Traces of transhumance and summer pasturing in the Marche Apennines between the Classical and Medieval Ages. Evidence of an (almost) invisible economy

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Abstract
This paper systematizes potential research areas for the preliminary analysis of an economy based on summer pasturing and transhumance, which is difficult to identify archaeologically in the Marche Region (Italy) and, more broadly, in the central Italian Apennines. It outlines the traces detectable in a challenging mountainous landscape and proposes a multidisciplinary approach to investigate a territory shaped by an economy of the uncultivated that remained largely unchanged for centuries.

Keywords
Roman period, medieval period, transhumance and summer pasturing, GIS analysis, Apennines

Introduction

In the history of scholarship, activities related to the exploitation of uncultivated land and transhumance in the Apennine regions have not received significant attention, primarily due to a historiographical tendency that regarded this economic system, particularly in the Roman period, as a subsidiary activity. This contribution seeks to integrate the bibliographical, topographical, ecological, historical, and archaeological evidence for the construction of a preliminary interpretative framework of the environment implemented in QGIS where spatial analyses are conducted to understand the territory in exam and suggest the factors influencing human choices.

The predisposition of the land to a fallow and breeding economy

The territory of the Marche Region is characterized by a highly heterogeneous landscape from a morphological perspective, where mountainous, hilly, and lowland areas merge and alternate (Dall'Aglio *et al.* 2012). The region also benefits from abundant water resources: it is crossed by fourteen major rivers, numerous minor watercourses, and features a high density of springs. Caves are widespread and have been used since prehistoric times as places of worship, production, and seasonal settlement (Pignocchi 2017). In addition, the presence of extensive woodland areas, whose timber was already praised by Vitruvius (Vitr., II, 9, 16) and continued to be highly valued during the medieval and Renaissance periods (Destro and Fiori 2004), made both forest exploitation and pastoral activities relatively easy and profitable (Fig. 1).

Although it is impossible to reconstruct the exact woodland cover in antiquity, recent studies have identified which tree and plant species were already present in the past and which of these were commonly consumed by animals, thereby allowing the identification of potential

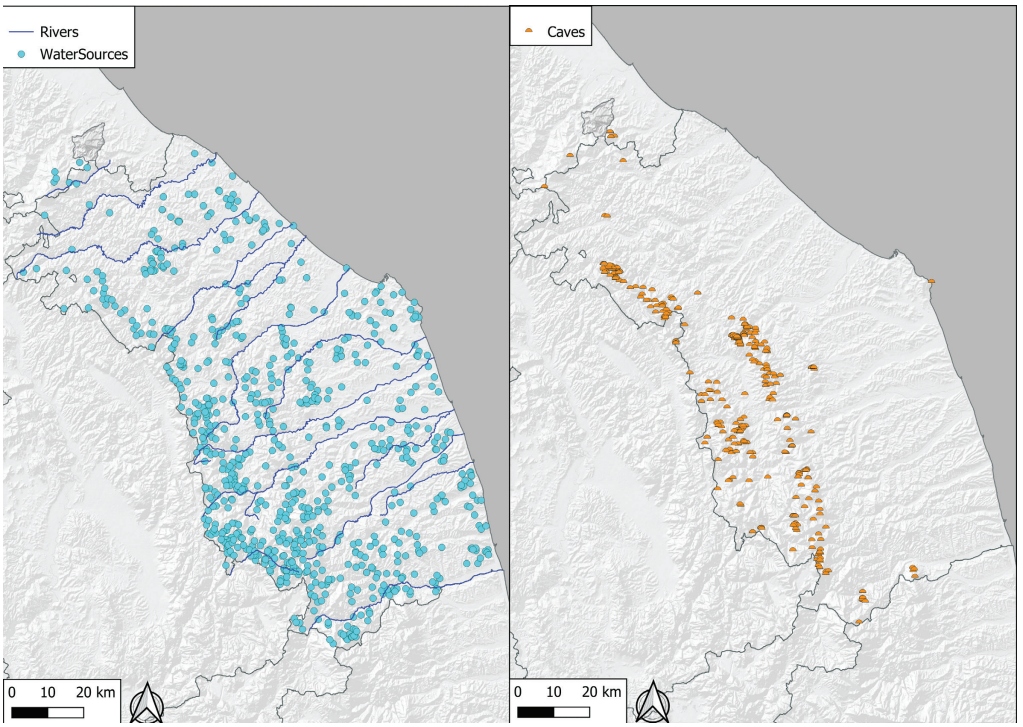


Figure 1. The main rivers in the region (left) and the distribution map of caves (right).

