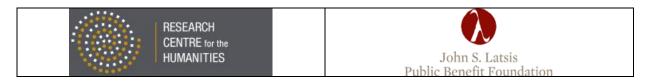
"HIGH ABOVE THE MOUNTAINS - Fossil Built Landscapes on Cretan Mountainous Uplands from the Sky".

G. Cantoro, Ch. Tsigonaki, S. Michalopoulou

The research project «HIGH ABOVE THE MOUNTAINS — Fossil Built Landscapes on Cretan Mountainous Uplands from the Sky» was funded by the **Research Centre for the Humanities (RCH)** for the year 2017, with the support of the **John S. Latsis Public Benefit Foundation**.



Keywords: mountainous landscape, Crete, abandoned structures, fossilized landscapes, endangered landscapes, living landscapes

Abstract

The paper presents the approach and first results of an original research project involving the mountainous activities on the island of Greece, Crete, mainly limited to the early-byzantine and post-modern period. The project, titled "HIGH ABOVE THE MOUNTAINS - Fossil Built Landscapes on Cretan Mountainous Uplands from the Sky" and funded by the Research Center for the Humanities, aims at understanding the material culture of apparently hostile mountainous landscapes starting from the view-from-above.

Historical archive and recently acquired aerial photographs and satellite images are the starting point for a research focusing on the abandoned villages and standing structures, which populate the high mountains of the largest Greek island. Once areas of interest are identified and a provisional chronology is proposed, targeted field survey is planned to enrich or amend the gained knowledge.

Important aspect of the project is the involvement of local communities in terms of input and output: indeed, deliverables of the project are not ending-point of dissemination, but rather beginning step of a deeper involvement and engagement of local communities and scientific society.

Results of the project are series of "fossilized" moments and cultures in need to be rediscovered and re-valorized with larger and more systematic practices that should involve locals as main actors rather than spectators.

Introduction

The space which surrounds us and with which we continuously interact, is not a static entity but the result of complex relations and influences of humans (and their cultures), animals and landscapes. Material and tangible results of such interactions are either reshaped, repurposed, damaged and/or endangered in view of the "development" of certain areas. In less developed zones, such material culture stands as iconic elements of the landscape, result of a spontaneous monumentalisation process.

For these second artefacts (broadly speaking), the embodiment in the surrounding landscape is such that their presence is often underestimated, misinterpreted or simply ignored. These built landscapes could easily be described as "fossilized" and often that is the case on the Cretan Mountains. On the (apparently) hostile mountainous environment, the built structures become rare and sparse and the repurposing of pre-existences becomes a sort of necessity for people living the mountains.

The tendency to neglect past built environments is provoked (and paradoxically it provokes as well) and is favored by the ignorance of their aetiology: what is this structure; has it always been like this; who built it; why was it built and why here; is anybody still using it; how often and for what reason/s? This is particularly true even when the construction of such artefacts on hardly accessible mountainous spots ideally enhances their value as cultural heritage, because of the difficulties in finding the required material, bringing it uptop and working in such challenging altitudes.

Having in mind the above, a research project has been built under the name "High Above the Mountains: fossil built landscapes on Cretan mountainous uplands from the sky". The project, funded under the 2017 open call of the Research Center for the Humanities, has 4 main objectives:

- to create the principles and collect data for the future fixing of an atlas (in the shape of geographical database) of abandoned and collapsing built structures and villages on the mountainous volumes of Crete
- 2. to contextualize and understand the reasons of the landscape changes

- 3. to involve and engage local communities and young researchers to the importance of the Mountainous cultures
- 4. To interact with the local society (repository of traditions and practices) and bidirectionally enrich each other understandings of the past.

Why Crete?

The assumption by which landscape is a sort of evolving organism where humans and animals interact, modify the surroundings and are influenced by them, makes the mountains the ideal playground for historical-ethnographical-archaeological works. Here all factors are enhanced and multiplied given the (apparently) hostile conditions. The possibility to have such a "laboratory" on an island, that is, on a limited space with controlled communications with "external" environment, is ideal. Therefore, the selection of working on the largest of the Greek islands and among the largest in the Mediterranean Sea was natural.

