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Landscape commodification in Greek and Roman Sicily: state of knowledge and research perspectives

Mercificazione del paesaggio in epoca greca e romana: stato della conoscenza e prospettive di ricerca

Parole chiave (*key words*): Mercificazione (*Commodification*), Ambiente (*environment*), Ellenizzazione (*Hellenization*), Romanizzazione (*Romanization*), Survey (*Survey*), GIS (*GIS*)

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RIASSUNTO

Nel corso dei secoli l'ambiente naturale è stata la principale risorsa della Sicilia and anche il teatro in cui le diverse politiche di affermazione culturale dei Greci e dei Romani si sono misurate. L'interazione con l'ambiente ed il paesaggio e lo sfruttamento delle risorse naturali ha avuto caratteristiche molto differenti tra l'epoca greca (VIII-III secolo a.C.) e romana (III secolo a.C. – V secolo d.C.) ma identiche finalità, ovvero la trasformazione del paesaggio in un bene di cui disporre a piacimento. Anche se l'intervento della civiltà greca è stata generalmente caratterizzato da un impatto visivo modesto e da alterazioni raramente invasive dell'ecosistema originario, l'uso del paesaggio ha giocato un ruolo cruciale nel conflitto per la supremazia culturale tra i coloni greci e le genti indigene di Sicilia. Successivamente, i Romani ha lanciato una campagna massiccia di infrastrutturazione, romanizzando il paesaggio dell'Isola, con la costruzione di strade, ponti, acquedotti, centuriando i campi, in modo da imprimere all'ambiente siciliano il profilo comune del Mediterraneo romano. Al di là dell'importanza teorica di questo tema, l'archeologia del paesaggio della Sicilia greca e romana come disciplina sta ancora muovendo i suoi primi passi. Ad eccezione di pochi progetti finalizzati alla produzione di carte archeologiche di certe porzioni dell'entroterra, non esiste ancora una ricerca interdisciplinare che si sia data come scopo quello di contribuire alla ricostruzione delle dinamiche di interazione col paesaggio dei gruppi umani nelle età greca e romana. Lo scopo di questo contributo è quello di riassumere lo stato attuale delle conoscenze in modo prendere atto del quadro documentario e pianificare una nuova linea programmatica di ricerca. Allo stesso tempo si presenterà il progetto interdisciplinare di archeologia del paesaggio promosso dall'Arcadia University, che si focalizza sul sito emblematico della Penisola La Maddalena.

ABSTRACT

Over centuries the landscape has been the main economic resource of Sicily and the arena for displaying the cultural and political achievements of the Greek and Roman civilizations. The interaction with the environment and the exploitation of the natural resources was very different in the Greek period (8th-3rd century BC) and the Roman era (3rd BC-5th AD) but it had the same goal; the transformation of the landscape into a commodity to dispose of. Although Greek action was generally characterized by a very low visual impact and by a rarely-invasive alteration of the original ecosystem, the use of the landscape played a crucial role in the battle for the cultural supremacy of the Greeks over the native peoples. Much later, the Romans launched a massive *infrastructuring* campaign, 'romanizing' the Sicilian landscape with roads, bridges, aqueducts and centuriation, in order to bring it into line with the other environments of the Roman Mediterranean. Despite the significant theoretical importance of this theme, the landscape archaeology of Greek and Roman Sicily is still in its infancy. Apart from a few projects, no interdisciplinary research has been undertaken with the goal of contributing to the reconstruction of the landscape interaction dynamics during the Greek and Roman periods. The aim of this paper is to summarise the present state of knowledge in order to take stock of the situation and plan a course of action, and at the same time to present the interdisciplinary landscape archaeology project designed by the Arcadia University, that focuses on the pivotal site of La Maddalena Peninsula (Syracuse).

