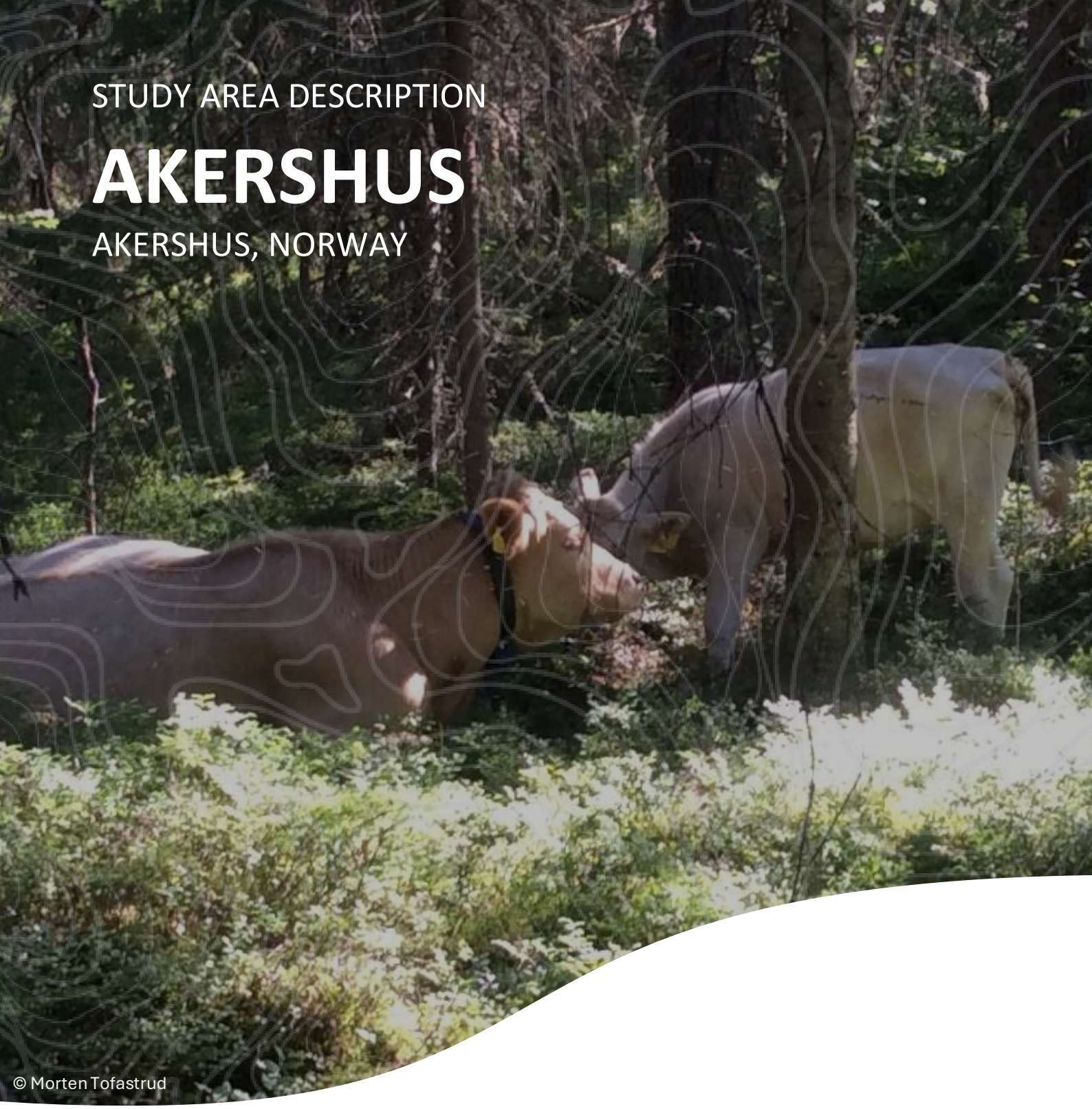
STUDY AREA DESCRIPTION

AKERSHUS

AKERSHUS, NORWAY



CoCo

Co-creating Coexistence

STUDY AREA DESCRIPTION

AKERSHUS

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Funded by the European Union

CoCo is funded by the European Union's Horizon Europe - Research and Innovation programme (grant agreement No. 101181958). The project, started in November 2024, has a duration of three years.

