

EARLY MINOAN SETTLEMENT LANDSCAPES. A PRELIMINARY STUDY OF CRETAN EARLY BRONZE AGE SETTLEMENTS AND THEIR RELATIVE SPATIAL DISTRIBUTION

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Abstract: This paper presents a preliminary examination of the settlement landscape in the Early Minoan period, analysing individual changes within each phase of the Early Bronze Age on Crete island, as well as changes occurring from one phase to another. Furthermore, it seeks to tackle the chronological limitations and possibilities, in an attempt to contribute to our understanding of Early Minoan social and demographic dynamics and relations at an island-wide level. The main goal is to provide a useful tool for the further research of Minoan habitation patterns and a better understanding of the background from which the later palatial systems emerged and developed.

Keywords: settlement landscape; Early Minoan period; Bronze Age; Crete.

Rezumat: Articolul de față analizează peisajul așezărilor din Minoicul Timpuriu, punând accent și pe schimbările care au apărut de la o etapă la alta a epocii bronzului timpuriu pe insula Creta. Studiul tinde, de asemenea, să abordeze limitările și posibilitățile cronologice într-o încercare de a contribui la o mai bună înțelegere a relațiilor sociale și a dinamicii demografice la nivel insular, în perioada Minoicului Timpuriu. Scopul principal este acela de a oferi un instrument de lucru pentru cercetări viitoare privind studiul modelelor de habitare și o mai bună înțelegere a fundalului cultural din care se nasc și se dezvoltă sistemele palatiale mai târzii.

Cuvinte cheie: peisajul așezărilor; Minoic Timpuriu; epoca bronzului; Creta.

Introduction¹

The main purpose of this paper is a preliminary assessment of the general trends in settlement mobility, that is, the spatial distribution of settlements (distance from the coast, elevation a.s.l., topographical features) within the island of Crete and within the chronology (relative and absolute) of the Early Minoan (EM) period. It is the intent of the author to contour major shifts in site distribution, correlating them with the features of the cultural landscape in order to obtain a relatively universal picture of the factors which could have affected the choices taken when establishing or continuing activity at a specific site. The present analysis is a brief and preliminary report,

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which is part of a wider study that will also involve settlement and funerary landscape, as well as architecture in the EM period.

Early Bronze Age chronology of Crete

In order to arrange the collected data into different phases and gain a better understanding of the development of settlement patterns through the EM period, we must establish the chronological borders of the study. The most practical is that of the relative chronology; because its sequence is based on ceramic typology, it can be correlated (in most cases) with a stratigraphic sequence of the EBA in Crete. After this, a possible chronology will be presented in order to have some sense of absolute time in relation to site dynamic and distribution.

Relative Chronology

Minoan chronology was divided by A. J. Evans into three distinct periods: EM, MM and LM. Our main interest for the present study is the first period. The EM period is further divided into three phases: EM I, II and III, each with its own distinct characteristics.² Most of these were documented as being stratified on a preceding level in at least one part of Crete.

EM I is the first period which can be referred to as EBA, although metal finds are rather scarce. So far, no pure EM I levels have been found stratified above Final Neolithic layers.³ Its place in the chronological sequence is defined by its forerunner, which is the Final Neolithic (FN), and by the phase following it, namely EM II.⁴ The EM I phase may be subdivided into an earlier and later phase, conventionally named A and B, respectively.

EM II follows the EM I period, and it may be called a true EBA, because metals abound (although the deliberate mixing of copper with other metals in order to produce bronze is not likely). Only in western Crete was EM II found stratified above EM I levels, at Debla (Debla II being a transitional phase and Debla III a true EM II one).⁵ This phase was divided into two sub-phases (A and B) based on the stratigraphic sequence of Fournou Koriphi, Myrtos and, though slightly more difficult to recognise, may also be found at Vasiliki, Knossos and some other east Cretan sites.⁶

The EM III period is the last period of the Minoan EBA. It shows a multi-coloured picture based on regional varieties; the greatest difficulties are therefore presented by the division of the island into four parts during this period, based on ceramics (western-, south-central-, north-central- and eastern Crete) and, most importantly, the relationship between these local characteristics at an island-wide level. Evidence from stratified EM III layers above EM II or below MM IA is scarce. In most of the cases

² Evans 1906, 5-7.

³ Manning 1995, 42.

⁴ Warren, Hankey 1989, 13.

⁵ Warren et alii 1974, 339.

⁶ Warren, Hankey 1989, 16.

the homogenous nature of the ceramic inventory is what indicates the phase. No such stratified evidence has been recovered from west Crete and, even worse, the scarcity of EM III material from not stratified layers has also been noted.⁷ South-central Crete is in a similar state, as no documented stratified EM III layers have been found, but usually the pottery that could belong to this period (light-on-dark) is found mixed with polychrome and post-EM II material in Prepalatial strata.⁸ In north-central Crete (Knossos region), the pottery of this phase is defined as light-on-dark, but without polychrome decoration. From this perspective, the discovery of three building phases and several layers of this period stratified above EM II, just south of the later Minoan Palace at Knossos in the Early Houses, was welcomed.⁹ Finally, in east Crete we have the best evidence for homogenous EM III fill, coming from the sites of Pseira, Gournia, Mochlos and Palaikastro. The decoration is light-on-dark with a rich decorative repertoire unparalleled in other regions of Crete.¹⁰ A special mention should be made of the Pyrgos, Myrtos site and its II b-c phases, dated roughly to the EM III period, because this is the place where the north-central wares of Crete (MM IA polychrome) meet the ones from the eastern region (EM III East Cretan White-on-Dark).¹¹ The explanation for this could be that the EM III wares of east Crete lasted longer in this part of the island, and when the polychrome pottery appears here (MM IA), the MM IA has already begun in the north-central part of the island, that is to say, east Cretan MM IA began at about the middle of the north-central Cretan MM IA.¹²

After this brief account of the relative chronological sequence of the EM period, one can imagine the difficulties of dating a site, especially considering the fact that most of the sites examined in this study were investigated through archaeological surveys. The inaccuracy of the relative dating extends even further if we consider that some pottery groups can only be dated in a certain period if they are expressed through a relation or proportion to other groups and not dated based on characteristics of a single sherd. In some cases it is necessary to establish a relative chronology of the surveyed area, due to lack of characteristic material. Such local sequences are usually based on the coarsest wares, which appear more often. They are then integrated into the general Cretan periods through the correlation of the surveyed pottery sequence to a known pottery sequence of the area established through excavation. A good example of this is the Kavousi Survey where 18 coarse fabric types were defined, two of which were pure EM (Type II: EM I-II and Type IX: EM I-II).¹³

Absolute Chronology

The BC years for the EM period, based on radiocarbon dating, are as follows¹⁴:

⁷ Warren, Hankey 1989, 17; Manning 1995, 63.

⁸ Warren, Hankey 1989, 20; Manning 1995, 64.

⁹ Momigliano, Wilson 1996, 47, 53-54.

¹⁰ Warren, Hankey 1989, 17-18.

¹¹ Warren, Hankey 1989, 18-19; Manning 1995, 64.

¹² Warren, Hankey 1989, 20.

¹³ Haggis, Mook 1993, 279-280.

¹⁴ Manning 1995, 143-153, 217-222.

Early Minoan I	3100–3000 to 2700–2650
Early Minoan IB/Early Minoan IIA Transitional	(2700–) 2650
Early Minoan IIA	2650 to 2450–2350
Early Minoan IIB	2450–2350 to 2200–2150
Early Minoan III	2200–2150 to 2050–2000
	all years are BCE

It should be noted that, based on our present knowledge, even though the relative chronological division of the EM periods seems equally spaced, this picture changes entirely when correlated to absolute dates. The first period is almost 800 years long, the second about 400 years and the last one only about 100–150 years. This has far-reaching implications concerning dating and the interpretation of the archaeological landscape. The accuracy of dating in actual BC years based on pottery exponentially increases as we approach the end of the EM period; due to the fact that about the same amount of pottery groups are used to date periods which last about 800 and 150 years. In terms of archaeological landscape, its implications are severe, as for example sites dated to EM IA actually cover a span of about 400 years as opposed to sites which are dated to EM III, which on the other hand only cover about 150 years. Also it would be foolish to believe that once a site is dated based on pottery, let us say in EM IB, it is in use from the beginning till the end of the period, especially if it did not have any forerunner or continues into the next period.

Early Minoan settlement patterns and dynamic

The distribution of EM sites will be discussed based on the periods in relation to BCE years, distance from the coast, elevation, emergence and abandonment, and finally topographical location. It is possible that not all of the sites should be identified as habitations; they could, for example, be unrecognised cult places or burials, but the lack of distinct archaeological materials which may attribute them to a specific use, makes the majority of them interpretable as habitation sites. The coastal sites are defined as being within a distance of 300 m from the coast, meaning a 5 minute walk when carrying different goods; these are also the sites most likely to function as harbours (when there is an existing sandy beach suitable for pulling crafts to shore). After this, the changes from one period to another will be highlighted in order to obtain an understanding of the general tendencies in the change of settlements as well as in other related activity areas.