LANDSCAPE ARCHAEOLOGY IN SICILY

Landscape archaeology has an important position in current archaeological research in Italy and is of growing importance in Sicily, especially in work that focuses upon early urbanization and Greek and Roman coloniza-

tion. In Sicily this discipline has developed predominantly around the work of field-survey projects that have involved systematic field walking and recording of all traces of past human activity. In general all the projects are situated in the central-western hinterland of the island, such as the Salemi project and the Troina project, or along the course of rivers such as the Upper Simeto valley project and the Gornalunga and Margi valley project (Fitzjohn, 1997). The areas that have been subject to inspection via field survey present archaeologists with a wide range of evidence that includes both dense sites and off-site finds. Archaeological evidence is often identified, recorded, analyzed and interpreted as a type of site; in other words, different places of past activity. The total number of different sites, from any particular period, is then interpreted not simply as a settlement pattern, but more importantly as a landscape of activity, of land use and possible economic and cultural exchange during a specific period in the past.

With exception of the Troina project (Fitzjohn-Ayala, 2012) which has a strong geological research component and has been characterized by the regular use of soundings, the other projects have been carried out as traditional archaeological walking surveys not followed by any excavations. Furthermore, all of them have an exclusive focus on prehistory without taking into proper consideration the impact of Greek and Roman cultural agencies on the Sicilian landscape and territory, a fact that can be considered a serious gap of knowledge that needs to be bridged.

MATERIAL AND METHODS

A particularly interesting area for evaluating how the landscape has influenced settlement patterns during prehistory and how the natural environment has been differently exploited in the course of the Greek and Roman eras is certainly the coast of Syracuse and its nearby territory.

Along the coastline, between Santa Lucia in the north-eastern periphery of the city and Punta del Cane at Fontane Bianche, 18 km to the south (fig. 1) a multitude of archaeological sites are documented, consistently ranging between the Bronze Age (second half of the 2nd millennium BC) and the Late Roman period (5th century AD). The features contributing to the popularity of this territory, in terms of facilitating anthropization, rely on the alternating system of small islands, capes and harbors which guaranteed shelters and strategic control of the sea.

the Great Harbor of Syracuse on the southern side.

The archaeological, geological and botanical features of this area are ideal for the application of an interdisciplinary landscape archaeology project.

ARCHAEOLOGICAL FEATURES

A preliminary field-survey carried out by the authors resulted in a draft map of the main archaeological spots to be investigated further, among which new elements have been identified and located for the first time (fig. 3).

the most important settlements of the Syracusan territory.

During the explorations of 1891 and 1897, several clusters of Middle Bronze Age rock-carved tombs (fig. 4) were discovered on the northern and north-western side of the peninsula (Orsi, 1891; 1899).

The excavations produced a multitude of local ceramics and several exotic artifacts, such as glass-paste and amber beads, ivory items and bronze weapons probably to be considered as Mycenaean imports (Tanasi, 2008).

Afterwards, a limited ground survey carried out by the Superintendence of Cultural Heritage of Syracuse in 1965 led to the identification of the possible location of a Middle Bronze Age village in a small harbor north of Punta della Mola, and of a restricted area with Neolithic pottery-sherd dispersion on the extreme northern tip of the peninsula (Lazzarini et al., 1965).



Figura 1 - IGM Mosaic F° 274 II S.O. Siracusa; F° 277 I.N.O. Fontane Bianche (after Felici - Lanteri, 2012).

Figura 2 - Aerial picture of the Maddalena Peninsula from south.



In this perspective, the most problematic and poorly-studied area is represented by the Maddalena Peninsula, also known as Plemmyrion (fig. 2), which marks the limit of

The archaeological importance of Plemmyrion is mainly due to its occupation during Prehistory, when in the course of the Middle Bronze Age (1450-1250 BC), it became one of

After the prehistoric period, the strategic importance of Plemmyrion for the Greeks of Syracuse is testified to by two episodes dating to the end of the 5th and the beginning of the 4th centuries BC (Evans, 2009).