Crete has been described as a "mountain emerging out of the sea" (R. Matton, 1957), with more than half of its territory being mountainous (peaks more or less between 1500 and 2500 m. a.s.l.). Mountains and mountain ranges (Psiloritis/Idi, White Mountains and Dikty, to mention the most important ones), occupy approximately 52% of the island and constitute the main geographical feature of the Cretan landscape. Plain-lands occupy a mere 3.6%, letting the remaining percentage to hills, valleys, small plains, plateaus and gorges.

Despite the apparent inhospitality of this place, Crete is still one of the most populated islands in the Mediterranean and definitely one of the most attractive touristic destination. Most of the island landscape' units, even the mountainous ones, have been influenced by human land-use, and the resulting mosaic is a mixture of natural and human-managed patches that vary in size, shape, and arrangement. Those elements are clearly part of the Cretan symbols and they are so in such a way that their presence is often underestimated, misinterpreted or simply ignored. If we stop wondering or questioning ourselves on the above, we break the relationships that people maintain with the physical, social, and cultural dimensions of their environments and consequently the landscape itself loses its cultural identity.

Indeed, generally speaking, landscape is defined by its being perceived, experienced, and contextualized by people. And this perception makes it (or part of it) to exist and

survive to time. The ambition of the research project is therefore to bridge the gap of knowledge about mountainous life of Crete with a combination of historical, archaeological and ethnographical perspectives and sources.

Methodology and tools

According to Knapp and Ashmore (Ashmore and Knapp 1999), landscape is "an entity by virtue of its being perceived, experienced, and contextualized by people".

Following the Lozny (Lozny, 2013) "multivocality of landscape" (as opposed to the "landscape polarity"), High-Above-The-Mountains project moves between traditional geomorphic views of landscape to more phenomenological or cultural perspective with solid ethnographical bases. The relationship between people and land is always active and dynamic. It involves something "done with" the environment, not something "done to" it. This is a sort of taphonomic perspectives, applied to the study of landscapes, where the evolution of landscape "participates in necessarily interlinked cultural and natural processes".

Given the above aim of research, in combination with the specialties, the capabilities of the project's team members and the large extent of territory under investigation, the view-from-above was considered as the most suitable research tool to drive the field activities (Masson, Palmer, Campana 2013; Cantoro 2015).

Beside the original point-of-view, aerial photographs (and historical aerial photographs in particular) are definitely unique documents of a continuously changing environment and they are often able to freeze the moment either before the field mechanization (especially recognizable in photographs from the First and Second World War) or during and after the modifications. Heavy large-scale changes and landscape reshaping are more often appearing in the rare hilly/flat areas and some tourist driven expansions (for hotels or infrastructures for excursions and hiking) are also putting at risk some normally inaccessible areas. In such conditions, the mapping of cultural heritage with ground survey may be time consuming, sometimes unsuccessful or unfortunately too slow compared to the modern landscape development. Historical aerial photographs from the Hellenic Military Geographical Service, oblique photographs taken by G. Cantoro in past aerial archaeological campaigns, drone photos and satellite images accessible through the web constitute the background dataset on which the project was built. Archives of aerial photographs (whether from the First or

Second World War or from modern aerial survey campaigns) are a rich source for identifying otherwise unknown monuments and can provide unique records of landscapes and sites that have been changed or destroyed by intensive agricultural practices or touristic expansion. Indeed, the places in which we live-in are always changing: parts of towns and cities may be rebuilt and the countryside changes as farming practices develop. Dated aerial photographs may therefore show processes that happened gradually and almost unnoticed —such as the abandonment of a village—, or capture moments of time or depict agricultural practices difficult to date.

The "complexity" of the Cretan landscape and the limited presence of flat areas seems to contrast the wealth of standing or buried artefact visible from the air in hardly accessible spots. For such a rich context, rescue archaeological excavation, although important, are not sufficient and often do not provide the wider picture that most human-landscape interactions need in order to be properly understood. The approach from the air is undeniably beneficial in similar situations, where professional cameras can be pointed at specific contexts during airborne systematic or targeted survey flights.

This bird-eye view survey, at times integrated or driven by historical imagery analysis, allows to visualize traces of the past –at times not recognizable from the ground– that then need to be stored and publicly presented. Aerial pictures have also undoubted appeal in raising public awareness on surrounding space. But the research does not end with an aerial photograph; on the contrary, it may just start from it. Indeed, when an area of interest has been identified with this image-based analysis, a targeted fieldwork takes place to verify and enrich (or correct) the gained knowledge.

