

THE IMPLEMENTATION OF GIS TOOLS FOR PLANNING THE DEVELOPMENT OF RURAL TOURISM ALONG THE NETWORK OF OLD SHEEP-TRACKS

Giuseppe Cillis, Dina Statuto, Pietro Picuno

*School of Agricultural, Forest, Food and Environmental Sciences (SAFE), University of Basilicata,
85100, Potenza, Italy*

<https://doi.org/10.11118/978-80-7509-904-4-0311>

Abstract

Rural tourism is progressively growing in several areas of the World, thanks to its characteristics to noticeably combine naturalistic, cultural and eno-gastronomic opportunities. In this framework, many old agricultural buildings have been successfully converted into new accommodations, typical restaurants or educational farms. Tourism activities related to these rural structures are currently expanding, so incentivizing the arrival of more tourists and valorizing the rural land. One of the elements of the rural landscape that could be improved to further spreading, is the network of old sheep-tracks. Indeed, these paths can be exploited for cultural and nature hiking activities since, in addition to often crossing rural areas, they are perfect places to immerse the tourist in the nature and surrounding landscape. The present study considers the Basilicata Region (Southern Italy) and its important network of old sheep-tracks, which have been included into a GIS database, specifically implemented to exploit these paths for touristic purposes. Thanks to this GIS tool - that allowed the creation of a complex georeferenced database, by entering all data related to elements of tourist and cultural interest - it has been therefore possible to plan suitable tourist routes, even aimed at the sustainable valorization of the rural landscape.

Key words: Rural landscape, public recreation, agro-tourism, hiking trails, ancient tracks

Introduction

Rural tourism could be defined as a type of tourism located in agro-forestry areas, identified by some key characteristics (location, between countryside and small towns; small accommodation facilities scale; close relations with the local population; interaction with the surrounding environment, history, culture, etc.) (Belligiano et al. 2021). Sheep-tracks (*"Tratturi"*, in Italian) and transhumant experiences are today considered above all as a cultural journey, through which communities become fully involved in the process of heritage valorization and planning of territorial development. The sheep-tracks are grassy, stony or rammed-earth paths, always with a natural bottom, originated from the passage and trampling of herds, used by shepherds to perform transhumance, *i.e.*, to transfer with seasonal cadence their flocks from one pasture to another, located at different altitude.

The term *"Tratturo"* comes from *"tractus"*, past participle of the Latin verb *"trahere"*, which means to drag, to pull. They have, in general, a north-south course and are connected by minor trail structures, arranged along smaller parallel tracks, such as the *"Tratturelli"* (*a diminutive of "Tratturi"*). Along the various paths, there are large grazing areas, intended for the resting of herds during transhumance. In Italy the sheep-tracks are mainly located in its southern regions (Abruzzo, Basilicata, Campania, Molise, Puglia and Umbria), their presence dating back to prehistoric times (Esposito et al., 2012). The Italian Law n.1089 of 1.06.1939 and several subsequent decrees and various regulations, including regional ones, attribute artistic, historical, archaeological, ethnographic, naturalistic, and landscape interest to these sheep-tracks. They could be considered, then, to be as an heritage legally classified as a public property, thus subjected to protection and attention by the authorities in charge. The Italian Ministry of the Environment, in agreement with several southern regions, proposed in 2006, for several sheep-tracks, their candidacy for the UNESCO World Heritage status.

The use of advanced technological tools may considerably support the protection of landscapes with high cultural and naturalistic value (Statuto et al., 2019), since they allow the implementation of multidisciplinary information, which may reveal crucial for a sound management of sites representing an heritage of outstanding value (Cillis and Statuto, 2018). The use of a Geographical Information Systems (GIS) is very helpful, since it allows several analyses, suitable for tourism purposes. Indeed, there are many examples of application of a GIS to implement territorial marketing strategies, or to valorize the sustainable development of rural tourism (Statuto et al. 2021).