grazing areas (Biondi *et al.* 2010). Regional landscape is suited to breeding sheep and cattle that could easily find fodder in the low alluvial plains, along the coastal areas and in high-altitude grasslands, which occur above 1,800 m asl, but in some areas begin as early as 1,300 m asl. These pastures are characterized by the widespread spontaneous growth of *Hordeum murinum*, a plant still used today in animal fodder, as well as other spontaneous vegetation such as *Briza media* and *Avena sterilis*, which could provide fresh grazing for livestock (Biondi *et al.* 2010). Most well-known of these grasslands are located on the mountains of Monte San Vicino, Monte Catria, Monte Acuto, Monte Pennino, Monte Carpegna, and Monte Ascensione, Monte Massa, Monte Tolagna, and within the CavalloTorricchioFema massif (Biondi *et al.* 2010). Pig husbandry was also significant (Mercando *et al.* 1981) and could be practiced in a semi-wild state thanks to the large number and variety of oak and beech trees present throughout the regional territory (Biondi *et al.* 2010). Another element to consider is the occurrence of hydrogeological phenomena known as mud volcanoes (Farabollini and Scalella 2014), which were particularly appreciated by shepherds (Migliavacca 2024) (Fig. 2).

Breeding practices within transhumance systems

This practice, consisting of the seasonal movement of flocks and herds, took place along routes of varying length that are often only hypothesized today. This is particularly true when considering the intensive use of the *viae publicae* and the various *diverticula*. It is likely that some routes lay outside this main road network and may be tentatively reconstructed through the identification of relevant areas by means of bibliographic review, toponymic analysis, and

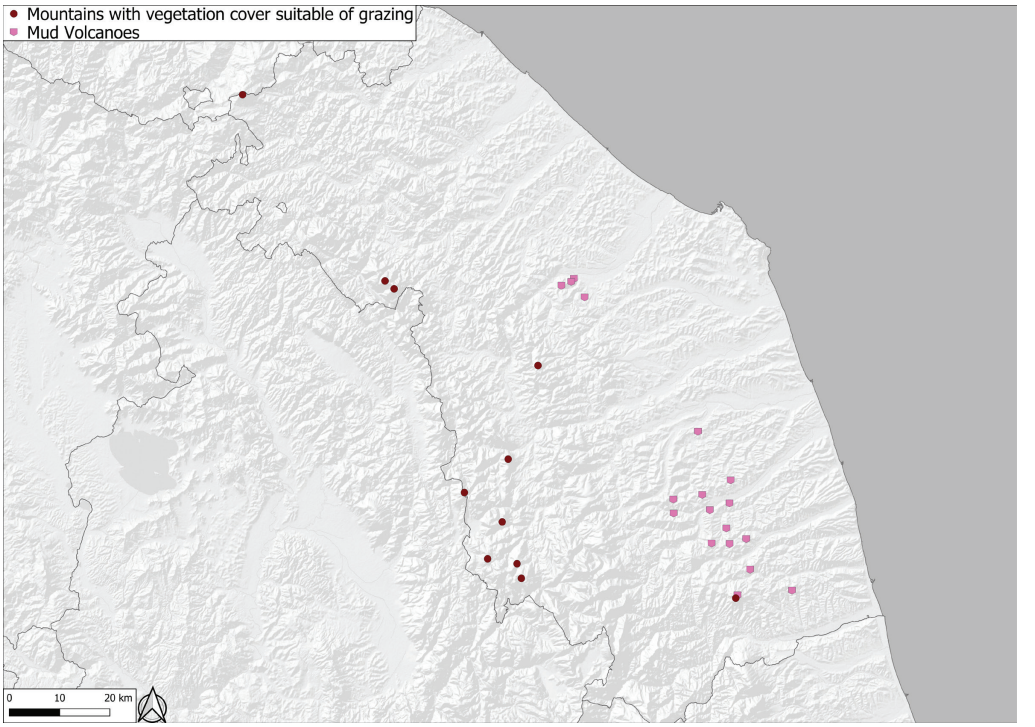


Figure 2. Areas with ecological or geological characteristics that are suitable for pasturing and transhumance.

the modelling of possible pathways in GIS environment. This network further supported the continuity of pasture uses largely due to their environmental and morphological features (Pasquinucci 2004).

