

STUDY AREA DESCRIPTION

POLISH CARPATHIANS

MAŁOPOLSKA AND PODKARPACIE, POLAND



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1 INTRODUCTION

Nestled in southern Poland, the Podkarpackie and Małopolskie regions encompass much of the Polish Carpathians, stretching from the rolling hills of the Bieszczady Mountains to the rugged peaks of the Tatra Mountains and their densely populated foothills. Livestock farming reflects a blend of long-standing traditions and local adaptations: from seasonal sheep grazing on mountain pastures to small-scale, mixed farms where cattle, sheep, and goats are kept within fragmented holdings. These systems are generally low-intensity and rely heavily on permanent grasslands and locally produced fodder.

The region forms a diverse landscape—a mosaic of protected areas, forests, semi-natural grasslands, densely settled valleys (especially in Małopolskie), and growing tourism infrastructure. Livestock farming plays a key role in maintaining this landscape and its biodiversity.

At the same time, the area is a stronghold for large carnivores, including wolves, lynx, and bears. Podkarpackie has long supported the largest wolf population in Poland. Today, increasing numbers of wolves and brown bears contribute to rising conflicts, as livestock depredation and public safety concerns become more significant for local communities.



Figure 1: Extensive grazing of sheep in the mountain pastures of Małopolska (S Poland), exemplifying transhumance-like grazing traditions in the region (Photo Credit: Joanna Kołodziejczyk).

2 OVERVIEW

- ▶ **Municipalities:** The study area covers 33 municipalities located within two voivodships: Podkarpacie and Małopolska, mostly in their southern, mountainous parts.
- ▶ **Geographical size:** The combined area of the 33 municipalities is approximately 4,860 km².
- ▶ **Human population:** The municipalities are inhabited by around 395,000 permanent residents.
- ▶ **Number of livestock farmers:** According to 2024 district-level data from the Agency for Restructuring and Modernization of Agriculture, the 13 districts encompassing the study municipalities (total area approx. 13,000 km²) included 17,051 cattle herd owners (approx. 118,000 animals), 1,961 sheep herd owners (approx. 62,500 animals), 581 goat herd owners (approx. 4,200 animals), and 3,400 horse owners (approx. 12,800 animals).
- ▶ **Livestock farming systems:** Predominantly traditional, small-scale, family-run mixed farming, with low-intensity cattle farming (mostly dairy or dual-purpose) and extensive sheep grazing in mountain areas.
- ▶ **Large carnivore species:** Wolves (*Canis lupus*), lynx (*Lynx lynx*) and brown bears (*Ursus arctos*) are present in the area.
- ▶ **Large carnivore populations:** According to the most recent EU report, wolves occur throughout the entire area, and lynx in most of the area (except for larger, non-forested parts). There are currently no reliable official population estimates for either species due to the lack of systematic monitoring. Both species have persisted, at least in the easternmost parts of the region, throughout the past century, with their distribution and numbers increasing since 2000, particularly in the case of wolves. The area hosts the entire Polish part of the Carpathian population of brown bears, which it shares with adjacent areas of Slovakia and Ukraine. Bear numbers have been rather stable in the recent years, yet the increased number of observations, damages and human-bear encounters has been noted.

3 SOCIOECONOMIC CONTEXT

- ▶ Małopolskie and Podkarpackie, particularly their southern Carpathian areas, are characterised by relatively low population densities and a fragmented settlement pattern. The landscape is dominated by mountains, forests, and semi-natural grasslands, making the region attractive for tourism and recreation.
- ▶ Agriculture remains an important but highly fragmented sector, based largely on small, family-run farms combining livestock production with off-farm income. Cattle farming dominates, with sheep grazing playing a locally important role.

