

VALORIZATION OF AN OLD SHEEP TRAIL AS A NEW OPPORTUNITY FOR SUSTAINABLE PUBLIC RECREATION: A CASE STUDY IN SOUTHERN ITALY

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<https://doi.org/10.11118/978-80-7509-904-4-0364>

Abstract

Within the valorization process of rural landscape for public recreation, an increasing interest is currently registered on ancient sheep-tracks. Indeed, these paths constitute the historical infrastructure of the transhumance system, that covered all over Europe thousands of kilometers, forming the routes of shepherds, merchants, warriors and pilgrims. In Italy, these tracks - known as "*tratturi*" - are landscape-bound, while the practice of transhumance has recently been included in the intangible UNESCO World Heritage. In addition to their cultural and scenic value, today some old sheep-tracks are being rediscovered as new rural hiking trails. However, they present some technical drawbacks, that make them barely usable by tourists for walking in the nature. Taking as a case study an old sheep-track connecting the two cities of Matera and Montescaglioso (Basilicata Region - Southern Italy), a GIS approach was applied, to evaluate the possibilities to use this path as an hiking trail, highlighting the difficulties to be solved for its valorization. The final results showed how, thanks to a GIS tool, it is possible to compare different types of data, from historical to modern ones, so relating the route with all elements of tourist interest, evaluating its potential for excursion purposes as well.

Key words: Landscape protection, sheep-tracks, rural hiking, nature walk, GIS tools

Introduction

Rural tourism is an activity currently growing in different parts of the world, thanks to its ability to greatly combine naturalistic, cultural and food&wine opportunities. In this context, many old agricultural facilities have been successfully converted into new accommodations, restaurants or educational farms (Ayazlar & Ayazlar, 2015). Tourism activities related to these rural facilities are currently expanding, encouraging the arrival of more and more tourists, hence enhancing the value of rural land. One of the elements of the rural landscape that could be furtherly valorized, is the network of old sheep-tracks, once used for grazing flocks. Indeed, these trails can be exploited for cultural and nature hiking activities since, in addition to often crossing rural areas, they are perfect places to immerse tourists in the surrounding nature and landscape. However, to make the best use of existing sheep-tracks and make them accessible to tourists, it is necessary to implement appropriate planning and management tools (Belligiano et al., 2021). In recent years, GIS (Geographic Information Systems) technology is becoming increasingly important for rural tourism planning. In particular, the mapping of old sheep-tracks is attracting the attention of tourism operators in many parts of the world. The possibility of using GIS tools to plan and manage rural tourism development along these ancient roads, offers great potential for rural communities (Mastronardi et al., 2021). The use of GIS tools can help manage rural tourism along sheep-tracks in a sustainable way, helping to assess the environmental and social impact of tourism activities along the trails. This, can help tourism operators to manage the flow of visitors, while minimizing the negative impact on nature and the local community (Cillis & Statuto, 2018). In this paper, the case study of an old sheep-track connecting the two cities of Matera and Montescaglioso (Basilicata Region - Southern Italy) is presented. The network of sheep-tracks is extensive in this area. It could serve also as a connection for the valorization of historic rural buildings (Statuto & Picuno, 2017) and hiking activities, aimed at the discovery of the surrounding rural landscape. A GIS database has been so created, usable by actors involved in tourism enhancement, to relate all components characterizing the rural territory.

Material and methods

The Basilicata region is characterized by a vast rural land with great historical and cultural importance. The territory has a varied morphology, including mountains, hills, plateaus and valleys, offering a great variety of natural landscapes. One of its distinguishing features are the "*tratturi*" a network of ancient roads used for animal grazing and trade, stretching for miles across the region's countryside and mountains (fig. 1). These routes are becoming a popular destination for lovers of hiking and outdoor adventure, because of their unique naturalistic and cultural features. Tourism has 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 as well.