During the Athenian campaign in Sicily in 415-413 BC, Plemmyrion became one of

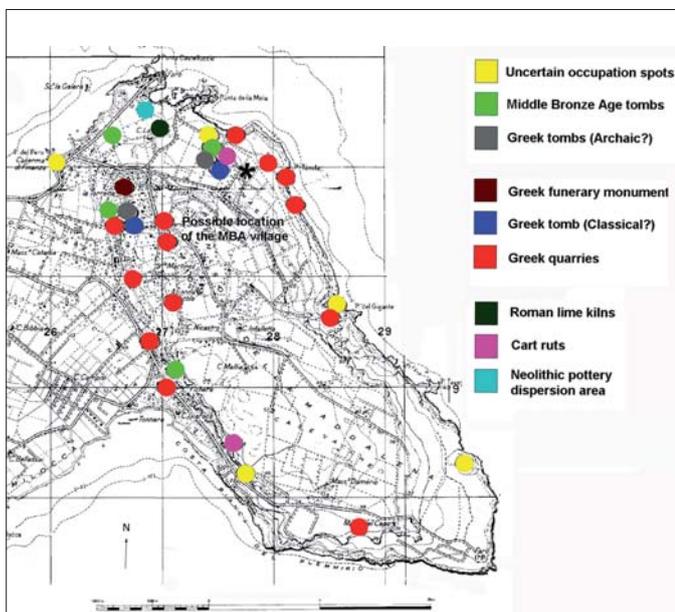


Figura 3 - Preliminary archaeological map of the Maddalena Peninsula (photo authors).



Figura 4 - Middle Bronze Age rock cut tomb on the isthmus of the Maddalena Peninsula (photo authors).



Figura 5 - Greek funerary circular monument at Mondjo (photo authors).



Figura 6 - Greek sea quarries on the north-western coast of the Maddalena Peninsula (photo authors).



Figura 7 - Roman lime kilns on the north eastern coast of the Maddalena Peninsula (photo authors).

the Athenian outposts: "Nikias also decided to fortify the spot known as Plemmyrion, which is the headland directly opposite the city that juts out into the sea and makes the entrance into the Great Harbor a narrow one. Therefore, he sent over the fleet and a force of hoplites to Plemmyrion and constructed three forts" (Thuc. 7.4.4). A massive circular monument in a part of the peninsula named Mondjo possibly dates to this period (fig. 5); it was explored in 1899 and traditionally interpreted as the burial-place of the Athenian dead (Orsi, 1899).

Afterwards, in 396 BC, when the Carthaginians attacked Syracuse, the general Himilcon ordered the construction of a fort on the peninsula in order to take advantage of its proximity to the city for the possibly-lengthy siege (Diod. 14.63.3).

No further sources are available about the function of Plemmyrion and the related use of its territory in the course of the Greek and Roman eras, although the archaeological evidence points to a much more consistent, complex and diffuse occupation. The reference to the construction of a church dedicated to Mary Magdalen by the Normans during the Middle Ages, on the extreme southern point of the peninsula still remains unverified (Agnello, 1926).

Two larger rock-cut tombs with square plans and flat ceilings are likely to date to the Greek period and can possibly be compared to the Mondjo funerary monument. Quite ubiquitous is the presence of sea quarries (fig. 6), comparable with those already studied along the coast north of the Great Harbor of Syracuse and interpreted and dated to the Greek age (Felici – Lanteri, 2012). In the harbor north of Punta della Mola, several circular kilns half submerged by the sea (fig. 7), have been identified and put in connection with those explored in Ognina and attributed to the Middle-Late Roman Imperial period (Lena *et al.*, 1988). More problematic is the interpretation and chronology of the portions of cart ruts related to carriage roads that could have been used in quite different phases between prehistory and the early Middle Ages.

The most significant part of this very preliminary field-survey has been represented by the identification of the exact spot where the Bronze Age village was found in the Sixties. In fact, in a plain, east of the Massolivieri lighthouse, not far from the current 'Il Minaretto' resort, the poorly-preserved structures of the perimeter of a Middle Bronze Age circular hut have been identified. Quite remarkable is the identification of shallow channels connected with deeper circular pits carved in the bed-rock that could be interpreted as a rainfall-collection or water-storage system as attested to elsewhere (Punturo *et al.*, 2013).