Site distribution in the Early Minoan I period (Pl. II)

Considering the difficulty of defining the phases of the EM I period, especially from survey data, the differentiation of site distribution within it will be also difficult, at present almost impossible. Most of the sites are dated to the entire period, regardless of whether they continue from the former Final Neolithic phase or if they are newly established. There are only two sites which do not fit this profile, one being that

of Lakoudia, Vraskas in the region of Sphakia, the other Malia near the north-central coast. The former is of very early EM I date, therefore it could be attributed to the EM IA period. The latter is highly problematic in terms of dating, because it is located at the site of a later palace, which could obstruct the recognition of such early material, but at the moment it appears that the site began in later EM I, that is to say EM IB.

There is a total of 110 sites in EM I Crete, with 109 in the earlier phase of this period and the same number in the later one (Pl. IV). This means that for about 400–500 years, ranging from the last centuries of the fourth millennium till the middle of the first half of the third millennium, there are about 100 habitations on the entire island (Pl. IV). Not necessarily all of them are contemporary, but at present the archaeological material from this period does not allow a better estimate of their internal chronology. Some may have been only seasonal habitations, as has been suggested for a few sites (e.g. in the Lasithi).¹⁵ There is only one documented site which was abandoned during the EM I period, that of Lakoudia, Vraskas (Pl. VII), but this may provide a false picture, as it has been pointed out in the above presentation of the poorly known EM I archaeological sequence and material. During the late EM I period, a massive site abandonment occurs, as almost half of the sites are deserted (Pl. VII), but the reasons for this apparent trend could again be related to the difficulties with the inner chronology of the phase. On the other hand, there are 37 newly established sites (Pl. VII), whose establishment should be viewed as part of a process rather than as a temporarily limited event; the same may be assumed about the site abandonment in the late phase of the period. If it could be proved that this occurred over a short period of time, this could indicate an influx of new populations, but it is more likely that this represents the beginning of an exponentially growing local population, expanding and changing habitation and activity sites over a period which is fairly long. The possibility of the appearance of a new demographic element in this period should be kept in mind, though perhaps on a smaller scale. Conclusive evidence for this new element should not only be sought in the Cretan foreign materials, but in the presence of non-moveable archaeological material, such as the Ayia Photia graves of distinct Cycladic character,¹⁶ and the abundance of foreign luxury goods in Mochlos,¹⁷ even if they are not as vast as in the later EM phases. Most of these goods seem to concentrate in the eastern part of the island, and they continue their existence into the second EM phase, not only expanding in size but also acquiring a larger quantity of foreign luxury goods, hence proving the existence and intensification of Cretan foreign relations.¹⁸ The continuing sites and the ones now being founded were placed on a variety of topographical features (Pl. VII). The highest proportion of sites, almost half of them, is situated on slopes, with 15 sites exclusively on them, and the remaining ones associated with other topographical features such as summits, ridges and valleys. The second most popular choice for a habitation in this period is a summit (Pl. VII). There are 17 sites exclusively placed on this feature, the remaining ones, 36

¹⁵ Watrous 1982, 38, 46, 52, 58, 65.

¹⁶ Branigan 1988, 152; Tsipopoulou 1989, 17, 97; Davaras, Betancourt 2004.

¹⁷ Branigan 1991, 97.

¹⁸ Branigan 1991, 97, 102.

and 35 in EM IA and IB, respectively, extending onto slopes or ridges in the vicinity of the summits. Valleys and plains are not very well represented in the choice of site in this period and the same may be said about the coastal sites (Pl. VII). The remaining sites are to be found in areas which are at the base of hills, ridges, and a few on promontories. The highest number and proportion of cave sites, that do not indicate a funerary use, in all a number of 16, occur in this period (Pl. VII). If we examine the topographical locations from the perspective of the elevation about sea level (a.s.l.) and distance from the coast, the data seems to arrange itself into some kind of order. More than half of the EM I sites accounted for in the present paper are located between 0–300 m a.s.l. (Pl. VI). The remaining 31 and 30 sites of the EM IA and IB, respectively, are between 300–1000 m a.s.l. (Pl. VI). Although the majority of the presumed EM habitations is on a relatively low-lying topographical feature, a proportion of 1/3 of the EM I sites occupy the remaining vertical topographic zones until 1000 m quite homogeneously, not showing clustering around any of the height intervals till this highest elevation. If we relate this picture to that of the distance from the coast, which in an area like Crete (namely an island) would surely have constituted another influencing factor on the choice of activity, we can observe a tendency towards proximity to the coast, although the “hinterland” of Crete is also inhabited or at least “scouted” for possible habitation (Pl. V). It is quite clear that the sites tend to concentrate in a coastal strip of 5 km, almost regardless of the topographic conditions, although the vicinity to the plains and valleys of the area is clearly also a determining factor (Pl. II). After this zone, with the highest concentration of sites, the average distribution based on the distance from the coast is smaller, but these sites do not indicate a gradual fall off of some sort, but rather the difficulties encountered in settling the land, which after the zone of lower-lying coastal plains and hills is followed by the foothills of the high mountain ranges of Crete.

Site distribution in the Early Minoan II period (Pl. III)

The EM II phase is the best known of all the three phases of the EBA, not only in terms of the ceramic sequence, but also as attested stratified phases and knowledge of other archaeological material. It appears that the island entered into, if not wider, then at least more intensive contact with the other regions of the Aegean and eastern Mediterranean.

There are a total of 116 EM II sites, 114 of which may be dated to the first phase of the period and 113 in the second period (Pl. IV). All except five sites continue all the way through this period, while three end in the EM IIA and the other two only begin in the EM IIB. In terms of relative chronology this would not seem out of the ordinary for EM Crete. However, this picture changes if we correlate it to BCE years, showing that the number of sites increases, compared to the previous period, but the change is misleading as it is not related to absolute dates but to that of the relative chronology. These EM II sites are distributed over a period of 350–400 years, which would mean an intensified site existence and appearance (Pl. IV). The dynamic of the sites related to the BCE years shows a growing exponential curve, which began in the former, EM

I period. The beginning of this EM II phase is marked by a very high number of site appearances, after which only a few sites emerged during the period (Pl. VII). The abandonment of the sites is at its lowest during the EM IIA phase, meaning site and possibly settlement stability on an island-wide level. A slight increase in desertion of sites is seen in the late EM II period, as 19 sites are no longer in use, and therefore do not reach into the last EM phase (Pl. VII). It seems that settlements are mostly concentrated on slopes and adjoining topographical features such as summits, ridges, valleys and bases of hills (Pl. VII). The number of cave sites is very low, as are those of promontories, and the preference for location of settlements on plains and valleys increases (Pl. VII). In both phases of the EM II period, more than $\frac{3}{4}$ of the sites are located between 0–300 m a.s.l., and the remaining handful are distributed between 300–1300 m a.s.l., showing a gradual fall of sites as we climb higher on the vertical elevation chart (Pl. VI). If we correlate this picture with that of distance from the coast, it is clearly distinguishable that the sites tend to concentrate in a coastal band that only rarely exceeds 4 km from the coast, and that the remaining less than $\frac{1}{4}$ of them are distributed over a fairly long distance, up to 17 km, but not at regular intervals or gradually falling (Pl. V). This means that the “hinterland” was used for certain, possibly specialised, purposes as the sites do not appear to be located at every possible distance from the shoreline, but rather in certain areas, which must have fitted the needs and requirements, elusive at this stage of research to us, of the people in the EM II. Another possible reason for this picture could be that the field research of the areas further away from the shore has only been carried out at a moderate level compared to that of the coastal ones.

Site distribution in the Early Minoan III period (Pl. IV)

The EM III period constitutes a fairly short period of time, 150–200 years (Pl. IV), showing almost the same number of sites as in the former period (Pl. IV). The newly established sites of this period represent less than $\frac{1}{4}$ of the total, showing a stabilised settlement and activity landscape (Pl. VII). The favouring of slopes and associated higher (summits, ridges) or lower (valleys, base of hills) lying topographical features by more than half of the sites of this period allows us to conclude that, in this phase, these still remain the preferred geographical features for the location of sites (Pl. VII). Sites on the coast, in the plains or in valleys come second in order of preference in terms of topographical characteristics; promontories and caves are only rarely inhabited or used (Pl. VII). More than $\frac{3}{4}$ of the EM III settlements or areas of activity tend to appear at an elevation between 0 and 300 m a.s.l., and few remaining ones extend over great height differences, from 300 to 1600 m a.s.l., with large unused elevation zones (Pl. VI). This choice would indicate once again a specialised use (habitation and/or activities) of the landscape by the EM people. Finally, the distance from the coast provides a similar picture, showing a concentration of sites on the first 3 km from the coast, after which is a “middle zone” with a lower number of sites (only $\frac{1}{4}$ of the total), located between 3 and 6 km from the shore, and finally reaching the “hinterland” with very few sites, distributed unequally till a maximal distance of 17 km from the sea (Pl. V).