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1 INTRODUCTION

The study area lies in south-eastern Norway and comprises nine municipalities, extending to the Swedish border. The landscape is a patchwork of boreal forests interspersed with scattered rural settlements and fragmented agricultural land. The agricultural landscape is dominated by arable cropping systems, primarily cereals, as well as dairy cattle. Beef cattle and sheep production serve as a complementary source of income alongside crop production or off-farm employment.

The entire study area lies within the designated lynx protection zone, and partly within the wolf zone in the south. Almost all livestock losses can be attributed to these two large carnivore species.

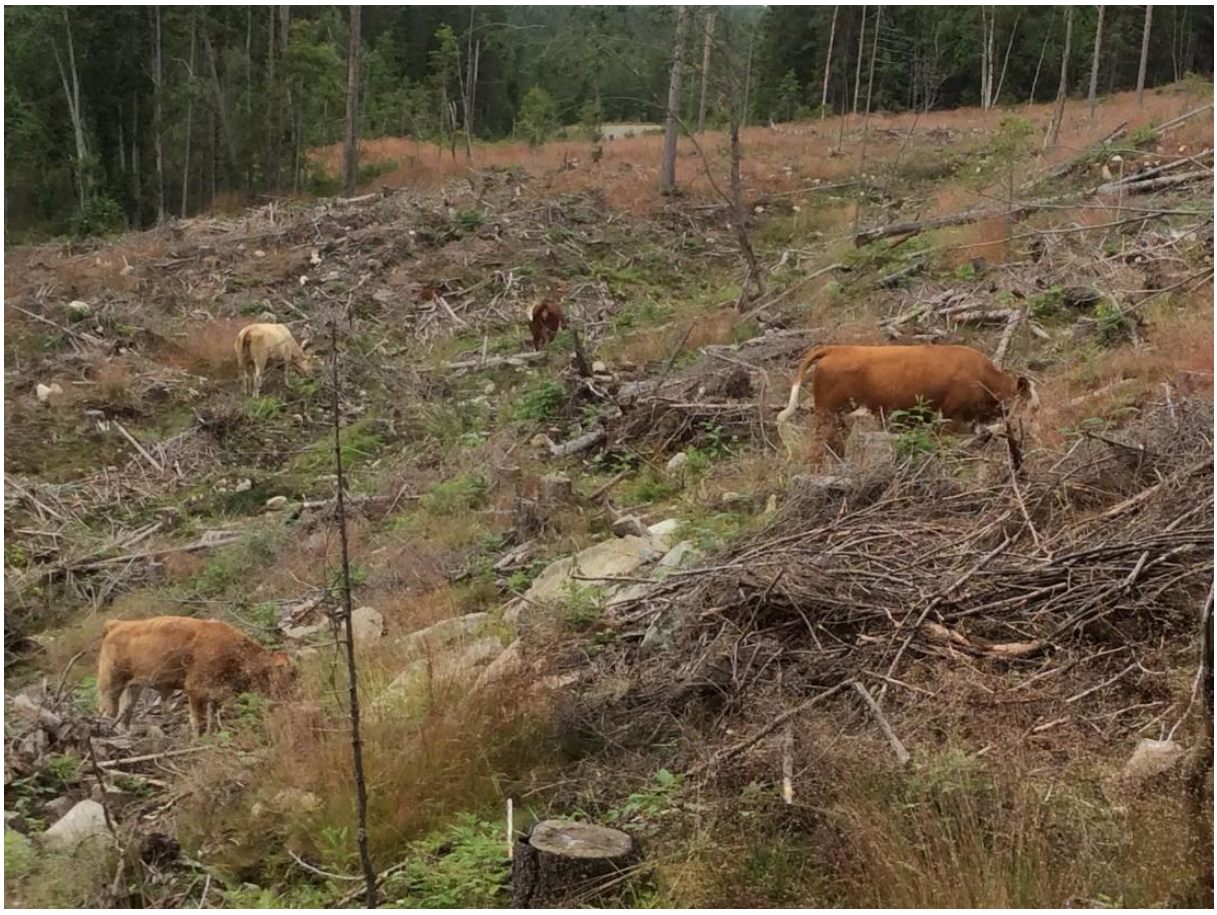

Figure 1: Free-range beef cattle grazing on a recently logged area in Eidsvoll, the northernmost part of the study region, where this practice remains common. These clear-cut sites, created by modern forestry, are typically dominated by light-demanding grasses that thrive among scattered piles of logging waste (Photo Credit: Morten Tofastrud).

2 OVERVIEW

- **Municipalities:** Aurskog-Høland, Gjerdrum, Nes, Ullensaker, Lillestrøm, Hurdal, Eidsvoll and Enebakk.

- **Geographical size:** ca. 3,500 km^2.
- **Human population:** Approximately 100,000.
- **Number of livestock farmers (approx.):** Of the 250–300 livestock farmers in total, 169 are using outfields for sheep and cattle.
- **Livestock farming systems:** Sheep, dairy and beef cattle.
- **Wild large carnivore species:** Bear, wolf, wolverine and lynx
- **Wolf population:** Decreasing national population trend (59–66 individuals). Individual wolves are roaming from the wolf zone in the south into the study area.
- **Lynx population:** 6 litters born on average annually (2023–2025) in the Oslo, Akershus and Østfold region, matching the regional target of 6 litters per year.

3 SOCIOECONOMIC CONTEXT

- Akershus is characterised by some of Norway's most fertile agricultural soils, particularly the marine clay deposits found below the post-glacial marine limit. These deposits provide high nutrient availability and favourable conditions for cereal cropping. Nearly 80% of the cultivated land is allocated to grain production, primarily wheat, barley, and oats.