In this paper, the case study of an old sheep-track located in the north-northeast part of Basilicata Region - Southern Italy is presented. Here, the network of sheep-tracks is extensive and could serve as a connection structure for the landscape and the valorization of historic rural buildings (Cillis et al., 2020; Picuno P., 2022). A GIS database has been here implemented, so as to relate all the

components characterizing the rural territory and thus make it usable to people involved in tourism enhancement, in particular in activities (e.g.: walking; horse riding; typical food preparing and/or tasting; *etc.*) which may constitute a specific experience, depending on the characteristics of the destination in terms of environment, agriculture, food, lifestyle, cultural heritage, *etc.*

Material and methods

Basilicata region is characterized by a vast rural land with great historical and cultural importance. Thanks to the varied morphology, including mountains, hills, plateaus and valleys, the territory offers a great offer of natural and cultural landscapes. Tourism has now become an important economic sector for Basilicata, with a growing interest in hiking and discovering the historical and cultural heritage associated with the sheep-tracks. The network of “tratturi” (fig. 1) have become a popular destination for lovers of hiking and outdoor adventure, because of their unique naturalistic and cultural features. Mostly in the “Alto-Bradano” area, characterized by soft rounded shapes and dominated by the presence of Mount “Vulture” (1326 m) - an extinct volcano which had a notable influence on the geographic, botanical, zoological and anthropological events of the surrounding natural environment - it is possible to see a dense network of areas of considerable historical, natural, landscape, archaeological and monumental interest (Picuno et al., 2019).

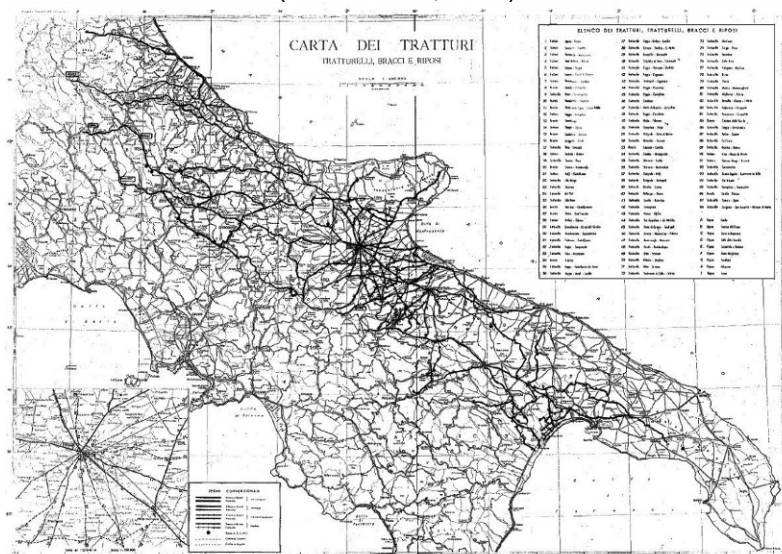


Fig. 1: Map with the representation of the network of Tratturi in the south of Italy (Year 1959).

In this study area, the territory of the Municipality of Acerenza (yellow circle in fig.2) and neighboring towns, is characterized by important assets with historical, architectural and archaeological value. This, can also be found in the Geodatabase “WEB GIS TUTELE” (fig. 2) created by the Basilicata Region.

Thanks to the possibility to download data from this WEB GIS in the form of vector files, these data have been imported into an open-source GIS environment (QGIS), so as to create a network of itineraries, which involves different points of interest (monuments, archaeological sites, historic rural buildings, nature areas, existing trails, *etc.*) and to analyze their possible enhancement for tourism and recreational purposes.

