

STUDY AREA DESCRIPTION

# LAKMOS & KOZIAKAS MTS.

(THESSALIA), GREECE

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the European Union**

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## 1 INTRODUCTION

Located in the southern Pindus Mountains of western Thessaly, the Lakmos and Koziakas region features forests, alpine meadows, and river systems that support a rich biodiversity, including brown bears and wolves. For centuries, local communities have shaped the landscape through transhumance and sedentary pastoralism. Today, traditional land use and nature-based tourism are striving to counteract land abandonment and demographic decline, in an effort to maintain the mountainous way of life and preserve the diverse landscapes, species, and centuries-old cultural heritage.



**Figure 1.** Traditional cowbells used by an elder Vlach cattle owner. The bells served both practical purposes and symbolised pastoral culture and identity. They reflected the owner’s status and pride in their animals, while the distinctive soundscape they created was deeply linked to the owner’s presence and personal story (September 2025; Photo credit: Maria Psaralexi).

## 2 OVERVIEW

- ▶ **Municipalities:** Parts of Municipality of Meteora and Municipality of Pyli.
- ▶ **Geographical size:** Approximately 410 km<sup>2</sup> surveyed.
- ▶ **Human population:** Approximately 1,900 permanent residents (2021 census) in the area surveyed.

- ▶ **Number of livestock farmers (approx.):** The municipal units surveyed host 178 livestock holdings according to the 2021 Agricultural Census.
- ▶ **Livestock farming systems:** Cattle, sheep, and goats are the main livestock, with a focus on extensive grazing systems.
- ▶ **Wild large carnivore species:** The brown bear (*Ursus arctos*) and the grey wolf (*Canis lupus*) have been present throughout history.
- ▶ **Bear population:** Minimum population of 54 individuals in the wider area (2024).
- ▶ **Wolf population:** Unknown.



**Figure 2.** The village of Chaliki, a typical settlement on Mount Lakmos. Located at an altitude of 1,150 m above sea level, it lies below the alpine pastures and the Verlinga plateau, where the Acheloos River originates (July 2025; Photo credit: Giorgos Chatzinakos).

### 3 SOCIOECONOMIC CONTEXT

- ▶ The Lakmos–Koziakas region is a highland socio-ecological system, where rugged topography, nature protection zones, and demographic pressures intersect. Historically, local livelihoods were based on transhumant livestock breeding, small-scale agriculture, and forestry. This formed a subsistence model that was closely linked to the natural environment.
- ▶ Over recent decades, economic diversification has occurred through the development of nature-based tourism. Yet, tourism remains seasonal and spatially uneven, providing limited income stability.
- ▶ The area faces pronounced demographic decline. Outmigration and the ageing of the remaining residents are threatening community continuity. These trends, coupled with the gradual

abandonment of traditional land uses, have contributed to landscape change. Infrastructure limitations and restricted market access further hinder economic resilience.

- ▶ Since 2022, the area hosts a pilot Bear Smart Community, fostering coexistence through awareness campaigns, cultural events, and stakeholder cooperation for the development of a local coexistence strategy.
- ▶ The impacts of Storm “Daniel” in September 2023 exposed the fragility of local livelihoods and infrastructure. Intense rainfall caused landslides, destroyed road networks, and temporarily isolated mountain communities, aggravating pre-existing socio-economic vulnerabilities. The effects of the storm remain evident, as they continue to undermine local livelihoods.



**Figure 3.** Image of the flooding caused by Storm “Daniel.” The storm inflicted extensive infrastructure damage, isolating several mountain villages for days and causing severe environmental and socio-economic impacts. Its devastating aftermath remains visible to this day. (September 2023; Photo credit (video frame): Constantinos Zaraboukas)

## 4 FARMING CONTEXT

Farming in Lakmos–Koziakas remains central, rooted in extensive grazing systems on mountainous pastures, and supplemented by small-scale cultivation. However, pastoralism has declined rapidly: in the Regional Unit of Trikala, from 2009 to 2020, cattle holdings fell by 14%, sheep by 49%, and goats by 54%.

While there are limited specific figures at village level, the wider region has reported tens of thousands of losses following “Daniel”, whereas the number of holdings has decreased even further following recent disease outbreaks (sheep-goat pox in 2025, PPR in 2024). Many holdings have since been abandoned.

### Main challenges:

- ▶ Ageing farmer population, low generational renewal and outmigration.
- ▶ Predation by bears and wolves causes economic loss and emotional distress.
- ▶ Persistent dissatisfaction with ELGA’s compensation scheme.
- ▶ Economic viability and dependency on EU subsidies, threatened by subsidy scandals (e.g. OPEKEPE).
- ▶ Operational actions against sheep and goat pox (2025) and PPR (2024) endanger pastoralism.
- ▶ Extreme weather events, such as storm “Daniel”, have caused pasture degradation in the lowlands, feed loss, and damage to infrastructure, while soaring feed prices and disrupted supply chains further strain farm operations.



**Figure 4.** Cattle farming appears to be more resilient than small ruminant farming in the area. In summer, cattle are typically moved to mountain pastures, where they graze with minimal human supervision. Owners largely rely on the herd’s collective behaviour and protective instincts to deter predators. Although this pattern is not uniform across all holdings, owners or shepherds usually conduct only periodic visits to check the animals and ensure that no problems have occurred (September 2025; Photo credit: Giorgos Chatzinakos).

