

Comments on the proposed Itanos Gaia (Cavo Sidero) Development

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These comments and discussion are our assessment of the Sustainability Report (ΣΜΠΕ, 2014) and maps for the Itanos Gaia Resort Development (hereafter The Development) posted online in 2014 by Loyalward Ltd (hereafter The Developers) and written by ECHMES Ltd.

The publically available documents describe a number of land categories including tracts to be built on, as well as other land classifications that should not be impacted by the development (Figure 1). We are primarily concerned with the tracts of land designated for tourist development: class A. Nearly 40 % of the area (37.21 %) falls into this category.

Class A land is divided into two categories: A1 and A2. A1 land (30.16 %), denotes areas where tourist installations will be built (ΣΜΠΕ, Ch 2, p. 14). Development in A1 zones will include any of the following (ΣΜΠΕ, Ch 3, p. 23):

- a) Tourist Accommodation (major and non-major, complex tourist accommodation etc).
- b) Special tourist infrastructure and other tourist facilities (convention centers, golf courses, spas, etc.)
- c) Mild port infrastructure (indicative permanent moorings)
- d) Retail stores and services included in the tourist accommodation or amenities;
- e) Sports facilities included in tourist accommodation or amenities;
- f) Cultural facilities included in tourist accommodation or amenities;
- g) Religious sites included in tourist accommodation or amenities;
- h) Public gathering spaces - which fit in tourist accommodation or amenities;
- i) Focus which fits in tourist accommodation or amenities;
- j) Canteens included in tourist accommodation or amenities;
- k) Parking (buildings tennis) included in tourist accommodation or amenities;
- l) Equipment showrooms to promote local and organic products
- m) Any other related uses which do not alter the general in the property

A2 land (1.76 %) is where supporting installations will be built (ΣΜΠΕ Ch 2, p. 14). Development in A2 zones will include any of the following (ΣΜΠΕ Ch 3, p. 24):

- a) Organic crops
- b) Small scale professional laboratories in synergy with traditional occupations of the region,
- c) Technical infrastructure facilities (desalination, photovoltaics, wind turbines to meet the energy needs of the plant, sewage treatment and generally each installation technical infrastructure by incorporating innovative technologies) are major components of the system for the sustainable management of energy and water resources,
- d) First aid station to serve visitors

¹ This document has been updated by the surviving author from the original written in June 2014.

- e) Helicopter landing field for use of tourist accommodation,
- f) Service facilities within the shell of the hotel related to their function.
- g) Small Environmental Center, Botanical garden of endemic species, visitor information centers, professional traditional workshops, cultural events, outdoor theater etc.

The areas slated for A1 and A2 construction that especially worry us are: Tentas-Eligkas A2 zone, Travouni-Agkinarokephalo A1 zone, Krystallo-Vamies Bay A1 and A2 zones, Magatzes-Alatopatela A1 zone, Stephanes A2 zone, Stephanes-Gyalies-Vai A1 zone, and Atsikiri A1 zone (Figure 1). They contain many locations with surface antiquities, many of which are considered ‘archaeological sites’², and numerous botanical hotspots.

The Ephorate of Antiquities of Lasithi (the archaeologists in charge of the area) have in place an admirable program to prevent building activity within 150 m of known antiquities (ΣΜΠΕ Ch. 3, p. 30). In order to understand how much land might be covered by this action, we produced a map with circles of 150 m radius drawn around every archaeological site identified by the French-Greek Survey³ (hereafter Archaeological Survey) as well as localities with surface antiquities seen by us in 2006 and 2007 (Figure 2). **It must be emphasized that these circles represent *minimal* protection areas because the circles have been measured from the center point of each site *not from its edges*: properly the 150 m would begin at the edge of the site.** There are *a minimum* 44 locations with antiquities whose minimal 150 m circles lie partly or entirely within the A1 and A2 construction zones as defined on The Developer’s map (see Appendix 1 for a catalog of locations). We must emphasize that about one-half of the proposed Itanos Gaia development falls outside the Archaeological Survey area where we worked, and thus we personally do not know what antiquities might be there.

But it is not just the individual ‘sites’ in The Development area that concern us. Most of the Itanos peninsula is an ancient cultural landscape (Rackham and Moody 2012). A cultural landscape is one that has been produced by the interaction of human activity (including human neglect) with the environment (geology, geomorphology, climate), and plants and animals (wild and domesticated). These interactions extend over thousands of years and leave traces from the prehistoric and historic past as well as the last few centuries or decades. Some of these traces consist of infrastructure such as terraces, check-dams, roads, and field boundaries. Others affect the landscape as a whole, especially cultivation, pasturage, altering the natural frequency and seasonality of fire, woodcutting, and the survival and introduction of plants and animals.

² The definition of what constitutes an ‘archaeological site’ is debated within the field of archaeology. In this report we mean a place where ancient human activity has been recognized. At most locations both ancient walls and pottery were seen and recorded. In some cases, however, a ‘site’ may be a scatter of broken shells, indicating dye manufacture, which was an important part of the ancient economy; elsewhere it might be a lithic scatter, a quarry, or an ancient tree that had been modified by human activity (pollarding, coppicing, etc.). It is the survival of these less ‘obvious’ features of ancient life that set this area apart from the rest of Crete.

³ This archaeological survey was undertaken from 1995 to 2005 by the University of Paris 1 Pantheon-Sorbonne in collaboration with the XXIVth Ephoria of Prehistorical and Classical Antiquities. Over 100 archaeological sites were recorded <http://webefa.efa.gr/prospection-itanos/>. See Duploux 2006, Duploux et al. 2009.

