

STUDY AREA DESCRIPTION

# MUNICIPALITY OF ARRIANA

(THRACE), GREECE



© Elisabeth Navarrete

STUDY AREA DESCRIPTION

# MUNICIPALITY OF ARRIANA

(THRACE), GREECE



**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.

## TABLE OF CONTENT

1	Introduction.....	5
2	Overview.....	5
3	Socioeconomic Context.....	7
4	Farming Context .....	8
5	Local Conflict Associated with Large Carnivores.....	9
	References.....	12

## LIST OF FIGURES

Figure 1.	Goat herd grazing in a pasture within the survey area, composed of open grasslands interspersed with scattered oak trees. These more open environments provide increased visibility, enabling shepherds to monitor the animals more effectively and reduce the risk of predation by large carnivores (June 2025; Photo credit: Evangelos Theodosiadis). .....5
Figure 2.	Sheep grazing in an enclosed pasture in the lowland zone of the Arriana survey area. These managed grasslands support small-scale livestock farming and represent a safer environment for flocks, reducing the risk of depredation by large carnivores (June 2025; Photo credit: Evangelos Theodosiadis). .....6
Figure 3.	Auction of lamps held during a local Muslim festival. The proceeds are traditionally used to cover the costs associated with organising and hosting the event, reflecting practices of community solidarity and local cultural identity (June 2025; Photo credit: Evangelos Theodosiadis). .....7
Figure 4	Traditional feeding station of a goat farm in the Municipality of Arriana. In the background, the characteristic landscape of Eastern Rhodope unfolds, with its mosaic of oak forests, cultivated fields, and rugged mountain ranges (June 2025; Photo credit: Evangelos Theodosiadis). .....8
Figure 5.	Two Karakachan livestock guarding dog (LGD) pups resting outside a traditional farm. When properly trained and in good health, LGDs are essential for preventing depredation by wolves and bears, especially during open grazing (June 2025; Photo credit: Evangelos Theodosiadis). .....10
Figure 6.	Calf resting in the outdoor fenced area of a cattle farm. Many livestock breeders choose to keep young animals in securely enclosed spaces during their early months, as this practice significantly reduces the risk of predation by large carnivores (June 2025; Photo credit: Evangelos Theodosiadis). .....11

## 1 INTRODUCTION

Nestled between the Rhodope Mountain Range and the plains of Western Thrace, the study area encompasses a mosaic of forested hills, fertile valleys, and small mountain streams. For generations, this landscape has sustained a mixed rural economy, rooted in livestock breeding, tobacco and crop cultivation, as well as small-scale forestry. Cultural diversity and the historical coexistence of Muslim and Christian communities define the social fabric of the area, contributing to its resilience and complexity.



**Figure 1.** Goat herd grazing in a pasture within the survey area, composed of open grasslands interspersed with scattered oak trees. These more open environments provide increased visibility, enabling shepherds to monitor the animals more effectively and reduce the risk of predation by large carnivores (June 2025; Photo credit: Evangelos Theodosiadis).

## 2 OVERVIEW

- ▶ **Municipalities:** The study area is primarily located in the Municipality of Arriana, with smaller parts located in the Municipalities of Maroneia–Sapes and Soufli.
- ▶ **Geographical size:** Approximately 300 km<sup>2</sup> surveyed.
- ▶ **Human population:** Around 1,700 permanent residents (2021 census).

- ▶ **Number of livestock farmers (approx.):** Approximately 464 registered holdings (2021 Agricultural Census); however, the estimated number of active livestock holders is considerably lower, likely around 300.
- ▶ **Livestock farming systems:** Traditional extensive grazing of sheep, goats, and cattle.
- ▶ **Wild large carnivore species:** The brown bear (*Ursus arctos*) and the grey wolf (*Canis lupus*) have been present throughout history.
- ▶ **Bear population:** No confirmed permanent population; occasional individuals from the Western Rhodope Mountains and Bulgaria.
- ▶ **Wolf population:** A stable presence in the area; an estimated 2–3 wolf packs currently reside in the survey region.



**Figure 2.** Sheep grazing in an enclosed pasture in the lowland zone of the Arriana survey area. These managed grasslands support small-scale livestock farming and represent a safer environment for flocks, reducing the risk of depredation by large carnivores (June 2025; Photo credit: Evangelos Theodosiadis).