MORPHOLOGICAL AND GEOLOGICAL OUTLINES

The Maddalena Peninsula, located a few kilometers south of Syracuse inside the Tavolletta "Siracusa" I.G.M. (F° 274 II SO), lies in a geological domain known as the Hyblean Plateau (fig. 8), representing the northern edge of the African Plate whose collision with the Calabrian Arc resulted in the Maghrebian thrust belt (Butler et al., 1992).

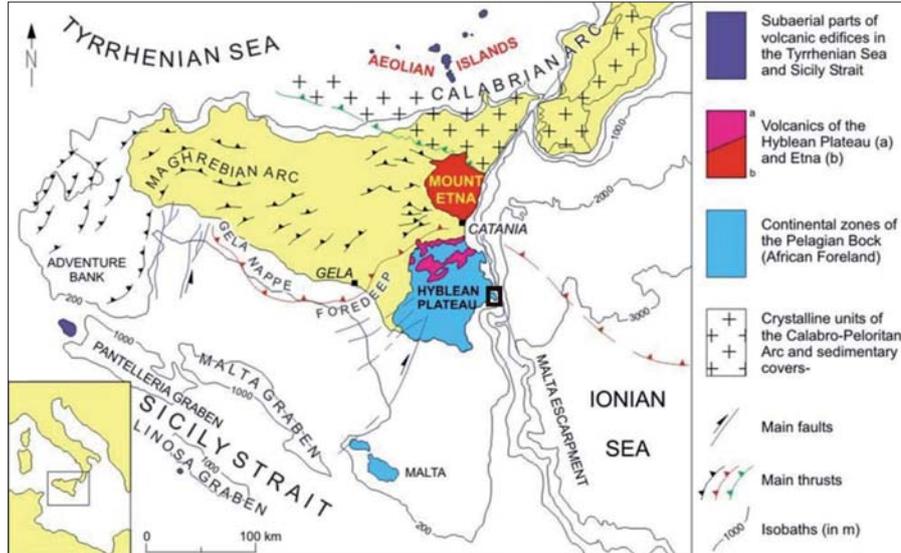


Figura 8 - Structural settings of Sicily. The box indicates the localization of the Maddalena peninsula (after Butler et al., 1992).

The area of the peninsula is roughly flattish because the top of the stratigraphic succession is largely characterized by outcropping marine terraces, middle Pleistocene in age. The coastal areas on the other hand are dominated by vertical cliffs whose development is mainly controlled by sea erosion (figs. 9, 10).



Figura 9 - Panoramic view (from Syracuse) of the northern side of the Maddalena Peninsula (photo authors).



Figura 10 - Cliff carved on the white lower Pliocene Trubi, overlapped by marine terraced deposits of the Middle Pleistocene (photo authors).

The outcropping lithological succession is characterized by the presence of carbonates ranging in age from Miocene (about 20 Ma ago) to Quaternary (modern times). From the base to the top: *Monti Climiti Formation* (fig. 11a), white and cream-colored massive car-

bonates with abundant algal rhodolites (age: lower-middle Miocene); *Carlentini Formation*, crystalline limestones, white in color, without macrofossil contents (age: upper Miocene); *Monte Carrubba Formation* (fig. 11b), alternations of marly limestones and micritic creamish-white limestones in stratified beds 1-2 meters thick (age: upper Miocene);

Trubi (fig. 11c), white calcareous marls and marly lime mudstones, white in color,

(fig. 11f), heterometric conglomerates and sands, often cemented, having a size-clast greater than 10 centimeters, the color of the deposits of which is usual reddish (age: late Pleistocene).

Taking into account the outcropping succession, in the area of study the products of four sedimentary cycles dated Miocene, lower- middle Pliocene, Lower Pleistocene and middle Pleistocene are present. After the middle Pleistocene, the area was marked by a notable uplift, testified by the presence of two distinct late quaternary marine terraces.