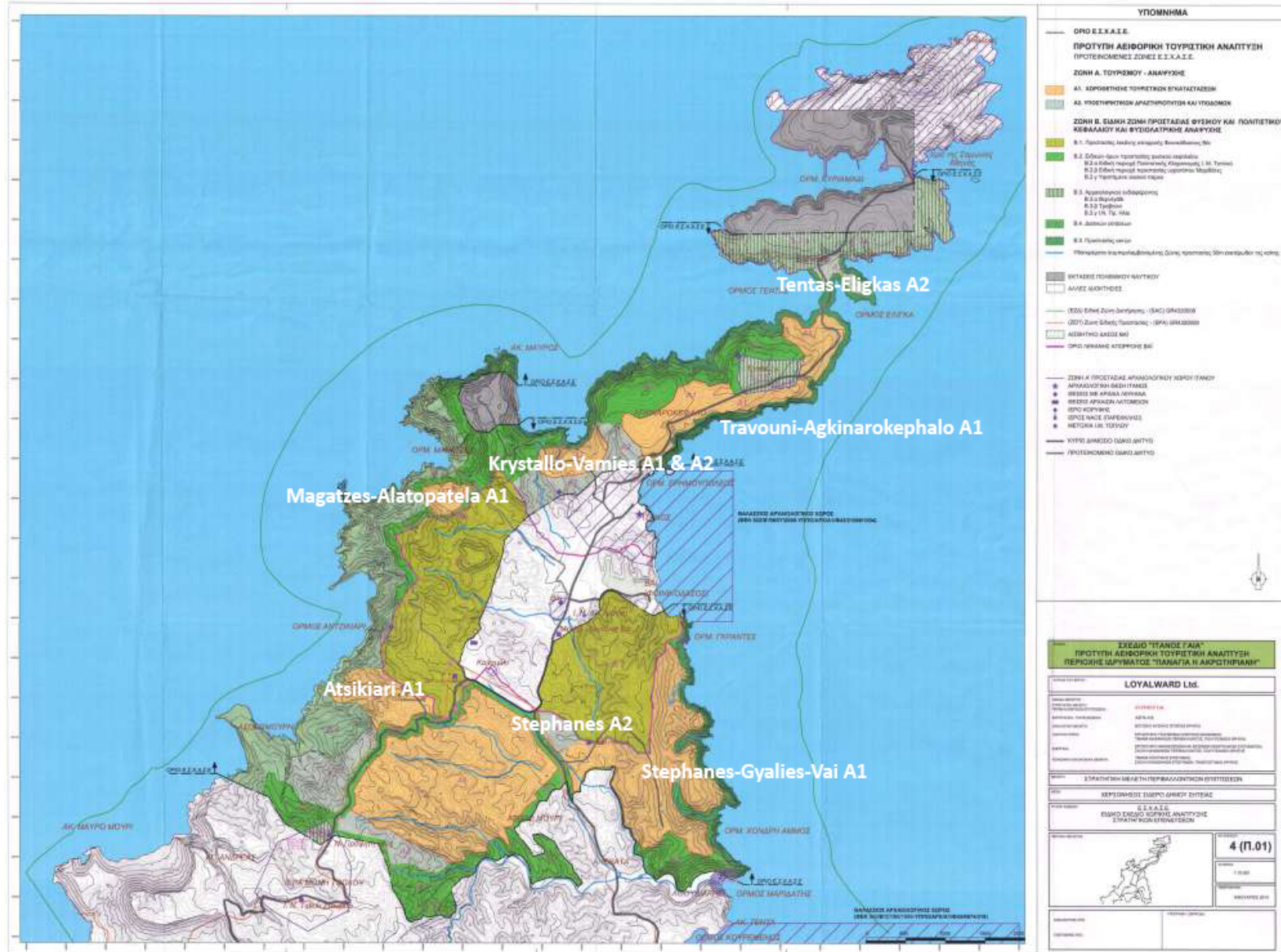


Figure 1 — Map of the Itanos Gaia development area, from <http://www.crete.gov.gr>. The orange-yellow areas are slated for A1 tourist development and the green diagonally hatched areas are A2.

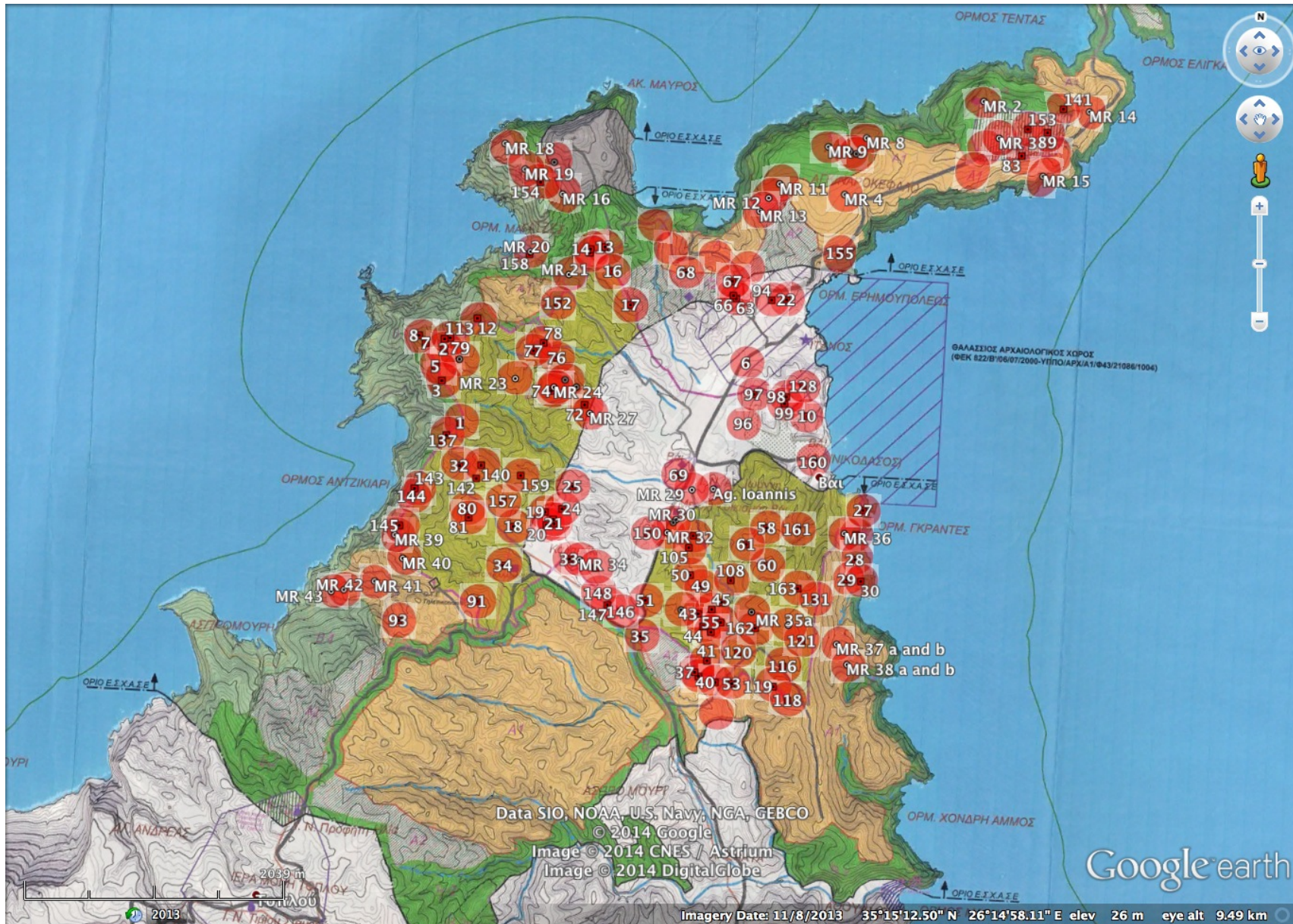


Figure 2 — Map of the Itanos Gaia development area with known archaeological sites and their 150 m radius protective circles. See Appendix 1 for details.

Each successive human generation inherits a cultural landscape, removes some features, retains some and adds others. In much of Crete recent development and cultivation has obliterated most of the historic and prehistoric landscape, though some features can survive, such as ancient olive trees and ancient planned field systems (Rackham and Moody 1996; Rackham *et al.* 2010). For this reason relict landscapes, such as the Itanos peninsula, where human activity has been mainly withdrawn or largely reduced to pasturage for several hundred years, are extremely rare on Crete. This makes the preservation and conservation of relict landscapes especially important for Cretan cultural heritage (Rackham and Moody 2012).

Ancient cultural landscapes are antiquities, no different from a building or a pot, and should be protected from ill-conceived development. Thus we have also made a minimal map showing ancient infrastructure — terraces, enclosures, check-dams, roads — in relation to The Development's map (Figure 3A and 3B). About one-half of these ancient agricultural areas survive within or border on A1 and A2 construction zones.