Settlement pattern and site dynamics in the Early Minoan period

Firstly, we may note that in terms of micro-topographic locations, if each site is regarded in its own restrained surrounding, that none of them are on an actual plain, or an extensive flat surface; they are rather situated on small, low-lying mounds and bases of hills, with only about 20 metres at most in height. This may represent a defence against the forces of nature, most likely floods. We know that the climate of the EM period was not so evaporative as in later times,¹⁹ and species like the lime were at home on the island,²⁰ so a more abundant rainfall, even if only seasonal, would also have been possible, and the simplest plan against such disasters would have been a retreat to slightly higher ground.

There is also the problem of defensible sites, which could be the governing reason for present day interpretations, but not necessarily to EM people for the location of sites. The choice of a site or even a settlement on a dominant and possibly well defensible topographical position does not necessarily imply that security concerns were the reasons that lead the inhabitants to establish it in the first place. We should never forget that a settlement on a summit, promontory or other such features is only defensive if it has proper structures for this purpose – a couple of people at one end of a promontory or edge of a summit will not necessarily stop a group with invading and pillaging tendencies. This is the best case scenario, because the inhabitants are aware of the enemy presence. On the other hand, defensive structures of EM date, to my knowledge, are unknown save for a few suggested ones which are highly questionable and not verified through archaeological excavations. One such site could be that of Drepani Akrotiri on the north coast, where a possible FN/EM I structure sealed off the southern entrance to the land prong, but without further excavations nothing more secure may be said.²¹

We may turn our attention to the EM site dynamics. The overall number of the sites seems to remain relatively stable in every EM period; there is no great rise or fall which may indicate a major influx of population. On the other hand, the BCE years distribution of them shows a different picture. We may say that, although their numbers do not change, the length of the time interval during which the sites existed, does, meaning that almost the same number of sites was in use or established for different lengths of period. The first interval is 400–500 years long, the second 350–400 years long and the third 150–200 years long (Pl. IV), so we may say that we are dealing with an increasing site activity as shorter periods of time sustained the same number of sites as the longer ones. This means not only an increase in number of sites but also an increase in population. Studies researching EM demography features underline the limited data available for detailed accounts of populations based on actual human bone remains.²² Such studies of site distribution in relation with other evidence deriv-

¹⁹ Moody, Rackham 2001, 36; Hayden 2004, 5–6.

²⁰ Hayden 2004, 5–6.

²¹ Nowicki 1999, 578.

²² Halstead 1977, 111.

ing from the actual paleo-anthropological data, and the assessed inhabitants' number of excavated sites in relation to the spatial extent of the settlement, would enable us to take a further step in evaluating the variables of EM populations of Crete.

The correlation of emergence and abandonment of sites through the EM period would enable us to estimate the wide and lengthy processes which were at work in the third millennium BCE on the island of Crete. As discussed above, we may see (Pl. VII) that there is a strong settlement continuity from the FN period into the EM I period; out of the 109 sites of the EM IA period, only 36 do not have an earlier Neolithic component. This is followed by heavy site abandonment in the later part of the EM I period, as 49 sites do not continue into the EM II period. It should once again be cautioned that this is not an event associated with a horizon of destruction or abandonment; rather, it should be seen as a process, which began in the very last interval of time of the EM I and lasted into the very early EM II period. This inaccuracy in the recognition of the process is due to our limited knowledge about the pottery sequence, since a more detailed one where actual centuries are delimited based on ceramics in this prehistoric period for the time being is impossible. This relatively large-scale abandonment is followed in the very early EM IIA by a high site emergence, possibly indicating the relocation of the populace that was seen leaving their initial habitations or areas of activity at the end of the former period. The fact that the number of abandoned sites and that of the emerging ones is almost the same, supports such a conclusion, and a confirmation of this process will be found below, where the same events may be reconstructed at the transition between EM I and EM II in the site distribution, based on elevation above sea level and distance from the coast in relation to a wider chronology. Further, the difference between these two values (of the abandoned and emerged sites) is not so significant as to allow for an influx of foreign populations to Crete; it should instead be viewed as an internal evolution of the exponentially growing demography of the island. On the other hand, if the foreign demographic element ever appeared on EM Crete, this would have been the only moment in which it can be argued for, based on the luxury goods of Mochlos and the strong Cycladic character of the Ayia Photia graves.²³ This is also the period in which the strong connections between Knossos and the Greek Mainland are most evident (e.g. the Mainland type sauceboats at Knossos).²⁴

At this point, the position of Mochlos should be mentioned in relation to the excellent conclusions drawn by Branigan. In EM II and III this site shows the least Cycladic influence, although the areas surrounding it yielded strong evidence for such a contact; on the other hand, it shows some sort of control over the import and export of certain valuable goods, therefore making it possible to define it as a "settlement of monopolistic market" or a "gateway community".²⁵ If we look at the map of the distribution of sites in the EM II period on Crete (Pl. III), we may see a high concentration in the Mirabello bay, and there are some quite extensive ones, such as the settlements of Mochlos, Pseira or even Priniatikos Pyrgos, not to mention the other smaller habi-

²³ Branigan 1988, 152; Tsipopoulou 1989, 17, 97; Davaras, Betancourt 2004.

²⁴ Warren 1972a, 395.

²⁵ Branigan 1991, 103.

tations of the area that do not exceed the size of hamlets. Compared to other well surveyed areas (Lasithi, western Mesara, Ayiofarango region), the site concentration of the EM II and following period is very high even by MM and LM standards.²⁶ Even if the entire environmental landscape and agricultural techniques are not easily reconstructed for this period, the number and size of possible settlements suggest a population, which could not have been supported on a subsistence level. This indicates that they must have been acquiring their different goods, especially food, from other regions through exchange, trade or some other way; hence they would have had one or more of a certain kind of movables, which were not necessarily related to the raw materials found in the region nor the goods that were produced in this landscape. They were rather something which was made exclusively in this part of the island, as they had a monopoly (imposed by geographical and/or diplomatic reasons) over the imported raw materials (e.g. specialised goldsmiths and lapidaries at Mochlos).²⁷ The people of this region were not necessarily needed to produce something from the imported raw materials or goods – the simple fact that the materials passed through their hands would have resulted in a substantial profit, regardless of the nature of trade and exchange in this period. Such a system would have resulted in a differentiated society, at least by this EM II period, which is visible in the archaeological material by the distinguished rich and poor graves that are to be found on Crete, especially at Mochlos.²⁸ This acquisition of wealth would have facilitated or even set off the concentration of people, in turn yielding the concentrated archaeological evidence for sites seen in the site distribution of the EM II Mirabello bay.

There are other areas which indicate such a nucleation of sites: the same phenomenon appears in the Lasithi Plain, where out of the 15 EM I sites only one survives into the next period and there are four newly established ones, each of a larger size, indicating the movement of the population into settlements of much greater stability.²⁹ For such an inland region as the Lasithi, the primary reasons for nucleation are not necessarily related to trade. Looking at this zone (Pl. III), we may see that the sites are situated above the actual plain, on the slopes of the surrounding hills. One possible, and highly probable, reason for such an occurrence could have been the fact that the good arable land of the plain would not have been occupied by actual settlements; it also could have been a good defence against possible floods due to the climate of the period.³⁰ The primary impulse for such a concentration of settlements for a higher yield of crop must have come from outside the plain, as the possible need for agricultural products and wood of certain regions (e.g. Mirabello bay region) would have created a need which in turn created the market for such goods and trade connections. We already know that the exchange of ceramic products between different parts of Crete began at least in EM IB and was well on the way by EM II,³¹ which means that the cross-island trade/exchange

²⁶ Blackman, Branigan 1975; Blackman, Branigan 1977; Watrous 1982; Watrous et alii 1993.

²⁷ Branigan 1991, 103–104.

²⁸ Cosmopoulos 1995, 24–25, 27.

²⁹ Watrous 1982, 9, 11.

³⁰ Moody, Rackham 2001, 36; Hayden 2004, 5–6.

³¹ Wilson, Day 1994, 85; Betancourt 2003, 120–121.

connections already existed by this period and the specialisation of certain regions based on possibilities provided by their geographical location was simply the next step, inherent in the seeds of these contacts possibly beginning in the FN and EM I.