- Despite favourable agronomic conditions, agriculture represents a relatively minor economic sector within this urbanised region, which is strongly shaped by its proximity to Oslo and several smaller cities. Combined with structural changes within the agricultural sector, this urban influence has contributed to a 33% reduction in the number of active farms, reflecting ongoing consolidation and intensification trends.
- This geographic context offers diverse employment opportunities beyond farming, contributing to a high prevalence of part-time farming and multi-purpose use of farms. Farm households often diversify income through agri-tourism, forestry operations, and resource-based activities, such as hunting and outdoor recreation services.
- Unlike most Norwegian outfield areas, organised rangeland grazing organisations are absent (except in the north). Combined with large carnivore presence, this constrains the economic feasibility of reintroducing extensive livestock grazing. These limitations reduce the potential to utilise low-cost forage resources and maintain traditional grazing landscapes, which have historically supported both cultural heritage and biodiversity.

Figure 2: A suckler cow and her calf rest in the shade of the standing forest on a hot day. Here, the ground layer is dominated by heather and moss species, which provide little to no grazing value for livestock. (Photo Credit: Morten Tofastrud)

4 FARMING CONTEXT

- Free-ranging sheep and cattle on forest pastures represent a declining traditional extensive grazing system in this region. This grazing system involves low input, with the livestock utilising native forage resources such as forest grasses, herbs and shrubs during the summer.
- In Norway, crossbreds are most common in dairy cattle and sheep production — Norwegian Red Cattle and Norwegian White Sheep, respectively. There are also several national and international sheep breeds. Beef production is dominated by continental breeds, particularly Charolais and Hereford.

Main Challenges:

- Following the re-establishment of the wolf population from the late 1990s onwards, predation pressure increased substantially, particularly on small ruminants. As a result, sheep mortality rates escalated, leading to significant economic losses and reduced viability of traditional grazing systems.