Forest exploitation

The exploitation of woodland resources and the practice of transhumance were closely interconnected and were often carried out by the same actors. Wood represented an essential material in construction and shipbuilding[1], it also served as a direct source of fuel and was widely used for charcoal production. It should be noted that the timber from the Adriatic side of the peninsula was not uniformly evaluated in the Roman period. Pliny the Elder considered it too fragile (Plin., *Nat. Hist.*, XVI, 76), whereas Vitruvius did not hold such a negative view. Afterwards, during the medieval period, the territory between the Marche and Tuscan Apennines became known as Massa Trabaria, the area from which Rome obtained planks for its building yards (Destro and Fiori 2004). The regional territory is characterized by the presence of several species of oak, valued for the strength and hardness of its timber; beech, suitable for the production of furniture; holm oak, used for making baskets and panniers but also work tools and cart wheel components (Plin., *Nat. Hist.*, XVI, 14); chestnut providing valuable nutritional support through its fruits.

[1] Both for timber itself and to produce pitch.

Wild product of the forest

Wild animals and spontaneous vegetation could either provide sustenance for local populations or threaten their already limited resources. The collection of acorns and chestnuts to produce flour was known since antiquity; the gathering of medicinal and industrial plants, honey and wax was also widespread (Allegretti 1984). The Apennines were moreover inhabited by predators such as bears and wolves which represented a constant threat. At the same time, the region was home to game animals, valued for the protein they could add to a diet otherwise based largely on spelt and emmer (Campagnoli and Giorgi 2013), including deer, fallow deer, wild boar, rabbits.

Saltus and common lands

In the analysis and identification of areas devoted to the exploitation of uncultivated land in the Italian peninsula, and particularly within the territory of present-day Marche, it is first necessary to understand three terms: *saltus*, *gualdo*, and the "Università degli uomini originari". Over time, these expressions referred to land owned collectively by entire communities, which were generally used for livestock grazing and for the collection of timber and other spontaneous resources. The term *saltus*, attested in Latin literature, appears to designate different types of terrain, including dark and rugged areas, steep and wooded land, large estates, sometimes even centuriated properties, and upland districts where small plots intended for cultivation or grazing were located within forested environments. In essence, it refers to highly complex landscapes in which the effective exploitation of available resources could only be achieved through the shared participation of multiple groups. The term also provides a possible toponymic reference, reflected in place names such as *salto* and *assalto*. With the fall of much of the peninsula under Lombard rule, the term *gualdo*, derived from the German *wald* (forest/woodland), became widespread, it was used alongside *saltus*. More enduring in written sources are "Università degli uomini originari" collectively owned lands. These institutions formally emerged in the first half of the sixteenth century as the institutionalization of centuries-old practices (Allegretti 1984). The widespread occurrence of place names such as *comune* and *comunanza* suggests that these institutions were likely common. Additional toponymic evidence may derive from names associated with animal species that have been raised since antiquity as well as from terms such as *prato* and related forms (Destro 2004).

Religiosity and road system

The economic exploitation of mountain areas and the presence of places of worship are attested from the pre-protohistoric period through to the Late Middle Ages. Emblematic examples include Monte Primo, where evidence has been dated from protohistory to 3rd–2nd centuries BCE (De Neef *et al.* 2022). Areas with prehistoric rock engravings are known on Monte Sant'Angelo (Pignocchi 2019), particularly significant considering the widespread presence, in Late Antiquity and the medieval period, of sanctuaries dedicated to Michael the Archangel located along transhumance routes and within grazing areas themselves (Sensi 2014). Many of these sanctuaries, originally established within caves, have been lost due to the frequent seismic activity that still affects the region today. Others were later rededicated to the Virgin Mary or to local saints associated with thaumaturgical powers linked to water