This is further emphasised by the time of EM III, when the sites from the Mirabello bay seem to move closer to the sea (Pl. IV); the greatest wealth of the community at Mochlos is achieved by this period,³² and most importantly, although some sites are abandoned at the end of the former or the beginning of this last EM phase (Pl. VII), most of them show a continuity of use from EM II through EM III. This naturally indicates a relative stability of the settlements and the connections established between them. Even if the number of 19 deserted sites seems much out of the total of 113 of this period (Pl. IV), it does not compare with the other similar process seen at the transition between EM I and II (Pl. VII).

This stability of the settlement landscape suggests a cultural stability of this period, meaning that the relations between different parts of Crete and of course within these regions are well established. It further indicates a stability in the foreign relations of Crete, as the next stage of this will be seen in the MM period.

To refine this picture of the general settlement dynamics of EM Crete, we may turn our attention to the “movement” of sites based on distance from the coast and the elevation above sea level. If in the EM I period, $\frac{3}{4}$ of the sites are in a 5 km coastal strip and the hinterland is fairly homogeneously inhabited until a distance from the shore of 17 km, in the following period the sites nucleate in the first 4 km from the sea, indicating a slight movement from the “hinterland” of Crete towards the coast, thus leaving some inner regions which were previously inhabited totally deserted. This movement is further emphasised in the last EM phase, when the highest nucleation of sites are contained within a coastal zone only 3 km wide, followed by a “middle zone” characterised by the existence of a moderate site concentration situated between 3 and 6 km from the shore, and leaving the inner part of the island low on sites. Most of these inner sites are not actual habitation but by now attested cult caves of the Minoan culture (Kamares, Stavromyti caves).

In this general trend of movement towards the coast and nucleation in this region we can also observe a movement from higher topographical features to lower ones (Pl. VI). This does not necessarily mean a movement from the mountains to the hills, but rather a concentration of sites in the lowlands of the coast (~100 m high topographical features). The distinct break, which indicates a concentration on this low elevation in the area of the coast, is between the EM I and II periods (Pl. VI); on the other hand, by the time of EM III (Pl. VI), this is only further maintained, hence confirming the reached stability of this coastal zone and the achieved good relations between the sites. The higher-lying zones of the island show a gradual desertion over the EM period; if in EM I these zones were well inhabited, by the time of EM II and especially EM III, they were abandoned. The few sites which still exist here are mostly cult places (Kamares) or part of a peak sanctuary system (e.g. SK 8 near the Stavros peak overlooking the Isthmus of Hierapetra).

³² Branigan 1991, 98.

In the choice of actual topographical features over the different periods we see an ever high and slightly increasing preference for slopes and associated features like summits, ridges, and bases of hills (Pl. VII). It has been suggested that the introduction of the plough drawn by draught animals should be placed in the beginning of the EBA in the Aegean.³⁵ It also has been indicated that such an improvement in agricultural technique would have facilitated the exploitation of the rich, deep soils of the low hills and uplands, which were till that time not easily cultivated due to technological limitations.³⁴ The importance of proximity to the coast (a distance of 300 m from it) remains steady over the entire EM period, representing about $\frac{1}{4}$ of the known sites of each period; a slight increase in the number of these is noticeable from EM II onwards (Pl. VII). Plains and valleys as activity sites increase in importance from EM II onwards; it is remarkable that in these topographical regions, the number of sites double from the EM I to the EM II period, maintaining this level even in the EM III period (Pl. VII). Finally, there is a reduction in number of sites located on promontories and caves - especially in the cave sites there is a distinct break, recognisable between EM I and II, and it is known that by the time of the EM III period, most of them became cult places (Pl. VII).

Since negative evidence should also be regarded as valuable information, we take note of the Ziors Survey conducted in east Crete. The surveyed area consists of two basins of the innermost part of this part of the island. Neolithic sherds and sites were found in these regions, as were some from MM I/II onward.³⁵ Interestingly, no EM and MM I archaeological evidence was uncovered in either of the basins, which would suggest an occupation or use of this area in these periods.³⁶ This would suggest that extremely isolated regions of Crete were not inhabited. Although subsistence in the area would have been possible, quite clearly it was not one of the main concerns of the EM people, hence indicating the importance of contact and possible trade/exchange relations between different habitations, even small ones.

There is a distinct and unique problem in terms of EM foreign contacts and site distribution. With the exception of the site on the island of Gavdhos in the Libyan Sea, all the EM sites are located on the island of Crete. The case of the island of Kythera, just 10 km south of the Peloponnesus, is a very interesting one, as under the LM houses a stratum of EM II and III ceramic material was uncovered, with no evident structural remains which may have been associated with them, also with west Cretan links.³⁷ To make matters even more complicated, it seems that the use of the island by the Minoans was preceded by the use of it by people bearing the Helladic culture, and there is a distinct break in the sequence, because when the EH II material stops, the EM II begins.³⁸ If we regard this occurrence of EM II and III material as a colony based on the three forms defined by Branigan (governed -, settlement - and commu-

³⁵ Pullen 1992, 51-52.

³⁴ Pullen 1992, 45, 47.

³⁵ Branigan et alii 1998, 80-84.

³⁶ Branigan et alii 1998, 84.

³⁷ Coldstream, Huxley 1984, 107.

³⁸ Coldstream 1973, 107.

nity colonies) that of Kythera is the only one, even in the later MM and LM period, that may be catalogued as a settlement community, meaning the appearance of settlers which occupy a foreign territory by force or by the use of diplomacy; this is recognisable in the archaeological material as a distinct break in or appearance of a material culture.³⁹ This may be regarded as the first attested evidence for the strong influence of the Minoan culture in overseas areas. However, caution should be taken because it could simply be an influence of the Minoan material culture and not the actual presence of the EM people of Crete on Kyther.⁴⁰ Until conclusive evidence for habitation or further information about the relationship between the two converging cultures is brought forward, the phenomenon of Kythera will be left unexplained.

Conclusions

The present study has shown that there is a general trend of moving towards the coast and nucleating in a coastal strip of varying size (3–5 km), depending on the phase in question. The settlements show a relative stability in terms of numbers and distribution over the Cretan topographical landscape. Further, they indicate strong regional interconnections, with relatively well definable associated areas of activity for each region, especially from those that were more intensively studied (e.g. east Crete), thus yielding a greater amount of information, and making the conclusions better anchored in the actual archaeological evidence. It has also been indicated that a massive influx of foreign populations does not occur on Crete; its demographic variables based on site distribution, and evolution tendencies rather represent an internal evolution of the island. The appearance in the EM culture of foreign archaeological materials does not imply the coming of a new population to Crete, but the nature of some non-moveable archaeological evidence would suggest a scenario described by Warren where a gradual infiltration of small numbers of individuals over a longer period of time would have contributed to the demographic and cultural pool of EBA Crete.⁴¹ The most likely interval of time for such a lengthy process would seem to be during the transition from EM I to EM II. In EM II there is an explosion of contact at an intra and inter-island level, which may be the result of the continuation of such connections on a much smaller scale during the previous period. By the time of EM III, the site distribution pattern indicates a well-established network of contacts and trade between different zones of Crete (based on distance from the coast, elevation and topographical location). Similar results were reached by other landscape studies, which focused on the EM settlement landscape,⁴² conclusions, which tie in well with those analysing the EBA funerary landscapes of Crete.⁴³

The present study has shown the general evolution of the settlement distribution of EM Crete. Even if the reasons behind the process delimited in this present paper

³⁹ Branigan 1981, 26, 32; Branigan 1984, 49.

⁴⁰ Branigan 1981, 33.

⁴¹ Warren 1973, 41.

⁴² E.g. Stürmer 2005.

⁴³ Vavouranakis 2007; Legarra Herrero 2009.

are not always clear, they have a solid foundation, based on the collected site data and cross links with the cultural landscape of the EM period.

Description of the EM sites and their location

An extended descriptive catalogue will be provided in forthcoming wider research of EM cultural landscape. The purpose of the present catalogue is the enumeration of sites which have so far been surveyed, and which are not funerary in character, and to provide a general indication of their placement, as well as dating. Furthermore, it provides a full bibliography to every site mentioned.

