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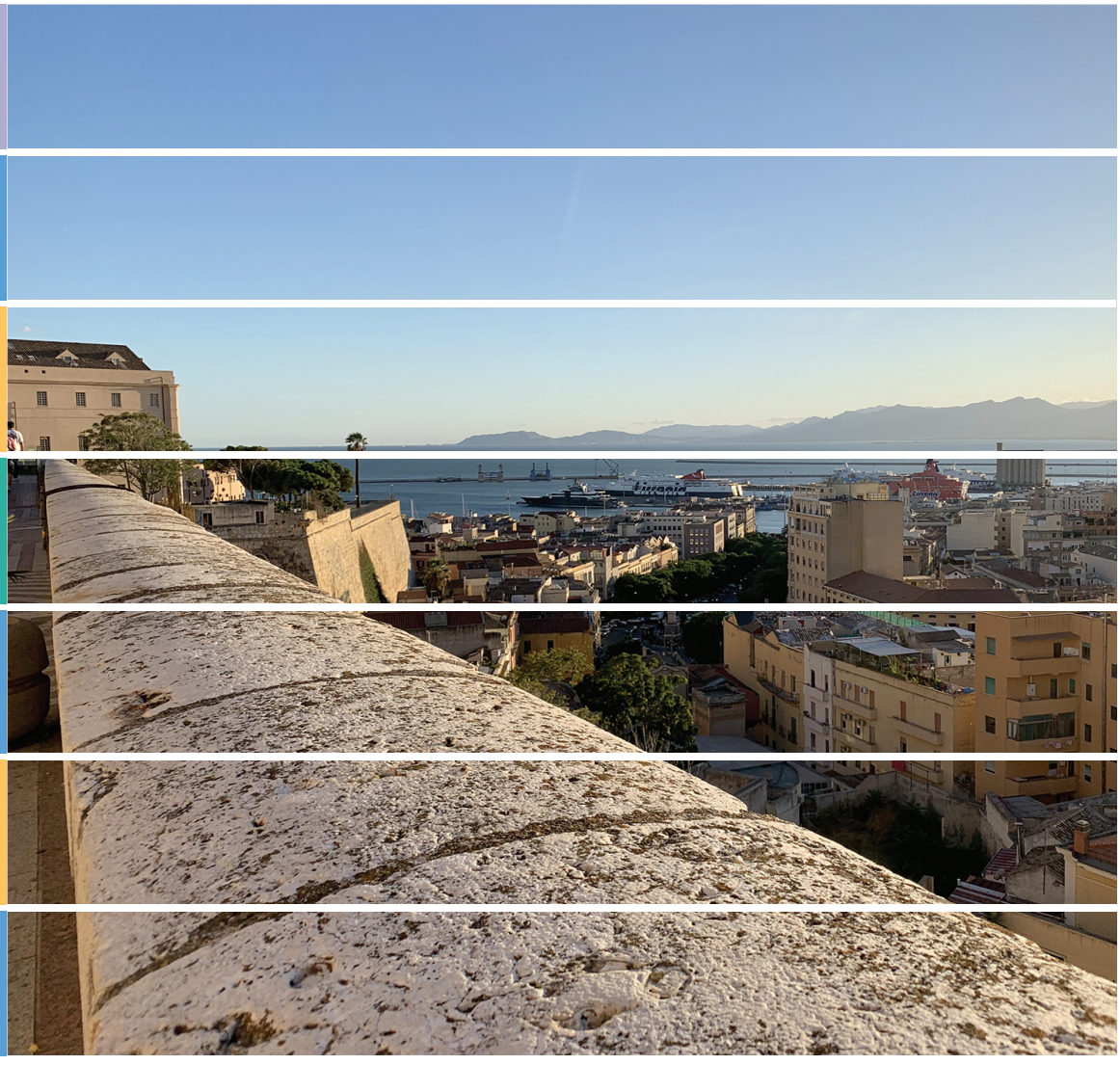
Planning, Nature and Ecosystem Services



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Smart City, Urban Planning for a Sustainable Future

5

Carmela Gargiulo Corrado Zoppi

Editors

Planning, Nature and Ecosystem Services

INPUT aCAdemy 2019

Conference proceedings

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- Rosaria Battarra;
- Gerardo Carpentieri;
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- Floriana Zucaro.