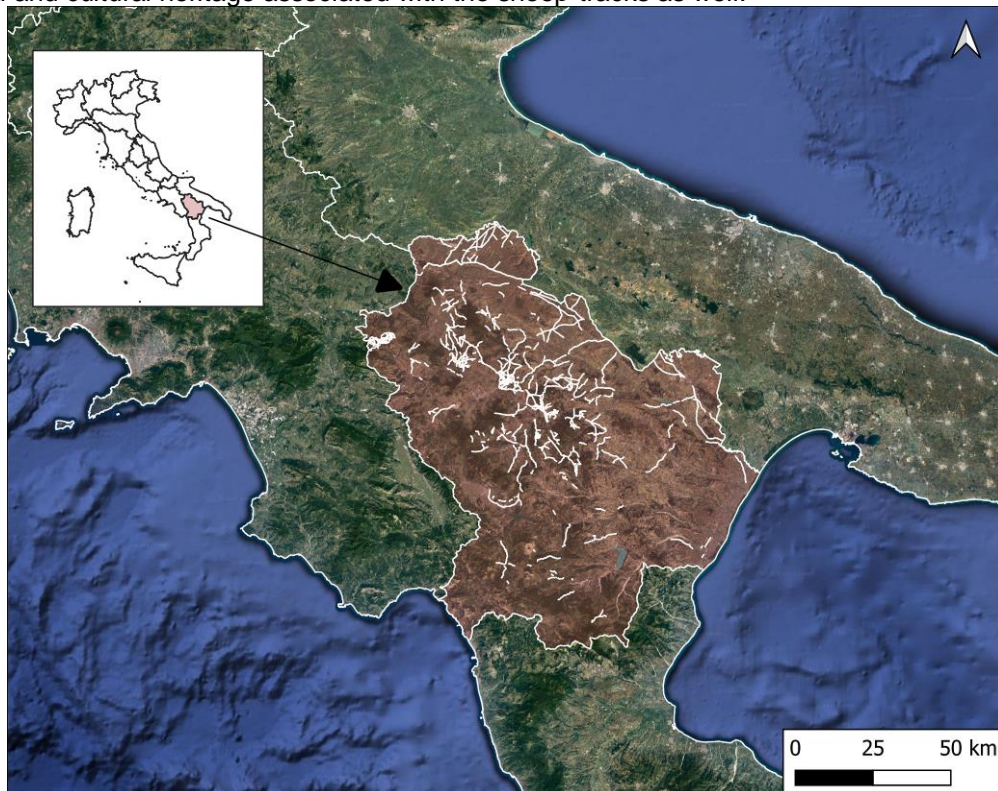


Fig. 1: Location of study area in Italy and Basilicata Region and location (in white) of old sheep tracks ("tratturi").

The first part of the analysis has been based on the survey of the network of sheep-tracks in the Basilicata region (fig. 2), achieved by using different cartographic sources, such as the open-source online geo-database "OpenStreetMap", joined with historical topographic maps (Cillis et al., 2021). The sheep-tracks were not treated as a linear datum, but as a polygonal one, so a polygon database was created to take into account the actual sheep-track location. The Basilicata Region made these data open to be accessed, so they can be used – both for scientific and planning purposes – providing that the source is cited.

The delimitation of the sheep-track sites of cultural interest (Italian legislation - art. 10 and 13 of Legislative Decree 42/2004) is the result of the digitization of the elements delimiting the perimeter of the constrained areas deduced from the cadastral planting maps, the tracts subject to protection (on the basis of the List of Municipal Tracts), and the original maps on a cartographic basis of the Italian Military Geographic Institute (IGMI). Digitalization was done, using the geometries of the vector cadastral sheets as a support.

The second part of the analysis, involved the implementation of the entire database of rural, cultural and landscape heritage, thus achieving an effective picture of the areas that can also be enhanced from a hiking point of view (by taking advantage of existing sheep-tracks), and for which few interventions are needed to improve their usability. The databases have been standardized in terms of format, topology and coordinate system, with data organized into macro-categories for optimal results. A field research has been also conducted, to collect any necessary missing data. Unique identification numbers (ID) have been assigned to each element in the database for an easy consultation, management, and updating. Hence, the geo-database was used to assess ancient sheep-tracks, and the most interesting ones were selected and modified, to align with the previously created database and current land use. Finally, cultural sites along these paths have been also connected, except for routes crossing fragile natural areas.



Fig. 2: Example of a sheep-track (called "Tratturo della marina") used for transhumance from inland mountains to areas near the sea.

Results and Discussion

The use of a GIS has revealed an indispensable tool, both for the purpose of reconnaissance of the ancient sheep-tracks, as well as for the assessment of their linear and areal extension. It has even enabled the creation of a prototype geodatabase, that could serve as a tool to support decisions about possible tourism and recreational activities. Figure 3 shows how the GIS approach serves these purposes, allowing different types of data from different databases to be put together. In fact, it has been possible to collect not only data on sheep tracks, but also the location of monuments, archaeological sites, historic rural buildings, nature zones and existing trails (Cillis et al., 2020) in the study area.