1. **Agasterouli**, West Coast: EMIII (Hood 1965, 101).
2. **Agios Phanourios 1**, Vrokastro Area: EMII-EMIII (Hayden et alii 1992, 337; Hayden 2004, 63, Table 3.1).
3. **Agios Phanourios 11**, Vrokastro Area: EMII-EMIII (Hayden 2004, Table 3.1).
4. **Agios Phanourios 7/9**, Vrokastro Area: EMII-EMIII (Hayden et alii 1992, 338; Hayden 2003, 374; Hayden 2004, 38, 63, Table 2.1, 3.1).
5. **Alexenia**, Lasithi Plain: EMII (Watrous 1982, 51-52).
6. **Alykomouri**, Kavousi Area: EMII (Pendlebury 1963, 34; Haggis 1996a, 380, 389; Betancourt 1999, 34).
7. **Amygdaloi**, South Foot Hills, Lasithi: EMIII (Hood et alii 1964, 82; Batten 1995, 18).
8. **Aphendi Christos 3**, Vrokastro Area: EMII-EMIII (Hayden et alii 1992, 337; Hayden 2004, Table 3.1).
9. **Aphendi Christos 4**, Vrokastro Area: EMII-EMIII (Hayden et alii 1992, 337; Hayden 2004, 40, 65, Table 2.1, 3.1).
10. **Aphendi Christos 5**, Vrokastro Area: EMII-EMIII (Hayden et alii 1992, 337; Hayden 2004, Table 3.1).
11. **Avgo**, Kavousi Area: EMII-EMIII (Haggis 1996a, Fig. 4).
12. **Ayia Photia caves**, Siteia Bay, North-East Coast: EMII (Branigan 1988, 36).
13. **Ayia Sophia**, Topolia, Central West Crete: EMII (Hood 1965, 104-105).
14. **Ayia Triada**, West Mesara: EMII-EMIII (Droop 1913, 365; Pendlebury 1963, 92; Laviosa 1970, 407-415; 1973, 503-513).
15. **Ayia Varvara**, North Coast, Malia: EMII (Müller 1991, 554).
16. **Ayios Yioryios 4**, South-West Coast: EMII (Hood 1967, 50).
17. **Boubouli**, South Foot Hills, Lasithi: EMIII (Hood et alii 1964, 81-82; Batten 1995, 15-18).
18. **Charakia**, Lasithi Plain: EMII-EMIII (Pendlebury et alii 1936, 11; Watrous et alii 1993, 45).
19. **Chrysokamino**, Kavousi Area: EMII-EMIII (Haggis 1996a, Fig. 4; Betancourt 1999, 34; Betancourt et alii 1999, 343).
20. **Chrysokalitissa**, West Coast: EMII-EMIII (Hood 1965, 101-102).
21. **Debla**, Chania Area: EMII-EMIII (Greig, Warren 1974, 130-132; Warren et alii 1974, 299-302, 305-320, 340).
22. **Diakymi**, South Coast, West Crete: EMII (Nixon et alii 1989, 201-215; Nixon et alii 2000, site 3.09).
23. **Drepani Akrotiri**, North Coast, Malia: EMII (Nowicki 1999, 578).
24. **E11**, Ayiofarango Valley, South of Mesara: EMII-EMIII (Blackman, Branigan 1977, 41).

25. **E12**, Ayiofarango Valley, South of Mesara: EMI-EMIII (Blackman, Branigan 1977, 41-43).
26. **E13**, Ayiofarango Valley, South of Mesara: EMII-EMIII (Blackman, Branigan 1977, 43).
27. **E14**, Ayiofarango Valley, South of Mesara: EMII-EMIII (Blackman, Branigan 1977, 43).
28. **E18**, Ayiofarango Valley, South of Mesara: EMI-III (Blackman, Branigan 1977, 44).
29. **E20**, Ayiofarango Valley, South of Mesara: EMII-EMIII (Blackman, Branigan 1977, 47).
30. **E24-25**, Ayiofarango Valley, South of Mesara: EMII-EMIII (Blackman, Branigan 1977, 49).
31. **E4**, Ayiofarango Valley, South of Mesara: EMII-EMIII (Blackman, Branigan 1977, 31, 71).
32. **E5**, Ayiofarango Valley, South of Mesara: EMI-EMII (Blackman, Branigan 1977, 31-32).
33. **E6**, Ayiofarango Valley, South of Mesara: EMII-EMIII (Blackman, Branigan 1977, 32-34).
34. **Elias to Nisi**, Vrokastro Area: EMI (Hayden et alii 1992, 338; Hayden 2003, 373-374; Hayden 2004, 36-38, Table 2.1).
35. **Ephendi Christou**, Lasithi Plain: EMII-EMIII (Watrous 1982, 60).
36. **Fournou Korifi** (Myrtilos), South Coast, Hierapetra: EMII (Hood et alii 1964, 95-96; Warren 1969, 224-227; Warren 1972b, 1).
37. **Galana Kharakia/Kavousi** (Ano Viannos), South Foot Hills, Lasithi: EMIII (Hood et alii 1964, 83; Batten 1995, 27).
38. **Gaze**, Heraklion Area: EMI/EMIII (Pendlebury 1963, 56, 91).
39. **Ginara 1:1**, Vrokastro Area: EMII-EMIII (Hayden et alii 1992, 339; Hayden 2004, 65, Table 3.1).
40. **Ginara 2A:1**, Vrokastro Area: EMII-EMIII (Hayden et alii 1992, 339; Hayden 2004, 64, Table 3.1).
41. **Ginara 2A:2**, Vrokastro Area: EMI-EMII (Hayden et alii 1992, 339; Hayden 2003, 375; Hayden 2004, 39-40, 64-65, Table 2.1, 3.1).
42. **Ginara 4**, Vrokastro Area: EMI (Hayden 2004, 39-40, Table 2.1).
43. **Gournia**, North Coast, Mirabello Bay: EMI-EMIII (Pendlebury 1963, 78; Soles 1979, 150-151).
44. **Ioannimiti 1**, Vrokastro Area: EMI-EMIII (Hayden et alii 1992, 339; Hayden 2003, 373-374; Hayden 2004, 36-38, 62-63, Table 2.1, 3.1).
45. **Ioannimiti 10**, Vrokastro Area: EMII-EMIII (Hayden 2004, 62-63, Table 3.1).
46. **Ioannimiti 11**, Vrokastro Area: EMI-EMIII (Hayden 2003, 373-374; Hayden 2004, 36-38, 62-63, Table 2.1, 3.1).
47. **Ioannimiti 2**, Vrokastro Area: EMII-EMIII (Hayden et alii 1992, 339; Hayden 2004, 62-63).
48. **Ioannimiti 3**, Vrokastro Area: EMI-EMIII (Hayden et alii 1992, 339; Hayden 2003, 373-374; Hayden 2004, 36-38, 62-63, Table 2.1, 3.1).
49. **Ioannimiti 5**, Vrokastro Area: EMI-EMIII (Hayden 2003, 373-374; Hayden 2004, 36-38, 62-63, Table 2.1, 3.1).
50. **Ioannimiti 6**, Vrokastro Area: EMII-EMIII (Hayden 2004, 62-63, Table 3.1).
51. **Ioannimiti 7**, Vrokastro Area: EMI-EMIII (Hayden 2003, 373-374; Hayden 2004, 36-38, 62-63, Table 2.1, 3.1).
52. **Ioannimiti 8**, Vrokastro Area: EMII-EMIII (Hayden 2004, 62-63, Table 3.1).
53. **Ioannimiti 9**, Vrokastro Area: EMII-EMIII (Hayden 2004, 62-63, Table 3.1).
54. **Istron river 2**, Vrokastro Area: EMI-EMIII (Hayden et alii 1992, 340; Haggis 1996b, 656-675; Betancourt 1999, 35; Hayden 2003, 379-380; Hayden 2004, 38-39, 64, Table 2.1, 3.1).