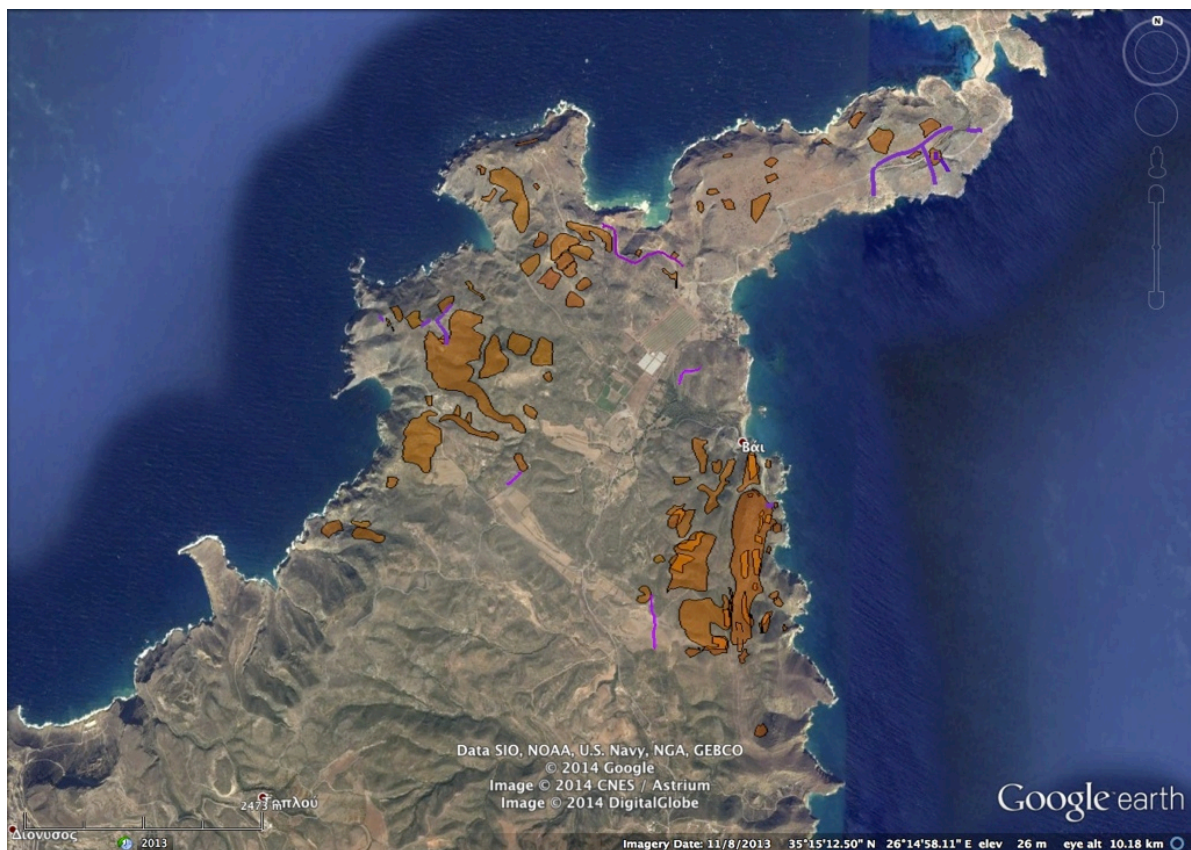


Figure 3A — Map showing the extent of ancient agricultural terracing and field walls (orange polygons), enclosures (purple lines) and roads (pink) surviving in the Itanos Gaia development area. (A) the agricultural areas on a Google Earth image of the Development area.

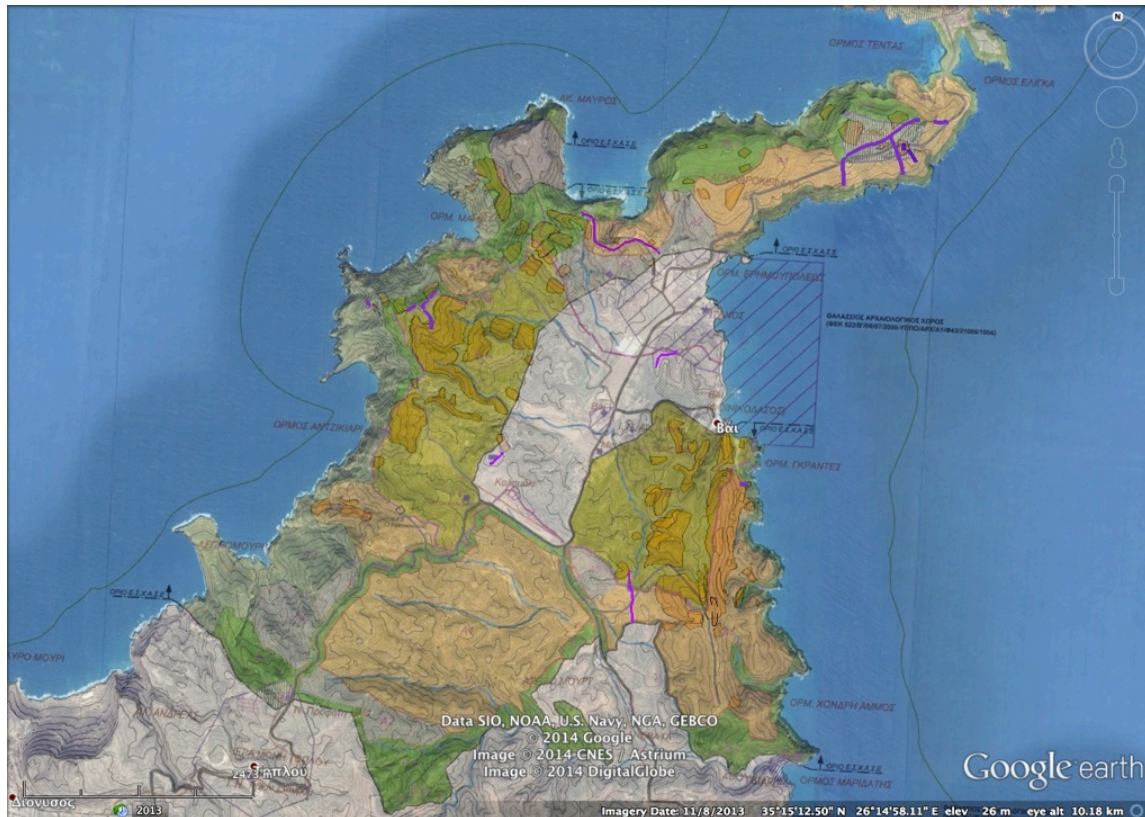


Figure 3B — Map showing the extent of ancient agricultural terracing and field walls (orange polygons), enclosures (purple lines) and roads (pink) surviving in the Itanos Gaia development area. (B) the same areas are imposed on the Itanos Gaia ΣΜΠΕ map.

Three A1 tracts and two A2 tracts are on the far north side of The Development: Tentas-Eligkas A2; Travouni-Agkinarokephalo A1, Krystallo-Vamies A1 and A2, Magatzes-Alatopatela A1 (Figure 1). Any construction in these areas will require crossing sensitive Natura 2000 Special Protection Areas (SPAs), including the sensitive drainages of the Vaï and Itanos palm woods mentioned above. These are areas that should be protected from any development and excessive human activity.

Sixteen years ago, most of the Itanos Peninsula and *all* of the The Development area was declared a Natura 2000 SPA (GR4320009), primarily because of its botany and birdlife. <http://www.ypeka.gr/LinkClick.aspx?fileticket=V2zSBGHeWNg%3d&tabid=503>.

In 2015, the peninsula's striking geology was recognized as part of the Sitia Geopark, which joined the European and Global Geopark Network because it "remains unspoiled and untouched by human hands" http://www.europeangeoparks.org/?page_id=5101. The Geopark Network is a program supported by UNESCO.