The most heartfelt thanks go to these young and more experienced colleagues for the hard work done in these months. A final word of thanks goes to Professor Roberto Delle Donne, Director of the CAB - Center for Libraries "Roberto Pettorino" of the University of Naples Federico II, for his active availability and the constant support also shown in this last publication.

Rocco Papa
Editor of the Smart City, Urban Planning for a Sustainable Future" Book Series
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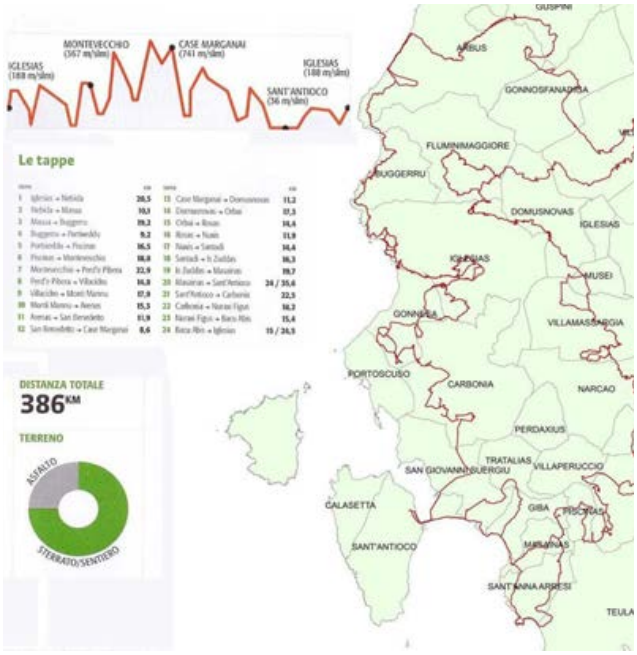

WAVE, WALK AND BIKE TOURISM

THE CASE OF SULCIS (SARDINIA - ITALY)

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ABSTRACT

Slow tourism is a different way of traveling that is spreading more and more in Italy and in the world, which means traveling in a less consumeristic way, discovering beauties, cultures and local traditions, also through outdoor sports. It belongs to the categories of sustainable tourism and is opposed to fast mass tourism identified mainly with cruises and short breaks in the big cities. It is a way of traveling that enhances and promotes the development of responsible and sustainable territory. Slow tourism includes soft mobility systems such as walking, cycling and horse riding. It is a form of outdoor sports tourism, which also includes hiking and aquatic tourism, more commonly called wave (windsurfing, sailing, canoeing, etc.). With this work the authors intend to analyze the slow "wave, walk and bike" tourism of the Sulcis area (Sardinia, Italy) and the role of the Santa Barbara Walk, through digital tracks (walk and bike) of the relative smart community. The goal is also to geographically represent the slow tourism phenomenon with the main sites of environmental, historical, cultural and mining interest that characterize the Sulcis and the accommodation supply, in order to identify a strategy to strengthen sustainable tourism starting from slow tourism.

KEYWORDS
Smart tourism; Sustainable tourism; Smart community; Slow tourism

* The other author is: Giuseppe Borruso.

1 INTRODUCTION

Tourism in Sardinia has always been characterized by seasonality and in particular the Sulcis Iglesiente is the area in which tourism presented itself since the last twenty years following the closure of mining activities that has been the free use of some areas (Modica et al., 2018). Get out of seasonality is the objective to aim for in the development of tourism in Sardinia (Destination Sardinia 2018-2021, Strategic Plan for Development and Tourism Marketing of Sardinia).

In fact, tourism in Sardinia today is still characterized by seaside tourism especially in the summer months. However, changes in the tourism phenomenon at national and international level have allowed new forms such as slow tourism (wave, walk and bike), which in Sardinia also manifests itself in the need to convert large mining areas such as the Sulcis into tourist areas.

The remaining part of the document is organized as follow.

Paragraph 2 describes the main changes in tourism model both at local and global level and introduces the importance of the role played by the local community with particular reference to the tourist model of Sardinia and in particular of the Sulcis Iglesiente.

Paragraph 3 describes the case study of Santa Barbara and the characteristics of the territory crossed.

Paragraph 4 concern the methodology used to analyses smart community bike and walk tracks.

Paragraph 5 analyzes the slow network in Sulcis area obtained from the walks and bikes tracks and the different kinds of accommodation offer.