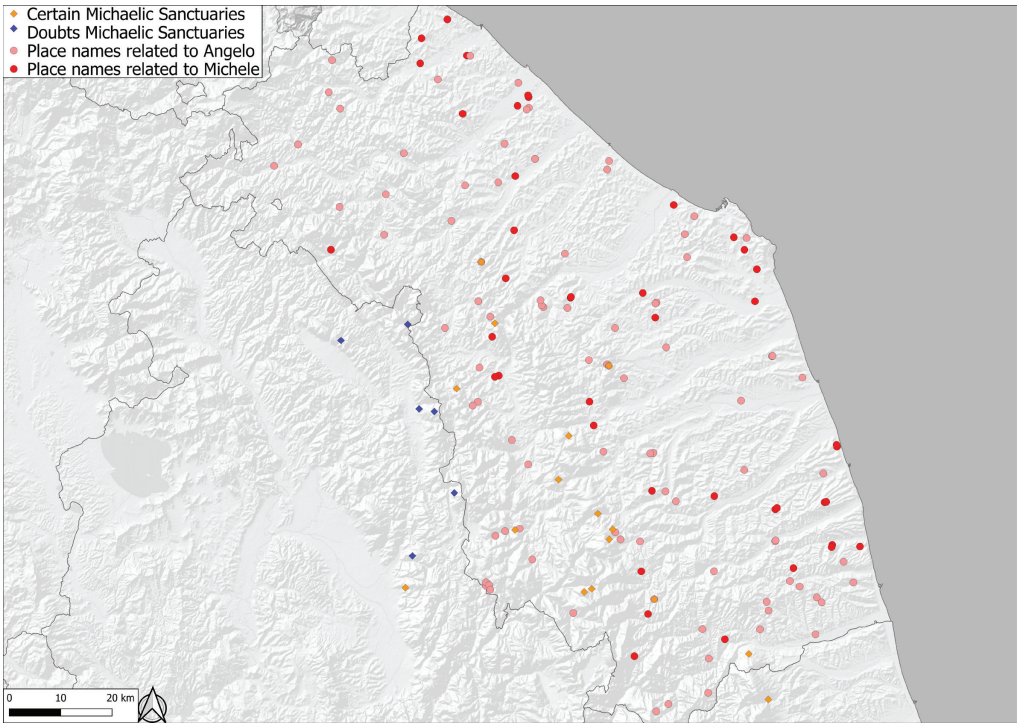


Figure 3. Traces of the cult of St Michael, shrines and toponymic remnants.

(Sensi 2014), traces of their existence persist in written sources and in toponymy. For example, sanctuaries have been identified on Monte Bove and on Montagna dei Fiori, areas that were used for pastoral activities until only a few decades ago (Fig. 3). These discoveries mark the possible routes of transhumance, which did not take place solely along the main road arteries. The Via Salaria and the Via Flaminia were not the only routes; rather, there existed an entire network of *diverticula* and *tratturi* (sheep tracks) known through ancient sources and through recent topography studies[2] (Fig. 4).

A spatial analysis of mobility

QGIS made it possible to systematize the large quantity of available data, while the use of the GRASS software enabled spatial analyses aimed at providing an indication of the possible routes followed by those exploiting upland territories. By way of example, the results from the area between *Septempeda* (San Severino Marche) and *Camerinum* (Camerino) are presented. It can be observed that the routes generated by GIS often follow the known Roman road network or approach areas that, based on toponymy or historical sources, can be associated with sanctuaries linked to the cult of Archangel Michael or with saints characterized by ascetic or thaumaturgical attributes (Fig. 5).

[2] Digitisation of data from Mercando *et al.* 1981; Dall'Aglio-Giorgi 2000; Destro-Fiori 2004; Neri 2004; Giorgi 2005; Frasson 2009; Giorgi 2021.