The peninsula's vegetation includes a number of rare and endemic plants (Appendix 2, Table 1). For example, *Asperula crassula* appears to be endemic to the area under consideration; *Ebenus cretica* is common in much of Crete but is found nowhere else, while others are outliers of another continent: thus *Viola scorpiuroides* is an African plant which gets into SW and NE

Crete, plus Kythera and Antikythera, but no further into Europe. Many of these are protected by decree of the Greek President or international obligation.

Many of these unusual plants survive in The Development's A1 and A2 zones. They are features of the cultural landscape. The distribution of the most important plants in relation to The Development are shown in Figure 4. This is a minimal map as many of these plants are seasonal and may have been overlooked. Their distributions, based on our necessarily incomplete knowledge of them, indicate 12 botanical hotspots. The most important are Trapeza (1) and Atzikiari west coast (2) each with nine rare and endemic plants in $\frac{1}{4}$ km; Atzikiari A1 (3) had eight; the slopes between Alatopatela and Soros had eight (4); the north end of Vaï A1 had 10 in $\frac{1}{2}$ km (5); Agkinarokephalo A1 (6) and its north coast (7) each had seven in $\frac{1}{4}$ km; Travouni Archaeological Zone had 10 in $\frac{1}{2}$ km (8); Krystallo-Vamies A1 had six in $\frac{1}{4}$ km (9); Gyalies A1 had six (10); southeast Kalamaki next to the Stephanes A2 zone had six (11); Vaï metochi had six (12). At a minimum, these and similar areas should be protected from development.

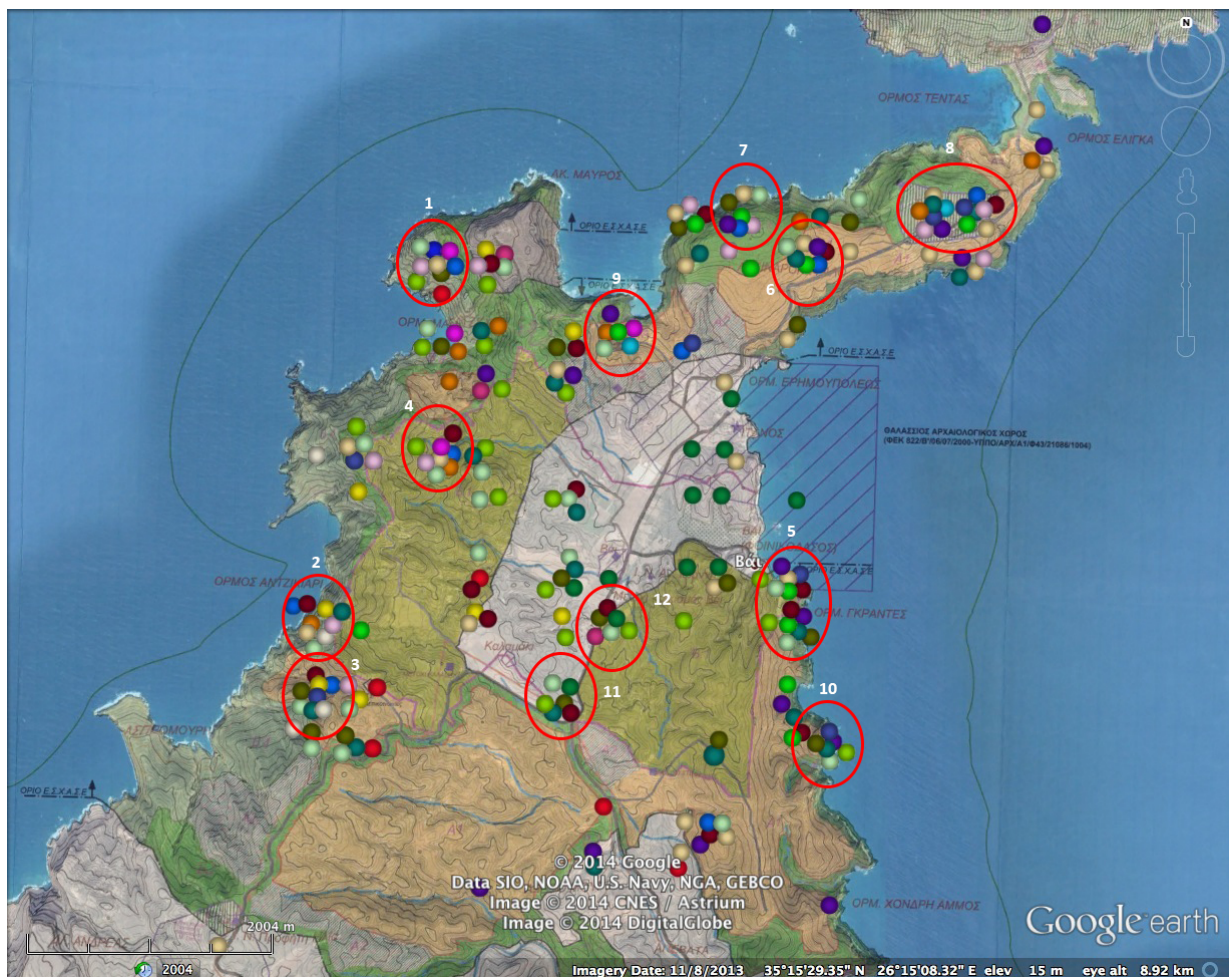


Figure 4 — Map showing the distributions of rare and endemic plants. Dots are located within 0.25 km. See Appendix 2, Table 1 for the identifications. A quarter-sq. km with six or more rare and endemic plants are considered hotspots. Hotspots are indicated by red circles. The identification numbers are referred to in the text.

One of the reasons birdlife on the peninsula is so rich are the wetlands. In addition to Vaï, which is well known, there are two smaller wetlands on either side of the ancient city of Itanos that get far less attention than they deserve (Figure 5). Not only are the Ancient Itanos wetlands critical to birdlife, they are home to an important population of Cretan Palms (*Phoenix theophrasti*). Although not as large as the palm wood at Vaï, the palm woods at Ancient Itanos, especially on its south side, include over 30 trees and shrubs (Figures 6 and 7). The Vaï catchment is carefully indicated by a thick purple line on The Developer's map (Figure 1) with the intention (we are told in the ΣΜΠΕ) to avoid it, but the catchment for the wetlands at Ancient Itanos are not singled out for protection and will be devastated by the Krystallo-Vamies A2 and A1 zones. Especially worrisome is the Krystallo-Vamies A2 zone which blankets the head of this drainage (Figure 1). A2 zones are intended for a variety of tourist support facilities including sewage and desalination plants (ΣΜΠΕ Ch 3, p. 24) and, if built here, will pollute the drainage into this important environmental and archaeological area. We feel strongly that these rare and especially healthy populations of *Phoenix theophrasti* and their associated wetlands be protected from construction pollution, as the Vaï palms are. Since these wetlands and palm woods fall within the protected Archaeological Zone of Ancient Itanos (purple hatched area on The Developer's map Figure 1), their wellbeing might well be included in the overall plan for the site's conservation.



Figure 5: Wetland and palm wood on the south side of the ancient city of Itanos. Photo O. Rackham, October 2006.



Figure 6: The headland of the city of Ancient Itanos looking north. Note the healthy populations of *Phoenix theophrasti*, especially on the south side of the headland. Photo J. Moody, October 2006.



Figure 7: Looking SE from Ancient Itanos to the wetland and palm wood. Photo O. Rackham, October 2006.

CONCLUSIONS

We are independent scholars who have worked in Greece and on the island of Crete for over 34 years. We have written extensively on Crete's landscapes, including a book *The making of the Cretan landscape*, which was translated into Greek (Rackham and Moody 1996, 2004). Our concern is the protection of this particular landscape where details of 7000 years of Cretan history and land use uniquely survive enriched by rare and endemic plants and wildlife.