In recent times this trend seems to have changed. The literature (De Fiore, 1920; Accordi, 1963) hypothesized a Holocene marine transgression. More recently, this data has been confirmed through the observation of ancient Greek and Roman artifacts partially below the sea-level (Lena et al., 1988). Thus, it has been estimated that the coastline has sunk about 5 meters since the Greek-Roman era.

VEGETATION

The flora of the Maddalena Peninsula includes 378 taxa (Minissale et al., 2011). The prevalent plant life-form is Therophytes, with 180 taxa (47,6%), followed by Hemicryptophytes, with 88 taxa (23,3%) and Geophytes, with 53 taxa (14%). The prevalent chorological type is Mediterranean, while 4% of the species present are endemic.

The area of study offers shelter to several plant species of interest, like *Allium lehmannii*, a Sicilian endemic geophyte, *Limonium syracusanum*, endemic to the Hyblean Ionic coast, *Ophrys biancae*, a very rare endemic

showing concoidal fracture and prismatic jointing normal to the bedding (age: Early Pliocene); *Whitish-Yellow Calcarenites* (fig. 11d), yellow-colored coarse to fine-grained calcarenites. Clinoform beds are often present (age: Early Pleistocene); *Panchina Formation* (fig. 11e) middle Pleistocene terraced deposits composed of yellowish-brown colored,

cemented biocalcarenites, the allochemical fraction of which is composed of fragmentary shells of bivalves (age: Middle-late Pleistocene); *Marine terraces*, planar morphological surfaces, prevalently without deposits (age: late Pleistocene); *Conglomerates and sands*

orchid, *Tillaea vaillantii*, a small plant of the stonecrop family which is rare in Sicily, *Pulicaria vulgaris* var. *graeca* and *Damasonium Alisma* subsp. *bourgaei*, both rare species.

At least sixteen different phytocoenoses are present in the Maddalena Peninsula.