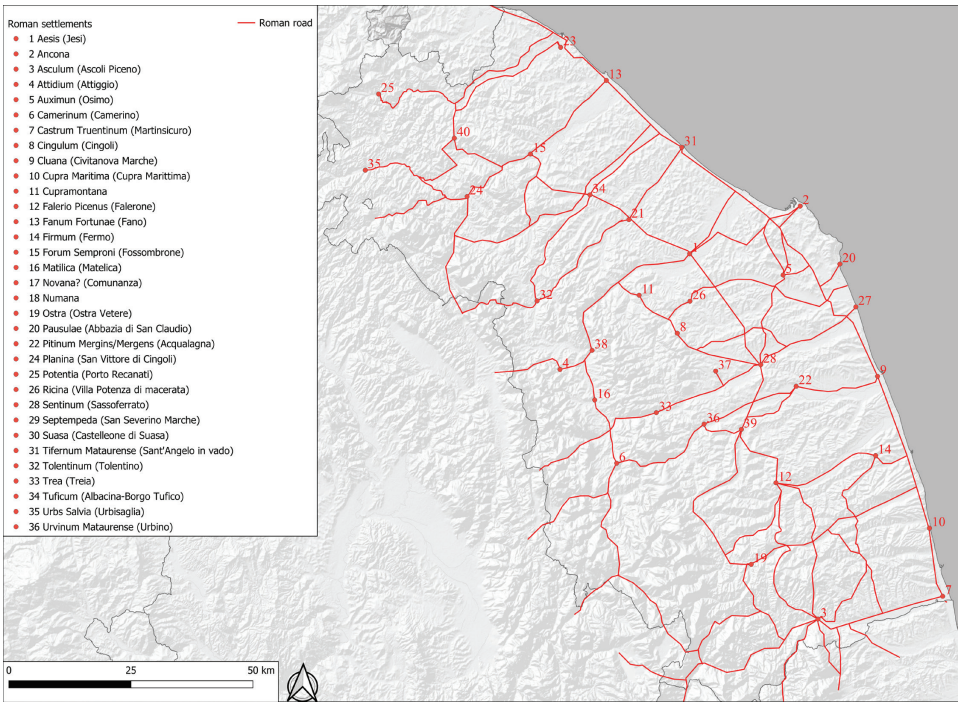


Figure 4. Identification of the main routes in the region.

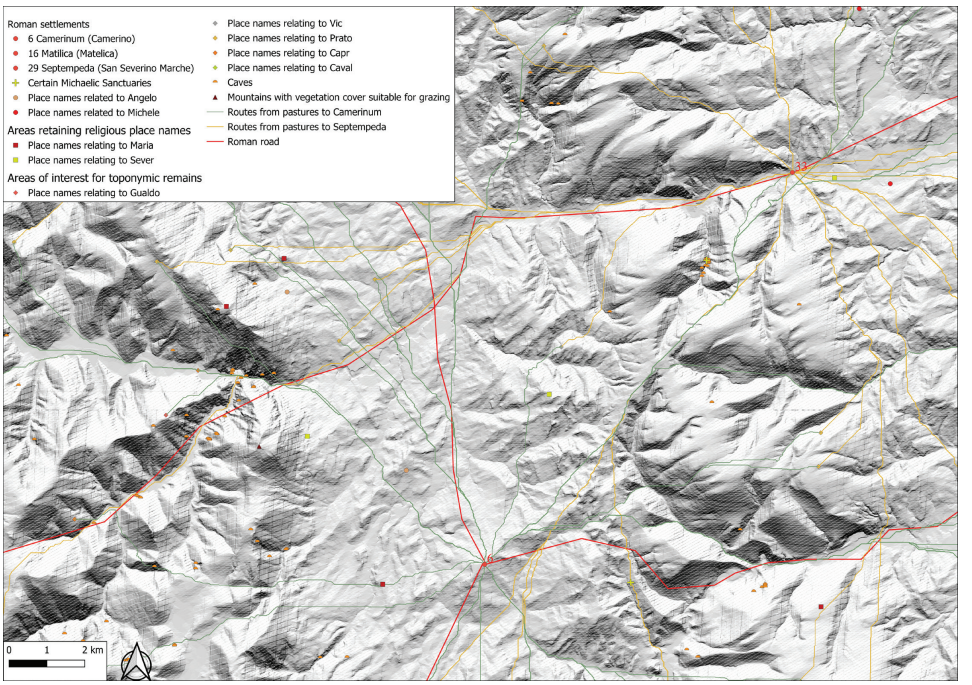


Figure 5. Area between San Severino Marche and Camerino with routes suggested by QGIS to reach them from probable areas of common exploitation.

These traces, combined with the identification of potential areas of communal resource exploitation, allow us to formulate working hypotheses that will subsequently need to be verified through multidisciplinary fields.

Conclusions

This contribution is intended as the starting point for a series of landscape-oriented studies on the economy of mountain environments and uncultivated lands in central Italian Apennines, as well as an effort to systematize toponymic, historical, archaeological, morphological, and ecological data. In the future, these data should form the basis for more in-depth multidisciplinary and multiscale research, which will make it possible to obtain a more comprehensive understanding of these geographical areas and of the relationship that human communities have established with them.

The possibility of integrating modelling analyses, based on the typologies of data outlined above, within the same analytical framework, and of verifying and refining them through non-invasive survey activities, once again highlights the considerable potential of GIS software and its importance for landscape archaeology. At the same time, it demonstrates the significant opportunity to carry out large-scale investigations within relatively short timeframes and with limited resources, which can nonetheless be directed in the most effective way thanks to systematized datasets that are easily accessible and queryable.

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