What sets the Itanos peninsula apart from the rest of Crete is the *large scale survival of a relict cultural landscape*, in all its amazing detail — details of Neolithic, Bronze Age (Minoan), Archaic, Classical, Hellenistic, Roman, and Byzantine Cretan lives — details that once lost, can never be reclaimed. This relict cultural landscape survives because for hundreds of years human political and social history made it a dangerous place to live. Danger and climate change discouraged agriculture, allowing the wetlands to escape draining for cultivation. These wetlands, and other niches that have persisted through abandonment, are sanctuaries for wildlife (especially birds), and rare and endemic plants. What exists on the Itanos peninsula because of its exceptional relict cultural landscape, is a delicately balanced and unique ecosystem. We emphatically disagree with the ecological consultants' conclusion in the ΣΜΠΕ, which was as follows:

***Integrity.** The proposed plan will not adversely affect the integrity of the [Area of Special Protection] both in relation to conservation objectives and integrity of the area on the ecological plane. Special care has been taken for the implementation of measures which will benefit not only the habitats and species of birds associated with these objectives but also for other habitats and species whose conservation is considered important for the area from ecological point of view. [ΣΜΠΕ Ch 6, p. 61]*

It is simply not possible to develop one-third of the area of a NATURA 2000 site (or an internationally recognized Geopark) without damaging its integrity.

Seven years ago, with other colleagues and friends, we fought to protect this landscape from over-development as the Cavo Sidero Golf Resort. On 3 December 2010 the Hellenic Council of State found against the Cavo Sidero development, declaring it illegal on a number of grounds (decision 3920/2010, *To Vima*, 3 December 2010, article 37150). Among other initiatives we launched an online petition which collected over 11,000 signatures <http://www.thepetitionsite.com/1/Save-the-Cretan-landscape/>. Now four years later we are faced with a very similar development: Itanos Gaia. We had hoped that any new developments would take into consideration the important cultural and environmental value of this unique landscape and design their tourist and infrastructure facilities accordingly, i.e. to have a minimum impact on the surroundings — but that is not the case.

In this report and its detailed appendices we share what information we have on this landscape — archaeological and botanical. We believe it is a powerful argument against the construction of this resort, especially within the boundaries of the Archaeological Survey. There are many nearby areas that have already been developed for tourism. Why not develop these areas into better and more attractive tourist facilities and save the Cavo Sidero landscape as a landmark for Cretan cultural heritage — perhaps as the first open-air and/or living museum in Greece?

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APPENDIX 1. CATALOG OF ARCHAEOLOGICAL SITES AND LOCATIONS WITH SURFACE ANTIQUITIES WITHIN THE ITANOS GAIA DEVELOPMENT, A1 AND A2 ZONES

For the locations of the sites see Figure 2.

TRAVOUNI-AGKINAROKEPHALO A1 ZONE

There are 11 archaeological sites and two botanical hotspots that will be destroyed or damaged by construction in this A1 zone.

This area is especially important as an ancient habitation with surviving agricultural infrastructure. The two botanical hotspots (6, 8) are: (1) the Travouni Archaeological Zone with *Allium rubrovittatum*, *Anthemis filicaulis* ***, *Asperula rigida*, *Biarum tenuifolium idomenaeum*, *Carlina sitiensis*, *Crepis cretica*, and, *Phlomis lanata*, and *Stachys mucronata*; and (2) the Agkinarokephalo A1 zone with *Allium rubrovittatum*, *Asperula rigida*, *Carlina sitiensis*, *Crepis cretica*, *Nigella fumarifolia*, *Phlomis lanata*, and *Stachys spinosa* (Figure 4).

TRAVOUNI

83 Ancient habitation and enclosure Hellenistic to Roman [Minoan, Ottoman]

A large Hellenistic to Roman complex on the south side of the modern road. It includes planable structures with many rooms, enclosure walls and 3 cisterns. There are also traces of Minoan and Ottoman activity. <http://prospection-itanos.efa.gr/?action=view&objectdefid=5&instid=60>

89 Ancient habitation and enclosure Hellenistic to Roman [Orientalizing/Archaic, Classical, Early Christian]

A large Hellenistic to Roman complex on the north side of the modern road. It includes planable structures with many rooms, enclosure walls and terraces systems. The main structure here is three-times the size of the one at 83.

<http://prospection-itanos.efa.gr/?action=view&objectdefid=5&instid=62>

141 Ancient Structure unknown date

A circular stone structure that seems to predate the large Hellenistic to Roman enclosure wall 153. <http://prospection-itanos.efa.gr/?action=view&objectdefid=5&instid=85>

153 Ancient enclosure wall Hellenistic to Roman

Enormous enclosure walls of large uncut but roughly matched rocks, enclosing an area of about 42 ha. The walls are interrupted by the construction of the modern road, which ripped through the middle of the Travouni settlement. (Figure 8)

<http://prospection-itanos.efa.gr/?action=view&objectdefid=5&instid=99>



Figure 8: The impressive ancient enclosure walls 153, looking NE, with J. Moody. Photo O. Rackham, October 2006.

M-R⁴ 14 Ancient enclosure wall Hellenistic to Roman

Continuation of the enclosure wall 153, to the east of 83.

M-R 15 Ancient tower? Hellenistic to Roman

Structure [tower?] at the south end of a long wall, overlooking the sea. (Figure 9).



Figure 9: The walls of M-R 15 looking S towards Ancient Itanos. Photo J. Moody, October 2006.

⁴ M-R is an abbreviation for Moody-Rackham and denotes locations with antiquities seen by the authors, but that are not (or no longer) included in the Archaeological Survey website <http://webefa.efa.gr/prospection-itanos/>.

AGKINAROKEPHALO**155 Ancient defensive structure Hellenistic to Roman**

Small walled structure overlooking the sea and the city of Ancient Itanos. <http://prospection-itanos.efa.gr/?action=view&objectdefid=5&instid=105>

M-R 4 Ancient agricultural activity Greco-Roman?

Ephemeral traces of terracing, stone piles and walls on the SE facing slopes of Agkinarokephalo, N or the modern road. (Figure 10).



Figure 10: M-R 4. Left — J. Morrison standing on stone tumble. Right — J. Morrison and O. Rackham standing on a ruined wall. Looking NE. Photos J. Moody, May 2007

M-R 11 Ancient agricultural activity? Greco-Roman?

Stone tumble and small pottery scatter at W end of odd grassy area on the SW slopes of Agkinarokephalo. (Figure 11).



Figure 11: M-R 11. Left - General view of the site looking N. with J. Morrison and O. Rackham. Right — odd pot sherd with 2 pierced holes at top. Photos J. Moody, May 2007

M-R 12 Ancient agricultural and herding activity? Greek and LR/B

Pottery sherds and walls associated with a rock shelter. Walls and scatter continue down slope some distance but not all the way to the saddle. (Figure 12, 13).



Figure 12: General view of site M-R 12 looking SE, with J. Morrison. Photo J. Moody, May 2007



Figure 13: Miscellaneous pottery sherds from site M-R 12. Photos J. Moody, May 2007

M-R 13 Ancient habitation Greco-Roman?

Buildings with corners and limited pottery on knob with new small trig point labeled “Loyal Ward”. Probably a continuation of previous location. (Figure 14).