In paragraph 6 concluding remarks highlight major results and future developments of the research.

2 OVERVIEW OF THE MAIN CHANGES IN TOURISM BETWEEN LOCAL AND GLOBAL

According to UNWTO (2018), international tourism continues to grow (up 6.7% compared to 2016 and around up 4% per year on average since 2010) and in Italy in particular 2017 ended with 122 million foreign travelers, up 4.5% compared to 2016 (website of MIBACT - Directorate-General for Tourism).

A growing industrialization of the tourist phenomenon, the globalization of flows and the presence of large groups increasingly "multinational", has triggered new challenges to the tourism market, both in terms of demand and supply. In fact, in recent years there has been

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a constant increase in requests from travelers: new and exclusive destinations, personalized services, increasingly direct sales channels. These are just some of the aspects that have influenced the changes taking place and that can affect the new scenarios.

Tourism demand has changed greatly, becoming not only more global, but also more selective and unstable. We have gone from a model in which the annual holiday was one and important to considering tourism as a commodity. In particular, tourists are looking for new experiences, emotions and tastes of the territory they visit (Campos et al., 2018). In addition, the role of the organized tourist (tour operator) with the do-it-yourself (digital) role was rebalanced with the consequent need for a more advanced and differentiated promo-marketing system (DMO) (Hall and Veer, 2016). Finally, the international tourist has had a considerable push not only from the growing and significant role of low-cost transport, but also from the new point-to-point routes (from smaller airports) without stopovers.

The tourist offer, if before it was mainly views in a productive way and referred to a "solid" product or packaged to be chosen and consumed, today, instead, it is the customer who creates the product starting from his personal needs. Therefore, the product is no longer solid but liquid and moldable. However, this highlights problems and opportunities arising from the customer's accessibility to the product / motivation and its immediate and easy usability (new social and web channels).

In the digital age, the tourist has become proactive, constantly looking for new solutions, customized and increasingly responding to his expectations and needs, which require the supply of tourist services of being able to respond more quickly.

Moreover, the archaeological, landscape, food and wine heritage's richness of a territory is no longer sufficient to transform it into a tourist product or even better into an attractive tourist destination, if not included in an integrated system between all available resources.

In the recent tourist scenario, the immersive and experiential aspect of the tourist plays a fundamental role, which is activated through the local community strongly related to the context, history and innovation. Emotions, lifestyles, culture of a territory become fundamental elements of a territory, to improve the destination appeal.

In this context, Sardinia, and in particular Sulcis Iglesiente, in line with national and international trends, are characterized by the presence of new players, which expand and integrate the offer of destinations: sea, culture, environment and nature, sport and taste. However, there is still a strong dependence on the seaside factor linked to seasonal hotel structures which are progressively orienting towards a service of excellence, partially overcoming the negative effects typical of seasonality.

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3 THE SANTA BARBARA WALK: SLOW NETWORK OF THE SULCIS IGLESIENTE

The Santa Barbara walk retraces the ancient mining routes of the Sulcis Iglesiente - Guspinese, developing as a ring for a length of about 400 km. Since 2013 it has been included in the regional register of historical-religious paths of Sardinia and in 2017 the Ministry of Cultural Heritage and Activities and Tourism has included it in the first Atlas of the Paths of Italy.

It is accessible on foot, by bicycle or by horse and its altitude spans from zero at the sea level to an altitude of 900 meters. The route consists of 24 stages in the Sulcis area defined on the basis of the following parameters: length in km, difficulty traveling and availability of accommodation facilities.

The area of Sulcis Iglesiente has been for millennia interested from a complex mining activity, such as to be considered the main extractive basin not only of the Island but of the whole Mediterranean (Fig.1)