Additionally, the role of ground surveys on selected areas and interviews with locals were of complementary but essential nature since it favored the "tagging" of abandoned and collapsing artifact with archaeological and/or historical facts, promoting at once the involvement of local communities. In line with this "win-win" approach, where we as researchers learn or enrich our understanding of material culture and we share it with a wider community through web-portal and academic presentation, a photographic exhibition was built in the framework of the project. Indeed, if on the one side this exhibition had the goal to disseminate preliminary results of the research, it also aimed at gaining new knowledge from visitors' feedback. The exhibition was therefore intended for wider public

and though in two language (English and Greek) to facilitate the access to locals and tourist in the month of August 2017. Here visitors were exposed (often for their first time) to aerial and ground photos of Cretan mountainous landscapes enriched with explanatory texts, videos, music and interactive installations. Interaction with the public was assured by guided visits organized by the project's team where listening was as much important as presenting.

"Fossilized" moments on living Cretan mountains

Agropastoral constructions, defensive-refugee places, water management buildings, worship sites and structures characterize the human-made landscape of the Cretan mountains. In this paragraph a deliberate choice of presenting results related to only some of the aforementioned activities is done, namely agropastoral, defensive and partly water-management related built structures. The non-less interesting worship uses of landscape (that seem to be diachronic, if we consider the situation from the Minoan peak sanctuaries to the modern chapels or crosses on the mountain tops) would need a dedicated project, given the complexity of the topic. As far as the chronological context, the focus was on the early byzantine and post-modern periods.

Agropastoral activities

It is quite difficult, and not always possible, to recognize with certainty and interpret the ancient **agropastoral activities** based solely on traditional landscape studies. Oftentimes, a broader range of sister disciplines should be integrated for a more solid and consistent reading and interpretation of the landscape, namely: research on the architectural remains, historical documents, archaeology, zooarchaeology, chemical analyses, ethnographic studies and more (e.g. Chang and Koster 1986; Nixon and Price 2001). Taking advantage of a variety of these methods, hypothesis have been made on the beginning of mixed agropastoral economy and way of living on mountainous landscape of Crete as early as the Final Neolithic and Minoan periods ($\Pi\alpha\pi\alpha\delta\acute{\alpha}\tau$ oς και Σοφιανού 2015; Beckmann 2012). The present project tried to explore the diachronical character of such activities in Cretan mountains through a more systematic aerial view. Indeed, the view-from-above offers an indispensable look to wide areas, providing the possibility to visualize interrelations between distant places and giving tools to spot the numerous and scattered stone-built constructions in a single look.

Having in mind the more recent past, we know that before the introduction of intensive agricultural methods, cultivations on mountainous and semi-mountainous zones of Crete were as much important as those of the low land, e.g. Messara plain. Cereals, legumes, fruit trees and vegetables were cultivated in big or smaller plateaus (usually till about 1.000-1.100 m. above sea level) and on the slopes of the mountains. The island was considered as "granary" from the Venetian until the Ottoman period (1211-1650 and 1650-1898 A.D. respectively), thus the contribution of mountainous and semi-mountainous areas should have been quite relevant. Until 1950s Crete had self-sufficiency in barley and the rest of the cereals were only partially imported. Today, fruit trees, legumes and potatoes are mainly cultivated on big plateaus, whilst slopes and smaller plateaus are almost totally abandoned. That happened partly because of: a) the development of touristic economy b) the preference for olive-oil production, which requires lower altitudes, c) the important decrease of the habitants of the mountainous villages, d) the difficulties, the costs and the effort required for such cultivations.

Highland plateaus of various sizes and mountain slopes were also used for the summer residence of sheep-goat herds and shepherds in the past (practice more rarely diffused nowadays). Highland areas provide ideal summer pastures because of the much lower temperatures, the dew and the vegetation (Ψυχογιός και Παπαπέτρου 1984).

The seasonal movement for suitable pastures, transhumance, in Crete was mainly of small scale, and the phenomenon can probably be dated back to the end of Neolithic period (4th millennium B.C.). In small scale transhumance, shepherds and herds move from villages of the semi-mountainous zone to their periphery and mainly on the closest mountain or mountainous range. Long scale transhumance on the island was very rare and usually was connected with the search for winter pastures.