Figure 14: M-R 13. Left – view looking SSE. J Morrison standing on corner of structure. Right – view SE along line of wall. Photos J. Moody, May 2007

KRYSTALLO-VAMIES A1 AND A2 ZONES

Within these two construction zones there are six known archeological sites and one botanical hotspot that will be destroyed.

In the previous Cavo Sidero proposal, this area was to be home to the tourist village of Krystallo Bay and is again slated to be a tourist development in the Itanos Gaia proposal. The boundaries of the A1 are almost exactly the same. A significant difference between the Cavo Sidero and Itanos Gaia proposals is the addition of the A2 zone that covers the head of the Ancient Itanos drainages, where “supporting” installations will be constructed. We are concerned that these installations will contaminate the Itanos drainages and damage the palm woods that exist there.

The Krystallo-Vamies A1 zone is a botanical hotspot (9) for rare and endemic plants, especially the western half. Here we observed six special plants within $\frac{1}{4}$ km: *Allium rubrovittatum*, *Anthemis filicaulis* ****Asperula crassula****, *Biarum tenuifolium idomenaeum*, *Carlina sitiensis*, *Teucrium alpestre* (Figure 4).

16 Ancient agricultural activity Greco-Roman?

This system of ancient terraces and enclosures falls partly in the Krystallo-Vamies A2 Zone. Ceramic material for dating is sparse but includes Prehistoric (Late Minoan); Greco-Roman (Orientalizing-Archaic, Classical, Hellenistic, Roman). It covers c. 3 ha.

<http://prospection-itanos.efa.gr/?action=view&objectdefid=5&instid=12>.

17 Ancient habitation/defensive structure? agricultural activity Prehistoric and Greco-Roman

Walls, terraces and pottery covering c. 2500 sq. m. Over half this site falls within the Krystallo-Vamies A2 Zone. The buildings are badly eroded and difficult to plan. Ceramic material for dating is sparse but includes Prehistoric (Final Neolithic, Late Minoan); Greco-Roman (Orientalizing-Archaic, Classical, Hellenistic, Roman). The buildings are thought to be Final Neolithic-EM I and the terraces to be Greco-Roman.

<http://prospection-itanos.efa.gr/?action=view&objectdefid=5&instid=13>

63 Ancient Cult activity (temple/shrine to Demeter?), agricultural activity Greco-Roman

A building excavated in 1996 with very rich finds (terracotta statuettes from the seventh to the second century, lamps (sometimes multiple nozzles) and ceramics in general excellent quality ranges of Archaic period in the second / first century BC (BCH 121 (1997), p. 820-822). One-half of this site and its 150 m radius circle fall within the Krystallo-Vamies A2 Zone. This is an important sanctuary site that is even today being encroached on by a farm.

<http://prospection-itanos.efa.gr/?action=view&objectdefid=5&instid=46>

66 Structure unknown date

A stone built structure c. 7x5 m. No associated ceramics. One-half of this site and its 150 m radius fall within the Krystallo-Vamies A2 Zone.

<http://prospection-itanos.efa.gr/?action=view&objectdefid=5&instid=47>

67 Ancient agricultural activity Greco-Roman

This c. 6,000 sq. m area of well-preserved ancient enclosed agricultural terraces falls entirely within the Krystallo-Vamies A1 and A2 Zones. The terraces are especially rich with ceramics dating from Orientalizing-Archaic, Classical, Hellenistic, Roman times. An intensive study of this site is published (BCH 121, 1997, p 820).

<http://prospection-itanos.efa.gr/?action=view&objectdefid=5&instid=48>

68 Ancient road Greco-Roman

This important and well-preserved section of ancient road connects the Itanos area with Krystallo-Vamies and falls almost entirely within the Krystallo-Vamies A1 and A2 zones! It can be followed for 600 m or more. The road is bordered on both sides by a double-faced wall with a thickness of c. 1 m. The width of the road varies from 1.90 m to 2.20 m. A section of this road was cleaned in 1994 (BCH 119 (1995), p. 734-736). Although there were few sherds, their character is largely Greco-Roman and would fit with the construction style of the road.

<http://prospection-itanos.efa.gr/?action=view&objectdefid=5&instid=49>

A purple square designating a protected archaeological site

This is entirely within the A2 zone. Its position on the map does match a location with antiquities that we know of, but may be intended to show the excavated small sanctuary to Demeter (63).

MAGATZES-ALATOPATELA A1 ZONE

Three archaeological sites will be impacted by the Magatzes-Alatopatela A1 zone. One (12) is an especially important FN-EM I settlement with well preserved walls and diagnostic pottery.

12 Ancient habitation, defensive walls Prehistoric (Final Neolithic- Early Minoan I)

This and site 17 are the best preserved prehistoric sites in the survey area. The architecture is remarkable and the pottery abundant diagnostic. This site falls partly with in Magatzes-Alatopatela A1 zone. (Figure 15). <http://prospection-itanos.efa.gr/?action=view&objectdefid=5&instid=8>



Figure 15: J. Morrison and O. Rackham sitting on the massive wall at site 12. Looking NW. Photo J. Moody, May 2007.

152 Structure unknown date

Remains of a large rectangular building with at least 2 rooms. The walls are double-faced. No diagnostic pottery. This site falls partly within Magatzes-Alatopatela A1 zone. <http://prospection-itanos.efa.gr/?action=view&objectdefid=5&instid=97> .

M-R 21 Ancient agricultural activity PG/G and later

Ancient and medieval terracing and occasional pottery including one PG/G sherd with compass drawn circles. (figure 16, 17)



Figure 16: General area of dilapidated terraces and tumble where the sherd with the compass-drawn circles was found (M-R 21). Photos J. Moody and J. Morrison, May 2007

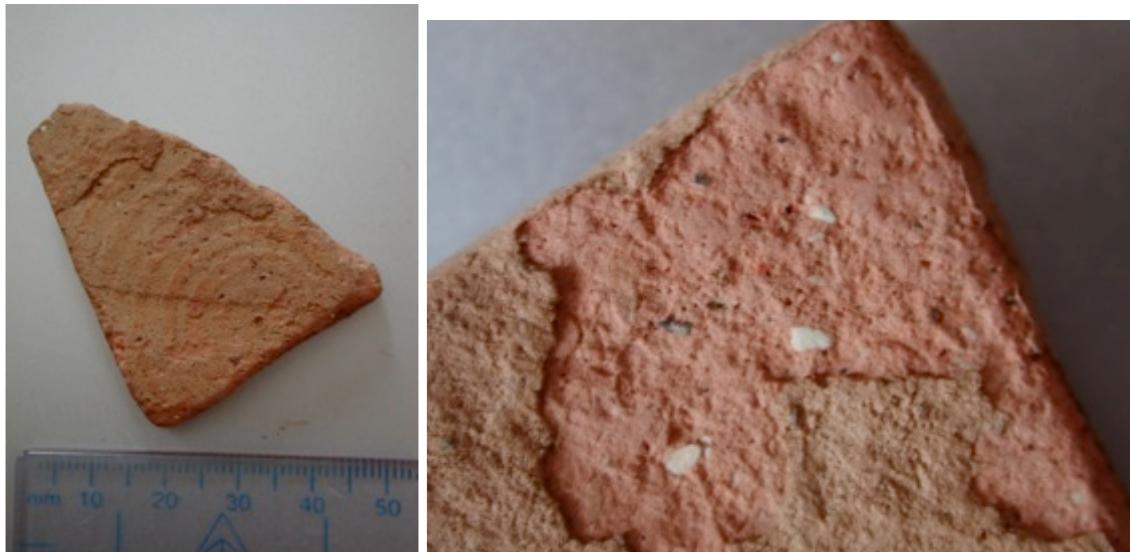


Figure 17: Sherd with compass drawn circles and close-up of ceramic fabric from M-R 21. Photos J. Moody, May 2007

ATSIKIARI A1 ZONE

Five archaeological sites will be impacted by development here. One site (M-R 41) is a location for the rare, local endemic *Anthemis filicaulis* ***. In fact this A1 zone is a hotspot (3) for special plants, including *Asperula rigida*, *Bupleurum asperuloides*, *Crepis cretica*, *Iris unguicularis* ssp. *cretensis*, *Nigella fumariifolia*, *Scorzonera cretica*, *Scutellaria sieberi*, *Teucrium alpestre*.