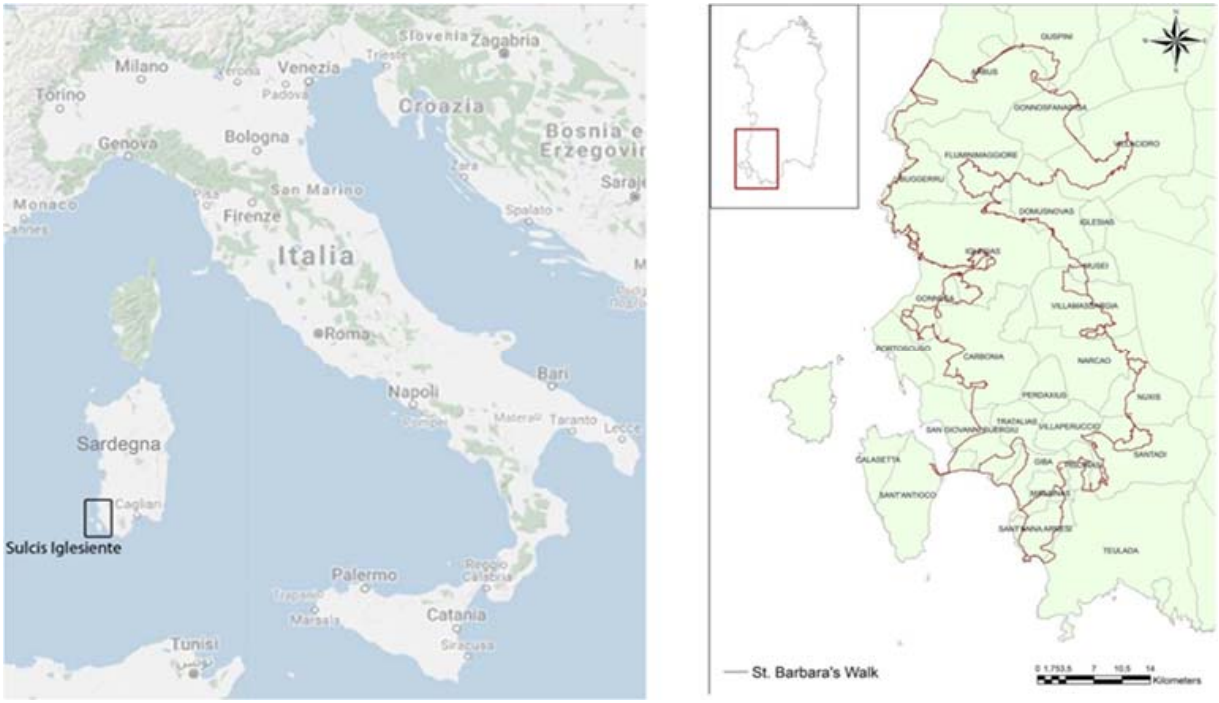

Fig. 1 Territorial Framework of St. Barbara's path in the Sulcis area (Sardinia)

The landscape of the path is characterized by a complex geological heritage and industrial archeology - mineral deposits, excavations and mine dumps and buildings - from an important ancient archeological heritage - domus de janas, nuraghi, sacred wells, etc. - and significant heritage natural (beaches, cliffs, lagoons, etc.).

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The remains of the previous mining activity make the Santa Barbara Walk one of a kind among all the most known national and international paths.
In fact, the mining heritage of residential and production buildings, landfills, etc. constitutes the environmental and landscape background of the path that connects inland and coastal areas. Wave, walk and bike sports tourism is manifested in this landscape, through a (slow) network of sporting activities: surfing, windsurfing and kayaking in the seaside resorts, with trekking, climbing and mountain biking in the most inland areas.

4. METHODOLOGY

The authors analyzed the behavior of the smart community (users living digital tracks on social networks in the Sulcis, also in relation to the recent establishment of the Santa Barbara walk. The analysis developed was based on the territorial elements considered relevant, classifying them according to their nature as points (or nodes) and lines (or arcs), or 'simplifying' natural and anthropic elements according to their punctual, georeferenced nature, and connections between these elements.
In the context of this work, the network analysis focused on the classification and representation of nodes and arcs, proceeding with a first visual analysis of their spatial distribution and trying to highlight the most dense areas with regard to the various how to use the territory.
The representation of the slow network of the Sulcis area was obtained with the following methodology: identification and analysis of the GPS tracks in walk and bike mode that were voluntarily loaded by the users on the platform. It was not possible to identify wave traces, because they are not generated by users. Instead of the wave traces, the maritime state concessions of the Sulcis published on the institutional site of the Sardinia Region were identified and analyzed.
In particular, the main digital platforms related to hiking, biking or other means related to sporting activities have been evaluated, which allow the user to both download the GPS tracks but also to load those tracks he/she realized or run.
Among the different platforms available for trekking and hiking Wikiloc was chosen, as it provides free GPS maps to members who register for free at the site, which can download tracks and upload and share new ones. Moreover, this platform allows a higher level of interaction with the broad community of users and integration with the other (geographical) services present in the Google 'environment'. The search for traces was limited to the area of Sulcis Iglesiente for a total of 460 useful tracks divided as follows: 230 walk tracks

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(downloaded between 20 and 29 January 2019) and 230 bike tracks (downloaded between 21 January and 3 February 2019)[1].