Results and Discussion

Thanks to the superimposition of the old historical cartographies with the new GIS system, it has been possible to create a complete database of all points of interest in the study area, giving to interested people the opportunity to take advantage from the various assets, through trails and itineraries aimed at enhancing the territory. In particular, as depicted in Figure 3, the sheep-track “*Tratturo dei Greci*” connects 3 characteristic points, *i.e.*, as many small churches located in the rural area. The small church “*Madonna del Cupo*” occupies an area of about 25 square meters, the roof is pitched with wooden covering, while what remains of a small bell gable, certainly later than the structure, surmounts the facade. A valuable element is the stone portal, datable to around the 13th-14th century. The other two churches are located near the *Fiumarella* stream and the *Bradano* river. These places are just some of the monumental assets in the frame of the identifying mark of the small village “*The Cathedral*”, located in the historic center, as well as a number of other small churches, historic

buildings and old stone portals. Travelling along this sheep-track, it is possible to gain information about a stretch of territory, rich in human history and artistic and natural evidence. The types of interventions, in relation to local characteristics, may have a different degree of transformability, enjoyment and protection, and allow, while respecting the preservation of integrity, the improvement of the identifiability and accessibility of the sheep-tracks. This, would achieve, through the recovery of the remaining testimonies (fig. 4), a compatible reuse of the sheep-track area, through enhancing the green system and educational and recreational pedestrian paths.

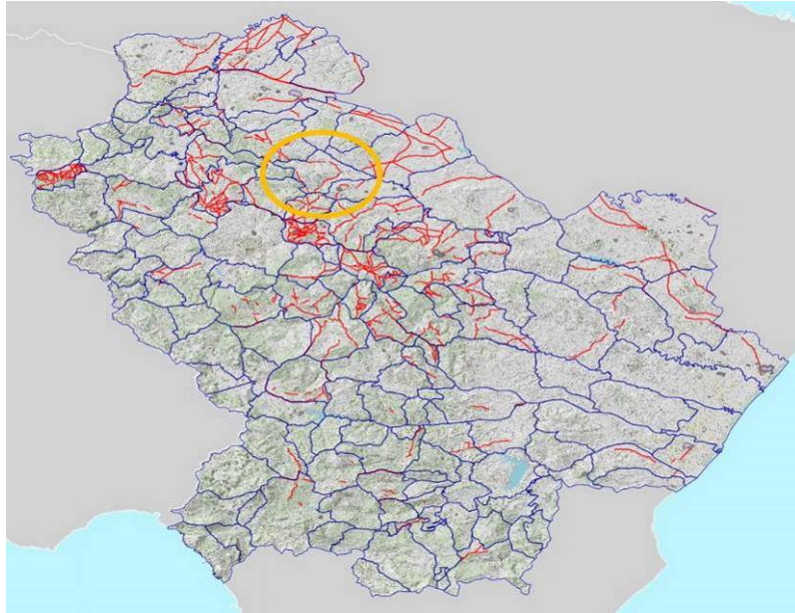


Fig. 2: Example of the WEB GIS TUTELE, representing the old sheep-tracks, archaeological and monumental area (in the yellow circle, the area of Acerenza).