91 Ancient habitation Prehistoric [Greco-Roman]

A recently bulldozed Minoan habitation with the remains of several big boulder walls. Late Minoan pottery is especially abundant, but there are also a few sherds of later periods.

<http://prospection-itanos.efa.gr/?action=view&objectdefid=5&instid=63>.

93 Ancient habitation and agricultural activity Prehistoric [Greco-Roman]

Rubble enclosure wall and mainly Late Minoan pottery in a recently bulldozed area. The existing walls are not contemporary with the Minoan pottery and represent a later phase of activity. The Minoan pottery is abundant.

<http://prospection-itanos.efa.gr/?action=view&objectdefid=5&instid=64>.

M-R 42 Ancient habitation and agricultural activity R/LR/Byz

Late Roman to Byzantine farm. Rooms, walls and terrace system around a rocky outcrop. Second structure with red slip pottery in saddle to the N. (Figures 18, 19).



Figure 18: Left — Outcrop hill where site M-R 42 is. Right — Walls and tumble of structures associated with Roman sherds, with O. Rackham. Photos J. Moody, May 2007.





Figure 19: Miscellaneous pottery associated with the site M-R 42. Photos J. Moody, May 2007.

M-R 43 Ancient defensive wall? Hellenistic?

A long wall built of a yellow-ochre colored rock (ankeritic stone) as at Ancient Itanos. (Figure 20).



Figure 20: Double faced wall reminiscent of the defensive walls built S of Ancient Itanos. M-R 43. Photos J. Moody, May 2007.

M-R 41 Agricultural activity Byz-Ven-Ottoman?

Terracing complex including check-dams and separate structures but very little pottery. Location for the rare, local endemic *Anthemis filicaulis****⁵. (Figure 21)



Figure 21. Left — Terracing at M-R 41 associated with Byz-Ven-Ottoman sherds, with O. Rackham. Looking SE. Right — Walls and tumble with a check-dam (J. Morrison standing on it). Looking SW. Photos J. Moody, May 2007.

M-R 40 Habitation Venetian-Ottoman

Structure, including a paved area, associated with Ven-Ottoman pottery. (Figures 22, 23)

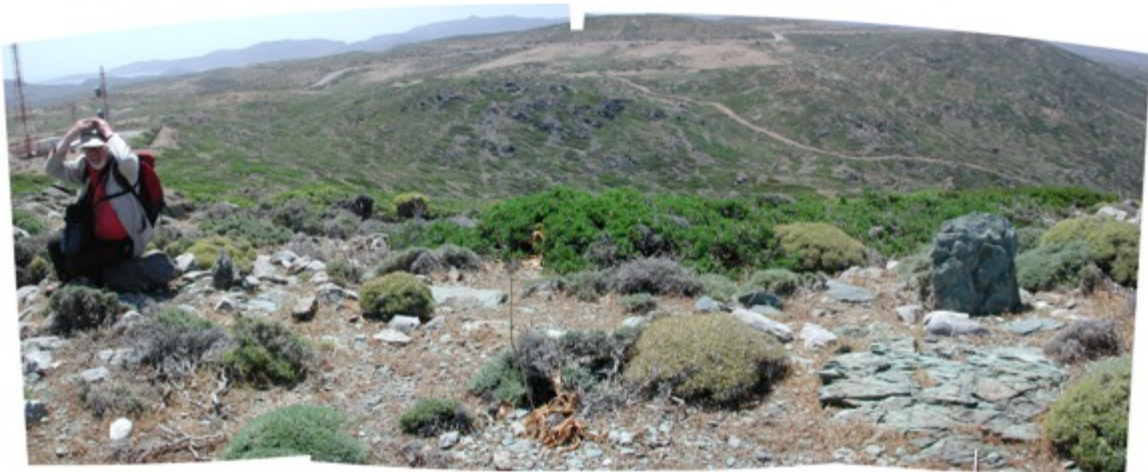


Figure 22. Panorama of walls and tumble of a small structure at M-R 40, associated with Ven-Ottoman sherds, with O. Rackham. Looking SE. Photo J. Moody, May 2007.

⁵*** endemic to this peninsula. ** endemic to Crete. * endemic to the S or SE Aegean, including Crete



Figure 23. Miscellaneous Ven-Ottoman sherds at M-R 40. Photos J. Moody, May 2007.

STEPHANES A2 ZONE

Four sites fall partly or entirely within this A2 construction zone. Immediately northwest of this zone is a rare and endemic plant hotspot (11) with *Asperula rigida*, *Crepis cretica*, *Phoenix theophrasti*, *Scorzonera cretica*, *Teucrium alpestre*, *Viola scorpiuroides* (Figure 4).

35 Ancient habitation Prehistoric [Greco-Roman]

Two walls of large, well matched stones. Abundant Late Minoan pottery. Occasional Early Christian pottery. Site is partly damaged by bulldozing. <http://prospection-itanos.efa.gr/?action=view&objectdefid=5&instid=29>.

37 Ancient habitation Greco-Roman

Remains of a rectangular structure built of smallish stones. Few sherds but they suggest a Greco-Roman date.

<http://prospection-itanos.efa.gr/?action=view&objectdefid=5&instid=30>.

38 Ancient structure Prehistoric? Later?

Walls of a rectangular structure composed of rubble and large blocks. Few associated sherds. The site is very disturbed by recent bulldozing for the construction of an hypostego.

<http://prospection-itanos.efa.gr/?action=view&objectdefid=5&instid=31>.

41 unknown Prehistoric, Greco-Roman

An extensive area of rubble and abundant pottery dating from Late Minoan to Early Christian. There are traces of walls but no coherent plan could be made. <http://prospection-itanos.efa.gr/?action=view&objectdefid=5&instid=33>.

STEPHANES-GYALIES-VAI A1 ZONE

In the previous Cavo Sidero proposal this region was to be home to the tourist villages of Levki Ammos and Grandes. An even larger area is now designated for tourist development in Itanos Gaia.

The south half of this A1 zone falls outside the formal survey area. Since we have not explored the area outside the survey boundaries, we cannot say what antiquities might be there.

In the area covered by the Archaeological Survey and us, 13 sites and their minimal 150 m radius protection circles fall partly or entirely within the A1 zone.

The north end of this A1 construction zone is a botanical hotspot (5) for rare and endemic plants, including *Allium rubrovittatum*, *Carlina sitiensis*, *Crepis cretica*, *Iris unguicularis* ssp. *cretensis*, *Phlomis lanata*, *Scorzonera cretica*, *Teucrium alpestre*, and *Viola scorpiuroides*. The middle of the A1 zone is another hotspot (10) with similar plants but also including *Asperula rigida* (Figure 4).