On the mountainous summer pastures, the milking process was taking place together with the production and the maturation of cheese products, for which Crete was famous from medieval period and on (e.g. see «Πτωχοπρόδρομος» text). However, it is important to mention that the seasonal moving from low to high altitude and vice versa (and consequently the structures and villages connected to that activity) is not always and exclusively result of transhumance of any scale, but is sometimes connected with other regular "family activities". Characteristic example is that of the mountainous villages of Kato Symi Viannou and Sykologos: both are summer settlements connected to lowland villages of

Riza and Tertsa, in the area south of Dikty Mountain; during the recent past whole families together with their entire household (including children, parents, grandparents, 2-3 goats and chickens, etc.) were moving to the cooler settlements on the south Dikty were they were cultivating their summer gardens (personal communication with T. Chanialaki and I. Methymaki) and this activity did not involve or was not connected with transhumance.

As already mentioned, the Cretan mountains are scattered with built stone structures. Looking each structure and especially combinations between them and the surrounding landscape from the sky gives to the researcher an informative view and help for understanding the activities that took part in the formation of the cultural landscape, partly fossilized and partly still alive and dynamic.

Areas that in the past were used for cultivations can be recognized by certain constructions (Rackham and Moody 2008; Rackham et al. 2010). Very characteristic are the terraces/πεζούλες that are visible on most of the island. They were constructed on slopes with inclination – sometimes small, sometimes large – and the aim was to create more land for cultivation and to protect it from degradation. They had also important role on water management procedures as they help keeping the humidity of soil; sometimes they were constructed in natural passages of water (e.g. at the point that two mountains/hills touch) in order to control the seasonal torrents. Often, threshing floors/αλώνια are detected in close connection with these terraces or with kind of **stone-built enclosures**/τράφοι/τραφόγυροι which partitioned the fields. The threshing floors, which were built on low hills or wherever there was mild wind, were used to separate grains (which in Crete were usually barley, wheat and oat) from chaff. Frequently, on the hills and low mountain ridges windmills/μύλοι, for the milling of cereals, can be recognized. Clearances/τρόχαλοι (stone piles) usually at the periphery or inside the crop fields pinpoint cultivated land. These are the result of the cleaning of soil in order to make the sowing easier. They are also important indicator of the result of potential (unaware) destruction of archaeological artefacts and are therefore of high importance for any archaeological/historical research. In some areas, almost circular enclosures were used to protect fields from grazing animals or to protect sensitive cultivations from natural agents. Individual buildings or seasonal settlements are visible regularly and in spatial relevance with cultivated lands. These constructions were used by farmers (normally coming from lower altitudes) as temporary houses during the agricultural works of the summer. Finally, in the semi-mountainous landscape of eastern Crete, in plateaus, **circular stone-build reservoirs**/ $\delta\epsilon\xi\alpha\mu\epsilon\nu\dot{\epsilon}\varsigma$ can be found. Elements such as reservoirs and terraces in combination with dry farming could assure the sufficient production of cereals and other agricultural products.

Other pastoral related structures such as the "mitata", the characteristic seasonal drystone-made house and cheese-making complex units, are found almost all over the mountain volumes of the island (except the far eastern part) (Blitzer 1990; Βαλλιάνος 2003). Additionally, individual (circular or elongated) corrals /γαλόμαντρες with just one entranceexit/πόρος used for animal milking can be spotted everywhere on the island. Other kind of constructions easily distinguishable on mountainous volumes the observatories/παρατηρητήρια-καθέ-κοιμητέ (Βαλλιάνος 2003; personal communication with M. Gadanakis). Such structures, normally used by shepherd as protection from natural phenomena and for rest, were also used as control post to avoid flock's grazing in other shepherd's area or the damaging of cultivations (in relatively low altitudes of 1000-1100 m.). Today, transhumance has been decreased or it is limited in certain areas, and the majority of these structures are not used anymore and the most livestock units are located on lower heights.

Very characteristic examples of the mixed way of economy are recognizable in historical airphotos and satellite images from the areas around the two main pastoral villages of Ida (Psiloreitis) mountain: Anogeia and Zoniana Mylopotamou. Both villages are famous for the pastoral production and the transhumance way of life even till today. However, looking at their surroundings, still are standing numerous threshing floors, enclosures and terrace walls for grain cultivation. In the past, the self-sustainability of these villages was a fact.