55. **Kalami 2**, South Coast, Lasithi: EMI (Hood et alii 1964, 93).
56. **Kalo Chorio 1**, Vrokastro Area: EMIII (Hayden 2003, 340; Hayden 2004, 65, Table 3.1).
57. **Kalo Chorio 5**, Vrokastro Area: EMIIIB-EMIII (Hayden 2003, 341; Hayden 2004, 65, Table 3.1).
58. **Kalo Chorio 6**, Vrokastro Area: EMI-EMII (Hayden et alii 1992, 341; Hayden 2003, 380; Hayden 2004, 40, Table 2.1).
59. **Kalyvomouri**, East Coast: EMI-EMIII (Nowicki 1999, 576).
60. **Kamares**, South Slopes, Ida: EMIII (Pendlebury 1963, 92; Faure 1965, 41).
61. **Kambria**, South Coast, West Crete: EMI (Nixon et alii 1988, 159-173).
62. **Kanli Kastelli**, Yuktas Area: EMII-EMIII (Evans 1928, 71; Pendlebury 1963, 60, 76, 91).
63. **Karavi**, Gavdhos, Libyan Sea: EMI (Pendlebury 1963, 76).
64. **Kastelli**, Chania: EMI-EMIII (Hood 1965, 100, 109).
65. **Kastello** (Khondru), South Foot Hills, Lasithi: EMIII (Hood et alii 1964, 82; Batten 1995, 18-23).
66. **Kastello**, Milatos, North Coast, Malia: EMI (Pendlebury 1963, 56; Nowicki 1999, 578).
67. **Kastellos** (Sellia), South Coast, Ayios Vasilios: EMI (Hood, Warren 1966, 185; Nowicki 1999, 577).
68. **Kastellos**, Lasithi Plain: EMII-EMIII (Pendlebury et alii 1938, 7-56; Watrous 1982, 42-43).
69. **Kastri** (Keratokampou), South Coast, Lasithi: EMIII (Hood et alii 1964, 82-83; Batten 1995, 13-14).
70. **Kastri**, Xerokampos, East Coast: EMI (Nowicki 1999, 576).
71. **Katharo**, Lasithi Plain: EMII-EMIII (Watrous 1982, 49).
72. **Kato Arniko 1**, Vrokastro Area: EMII-EMIII (Hayden et alii 1992, 340; Hayden 2004, 66, Table 3.1).
73. **Kato Arniko 2**, Vrokastro Area: EMII-EMIII (Hayden et alii 1992, 340; Hayden 2004, 65, Table 3.1).
74. **Kato Sarakina/Eleniko**, Thersio, Central West Crete: EMI (Hood 1965, 109).
75. **Katsoucheiroi**, Lasithi Plain: EMI-EMII (Pendlebury et alii 1936, 12; Watrous 1982, 64).
76. **Kavousi 2**, Kavousi Area: EMI-EMIII (Haggis 1996a, 389-390, Fig. 4; Betancourt 1999, 35).
77. **Kavousi 3**, Kavousi Area: EMI-EMIII (Haggis 1996a, 389-390, Fig. 4; Betancourt 1999, 35).
78. **Kavousi 4**, Kavousi Area: EMI-EMIII (Haggis 1996a, 389-390, Fig. 4; Betancourt 1999, 35).
79. **Kavousi 5**, Kavousi Area: EMI-EMIII (Haggis 1996a, 389-390, Fig. 4; Betancourt 1999, 35).
80. **Kefala**, Finiakis, South Coast, Ayios Vasilios: EMI-EMII (Nowicki 1999, 577).
81. **Kefalia**, Spili, Ayios Vasilios Region: EMI-EMIII (Hood, Warren 1966, 174-175).
82. **Kendromouri 1**, Vrokastro Area: EMIII (Hayden et alii 1992, 341; Hayden 2004, 64, Table 3.1).
83. **Kendromouri 1A**, Vrokastro Area: EMIIIB-EMIII (Hayden et alii 1992, 341; Hayden 2004, 64, Table 3.1).
84. **Kendromouri 2**, Vrokastro Area: EMII-EMIII (Hayden et alii 1992, 341; Hayden 2004, 64, Table 3.1).
85. **Kendromouri 3**, Vrokastro Area: EMI-EMII (Hayden et alii 1992, 341-342; Hayden 2003, 374; Hayden 2004, 64, Table 2.1, 3.1).
86. **Kera Spiliotissa**, Chania Area: EMI-EMIII (Hood 1965, 106).

87. **Keraton** or “**Vigla**”, South Coast, Lasithi: EMI (Hood et alii 1964, 84; Batten 1995, 9–10).
88. **Kha Gorge**, Kavousi Are: EMI-EMIII (Haggis 1996a, Fig. 4).
89. **Khori** (Amira), South Foot Hills, Lasithi: EMIII (Hood et alii 1964, 86).
90. **Knossos**, Heraklion Area: EMI-EMIII (Evans 1921, 56–126; Hood 1962, 92–98; Evans 1972, 115–128; Warren 1972a, 392–393; Branigan 1988, 42; Cadogan et alii 1993, 21–28; Wilson 1994, 23–44; Manteli, Evely 1995, 2, 4; Momigliano, Wilson 1996, 1–57; Day, Wilson 2002, 145–167).
91. **Kommos**, West Mesara: EMI (Evans 1928; Pendlebury 1963).
92. **Kopranes 1**, Vrokastro Area: EMII-EMIII (Hayden et alii 1992, 342; Hayden 2004, 64, Table 3.1).
93. **Kopranes 10**, Vrokastro Area: EMI (Hayden 2004, 39, Table 2.1).
94. **Kopranes 2,3**, Vrokastro Area: EMI (Hayden et alii 1992, 342; Hayden 2003, 380; Hayden 2004, 40, Table 2.1).
95. **Kopranes 2/4**, Vrokastro Area: EMII-EMIII (Hayden et alii 1992, 342; Hayden 2004, 64, Table 3.1).
96. **Kopranes 6**, Vrokastro Area: EMI-EMIII (Hayden et alii 1992, 342; Betancourt 1999, 36; Hayden 2004, 39, Table 2.1, 3.1).
97. **Korakoskidhaki**, South Coast, West Crete: EMI-EMIII (Hood 1965, 113).
98. **Korfi tou Koukkoyiani** (Ellenes, Amariou), Amari Plain, West of Ida: EMI (Karo 1932, 177; Dunabin 1947, 188; Pendlebury 1963, 55; Hood et alii 1964, 73; Branigan 1988, 39).
99. **Koumaro**, Akrotiri Peninsula: EMI (Branigan 1988, 36).
100. **Lakka tou Dragataki**, Lasithi Plain: EMI (Watrous 1982, 58).
101. **Lakoudia**, Vraskas, South Coast, Sfakia: EMIA (Nowicki 1999, 577–578).
102. **Langos**, West Mesara: EMII-EMIII (Pendlebury 1963, 77).
103. **Lera**, Akrotiri Peninsula: EMI-EMIII (Hood 1965, 110).
104. **Listis**, South Coast, Lasithi: EMII-EMIII (Batten 1995, 10).
105. **Malaxa**, Chania Area: EMI (Hood 1965, 109).
106. **Malia**, North Coast, Malia: EMIB-EMIII (Chapouthier, Demargne 1962, 13–22, 41–43; Pendlebury 1963, 56, 76, 91; van Effenterre, van Effenterre 1969, 13–21; van Effenterre 1980, 81–94; Poursat et alii 1984, 880–891; Stürmer 1987, 41–43; Poursat et alii 1989, 762–785; Pelon et alii 1991, 726–746).
107. **Maryiou**, South Coast, Ayios Vasilios: EMII-EMIII (Hood, Warren 1966, 182).
108. **Melidhoni**, North Foot Hills, Ida: EMI-EMIII (Hood et alii 1964, 58–59; Branigan 1988, 64).
109. **Mesa Kephala 1**, Vrokastro Area: EMII-EMIII (Hayden et alii 1992, 343; Hayden 2004, 67, Table 3.1).
110. **Miamou**, Asteroussia Mountains: EMI (Taramelli 1897, 287–312; Pendlebury 1963, 57; Blackman, Branigan 1977, 67; Branigan 1988, 36, 40).
111. **Mochlos**, North Coast, Mirabello Bay: EMI-EMIII (Seager 1909, 273–303; Pendlebury 1963, 77, 92; Branigan 1988, 39; Soles, Davaras 1995, 312–313; Soles, Davaras 1996, 178–180; Betancourt 1999, 33, 35).
112. **Mokhos**, Malia Area: EMII-EMIII (Pendlebury 1963, 76).
113. **Moni Vidiani**, Lasithi Plain: EMI (Watrous 1982, 38).
114. **Mouri**, Lasithi Plain: EMI (Watrous 1982, 65).
115. **MoW1**, Ayiofarango Valley, South of Mesara: EMII-EMIII (Blackman, Branigan 1977, 63).
116. **MoW2**, Ayiofarango Valley, South of Mesara: EMII-EMIII (Blackman, Branigan 1977, 63–64, 71).