The georeferenced tracks with relative database (including the following information: length, name of the route, date of loading of the track by the user, number of downloads, number of views, link to the card, category of user, sex and origin) were processed by means of an open source GIS platform (QGIS 3.4).

Then, the authors proceeded to the evaluation of the main hospitality typologies present in Sulcis Iglesiente: hotel, extra hotel (B&B, landlords, holiday homes), home sharing. The data relating to the hotel and extra-hotel equipment were taken from Region of Sardinia open data (http://opendata.sardegnaturismocloud.it/IT/turismo/offerta/ricettivita/, 2017), while data on home sharing were taken from the Airbnb site (downloaded between 4 and 12 February 2019). From the elaboration of the tracks (wave, walk and bike) and of the tourist accommodation (hotel, extra hotel and home sharing) the authors have elaborated the following information layers in shapefile format, Tab.1.

INFORMATION LAYER	CODE	DESCRIPTION	SOURCE	REFERENCE DATE
Network	NW 01	St. Barbara's path	https://www.camminominerariodisantabarbara.or\g/	2019
	NW 02	walk tracks in Sulcis area	https://it.wikiloc.com/	2019
	NW 03	bike tracks in Sulcis area	https://it.wikiloc.com/	2019
Wave nodes	N01	maritime state concessions	http://dati.mit.gov.it/catalog/dataset/concessioni-demaniali-marittime	2018
Environmental nodes	N02	historical, cultural, environmental point of interest	http://webgis2.regione.sardegna.it	2015
	N03	abandoned mining areas	http://webgis2.regione.sardegna.it	2015
Receptions nodes	N04		http://opendata.sardegnaturismocloud.it/IT/turismo/offerta/ricettivita/	2017
	N05		http://dati.regione.sardegna.it/dataset/registro-regionale-degli-identificativi-univoci-iun-delle-strutture-ricettive-extra-alberghiere	2017
	N06		https://www.airbnb.it/	2019

Tab.1 Slow network of Sulcis - information layer

[1] Dott. G. Cosseddu collaborated in downloading data.

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5 SLOW NETWORK ANALYSIS

The interpretation of the information layers took place associating for each network (NW01, NW02, NW03) the different wave (N01), environmental (N02, N03) and of receptivity (N04, N05, N06) nodes. The authors then selected the main cartographic representations of the information layer associations, Fig. 2.