Another characteristic example comes from the numerous threshing floors that are still visible at the south feet of Kentros mountain in south Rethymno. Kentros and its villages are famous for pastoral activities, but agriculture was always there as an important part of everyday life.

A more detailed case study of the mixed agropastoral way of living on the Cretan mountains is presented here. It is the case of West Siteia Mountains and focuses on the understanding of variability of human interference (much of the following information on the area derives from interview with local shepherds, such as Nektarios Sfakianakis, Giannis and Manolis Gadanakis). The low mountain-range of West Siteia/Thrypti Mountains (1476m.

a.s.l.), is situated on the NE of Crete. A view from above reveals multiple dry stone constructions, some of which are presented here.

Series of terrace walls/πεζούλες are built along and/or at the exit of natural passages for the extension of cultivated land and the augmentation of soil humidity levels. However, because of their location (passages between slopes) they could be mainly used as dams for the flowing water, as retaining walls against the degradation of soil during certain periods of the year and as footbridges for connecting slopes. At the small plateaus/λάκκοι-λακκούδια, threshing floors, clearings, small single room buildings and circular cisterns are frequently present and normally they are all relevant to the plateau's cultivation. The existence of numerous cisterns/δεξαμενές has been always important because of the low levels of rainfall and the low number of streams and springs on eastern Crete (Rackham and Moody 2008). Three semi-destroyed circular constructions at about 1100 m. a.sl., which must have been cisterns too, now are largely damaged by weathering and abandonment. There is no memory of their use or of cultivation of the plateau in which they are situated, that is possibly why local tradition considers them as "Minoan royal tombs". Elements such as reservoirs and terraces in combination with dry farming allowed sufficient production of cereals and other agricultural products during the pre-mechanized era and before the almost ultimate abandonment of the highland grain production from 1950's and onwards. The enclosed fields are also characteristic structures for agricultural and pastoral activities and they are met in high frequencies on that area. The surrounding circular wall was constructed to protect fields and gardens from the roaring animals (caprines and maybe wild goats) or sensitive cultivated plants from the wind. Numerous enclosed fields/μάντρες are part of complex built structures, which include numerous closed (seasonal houses? storing places?) and open spaces (gardens, fields, bee-gardens and corrals). Usually far from plateaus, double or single-spaced enclosures with a narrow entrance/exit and no corners are recognizable. Old shepherds say that the form is ideal for milking activity because the animals don't stick in corners and cannot escape because of the narrow exit. These milking corrals are now out of use because of the abandonment of the small-scale transhumance. Modern corrals/μάντρες are built on lower altitudes, but it is important to mention that the highest points of the mountains are still exploited for pastoralism. Other pastoral-related structures, however hardly visible from the air, are the walls built at the entrance of very small caves/κουμίστρες (where orphan lambs and ewes were put together to be familiar, in order the first to get reared) and the shepherd's observatories/παρατηρητήρια. Observatories are also stressing the parallel activity of cultivation and pastoralism during the past on Siteia Mountains.

Finally, animal-made landscape transformations, both short and long term, are recognizable form the sky in shapes of paths, which are considered by shepherds as the safest passages, and pit-like formations (χ opɛ $\acute{\nu}$ tpe ς) stripped from vegetation, created when the lambs learn how to walk and play.

To conclude, the built-structures on Siteia Mountains imply a mixed agro-pastoral exploitation (without excluding other ways that leave scarce or no traces visible from the air as lumbering, herb gathering and honey production), which matches -at least for the 20th century situation- with the interviews of old local habitants. According to historical documents of Venetian and Ottoman periods, the region was famous for its dairy products. This fact is supported by the information that about 43,5% of the land belonging to settlements around Orno (one of the mountains of the range) was not cultivated at the beginning of Ottoman period (second half of 17th century), proposing an intensive pastoral activity in connection with the mountain and the areas around it (Κολοβός 2010). Another interesting and relevant element is the name of one of the tops of Orno that is called "Koprokefala", which means a mountain-top full of manure. The Siteia Mountains area has not been surveyed archaeologically so far. Hopefully, future field surveys, excavations and more ethnographical expeditions could help to the chronology and the deeper understanding of landscape exploitation. Based on the better surveyed surrounding area (Beckmann 2012; Nowicki 2014; Παπαδάτος και Σοφιανού 2015), it seems that on the mountainous volumes of Lasithi prefecture a mixed agro-pastoral system of exploitation and production was prevailing too at the end of Final Neolithic period (4th mil. B.C.), during the Middle-Minoan (2100-1600/1550 B.C.) period, the transitional period from Bronze to Iron Age (~1150-1050 B.C.), the Archaic period (720-480 B.C.) and the last two centuries of our era (before the great twist during 1950' that was already mentioned).