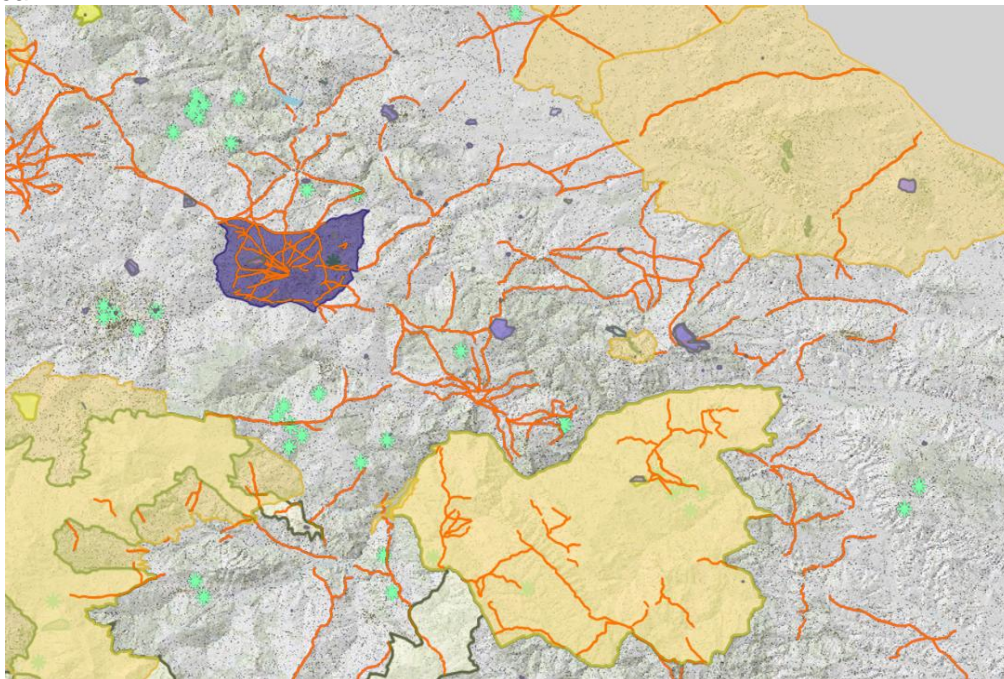


Fig. 3: Screenshot of the geodatabase with sheep-tracks and rural/cultural heritage

The new GIS tools ensure that even people without high technical skills can carry out geographic analyses in a simple and immediate way. In addition, there are more and more freely available online data on rural, cultural, and natural heritage, that can be managed and analyzed in a way that provides specific support to different stakeholders or planners (Meini et al., 2018).

Finally, as a preliminary analysis on the sheep-tracks that could be potentially used for tourism purposes, a survey has been carried out, based on the concentration of tourist attractions and

proximity to a specific sheep-track already showing a well-defined boundary, without needing any arrangement work. The sheep-track identified is the "*Regio Tratturo Matera - Montescaglioso*" which is about 27 km long and runs along the "*Gravina*" stream, joining the towns of the two municipalities of Matera and Montescaglioso. The GIS approach (fig. 4) made it possible to identify all tourist attractions and accommodations in the vicinity of the sheep-track, so as to provide additional exploitable information for more detailed and appropriate planning analyses.