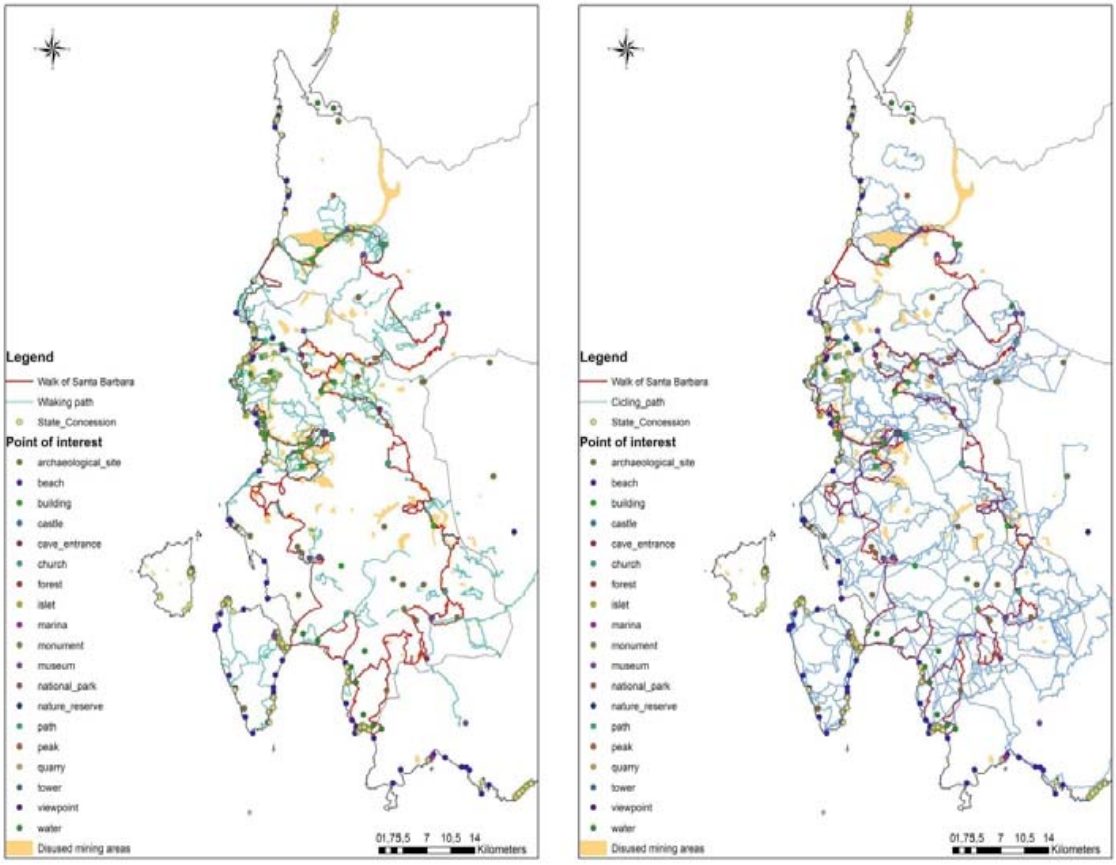

Fig. 2 On the left NW1-NW2-N01-N02-N03, on the right NW1-NW3-N01-N02-N03

From the analysis of the pedestrian paths (Fig. 2 on the left) we can highlight some significant aspects: in the northern part, where the points of interest and abandoned mining sites are concentrated, the walk tracks are also more concentrated. These follow the path of Santa Barbara on the coast and at the same time connect the coast to the interior (Piscinas - Montevecchio). In the southern part, the pedestrian paths are less dense and concentrate more on the coast, in correspondence with the maritime state concessions.

From the analysis of the bike tracks (Fig. 2 on the right) we can see a diffused and uniform slow network in the Sulcis area. However, even in this case there is a greater concentration in the north, with circular tracks that partly follow the path of Santa Barbara.

The slow network in the Sulcis, obtained from the walk and bike tracks, shows diversities, both in distribution and in concentration, within the territory. In particular the walk tracks are

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in correspondence of the greater concentration of points of interest (wave included) of the mining landscape, unlike what happens for the cycle tracks, which seem to follow sporting and competitive motivations, not always linked to the context landmarks.

However, both the walk and bike tracks highlight that the Santa Barbara Walk constitutes an important infrastructure for slow tourism.

The accommodation offer in the Sulcis area has been also analyzed, divided by category (hotel, extra-hotel, home sharing) to evaluate the correlations with slow tourism.

As shown in Fig. 3 the Sulcis presents all the forms of accommodation facilities (hotels, extra-hotels and home sharing), but with different characteristics. The hotel and home sharing offer is mainly concentrated in the summer period and in coastal area, demonstrating that tourism in Sardinia is still highly seasonal and linked to seaside tourism.