Defensive-refugee places

The **defensive and/or controlling role** of Cretan mountains can be described as diachronic. From the LBA-EIA refugee sites (with the most iconic of them all the site of

Karphi on Dikty Mountain: Pendlebury and Money-Coutts 1937/1938; Wallace and Mylona 2012) to the 19^{th} century A.D. network ottoman towers/κουλέδες on highlands or hills that were controlling the passages (Γιαπιτσόγλου 2015).

The 7th and 8th centuries AD, the period that marks the definitive division of the formerly unified Roman Mediterranean between the Christian and Muslim worlds are a turning point for the history of Crete also, since the formerly central island became a border region of the Empire. Crete faced a prolonged crisis period starting from the mid-7th century A.D., mainly because of the rapid spread of the Arabs in the eastern Mediterranean basin and their efforts to dominate the Mediterranean by securing the control of its islands. "The milk and the honey" that were abundantly flowing on Crete, according to historical sources, led the Arabs to attack and later conquer the island (Tsougarakis 1988, 30-41). The defense of Crete, during the invasions era, was reinforced with the construction of robust fortifications not only at Gortyn, the capital of the island, and the important cities close to the shoreline and in the inland, but also at smaller mountainous settlements of strategic significance. These very strong and expensive constructions required central planning, which was possibly improved in a gradual mode and according to the development of the arabbyzantine war (Tsigonaki and Sarris 2016).

As a case study for the project was chosen a hardly accessible site situated on Oxa Mountain SW of Elounda (520m. a.s.l.), which is little known because no systematical archaeological survey has been conducted there so far. The volume of Oxa is characterized by extremely steep slopes. K. Nowicki in a relatively recent visit on site detected pottery, which is dated mainly to archaic and byzantine periods, something that proposes a diachronic use of the site (Nowicki 2014, 173-174). N. Coutsinas included Oxa to the fortified settlements of Classical-Hellenistic period, but she also noted the difficulty for a more accurate dating (Coutsinas 2013, 346-347, 415-16).

Archaeological remains on Oxa were detected along the rocky terrain of the top of the mountain, with the aid of aerial remote sensing methods aside the ground field survey. Numerous structures of variable use and dating were "pinned" and consequently surveyed. The majority of the architectural remains that nowadays predominate the site – like the parts of fortification enclosure and the numerous water reservoirs – are dated possibly to the end of Early Byzantine period (7th-8th c. AD). A small church dedicated to Virgin Mary

with her quality as « $Z\omega o\delta \delta \chi o \zeta \Pi \eta \gamma \dot{\eta}$ », was erected upon the foundations of a larger three-aisled byzantine church.

The most characteristic fortification construction is a semicircular tower, which is situated at the E-NE side of the plateau. The masonry consists of an outer face lined with rectangular stones -with broken tiles and mortar between the joints- and of rubble filling with plenty of mortar.

Who does this defense project protect? The logical answer is that it was intended for the inhabitants of Elounta, but also for the residents of the neighboring villages and the countryside and their herds. The inaccessibility of the site, the visual control of the region around and especially of both Mirabello and Elounda bays, the numerous water tanks and the micro-topography of the territory and productive area is standing out as a decisive character, especially during critical periods. Even if we still cannot reconstruct with security the subsistence strategies of the site population, a primary hypothesis could support that the site could be sustainable in a crisis period such as that of the 7th-8th century A.D. The byzantine water reservoirs prove an intention for water management, possibly not only for human consumption but also for animal and land watering. Agropastoral activities could also have been exercised (as it was happening till recently) during the day at the top and the slopes or even in the close lowland areas (let's not forget that even during the recent past the steep slopes could be manually cultivated). Flocks could follow the shepherds at night inside the fortified area and people could also carry the grain exactly after the harvest inside the fortified area for thrashing and storage. It is important to mention the existence of a number of stone made threshing floors on the Oxa mountain ridges. The thrashing could be ideal on the site because of the mild wind that is helpful for this kind of activities.