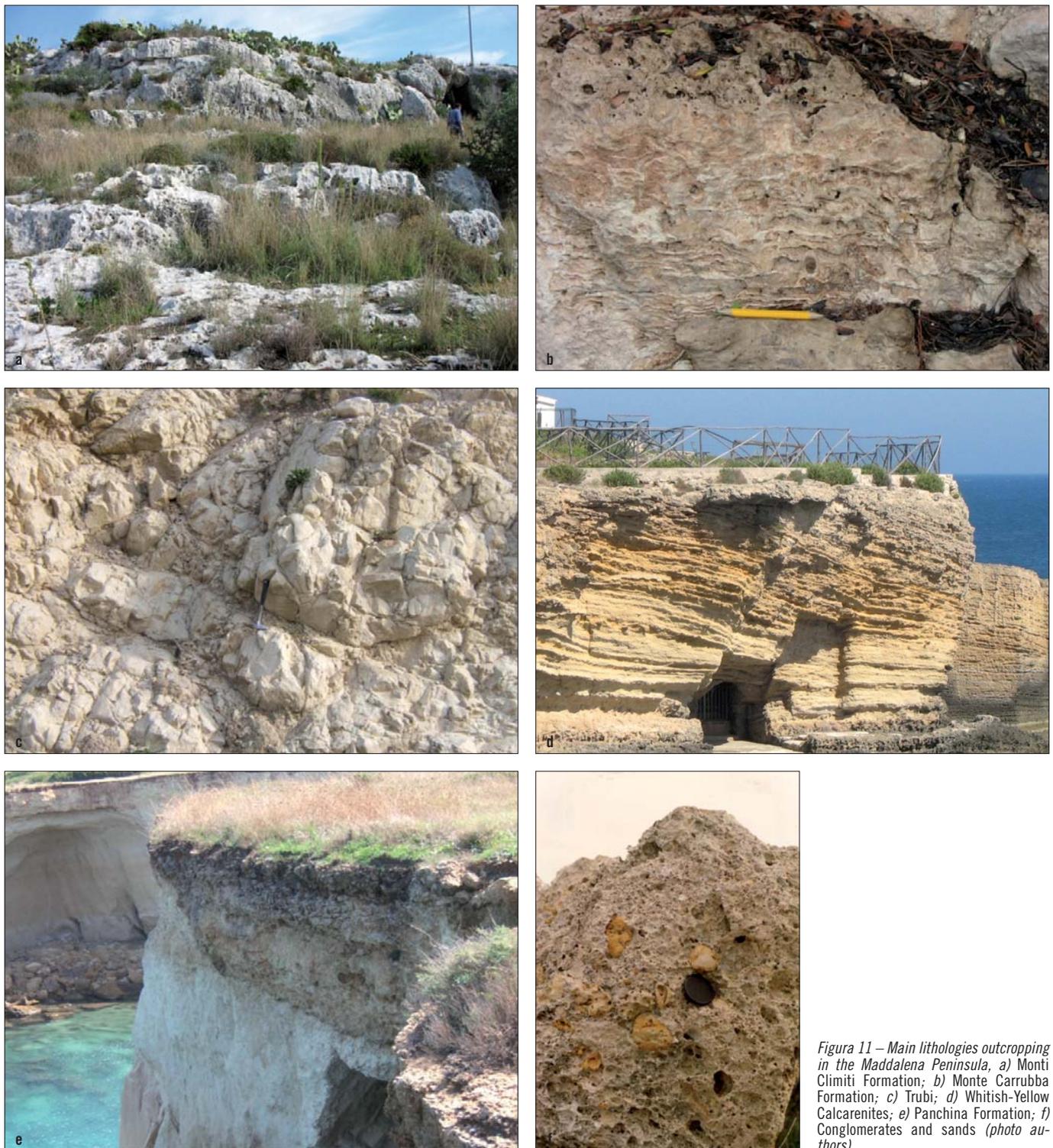


Figura 11 – Main lithologies outcropping in the Maddalena Peninsula, a) Monti Climiti Formation; b) Monte Carrubba Formation; c) Trubi; d) Whitish-Yellow Calcareenites; e) Panchina Formation; f) Conglomerates and sands (photo authors)

Halophile communities present on the cliffs belong to the *Limonietum syracusani*, while sub-halophile communities located further away from the coast belong to the *Thymelaeo hirsutae-helichrysetum conglobati*. Close to Faro di Capo Murro di Porco, 150 meters away from the coast, there is a temporary pond around which it is possible to observe a very peculiar halophile sub-nitrophilous plant community (*Pulicario graecae-damasonietum bourgaei*) dominated by *Pulicaria vulgaris* var. *graeca* and *Damasonium Alisma* subsp. *bourgaei*. In other ponds, more or less ephemeral and with different depths, several other associations are present, like *Scirpetum*

compacti subass. *limonietosum narbonensis*, *Juncetum subulati*, *Caricetum divisae* and a rare assemblage dominated by *Tillaea vailantii*.

On the rocky coastline, during spring, it is possible to observe a rare phytocoenosis (*Anthemido secundirameae-allietum lehmannii*) characterized by *Allium lehmannii*, a Sicilian endemic geophyte; in the same area, small depressions in which sand accumulates are the habitat of a different Nitrophilous plant community, *Frankenio pulverulentae-anthemidetum secundirameae*. Vertical calcareous rocky slopes house chasmophytic vegetation (*Limbarido crithmoidis-dianthetum rupicola*)

dominated by *Dianthus rupicola* subsp. *rupicola* associated to halophile and sub-halophile species like *Limbarido crithmoides* and *Lotus cytisoides*. One of the most relevant formations present in the Maddalena Peninsula is the thermophilous maquis (*Myrto communis-pistacietum lentisci*) characterized by lentisk (*Pistacia lentiscus*) and dwarf palm (*Chamaerops humilis*); within this coenosis many *Oleo-Ceratonion* species are present, like *Myrtus communis*, *Asparagus acutifolius*, *Thymelaea hirsuta*, *Calicotome infesta*, *Smilax aspera*, *Olea europaea* subsp. *oleaster*, *Euphorbia dendroides*, *Teucrium fruticans*, *Ceratonia siliqua*. In rocky areas, *Chamaero-*

po humilis-sarcopoterietum spinosi takes the place of *Myrto communis-pistacietum lentis-ci*: it is a low standing garigue dominated by *Coridothymus capitatus* and *Sarcopoterium spinosum*, in which small specimen of *Calicotome infesta* and *Chamaerops humilis* are sometimes present.

