


# 3MC – Nordic Mountain Cattle Cultural Heritage & Genetics

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Background

- Three white cattle breeds of neighboring countries
- Numerous exchange of genetic material over time
- Conservation status is not the best for any breed

Helena Malmqvist



**Swedish Mountain Cattle breed**



575 dairy cows, 5000 suckler cows  
(Swedish board of agriculture, 2021).

Annu Puurunen



**Northern Finncattle**




887 breeding females

Kristin Sjølie

**Colorsided Troender and Nordland Cattle (STN)**



1900 breeding females




NordGen

[Read more: https://www.nordgen.org/en/native-breeds/](https://www.nordgen.org/en/native-breeds/)

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### The three sister breeds


Questions at the beginning

- Whether the Nordic white cattle breeds have a common ancestor? The kinship in the past and present between the breeds?
- Is it possible to trace the migration of these animals throughout history?
- Can we enhance safeguarding these endangered breeds by joining efforts in Nordic countries?
- How could we increase awareness of the breeds?

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### 3MC Nordic Mountain Cattle – culture heritage and genetics


The project facts

- an interdisciplinary project - history, cultural heritage and genetics of mountain cattle breeds
- a cross-border project between Finland, Norway and Sweden
- funded by EU InterregNord, Region Norrbotten Sweden and the Regional Council of Lapland Finland (culture and environment)
- running 2019-2022

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LAPIN LIITTO



REGION NORRBOTTEN

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Through cross-border cooperation more opportunities to exploit the unique characteristics of mountain cattle.


Aims

MEASURABLE OBJECTIVES

- collection and archiving historical data of Nordic Mountain cattle
- mapping cultural heritage
- formation of a peer support network
- estimation of genetic relationships across the breeds
- a mobile game for education
- exhibition for outreaching for the public

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Map showing the distribution of Nordic Mountain cattle across various regions in Scandinavia. The map includes labels for several locations: Vadso, Karasjok, Inari, Kiruna, Bodo, Tromso, Rovaniemi, Tornio, Lulea, Oulu, Snasa, Umea, Kokkola, Ostersund, and Lapin Laitto. The map also features logos for NordGen, Luke, SDU, SLU, and Ahlman.



Photo of a brown and white cow standing in a snowy field. The cow is looking towards the camera. In the background, there are snow-covered trees and a fence. The photo is credited to Annu Puurunen.

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## Our approach

- ...genetic research with cultural studies
- ...the past and present genetics
- ...research and influencing
- ...science with game application

(communication)


 NordGen

# Pedigrees and Archaeology

- unveiling of early stage by ancient DNA
- pedigree data from the breeds' formation
- ancient DNA is compared to modern genomic data

[illegible] NordGen

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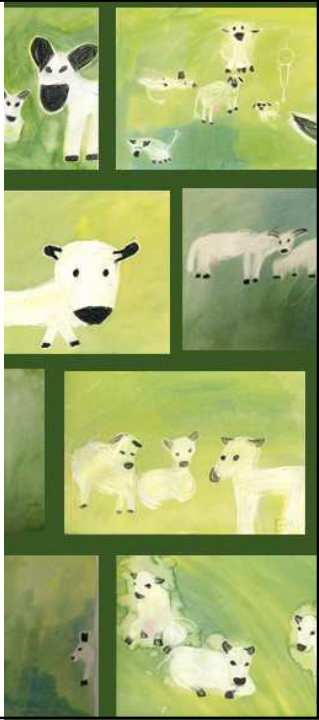
Cultural heritage of the Mountain cattle breeds

- human – animal interaction, farmers relationship to nature & farmers motivation as animal keepers
- animal assisted activities
- Rural culture heritage (buildings, traditional biotopes)
- a network aiming to preserve culture heritage with genetic resources

Cultural research

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Game application - are you able to keep your cows alive for 200 years in the harsh Nordic conditions?

- transformation of the gathered data as a mobile app
- Successful managing the population in the game requires maintenance of the genetic diversity
- Learning the history by playing

Outcome - game application

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