

STUDY AREA DESCRIPTION

VÄRMLANDS LÄN

SVERIGE, SWEDEN



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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 stretches across a diverse landscape, uniting the inland regions, forested areas, and plains of Värmland along the northern shore of Lake Vänern. There is a clear transition from hilly forested landscapes in the north to more open agricultural areas and urban centres in the south. The farms are located in the municipalities of Torsby, Sunne, and Karlstad. Together, they make up a diverse and naturally rich part of the county with a long tradition of agriculture, forestry and service industries.



Figure 1: Flock of sheep (Photocredit: Sofia Hedlund).

2 OVERVIEW

- ▶ **Municipalities:** Torsby, Sunne and Karlstad.
- ▶ **Geographical size:** 7,323 km².
- ▶ **Human population:** 123,600 people.
- ▶ **Number of livestock farmers (approx.):** 600.
- ▶ **Livestock farming systems:** Beef cattle and lamb production.

- ▶ **Wild large carnivore species:** Wolves, lynx, wolverines, and golden eagles. Bears are documented sporadically.
- ▶ **Wolf population:** Four family groups and four and a half territorial groups (2024/25).
- ▶ **Lynx population:** Twelve family groups (2025/26).
- ▶ **Bear population:** Fifteen individuals, ten males and five females (as of 2022, as determined by scat DNA surveys).



Figure 2: Group Hereford steers grazing at hilly pasture. (Photocredit: Karin Granström).

3 SOCIOECONOMIC CONTEXT

The landscape is characterised by large forests, marshes, and lake-rich valleys. The municipality of Torsby is dominated by forest and mountainous terrain, with cultivated land found in the river valleys of the Klarälven and Röjdån rivers, for example. Sunne municipality forms a transition zone with valleys around Lake Fryken, where agriculture, pastures, and forests coexist in a hilly cultural landscape. In Karlstad, the plains around Vänern dominate, with more contiguous farmland, large water systems, and nature close to urban areas.

The study area contains several nature reserves and protected environments with high natural values, including wetlands, deciduous forests, and watercourses. According to the Swedish Environmental Protection Agency and the County Administrative Board of Värmland, the area is of great importance

for biodiversity and serves as a corridor for wildlife, including predators, between the large forests in northern Värmland and the more open areas in the south.

Karlstad is the county's largest city and growth centre, while Sunne and Torsby, in contrast, are more sparsely populated rural municipalities. The countryside is dominated by family farms and small businesses. Many of these combine farming with other activities, such as contracting, tourism, or forestry. The population structure reflects the typical development in many inland municipalities, with depopulation in the north and growth in urban areas in the south.



Figure 3: Cattle grazing around a lake (Photocredit: Karin Granström).

4 FARMING CONTEXT

Agriculture is generally small-scale and often combined with forestry. In the northern parts of Torsby, forestry is the dominant land use, with farmland being concentrated in valleys and along rivers. Sheep and cattle farming are found mainly on farms with natural pastures adjacent to forest edges and meadows.

Sunne has a more mixed farming character, with both crop cultivation and animal husbandry present. Karlstad, while home to a smaller proportion of active agriculture, features larger farming units and more contiguous arable and pasture land in its southern and western parts.

Main Challenges:

- ▶ Ageing farming population.
- ▶ Low profitability.
- ▶ Large carnivore presence.



Figure 4: Flock of sheep in a forested pasture (Photocredit: Sofia Hedlund).

5 LOCAL CONFLICTS ASSOCIATED WITH LARGE CARNIVORES

Värmland County is home to wolves, lynx, wolverines, and golden eagles, whilst bears are documented more sporadically. The County Administrative Board oversees inventory and management efforts, and reports annually on the county's status. The inventory results inform regional goals and decisions relating to hunting, grants for preventive measures and compensation schemes for damage caused by large carnivores.

The presence and distribution of large carnivore territories within Värmland have varied over time. Historically, the county hosted a large share of Sweden's wolf territories. However, in recent years, wolves have dispersed more broadly across central Sweden. Lynx are regularly present, whilst

wolverines occur to a lesser extent. Bears are repeatedly spotted in the north, though the population within the county remains small.

Monitoring methods vary by species. Wolves and lynx are tracked and documented through established territories. Bears and wolverines are mainly monitored through direct observations and DNA findings.

Number of attacks:

Inspected cases of attacks on domestic animals are reported at the county level in Värmland. The number and locations of attacks vary between years and are affected by the location of territories relative to pastures, individual animal behaviour, season, and the extent of preventive measures in place. According to national summaries from the Wildlife Damage Centre, attacks do not necessarily correlate linearly with estimated population size, highlighting the importance of monitoring livestock damages and working adaptively with preventive measures.

According to the Wildlife Damage Centre's annual report for 2024, sheep are the most attacked domestic animals in Sweden, followed by goats and cattle. Grants for preventive measures, such as predator-proof fencing and clearing, constitute the largest cost item in wildlife damage management, whilst direct compensation represents a smaller share of the expenditure. Värmland follows the same principles, through annual outcomes depend on the actual damage in the county.

Because Värmland has had high predator pressure over the past 30 years, farming operations have adapted to some extent. The number of sheep farms has decreased, with some farmers abandoning animal production altogether and others switching to cattle farming, as beef cattle herds are considered less vulnerable to attacks.

In some heavily affected herds, producers have chosen to calve in the autumn and keep only adult cows on exposed pastures, while calves are kept close to the farm. Some sheep farmers have moved to keeping only ewes, forgoing lambing entirely, and keeping adult animals primarily for nature conservation. However, many farmers believe that predator pressure has decreased in recent years. Several farmers report that attacks were far more frequent some 15–20 years ago, and that conditions have since become calmer.

At farm level, the following measures are key to managing risk:

- ▶ Predator-proof fencing (often reinforced sheep nets with electric wires, with the area under the wire regularly cleared).
- ▶ Night intake or night pens during periods of high risk.
- ▶ Gathering animals in fewer, more manageable pastures.
- ▶ Temporary relocation of grazing.

Other important measures include quickly reporting suspected attacks to the county's inspection organisation and recording observations. In some cases, protective hunting may be necessary.

Exchange of experiences and dialogue between animal keepers, hunters, and authorities are recurring important components for coexistence.

Social conflict:

Social conflict was more pronounced 15 years ago, when the impact on livestock owners was higher. As wolf numbers have since declined, tensions have eased somewhat. Nevertheless, emotional and psychological stress remains a reality for many farmers, and motivation to continue grazing-based farming has been undermined in some cases.

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