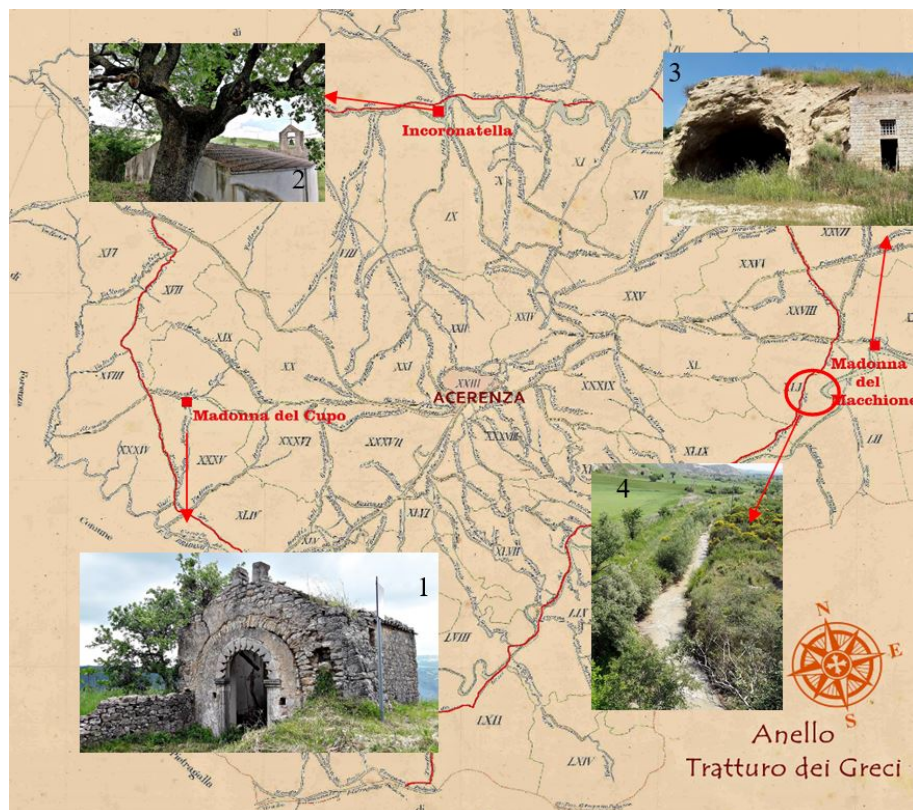


Fig. 3: Representation of "Tratturo dei Greci" and particular point of interest (n. 1, 2 and 3) and image of the sheep-track near the "Bradano" river (4)

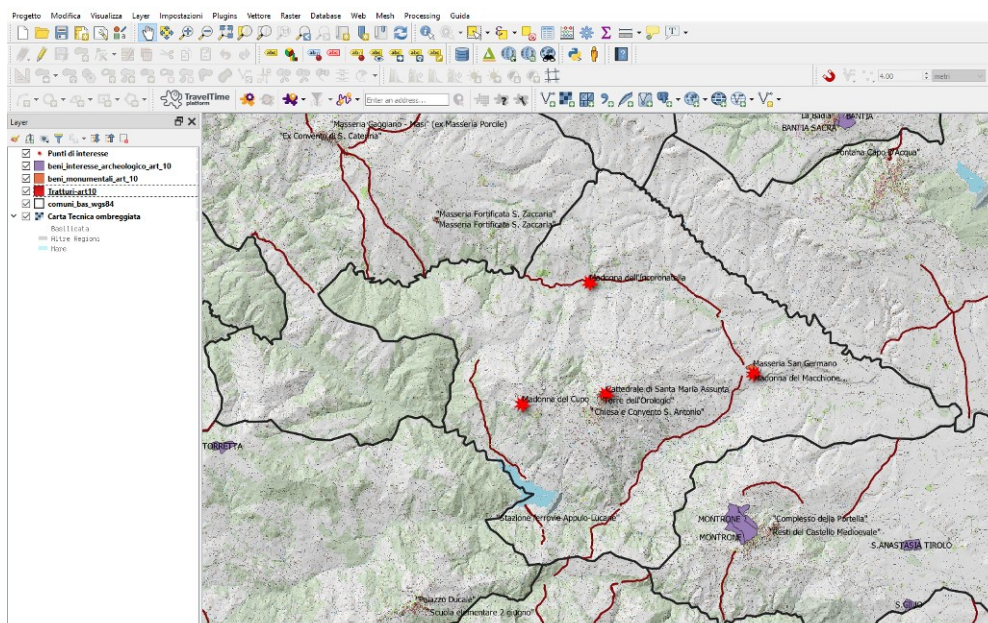


Fig. 4: Example of the GIS window showing old sheep-track and point of interest

Conclusion

The purpose of this paper was to enhance the value of the sheep-tracks, public state property of artistic, historical, archaeological, naturalistic, landscape interest, which constitute an heritage subject to protection and attention by the authorities in charge. Through the historical, cartographic and regulatory framework of the asset, a suggestive and fascinating itinerary located in the municipality of Acerenza may be proposed, which allows today to retrace places painted by nature and embellished by the hand of man. The evolution of the times has not demolished the essence of the road asset, but it has transformed its use as a primary structural element, combined with the possibility of enhancing it, in a particular landscape and environmental context.