## 5 LOCAL CONFLICT ASSOCIATED WITH LARGE CARNIVORES

### Number of attacks:

ELGA (the Greek Agricultural Insurance Organisation) is a public benefit organisation responsible for compensating for agricultural damage caused by natural phenomena, including attacks by wild animals such as wolves and bears. In 2022, ELGA recorded 58 compensation claims in the study area: 29 for bear damages and 29 for wolf damages to livestock. However, these figures underestimate the true extent of the problem, as many incidents not meeting ELGA's eligibility criteria remain unreported, and numerous breeders dissatisfied with the compensation scheme refrain from filing claims. On the upside, a growing number of farmers are now investing in preventive measures, such as electric fencing.

### Social conflict:

- ▶ Most attacks occur during grazing, though predators may enter farm facilities.
- ▶ Poison baits killing shepherd dogs, leaving flocks vulnerable.
- ▶ Subsidy scandals fuel distrust; farmers feel falsely accused.
- ▶ Sheep and goat pox is managed through lockdowns and flock removal, causing continuous stress, financial loss and uncertainty for breeders.
- ▶ Wolves preying on hunting dogs add to conflict.
- ▶ Conflict with large carnivores is pronounced, with cases of bears or wolves being deliberately killed or poisoned.
- ▶ Cases of habituated bears have been documented in the area; these animals have become largely dependent on human food sources and lost their natural fear of people. This situation fosters negative perceptions of bears, heightens public fear, and increases tensions among residents within affected villages.

These patterns indicate significant human-wildlife tensions with both ecological and socio-economic consequences.



**Figure 5.** Documented case of illegal poison baiting targeting carnivores near Anthousa (Municipal Unit of Aspropotamos), October 2018. Cow remains (legs and skin, upper left corner), laced with poison were placed the road. The wolf carcass nearby exhibits signs of poisoning, indicating death occurred within meters of ingestion (October 2018; Photo credit: Dimitris Vavylis / Hellenic Ornithological Society).



**Figure 6.** Habituated bear cub in Krania (Municipal Unit of Aspropotamos). The cub was often seen wandering the village during daytime, entering yards, and balconies, and feeding on garbage, pet food, and occasionally food left out by residents. It disappeared after storm “Daniel”; however, at least one adult bear currently frequents Krania several times per day, displaying similar foraging behaviour and dependency on human-related food sources (June 2023; Photo credit: Zahos Pipergias).

## REFERENCES

- ▶ Hellenic Agricultural Insurance Organization (ELGA). *Κανονισμός για την ασφάλιση γεωργικής παραγωγής και κτηνοτροφίας* [Regulation on the insurance of crop production and livestock breeding]. Retrieved October 28, 2025, from <https://elga.gr/el/ζημιές/ζημιές-από-άντρια-ζώα>
- ▶ Hellenic Agricultural Insurance Organization (ELGA). *Confirmed Cases of Bear and Wolf Attacks on Livestock in Greece for the Year 2022*; ELGA: Athens, Greece, 2022.
- ▶ Hellenic Republic. (2010). *Νόμος 3852/2010: Νέα Αρχιτεκτονική της Αυτοδιοίκησης και της Αποκεντρωμένης Διοίκησης – Πρόγραμμα Καλλικράτης* [Law 3852/2010: New Architecture of Self-Government and Decentralized Administration – Kallikratis Programme]. *ΦΕΚ Α' 87/7.6.2010*. Retrieved October 28, 2025, from <https://www.kodiko.gr/nomothesia/document/132966/nomos-3852-2010>
- ▶ Hellenic Republic. (2010). *Νόμος 3877/2010: Σύστημα προστασίας και ασφάλισης της αγροτικής δραστηριότητας* [Law 3877/2010: System for the protection and insurance of agricultural activity]. *ΦΕΚ Α' 160/20.09.2010*. Retrieved October 28, 2025, from <https://www.lawspot.gr/nomikes-plirofories/nomothesia/n-3877-2010>
- ▶ Hellenic Statistical Authority (ELSTAT). (2020). *Holdings and number of animals by kind, region, regional unit, municipality and municipal unit (Agricultural Census 2020)*. Retrieved October 28, 2025, from <https://www.statistics.gr/en/statistics/agric>
- ▶ Hellenic Statistical Authority (ELSTAT). (2021). *Population and Housing Census 2021 – Permanent Population*. Retrieved October 28, 2025, from <https://www.statistics.gr/en/statistics/pop>
- ▶ Hellenic Statistical Authority (ELSTAT). (2021). *Αποτελέσματα Απογραφής Γεωργίας–Κτηνοτροφίας (έτος αναφοράς 2020)* [Results of the Agriculture-Livestock Census (reference year 2020)] (PDF). Retrieved October 28, 2025, from [https://elstat-outsourcers.statistics.gr/apografi\\_georgias\\_21\\_FINAL\\_web.pdf](https://elstat-outsourcers.statistics.gr/apografi_georgias_21_FINAL_web.pdf)