DISCUSSION

The archaeological, geological and botanical features displayed by the Plemmyrion together with its strategic location, as the southern head of Syracuse's Great Harbor, contribute to make it an emblematic site for a landscape-archaeology research project in south-eastern Sicily. The alternation of three main chronological phases of occupation - prehistoric, Greek and Roman - characterized by very diverse cultural outcomes, offers the possibility of evaluating how different ethnic groups interacted with the same environment, adapting to it or transforming it into a commodity to be exploited.

After a preliminary study of the available data and a preliminary field survey, a team of Arcadia University have designed an interdisciplinary landscape-archaeology project focusing on the Plemmyrion in order to create a multilayered archaeological-geological-vegetation map on which to place the known cultural and natural artifacts in diachronic and synchronic scale.

That map obviously represents the outcome of an initial wrap-up phase of the project, where the available data are validated on-site. The ultimate aims of this project are:

- to reconstruct the original natural landscape of the peninsula as it was before the human modifications, both in terms of naturalistic and geological features;
- to reconstruct the cultural landscape through a large-scale census of the archaeological sites based on instrumental and direct field survey;
- to interpret the cultural landscape in order to find social, political, economic or religious reasons that led prehistoric, Greek and Roman groups of men to 'customize' the natural landscape.

The road-map of the project is structured around a series of multidisciplinary geo-referred on-site interventions such as archaeo-palinological core-drilling, geological and geophysical surveys, archaeological walking-surveys and soundings. Simultaneously, an overall study of all the available written and visual sources has to be carried out, as does an archaeo-botanical study and the related analysis of historical records and ancient sources about vegetation, a study of maps and aerial photos, and related examinations of ancient cartography and toponymy.

The project is inspired to the research program FRAGSUS (Fragility and Sustainability in the restricted island environments of Malta) undertaken in 2014 by the University of Cambridge, Belfast and Malta and aimed to assess how landscape and climate conditions affected the cultural development of the Maltese communities through out prehistory and protohistory (<http://www.qub.ac.uk/sites/FRAGSUS>). The very promising preliminary results of this project (<http://www.arch.cam.ac.uk/research/projects/fragsus>), still ongoing, have allowed us to shape our La Maddalena Peninsula research project over it but in a smaller geographical scale. In this perspective the measurability of FRAGSUS results informs us about the achievability of our scientific goals.

Our fieldworks are expected to start in 2016 and to involve undergraduate students of Arcadia University in the field-research in order to give an educational profile to the project. The tool that will be used for the collection, storage and analysis of all the resulting data will be the cross-platform free and open-source desktop geographic information systems application QGIS. The GIS elaboration will also aim to investigate the spatial pattern of sea-erosion potential and the relationship between this pattern and the archaeological records. Such types of modelling do not allow for the evaluation of actual sediment dynamics, yield and variations but they do provide an indication of the relative strength or intensity of the phenomena.

The combined study of the effects of sea-erosion alongside the devastating effects of uncontrolled urban development on the landscape of the peninsula will certainly contribute to the disclosure of that 'hidden landscape', which is currently the main theme of landscape archaeology in Sicily (Fitzjohn - Ayala, 2012).

Differently from other previously-mentioned projects carried out in the hinterland of the central-western part of the island, this project centered on Plemmyrion will be characterized by a certain inter-disciplinarity given by the participation on peer level of scholars of archaeology, geology and environmental sciences. In fact, paraphrasing the words of an essay of a decade ago: "Archaeology is but one part of a landscape paradigm. Archaeology alone cannot address all parts of a truly integrative understanding of the anthropology of place" (Anschuetz *et al.*, 2001).

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