117. **Nisi Pandeimon**, Vrokastro Area: EMI (Hayden et alii 1992, 343; Hayden 2003, 374; Hayden 2004, 36–37, Table 2.1).
118. **Oleros 8**, Vrokastro Area: EMII-EMII (Hayden 2004, 41, 67, Table 2.1, 3.1).
119. **Palaikastro**, East Coast: EMII-EMIII (Pendlebury 1963, 78; Driessen, MacGillivray 1990, 398–399).
120. **Patrikies**, West Mesara: EMIII (Bonacasa 1968, 7–54).
121. **Pesa 3**, Vrokastro Area: EMII-EMIII (Hayden et alii 1992, 345; Hayden 2004, 65, Table 3.1).
122. **Petras**, East Crete, Siteia: EMI-EMIII (Pendlebury 1963, 59; French 1990, 76; Tomlinson 1995, 69–70; Blackman 1999, 121–122).
123. **Phaistos**, West Mesara: EMI-EMIII (Levi 1958, 167–182, 290–291, 296–297; Vagnetti 1973, 12–15, 27–30, 33–35, 38–40; Levi 1976, 36, 57, 63, 74, 78, 83, 96, 108, 137, 156, 160, 161, 179–181, 230, 275–276, 278, 288–294, 299, 314, 316, 333, 353–354, 358, 370, 409, 414–416, 426, 442, 464, 468, 494, 483, 526, 528, 552–553, 558, 598, 604, 616; Branigan 1988, 41; Benzi 2001, 121–155).
124. **Phrouzi 1**, Vrokastro Area: EMI-EMIII (Hayden et alii 1992, 345; Hayden 2003, 374; Hayden 2004, 38, 64, Table 2.1, 3.1).
125. **Phrouzi 2**, Vrokastro Area: EMIII (Hayden et alii 1992, 343; Hayden 2004, 64, Table 3.1).
126. **Pirovolos 1**, Vrokastro Area: EMI-EMIII (Hayden et alii 1992, 346; Hayden 2004, Table 3.1).
127. **Plakaki Kriou**, South - West Coast: EMII-EMIII (Hood 1967, 51–52).
128. **Plakamoura**, Lasithi Plain: EMI (Watrous 1982, 46).
129. **Platanomouri**, Lasithi Plain: EMI (Watrous 1982, 48–49).
130. **Plativola**, Central West Crete: EMI (Hood 1965, 111).
131. **Poros and Katsambas**, Heraklion Area: EMI-EMIII (Blackman 1999, 117–118; Day, Wilson 2002, 153).
132. **Poros**, Lasithi, Lasithi Plain: EMI (Watrous 1982, 52).
133. **Potamoi 1**, Vrokastro Area: EMI-EMII (Hayden et alii 1992; Hayden 2003, 2004).
134. **Praisos**, Ziros Area: EMI (Tomlinson 1995).
135. **Prina 1**, Vrokastro Area: EMI-EMII (Hayden et alii 1992, 344; Hayden 2003, 382; Hayden 2004, 41, 66, Table 2.1, 3.1).
136. **Prina 2**, Vrokastro Area: EMII-EMIII (Hayden et alii 1992, 342; Hayden 2004, Table 3.1).
137. **Prina 3:1**, Vrokastro Area: EMI-EMIII (Hayden et alii 1992, 344; Hayden 2003, 382; Hayden 2004, 41, 67, Table 2.1, 3.1).
138. **Priniatikos Pyrgos 1**, Vrokastro Area: EMII-EMIII (Pendlebury 1963, 78; Branigan 1988, 43; Hayden et alii 1992, 344; Hayden 2004, 62–63, 71, Table 3.1).
139. **Prophitis Ilias 1**, Vrokastro Area: EMI-EMIII (Hayden et alii 1992, 343; Hayden 2003, 379; Hayden 2004, 40, 65, table 2.1, 3.1).
140. **Prophitis Ilias 5**, Vrokastro Area: EMI (Hayden et alii 1992, 344; Hayden 2004, Table 2.1, 3.1).
141. **Psathi**, Galatas, Chania Area: EMII-EMIII (Hood 1965, 108).
142. **Pseira**, North Coast, Mirabello Bay: EMI-EMIII (Pendlebury 1963, 92; Betancourt 1999, 33, 35, 39).
143. **Psychro**, Lasithi Plain: EMI (Watrous 1982, 61–62, Map 4).
144. **Pyrgos (Khondru)**, South Foot Hills, Lasithi: EMIII (Batten 1995, 23–24).
145. **Pyrgos (Myrtos)**, South Coast, Hierapetra: EMII-EMIII (Hood et alii 1964, 93–94; Cadogan 1978, 70–74).

146. **Pyrgos 2**, Vrokastro Area: EMI-EMIII (Hayden et alii 1992, 345; Hayden 2004, 40, 65, Table 2.1, 3.1).
147. **Pyrgos river valley site**, South Foot Hills, Lasithi: EMII-EMIII (Batten 1995, 24).
148. **Pyrgos**, Prophitis Ilias, North Coast, Malia: EMI-EMII (Pendlebury 1963, 56, 76; Nowicki 1999, 578).
149. **Riza**, South Coast, West Crete: EMI (Nixon et alii 1988, 159-173).
150. **Rouphas**, North - East Mesara: EMI (Evans 1928, 80; Pendlebury 1963, 57).
151. **Roussanos**, Lasithi Plain: EMI (Pendlebury et alii 1936, 12; Watrous 1982, 65).
152. **Rousocharakas**, South Coast, Hierapetra: EMI (Nowicki 1999, 576).
153. **SC 5**, South Coast, Mesara: EMI-EMII (Blackman, Branigan 1975, 22-24, 34).
154. **Schinauria Koriphi 8**, Vrokastro Area: EMI-EMIII (Hayden et alii 1992, 347; Hayden 2003, 383; Hayden 2004, 41, 67, Table 2.1, 3.1).
155. **Schinauria Koriphi 9**, Vrokastro Area: EMIII (Hayden et alii 1992, 347; Hayden 2004, 67, Table 3.1).
156. **Site 2 (Listis)**, South Coast, Lasithi: EMII-EMIII (Batten 1995, 11).
157. **Skallopoula**, Lasithi Plain: EMI (Watrous 1982, 45).
158. **Skourocharako**, South Coast, Lasithi: EMIII (Batten 1995, 12-13).
159. **Sopatika (Apodhoulou)**, South-West Foot Hills, Ida: EMI-EMIII (Dunabin 1947, 188; Hood et alii 1964, 78).
160. **Sphoungaras**, North Coast, Mirabello Bay: EMI (Pendlebury 1963, 59, 78; Branigan 1988, 41; Betancourt 1999, 33, 36).
161. **Spilia 1A**, Vrokastro Area: EMII-EMIII (Hayden et alii 1992, 347; Hayden 2004, 65, Table 3.1).
162. **sta Khalasmena**, Central West Crete: EMI-EMIII (Hood 1965, 112).
163. **Stavromyti**, Yuktas Area: EMI/EMIII (Evans 1928, 68; Pendlebury 1963, 56, 91).
164. **Ta Grivila (Perama)**, North Foot Hills, Ida: EMI (Hood et alii 1964, 56-58).
165. **Tartari (Arvi)**, South Coast, Lasithi: EMII-EMIII (Hood et alii 1964, 91-92).
166. **Troulos**, South Coast, West Crete: EMI (Nixon et alii 1989, 201-215; Nixon et alii 2000, site 4.44).
167. **Trypiti**, South Coast, Mesara: EMII-EMIII (Βασιλάκης 1989, 52-56).
168. **Tylissos**, Heraklion Area: EMIII (Droop 1913, 365-366; Pendlebury 1963, 80, 92).
169. **Tzamachi 10**, Vrokastro Area: EMI-EMIII (Hayden 2004, 64, Table 2.1, 3.1).
170. **Vasiliki**, Hierapetra Isthmus: EMII-EMIII (Seager 1907, 111-129; Ζωής 1976, 25-120).
171. **Vasilikou Ridge**, Lasithi Plain: EMI (Watrous 1982, 52).
172. **Virani Episkopi (site 2.3 km E)**, North Coast, Ida: EMI-EMIII (Hood et alii 1964, 59).
173. **Voithodos**, Ziros Area: EMI (Faure 1965, 30).
174. **Vrionisi 1**, Vrokastro Area: EMI-EMIII (Hayden et alii 1992, 349; Hayden 2003, 383; Hayden 2004, 37, 63, Tabel 2.1, 3.1).
175. **Vrionisi 2**, Vrokastro Area: EMI-EMIII (Hayden et alii 1992, 349; Hayden 2003, 383; Hayden 2004, 38, 63, Tabel 2.1, 3.1).
176. **Vrokastro 1**, Vrokastro Area: EMI (Hayden et alii 1992, 348; Hayden 2004, 66, Table 2.1, 3.1).
177. **Vrokastro 7**, Vrokastro Area: EMII-EMIII (Hayden et alii 1992, 348; Hayden 2004, 66, Table 3.1).
178. **W11B**, Ayiofarango Valley, South of Mesara: EMI-EMIII (Blackman, Branigan 1977, 61).
179. **W7**, Ayiofarango Valley, South of Mesara: EMII-EMIII (Blackman, Branigan 1977, 58).
180. **Zakros**, East Coast: EMI (Branigan 1988, 36).

Remarks

Some sites were identified through intensive survey in different regions of Crete and only a preliminary report has been published about them, without a detailed description of sites and material found in their area. Further publications will help create a better profile of EM settlement distribution patterns.