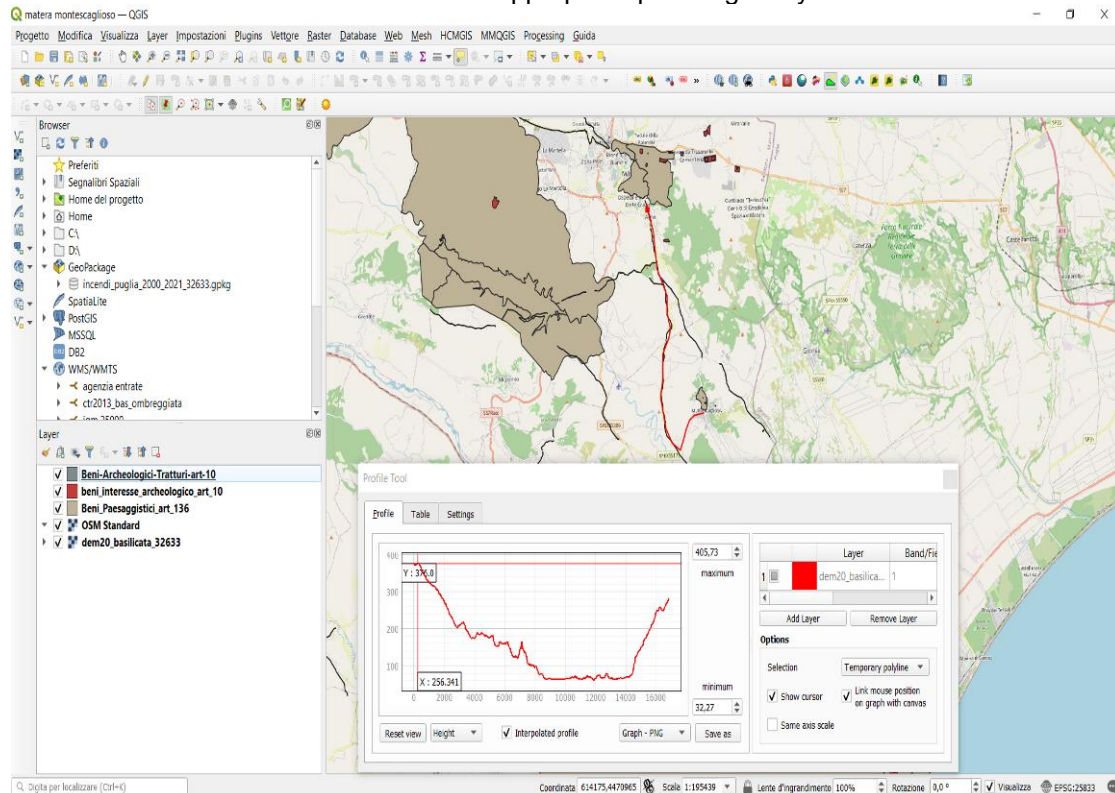


Fig. 4: Example of the application of the GIS approach to the Matera - Montescaglioso sheep track.

Conclusion

In conclusion, the use of GIS for the enhancement of sheep-tracks for tourism purposes represents a great opportunity for the promotion of the area's cultural and environmental heritage. Thanks to this technology, it is possible to create personalized tourist routes, integrating information about local traditions, history, local flora and fauna. This, promotes the creation of a more complete and engaging travel experience for tourists, who can learn and appreciate in a deeper way the peculiarities of the visited area. In addition, the use of GIS makes it possible to preserve the memory of the sheep-tracks, creating a shared cultural heritage and enhancing local history and culture. It is therefore important to encourage the use of GIS for the enhancement of the sheep-tracks, so that public recreation becomes a tool for sustainable development of the area, ensuring a better future for local communities and next generations.

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Souhrn

Venkovská turistika je celosvětově rozvíjející se aktivitou, která spojuje přírodovědné, kulturní a gastronomické možnosti. Stará zemědělská zařízení se přeměňují na nové ubytovací zařízení, restaurace nebo vzdělávací farmy a rozšiřuje se řada turistických aktivit spojených s těmito venkovskými zařízeními. Pro zvýšení valorizace venkovské krajiny lze staré ovčí stezky využít pro kulturní a přírodní turistické aktivity. Pro plánování venkovského cestovního ruchu, konkrétně pro mapování starých ovčích stezek, je stále důležitější technologie GIS. V regionu Basilicata byla vytvořena databáze GIS, která propojuje všechny složky venkovského území využitelné pro posílení cestovního ruchu. Síť starých cest sloužících k pastvě zvířat a obchodu - v Itálii tradičně známých jako "tratturi" - se stala oblíbenou pro pěší turistiku a poznávání historického a kulturního dědictví regionu. Pro průzkum ovčích stezek byla vytvořena polygonová databáze a vymezení míst kulturního zájmu bylo digitalizováno s využitím vektorových katastrálních listů jako opory. Nástroje GIS mohou pomoci řídit venkovskou turistiku podél ovčích stezek udržitelným způsobem a posoudit environmentální a sociální dopady turistických aktivit podél těchto stezek.

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