References

- Belliggiano, A.; Bindi, L.; Ievoli, C. (2021). Walking along the Sheeptrack...Rural Tourism, Ecomuseums, and Bio-Cultural Heritage. *Sustainability*, 13(16):8870.
- Cillis, G., Statuto, D. (2018). Landscape protection and tourist valorisation of the cultural and natural heritage of the UNESCO site of Matera (Italy). In: *Public Recreation and Landscape Protection – With Nature Hand in Hand? Conference Proceeding 2018*. pp. 226–231.
- Cillis, G.; Statuto, D.; Picuno, P. (2020). Vernacular Farm Buildings and Rural Landscape: A Geospatial Approach for Their Integrated Management. *Sustainability*, 12, 4.
- Esposito, L., Lupo, M., Pandiscia G.V. (2012). Mapping of sheep tracks and paths of transhumance in the Basilicata: the old sheep-track Matera-Montescaglioso. *Bollettino dell'Associazione Italiana di Cartografia* 144-145-146; pp. 141-152.
- Picuno, P., Cillis, G., Statuto, D., 2019. Investigating the time evolution of a rural landscape: How historical maps may provide environmental information when processed using a GIS. *Ecological Engineering*, 139
- Picuno, P., 2022. Farm buildings as drivers of the rural environment. *Frontiers in Built Environment*, 8: 693876.
- Statuto, D.; Cillis, G.; Picuno, P. (2017): Using Historical Maps within a GIS to Analyze Two Centuries of Rural Landscape Changes in Southern Italy. *Land* 2017, 6, 65.
- Statuto D., Frederiksen P. & Picuno P. (2019). Valorization of Agricultural by-products within the "Energyscapes": Renewable energy as driving force in modeling rural landscape. *Natural Resources Research*, Vol. 28, No. SI, August 2019, S111- S124.

Souhrn

Na základě historického výzkumu bylo možné rekonstruovat trasu řeckých ovčích stezek, které byly v průběhu času chápány jako společné místo pro obchodní a kulturní výměnu. Získaný historický geoitinerář je grafickým znázorněním souboru informací (geohistorických toponym) a geograficko-cestovních map, na nichž byla trasa zakreslena. Současně s georeferencováním shromážděných

informací byl implementován také GIS (geografický informační systém) s využitím open-source platformy QGIS, z níž lze konzultovat veškeré geografické a historické informace spojené s fotografickými záběry. Soubor takto získaných časoprostorových informací (textových, kartografických a fotografických) nabízí klíče umožňující interpretovat realitu, která zdaleka nezanikla, a která naopak může poskytnout pochopení proměn, k nimž došlo v krajině a v referenčním územním kontextu. Ovčí stezka umožňuje získat informace o úseku zkoumané oblasti s bohatou lidskou historií, s uměleckými a přírodními doklady. Konkrétní poznávací poznatky o různých ovčích stezkách nacházejících se ve studované oblasti "Alto-Bradano", soustředěných zejména v obci "Acerenza", mohou vést k opatřením pro plánování, formulaci a realizaci cílů ochrany krajiny a posílení veřejné rekreace.

Contact:

Dr. Giuseppe Cillis, Ph.D.

E-mail: giuseppe.cillis@unibas.it

Open Access. This article is licensed under the terms of the Creative Commons Attribution 4.0 International License, CC-BY 4.0 (<https://creativecommons.org/licenses/by/4.0/>)