### 3 SOCIOECONOMIC CONTEXT

- ▶ Located between the Rhodope Mountains and the plains of Eastern Thrace, the Municipality of Arriana forms a transitional landscape of low mountains, foothills, and fertile valleys. Its cultural mosaic, shaped by the long-standing coexistence of Christian and Muslim communities, constitutes a distinctive feature of Greece’s northern borderlands.
- ▶ Local livelihoods have historically relied on a combination of transhumant and sedentary pastoralism, small-scale crop cultivation, and forestry. Tobacco, grain, and livestock production traditionally shaped the mixed rural economy, complemented by small family enterprises and remittances from outmigration.
- ▶ Infrastructure limitations and restricted market access continue to hinder economic diversification, while both nature-based and cultural tourism remain underdeveloped.



**Figure 3.** Auction of lamps held during a local Muslim festival. The proceeds are traditionally used to cover the costs associated with organising and hosting the event, reflecting practices of community solidarity and local cultural identity (June 2025; Photo credit: Evangelos Theodosiadis).

- ▶ The area faces pronounced demographic decline, marked by a shrinking and ageing population and the progressive abandonment of traditional land uses. Agricultural intensification in the

lowlands contrasts with marginalisation and social desertification of upland villages, accelerating land-use change and habitat fragmentation.

- Despite these challenges, community cohesion and multicultural heritage persist, offering opportunities for sustainable rural development and cross-cultural resilience in Greece's northeastern frontier.

## 4 FARMING CONTEXT

Farming in the area is characterised by small-scale, mixed crop–livestock systems that reflect the region's deep-rooted agricultural traditions. Extensive grazing of sheep, goats, and cattle takes place across the foothill pastures, while lowland areas are cultivated mainly with tobacco, cereals, and fodder crops. Most holdings are family-run, with low levels of mechanisation and modest productivity. Transhumant pastoralism, once widespread, now survives only in a few communities, preserving traces of Thrace's historical pastoral heritage.

In recent decades, farming has experienced significant decline due to demographic ageing, labour shortages, and diminishing economic viability. The contraction of tobacco cultivation – once a mainstay of income - has deepened reliance on EU agricultural subsidies and remittances from migration. Limited infrastructure and poor access to markets further constrain local development, while climate related risks, increasingly affect production.



**Figure 4** Traditional feeding station of a goat farm in the Municipality of Arriana. In the background, the characteristic landscape of Eastern Rhodope unfolds, with its mosaic of oak forests, cultivated fields, and rugged mountain ranges (June 2025; Photo credit: Evangelos Theodosiadis).

**Main challenges:**

- ▶ An ageing farmer population and limited generational renewal.
- ▶ Declining profitability and growing dependency on EU subsidies.
- ▶ Inadequate infrastructure and lack of processing facilities.
- ▶ Predation by bears and wolves, causing economic strain and emotional stress to livestock owners.
- ▶ Restrictions from recent outbreaks of sheep and goat pox (2025) and PPR (2024).
- ▶ Administrative inefficiencies and low trust in compensation mechanisms (e.g. ELGA).

## 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 nine compensation claims in the study area all related to wolf attacks on cattle. However, these figures significantly underestimate the actual extent of the damage. Many incidents that do not meet ELGA's eligibility criteria go unreported, and numerous breeders, frustrated with the compensation process, choose not to file claims.

**Social conflict:**

- ▶ Most attacks occur during grazing, although predators may enter farm facilities.
- ▶ Poison baits targeting carnivores often kill shepherd dogs, leaving flocks unprotected.
- ▶ Subsidy scandals fuel distrust; farmers feel falsely accused.
- ▶ Outbreaks of sheep and goat pox are managed through lockdowns and flock culling, causing ongoing stress, financial loss, and uncertainty.
- ▶ Wolf predation on hunting dogs contributes further to local tension and resentment.



**Figure 5.** Two Karakachan livestock guarding dog (LGD) pups resting outside a traditional farm. When properly trained and in good health, LGDs are essential for preventing depredation by wolves and bears, especially during open grazing (June 2025; Photo credit: Evangelos Theodosiadis).



**Figure 6.** Calf resting in the outdoor fenced area of a cattle farm. Many livestock breeders choose to keep young animals in securely enclosed spaces during their early months, as this practice significantly reduces the risk of predation by large carnivores (June 2025; Photo credit: Evangelos Theodosiadis).

## 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-άνγρια-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)