VAl

26 Ancient stone quarry Greco-Roman

On the steep east coast a deposit of white-veined, gray-pink limestone/marble was quarried. Several large blocks and columns (or column elements), in various states of finish, were left behind. (Figure 24). <http://prospection-itanos.efa.gr/?action=view&objectdefid=5&instid=21>.



Figure 24: Left — View from the quarry site 26 to 30. Looking S. Right — Unfinished columns and blocks at site 26. Photos J. Morrison, May 2007.

28 Ancient stone structure, tomb? Prehistoric

A roughly circular stone structure that is likely to have been a Late Minoan tomb. <http://prospection-itanos.efa.gr/?action=view&objectdefid=5&instid=80>.

29 Ancient habitation? Prehistoric

A rectangular structure associated with Late Minoan pottery. (Figures 25, 26) <http://prospection-itanos.efa.gr/?action=view&objectdefid=5&instid=23>.



Figure 25. Site 29. J. Moody and O. Rackham sitting on the wall of an ancient building associated with Minoan pottery. Photo J. Morrison, May 2007.



Figure 26. Site 29. Minoan tripod foot made of a phyllite fabric. Photos J. Morrison, May 2007.

30 Ancient stone quarry Greco-Roman

A small quarry for pink-gray marble veined with white. Several large unfinished blocks and columns were left behind. (Figure 27). <http://prospection-itanos.efa.gr/?action=view&objectdefid=5&instid=24>.



Figure 27. Site 30. Unfinished stone column. With J. Moody and H. Robinson. Photo J. Morrison, May 2007.

131 Ancient agricultural activity unknown

A rectangular structure with two compartments and enclosure wall. It is linked to a dense network of terraces. <http://prospection-itanos.efa.gr/?action=view&objectdefid=5&instid=81>.

M-R 36 Ancient structure Greco-Roman?

In the dune saddle on the way to the gray-pink marble quarry (site 26), are the foundations of a building which appears and disappears depending on the blowing sand. Minimal pottery.

STEPHANES

40 Ancient road Prehistoric?

A 500 m stretch of an ancient road is marked by stone walls. It seems to be associated with the string of Minoan sites in the Stephanes area and therefore is thought to be Minoan. <http://prospection-itanos.efa.gr/?action=view&objectdefid=5&instid=32>.

53 Ancient habitation Prehistoric [Greco-Roman]

Extensive remains of walls, rooms and abundant pottery. Most of the pottery is Late Minoan. Some later pottery from the late Orientalizing to the Early Christian period were also seen. <http://prospection-itanos.efa.gr/?action=view&objectdefid=5&instid=42>.

GYALIES

118 Ancient habitation, defensive, agricultural unknown date

Walls and rooms built of large, partly dressed blocks. It is associated with a large area of pens, terraces and check-dams. <http://prospection-itanos.efa.gr/?action=view&objectdefid=5&instid=76>.

119 Ancient agricultural activity unknown date

Enclosures and terrace walls? Few sherds. <http://prospection-itanos.efa.gr/?action=view&objectdefid=5&instid=77>.

121 Ancient wall unknown date

A wall c. 1 m wide can be traced along the crest of the Gyalies ridge for over 650 m. It is built of large uncut blocks and fieldstones. No associated pottery. <http://prospection-itanos.efa.gr/?action=view&objectdefid=5&instid=98>.

M-R 37 a and b Ancient structure, defensive? Road? Greco-Roman

On the saddle that divides the study areas of Gyalies and Vaï, a structure with a long wall (a) and traces of more walls and possibly a road heading N towards Vaï (b). (Figure 28)



Figure 28. Left— Looking along the S wall of the structure (M-R 37 a), with J. Morrison. Right — Associated pottery. Photos J. Moody, May 2007

M-R 38 a and b Ancient habitation Minoan, Greco-Roman

Two well-built structures with moderate pottery, on the ridge in the middle of the Gyalies depression. (Figures 29, 30)



Figure 29: M-R 38. Looking ESE down the Gyalies slope from the upper structure to the lower. Photo J. Moody May 2007



a.



b.









c.









d.



Figure 30. (a) Rubble of the lower structure (M-R 38a), with O. Rackham. (b, c, d) Associated pottery. Photos J. Moody, May 2007

Table 1: Rare and Endemic Plants known in the Itanos Gaia Development area. *** endemic to this peninsula. ** endemic to Crete. * endemic to the S or SE Aegean, including Crete.

SCIENTIFIC NAME	COMMENT	PHOTO
<i>Allium rubrovittatum</i> **	widespread Cretan endemic; http://www.iucnredlist.org/details/172096/0 also in Karpathos and Cyprus. Photo http://jacques-zaffran.fr	
<i>Anthemis filicaulis</i> ***	endemic to the Itanos peninsula. Photo J. Moody, May 2007	
<i>Asperula crassula</i> ***	endemic to the Itanos peninsula; in the "Red Data Book of Rare and Threatened Plants of Greece" of 1995 it is listed as Vulnerable. Photo Natural History Museum of Crete	
<i>Asperula rigida</i> **	widespread Cretan endemic	
<i>Biarum tenuifolium idomenaeum</i> **	rare or overlooked Cretan endemic, aroid. Photo http://atangledbank.blogspot.gr/2011/09/	
<i>Bupleurum asperuloides</i>	otherwise not recorded on Crete?	

SCIENTIFIC NAME	COMMENT	PHOTO
<i>Carlina sitiensis</i> *	endemic to E Crete and Kasos, thistle. Photo Julia Jones	
<i>Crepis cretica</i> *	widespread Cretan endemic, also Karpathos	no photo
<i>Dianthus fruticosus</i> ssp. <i>Sitiacus</i> ***	local endemic; Conservation status (for threatened species): Vulnerable (V) according to IUCN 1997. Protection status (for threatened species): Greek Presidential Decree 67/1981. Photo Prof. Yannis Zacharakis, January 2010	
<i>Ebenus cretica</i> **	widespread Cretan endemic, sensitive to browsing. Photo J. Moody, May 2014	
<i>Iris unguicularis</i> ssp. <i>cretensis</i> *	endemic to Crete and Karpathos; Widespread and common on Crete	
<i>Nigella fumariifolia</i> *	endemic to SE Aegean and on Crete almost confined to this area. Photo J. Moody, May 2007	
<i>Phoenix theophrasti</i> *	endemic to SE Aegean. Photo J. Moody, May 2007	

SCIENTIFIC NAME	COMMENT	PHOTO
<i>Phlomis lanata</i> **	Central and E Cretan endemic, common; Protection status (for threatened species): Greek Presidential Decree 67/1981. Photo J. Moody, May 2014	
<i>Posidonia oceanica</i>	sea grass endemic to the Mediterranean Sea. It is in decline and is protected. Its presence is an indicator of lack of pollution. Photo Wikipedia.	
<i>Scorzonera cretica</i> *	endemic to S Aegean, esp. E Crete; Photo J. Moody, May 2014	
<i>Scutellaria sieberi</i> **	widespread Cretan endemic. Photo J. Morrison, May 2007	
<i>Stachys mucronata</i> *	endemic to E Crete and Karpathos, Restricted distribution on Crete, not common. Photo www.cretanflora.com	
<i>Stachys spinosa</i> *	endemic to SE Aegean. Photo J. Morrison, May 2007	

SCIENTIFIC NAME	COMMENT	PHOTO
<i>Teucrium alpestre</i> **	widespread Cretan endemic, sensitive to browsing. Photo http://www.bium.univ-paris5.fr , May 2009	
<i>Viola scorpiuroides</i>	confined to the NE and W corners of Crete, African outlier. Photo J. Moody, May 2007	

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