A number of the byzantine architectural structures were reused afterwards until modern era. For example, some of the water reservoirs were transformed to milking pens and to places for the maturation of cheese. The buildings offered also raw material for the construction of land enclosures/ $\tau p \dot{\alpha} \phi o \iota$ or even for small enclosures/ $\delta \epsilon \mu \alpha \tau \dot{\alpha} \kappa \iota \alpha$ that were keeping the soil around the almond trees. It is impossible for the time being to date these structures with accuracy.

Closing remarks

The paper presented the first results of "HIGH ABOVE THE MOUNTAINS - Fossil Built Landscapes on Cretan Mountainous Uplands from the Sky" project. Aim of the project was to understand the material culture of apparently hostile mountainous landscapes with the original (and unprecedented in Greece) view-from-above.

Multiple sources have been employed for the verification of information acquired and interpreted from remote sensing approach: ground survey, historical document exam, digital documentation of standing structures, publications and previous field research. These more traditional methods were sided with constant connection with local communities, involved in the process of information acquisition and dissemination. Example of such activities are the organized open lectures and workshop or the public photographic exhibition in a very popular summer destination in high season period.

Results of the project are series of "fossilized" moments and cultures in need to be rediscovered and re-valorized with larger and more systematic practices that should involve locals as main actors rather than spectators. A rich heritage of local traditions and common practices for the managing of animals and landscapes, where the contribution of the community allows a smooth and seamless adaptation to local geographic conditions in a profitable but respectful way.

Acknowledgments: Special thanks goes to the Research Center for the Humanities for funding this project in 2017; to the GeoSat ReSeArch Lab at the Institute for Mediterranean Studies (IMS-FORTH), which hosted some of the events and offered precious support for field activities.

Thanks also to Giannis and Manolis Gadanakis, Nektarios Sfakianakis, Marianna Katifori, Anna Paraskevopoulou, Foteini Spitadaki, mr. Michalis (from Elounda), Angeliki Alygizaki, Nikos Betinis, G. Moschovi, Dafni Chronaki, Ifigenia Methymaki, Tina Chanialaki and Nadia Coutsinas. Their precious help importantly contributed to the success of the project.

Bibliography

Ashmore, W., & Knapp, A. B. (Eds.), 1999. *Archaeologies of landscape. Contemporary perspectives*. Oxford: Blackwell Publishers.

Βαλλιάνος, Αλέξης / Vallianos, Alexis. 2003. Σφακιά. Παραδοσιακή τυροκομία. Τα μητάτα των κεντρικών Λευκών Ορέων / Sfakia. Traditional cheese-making. The mitata of the central White Mountains, Αθήνα: Μουσείο Μπενάκη – Φωτογραφικό Αρχείο / Athens: Benaki Museum – Photographic Archive.

Beckmann, Sabine. 2012. *Domesticating Mountains in Middle Bronze Age Crete: Minoan Agricultural Landscaping in the Agios Nikolaos Region*, v. I-II-appendices, Rethymno: Unpublished PhD Thesis

Blitzer, Harriet. 1990. "Pastoral Life in the Mountains of Crete", Expedition, Vol. 32.3, 34-41

Cantoro, Gianluca. 2015. "Aerial Reconnaissance in Archaeology - from Archives to Digital Photogrammetry", 103–14. In *Best Practices of GeoInformatic Technologies for the Mapping of Archaeolandscapes*, Archaeopress , Oxford.

Chang, Claudia. and Harold A. Koster. 1986. "Beyond Bones: Toward an Archaeology of Pastoralism", Advances in Archaeological Method and Theory, Vol. 9, 97-148

Γιαπιτσόγλου, Κώστας. 2015. «Οχυρώσεις της Κρήτης (Μέρος 4ο)», http://www.archaiologia.gr/blog/2015/07/06/%CE%BF%CF%87%CF%85%CF%81%CF%8E%CF%83%CE%B5%CE%B9%CF%82-%CF%84%CE%B7%CF%82-

%CE%BA%CF%81%CE%AE%CF%84%CE%B7%CF%82-

%CE%BC%CE%AD%CF%81%CE%BF%CF%82-4%CE%BF/

Coutsinas, Nadia. 2013. Décences crétoises. Fortifications urbaines et défense du territoire en Crète aux époques classique et hellénistique, Publications de la Sorbonne.