- ▶ Compared to lowland regions, farming systems are less intensive and constrained by the terrain, shorter growing seasons, and smaller farms. While some commercialisation is occurring, notably in more accessible valleys, many farms remain small-scale and multifunctional.
- ▶ Tourism is a key component of the regional economy, alongside forestry and wood processing. The region is recognised for its high natural value and extensive protected areas.
- ▶ These areas are important for biodiversity conservation, including populations of large carnivores such as wolves, lynx, and brown bears, creating both opportunities and challenges for livestock farming.
- ▶ At the same time, mountainous regions are facing challenges such as ageing populations, outmigration, and limited economic opportunities, although tourism partly offsets these trends.



Figure 2: The landscape of the Polish Carpathian combines livestock farming with tourism. Here, Polish dairy cows can be seen grazing under a chair lift (Photo Credit: Kamil Najberek).

4 FARMING CONTEXT

- ▶ Agriculture is highly fragmented and dominated by small, family-run farms that practise mixed crop–livestock production. Livestock remains an important component of rural livelihoods, often operating at a low commercial intensity.
- ▶ Cattle farming (mainly dairy and dual-purpose) is the dominant livestock system, based on small herds, traditional housing, and locally produced fodder (grasslands, hay, silage). Production is generally low- to medium-intensity.

- ▶ Sheep farming is regionally important in mountain areas (e.g. Podhale, Beskidy Mountains, Bieszczady Mountains), relying on extensive grazing systems and traditional pastoral practices, although it has been declining due to economic and management challenges.
- ▶ Farm structures remain weakly specialised and only partly commercialised, with many households combining agriculture with off-farm income.

Main Challenges:

- ▶ Increasing frequency of extreme weather events (droughts, heavy rainfall) affects grassland productivity and fodder availability, creating uncertainty for livestock production.
- ▶ Low profitability of small-scale farming, combined with rising costs of feed, energy, and other inputs, puts strong economic pressure on predominantly family-run farms.
- ▶ Predation by large carnivores (especially wolves) poses a significant challenge for extensive grazing systems, particularly sheep farming.
- ▶ Labour shortages and an ageing farming population reduce the capacity to maintain labour-intensive livestock systems and traditional pastoral practices.
- ▶ Administrative complexity and dependence on EU/CAP support create additional burdens, especially for smaller farms with limited organisational capacity.



Figure 3: Farmers often use combinations of preventive measures (here, electric fence and Tatra sheepdog, a Polish Livestock Garding Dog breed) to limit their losses due to large carnivores (Photo Credit: Hubert Fedyń).

5 LOCAL CONFLICT ASSOCIATED WITH LARGE CARNIVORES

Number of attacks:

Małopolska and Podkarpackie, being part of the Polish part of the Carpathians, are the regions that are most affected by livestock depredation, mostly by wolves. Between 2022 and 2024, 1,048 wolf attacks on livestock were recorded across the studied municipalities (including 27 in 2024 alone), resulting in 2,104 animals killed. Sheep accounted for most losses (832 attacks, 1,774 animals), including several mass depredation events (up to 20 animals in a single attack). In addition to cattle, sheep, goats, and horses, wolves also prey on farmed fallow deer and red deer, and domestic dogs. Most attacks occur during the grazing season.

Social conflict:

- ▶ **Limited support for strict wolf protection:** Many rural residents view the current legal status of wolves as inadequate and favour regulated hunting in specific seasons or areas, although overall attitudes remain neutral to slightly positive.
- ▶ **Fear of wolves and bears:** Despite long-term coexistence, wolves are still perceived as a source of concern, though reported fear levels are generally low. The presence of wolves and bears within settlements is becoming increasingly common, raising fear levels, which are mostly expressed through social media or traditional media channels. Since 2014, there have been two fatalities caused by brown bears in the area, as well as several human-bear incidents.
- ▶ **Perceived inadequacy of compensation:** Compensation schemes are often seen as insufficient, as they do not account for future losses or unrealised benefits, particularly in cases involving very young animals.
- ▶ **Increasing social polarisation:** This issue reflects a broader division between stakeholder groups with differing views on nature, wildlife, and conservation priorities.



Figure 4: Polish traditional sheep breed (*wrzosówka* or Polish Heath Sheep) in spring are grazed in the villages, before they head to mountain summer pastures (Photo: J. Kołodziejczyk).

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