- Consequently, many farmers have either abandoned sheep production or implemented carnivore-proof electric fencing to protect their herds. Others rely more heavily on fenced infield pastures. These changes have altered grazing intensity and spatial distribution, which has implications for forage utilisation, nutrient cycling, and parasite pressure.

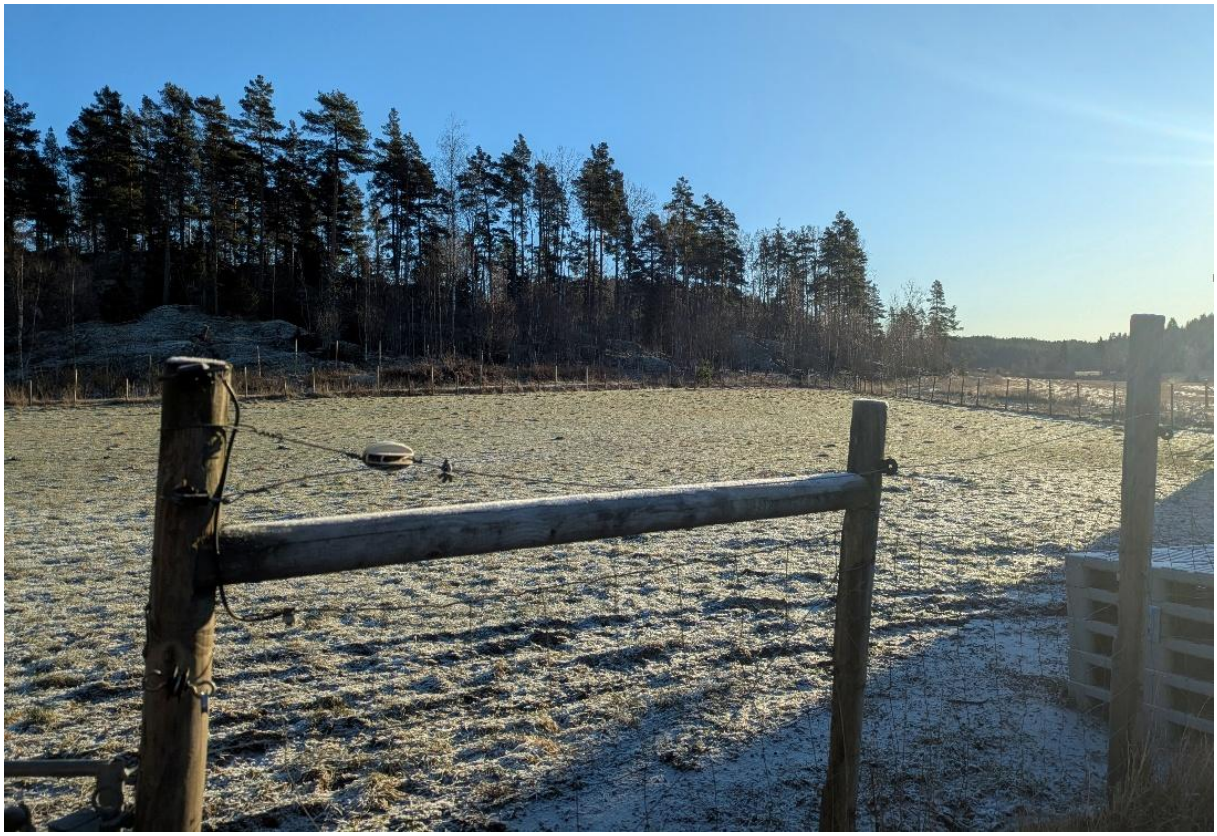

Figure 3: Carnivore-proof fenced pasture located close to forest patches and infield pastures in Eidsvoll municipality. A typical fence for this area, it has electrical wires at the top and bottom, in addition to masked wires (Photo Credit: Niklas Wilhelmsen).