Κολοβός, Ηλίας. 2010. «Η επαρχία της Σητείας στα πρώτα χρόνια της οθωμανικής κυριαρχίας: προκαταρκτικές παρατηρήσεις με βάση τις οθωμανικές φορολογικές απογραφές», Πεπραγμένα Ι΄ Διεθνούς Κρητολογικού Συνεδρίου (Χανιά, 1-8 Οκτωβρίου 2006), τ. Β1, Χανιά: 451-472.

Lozny, Ludomir R. 2013. Landscape Archaeology of the Commons of the Bouleste/Labas Valley, Hautes-Pyrénées, in *Continuity and Change in Cultural Adaptation to Mountain Environments*, Springer Science & Business Media.

Matton, R. 1957. La Crète au cours des siècles, Athens.

Musson, Chris. Rog Palmer, and Stefano Campana. 2013. *Flights into the Past Aerial Photography, Photo Interpretation and Mapping for Archaeology*. Heidelberg: Universitätsbibliothek Heidelberg.

Nixon, Lucia. and Simon Price. 2001. "The diachronic analysis of pastoralism through comparative variables", BSA 96, 395-424

Nowicki, Krzysztof. 2000. *Defensible sites in Crete* ~ 1200-800 BC (LM III B/III C through early geometric), Aegaeum 21, Université de Liege, University of Texas at Austin, Belgique.

Nowicki, Krzysztof. 2014. *Final Neolithic Crete and the Southeast Aegean*, Boston/Berlin: De Gruyter

Παπαδάτος, Γιάννης, και Χρύσα Σοφιανού. 2015, «Χωροταξία Οικισμών στη Μετάβαση από τη Νεολιθική στην Εποχή του Χαλκού: τα αποτελέσματα της επιφανειακής έρευνας στη Σκοπή Σητείας», in P. Karanastasi, A. Tzigounaki, Ch. Tsigonaki (eds.), Αρχαιολογικό Έργο Κρήτης ΙΙΙ. Πρακτικά της 3ης Συνάντησης (Ρέθυμνο, 5-8 Δεκεμβρίου 2013), Rethymno: 1113-1125.

Pendlebury, H.W. and I.D.S. Money-Coutts M.B. 1937/1938. "Karphi. A city of refuge of the Early Iron Age in Crete. Excavations at the plain of Lasith III", BSA 38, 57-145

Rackham, Oliver, and Jennifer Moody. 2008. Η Δημιουργία του Κρητικού Τοπίου, Ηράκλειο: Πανεπιστημιακές Εκδόσεις Κρήτης.

Rackham, Oliver. Jennifer Moody. Lucia Nixon and Simon Price. 2010. "Some Field Systems in Crete", in Cretan Offerings. Studies in honour of Peter Warren, BSA vol. 10, 269-284

Tsigonaki, Christina. 2007. "Les villes crétoises aux VIIe et VIIIe siècles: l'apport des recherches archéologiques à Eleutherna", Annuario della Scuola Archeologica Italiana di Atene, LXXXV/1: 263-297.

Tsigonaki, Christina and Apostolos Sarris. 2016. "Recapturing the Dynamics of Early Byzantine Settlements in *Crete: Old Problems – New Interpretations through an Interdisciplinary Approach", 3rd International Landscape Archaeology Conference 2014,*

Rome, 17th-20th September 2014, Academia Press of the University of Amsterdam, Amsterdam (DOI.10.5463/lac.2014.5).

Tsougarakis, Dimitris. 1988. *Byzantine Crete. From the 5th Century to the Venetian Conquest*, Historical Publications St. D. Basilopoulos, Athens.

Wallace, Saro. and Dimitra Mylona. 2012. "Surviving crisis: insights from new excavation at Karphi", BSA 107, 1-85

Ψυχογιός, Δημήτρης και Γεωργία Παπαπέτρου. 1984. «Οι μετακινήσεις των νομάδων κτηνοτρόφων», Επιθεώρηση Κοινωνικών Ερευνών 53, 3-24.