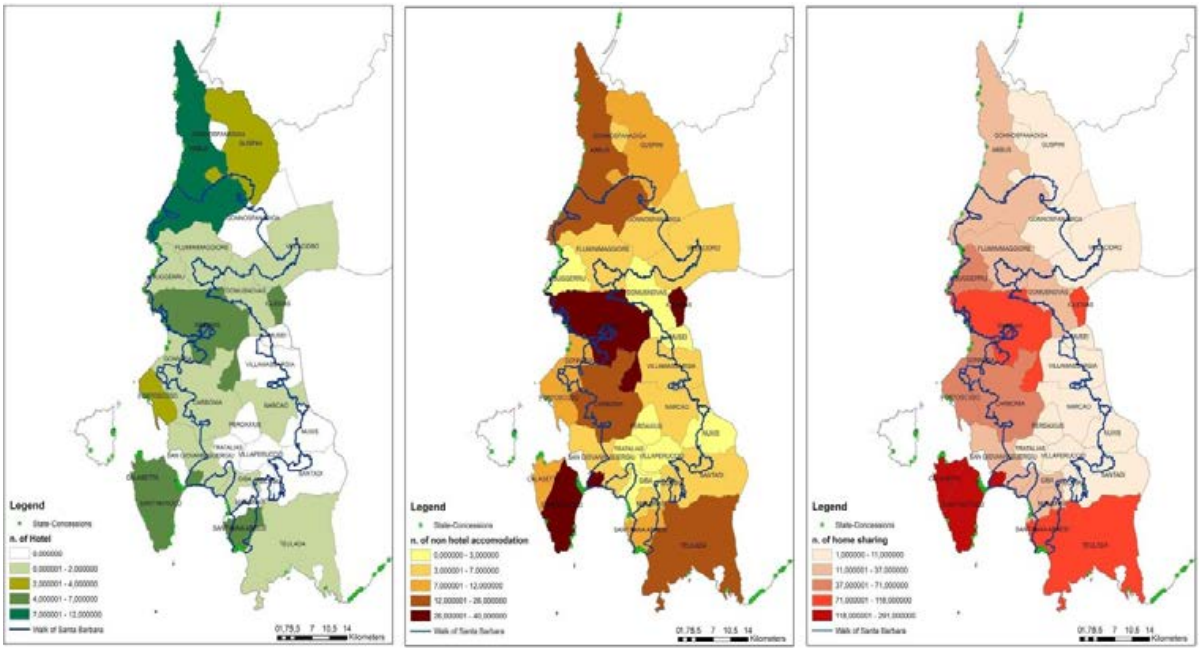

Fig. 3 Distribution of accommodation facilities in the Sulcis area. Hotels (left), extra-hotel (center), home sharing (right)

Otherwise, the extra-hotel type of accommodation offer is constant throughout the year, resulting unrelated to seaside tourism. Moreover, the extra-hotel offer is more evenly distributed throughout the territory and localized near the points of historical, cultural and natural interest.

This confirms that the home sharing also in the Sulcis is strongly in competition with the hotel offer. On the other hand, the extra-hotel offer, also located in the more internal territory of the Sulcis area, represents an important response to slow tourism, both because it is highly contextualized and because it is free from summer seasonality (Caffyn, 2018).

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In this research framework also based on voluntary data, which certainly still deserves developments and insights, the territory of Sulcis proves to be a territory suitable for slow tourism. Furthermore, the slow network shown is consistent with the abandoned mining context from which it draws appeal and motivation together with the marine context.

6 CONCLUSIONS

The representation of the slow network (on foot and by bicycle) of the Sulcis is attributable to the tourism of the paths, which presents similarities with the new forms of national and international tourism. It is a tourism deeply linked to the context, from the landscape to local knowledge and traditions.

The natural and historical emergencies, above all the anthropic emergencies deriving from the mining remains, constitute the landscape background of the Sulcis, on which the slow network is rooted.

In particular, slow tourism intercepts a tourist demand more oriented towards non-hotel accommodation, which in the case of Sulcis requires strengthening interventions. Furthermore, the organization and image of the non-hotel structure is the basis for the promotion of the slow network.

The analysis of the slow network of the Sulcis with the walk and bike tracks has highlighted different uses connected with the multitude of landscape features. In this framework of potentiality, the Sulcis area requires a further step (Destination of Sardinia 2018-2021, Strategic Development and Marketing Tourism Plan of Sardinia) aimed at making the quality of services recognizable, i.e. through a single brand.

In the same vein, the Santa Barbara path have to evolve towards a more structured and integrated typologies of management (i.e quality certification for all the infrastructures and facilities of the network) in order to promote the transition from seasonal tourism towards more sustainable and resilient forms in time and space. With this target in mind the next steps of this research work, according with the agreement protocol between DICAAR Department of Cagliari University and Foundation of the Santa Barbara Walk (signed in December 2018), intends to develop further analysis to define governance actions and to favor the diversification and integration between new and traditional forms of tourism.

NOTE

This paper is the result of the joint work of the authors. In particular: paragraph 2, have been jointly written by the authors L. Mundula and G. Balletto; A. Milesi has written paragraph 3,

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4, and 5 have been jointly written by the authors G. Balletto, A.Milesi and G. Borruso; paragraph 1 and conclusion have been jointly written by all authors.

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