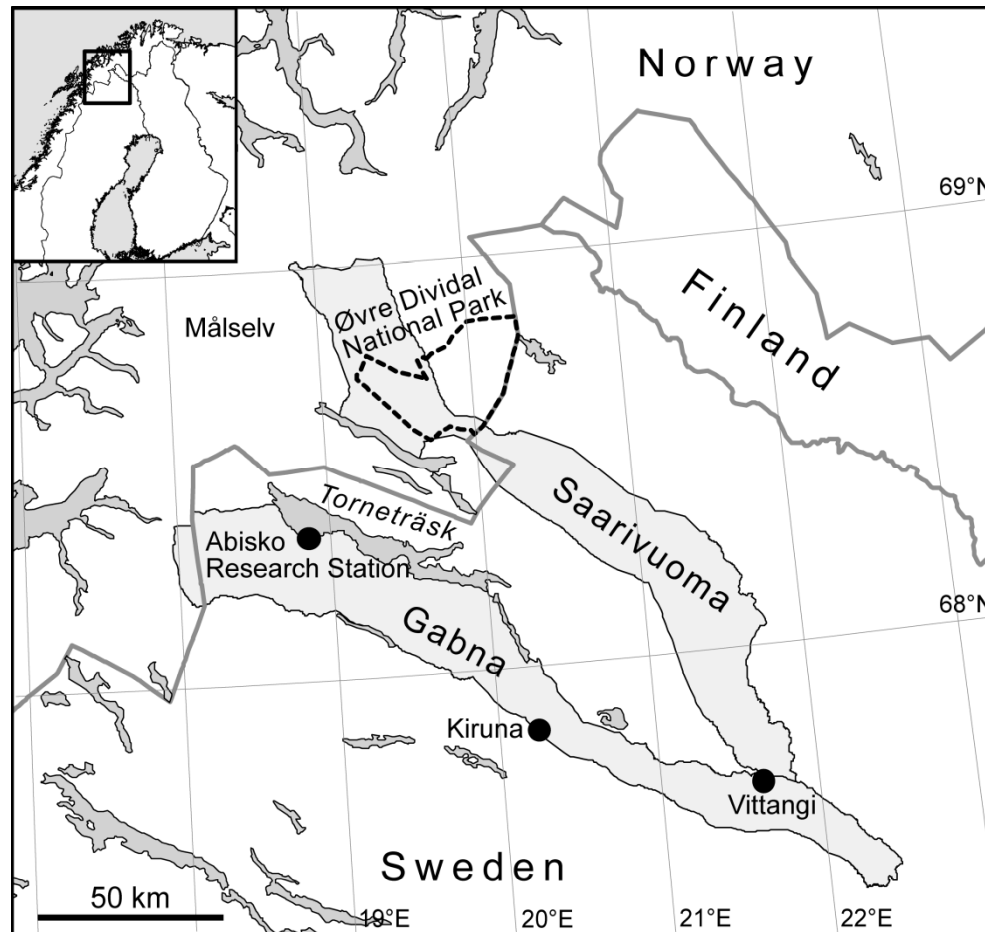
Typical attacked areas



Extensive damage to sub-Arctic vegetation caused by a short extreme winter warming event

- Spring-summer 2008
- Effects of a short extreme winter warming event in December 2007 and reduced snow fall the winter 2007-2008
- Abisko-Narvik area; huge damage
- Senja, some damage
- Tromsø, no damage

Study area

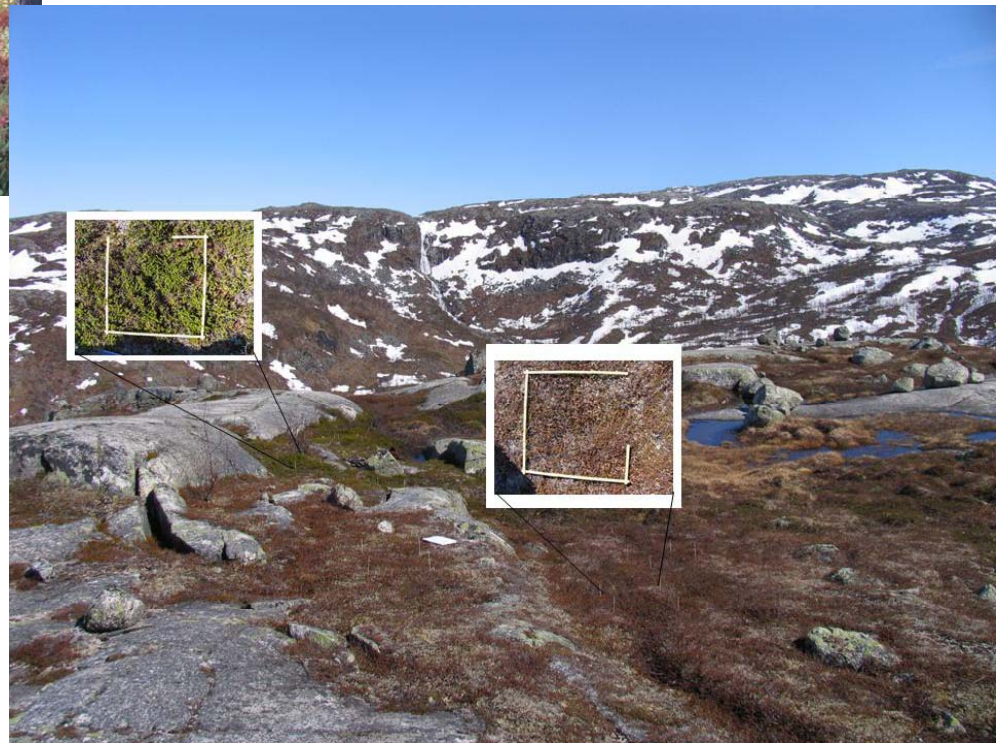


Effects on *Empetrum hermaphroditum*



Clearly induced by
climatic change

The area affected: >1400
km²



Source:

Journal of Ecology



Journal of Ecology

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Winter warming events damage sub-Arctic vegetation: consistent evidence from an experimental manipulation and a natural event

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Summary

- Changes in the position of forest-/tree lines have occurred in the Barentz region the last decades and the altitudinal uphill shift has been in some cases been measured to be more than 100 meters, however, in areas with high densities of sheep and reindeer (summer grazing areas) no uphill shifts have been observed. An exception for that are the lichen rich winter pastures in Finnmarksvidda area (Norway) that have been reduced by reindeer grazing the last decades and where we can observe an uphill advancement (20-30 meters) and a significant increase of forested areas in the period 1957-2006.
- Increased precipitation in the continental areas of Finnmark have increased the abundance/cover of *Cornus suecica* which is a indicator of climatic change.
- Warmer winter temperatures increase the frequency of caterpillar attacks.
- Extensive damage to sub-Arctic vegetation (*Empetrum* heaths) caused by a short extreme winter warming events have been observed.

Summary II

- Changes in length of the growing season in the period 1982-2006 are measured to be 1-3 weeks longer at the coastal areas in Finnmark. In the more continental areas in Barents the situation is more stable but there are areas that have experienced a shorter growing season in the same period.

Many thanks for your
attention!