5 LOCAL CONFLICT ASSOCIATED WITH LARGE CARNIVORES

Number of attacks:

Livestock predation in the area is relatively low and occurs almost exclusively on sheep, with only one recorded case involving cattle. From 2006 to 2024, 4,315 sheep were compensated, with 49% of losses attributed to lynx and 48% to wolves. Predation averaged 227 sheep per year over this period, similar to the recent annual average of 255 sheep. However, two municipalities account for most losses in the study area: Eidsvoll (74%) and Hurdal (12%), and in more recent years (2021-2024). The other municipalities have experienced only a handful of losses annually.

- Interestingly, losses from bears are only recorded in one municipality (Eidsvoll), despite it being over 30 km from the bear zone. Meanwhile, no losses are recorded in the municipalities closer to

the bear zone. Additionally, there have been no recorded losses related to wolverines, despite two municipalities bordering the wolverine zone.

Social conflict:

- The study area presents an interesting case, as very few farmers are organised in grazing organisations (only some farmers in the northern part, Eidsvoll).
- Many farmers only keep their livestock on infield pastures, with some using electric fences to prevent carnivore attacks.

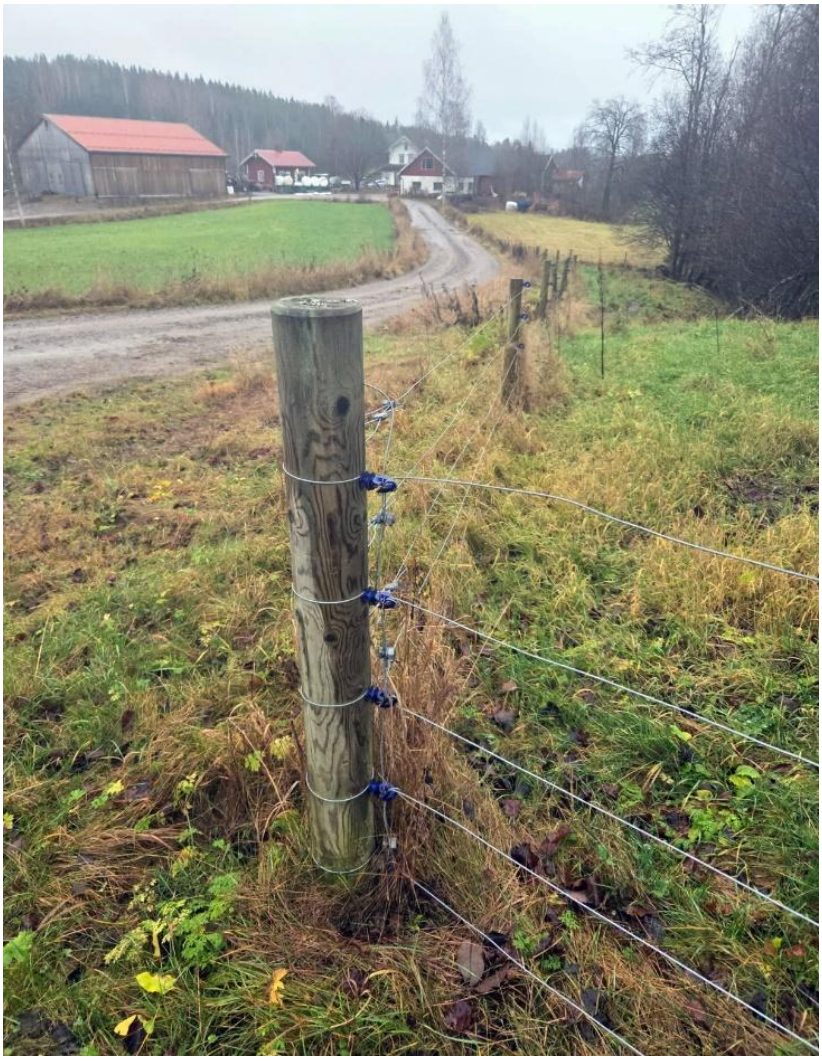

Figure 4: Another carnivore-proof fence located next to the farm in Eidsvoll municipality. Also typical for this area, the fence has five electrical parallel wires. Some farmers in this area have several small electrical fences (Photo Credit: Emma Alice Nilsen).

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