The Gournia Survey produced evidence for 155 sites. The earliest proof of habitation of this area is of Final Neolithic/EM I date. The sites expand during the EM I period and thrive in EM II, showing remarkable trade contacts. In the EM IIB and EM III periods, the number of sites is reduced, especially in the later period, and a retreat to more defensible, higher ground is noticed.⁴⁴

The Ayios Vasilios Valley Survey in western Crete identified 15 EM sites. Preliminary analysis of pottery suggests that all represent an earlier EM stage (Final Neolithic/EM I) rather than a later one; until now only one EM II sherd has been identified. The lack of plentiful EM II or later EM evidence would suggest a concentration of activity on the coast, and as a result, later EM scatters would be rare to find in a valley bordered on all sides by relatively high hills and mountains.⁴⁵

The Sphakia Survey,⁴⁶ conducted in western Crete, discovered many new EM sites and confirmed the existence of those already identified. It showed that mostly the area between Anopolis and Aradena was settled, although three Final Neolithic/EM I sites were also identified in the high-lying Madhares plateau.⁴⁷

Final publication of these surveys would enable the selection of EM settlements and activity areas based on their chronological distribution within this broad phase and permit us to test or adjust the established conclusions based on the available present data.

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⁴⁴ 96thMAIA 1995, 313.

⁴⁵ Moody et alii 2000, 365.

⁴⁶ Nixon et alii 1988; Nixon et alii 1989; Nixon et alii 1990; Nixon et alii 2000.

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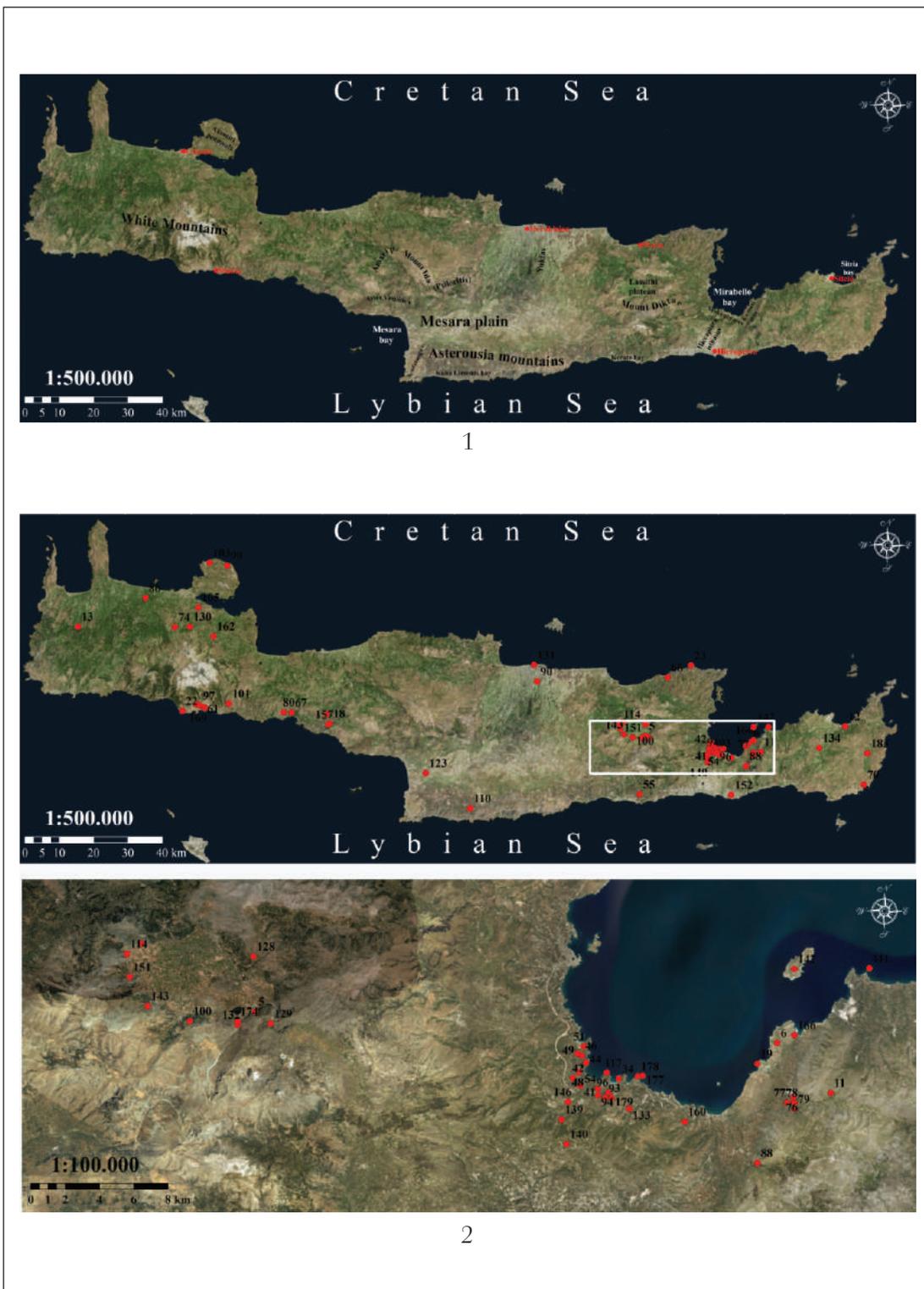
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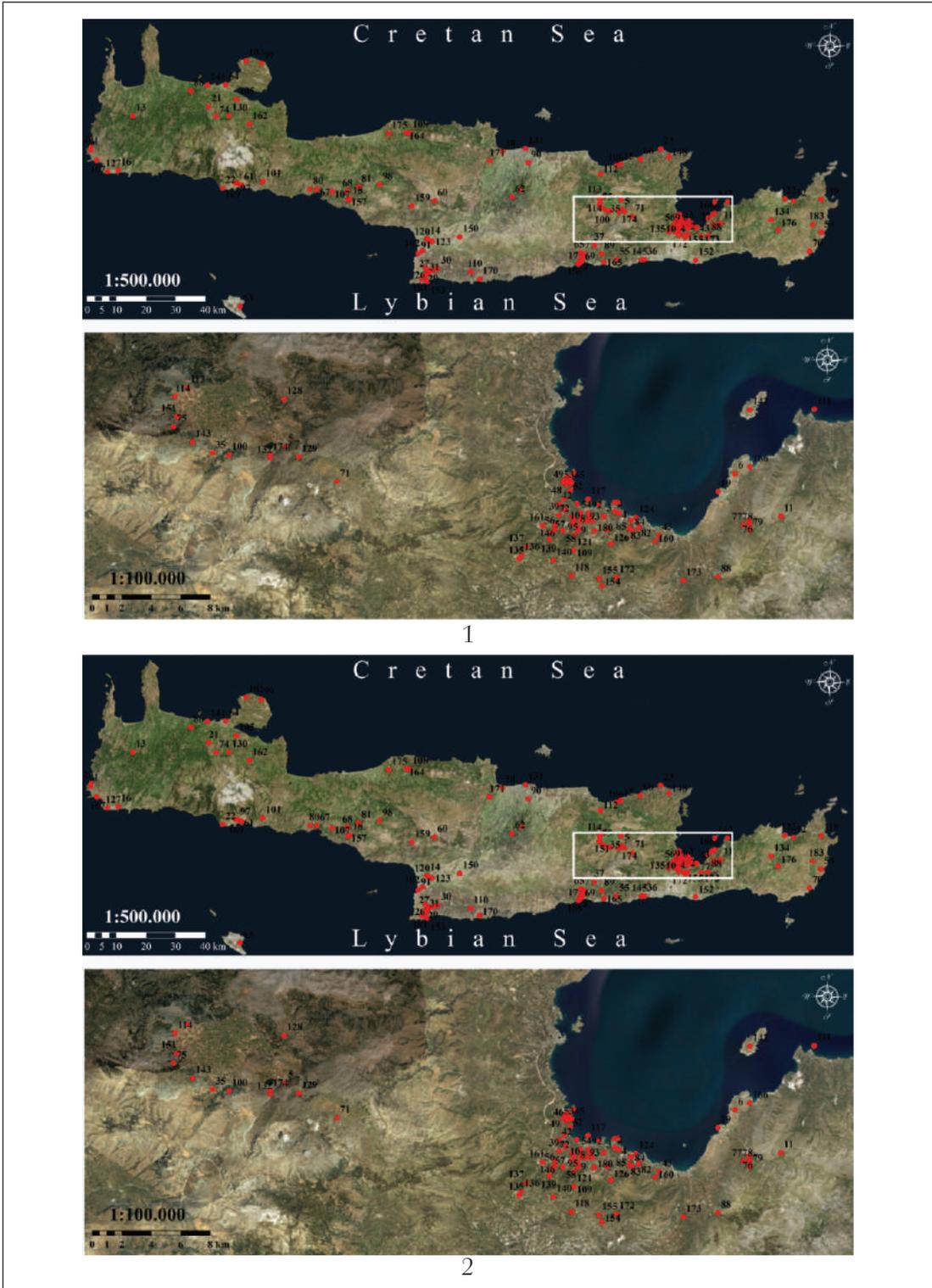
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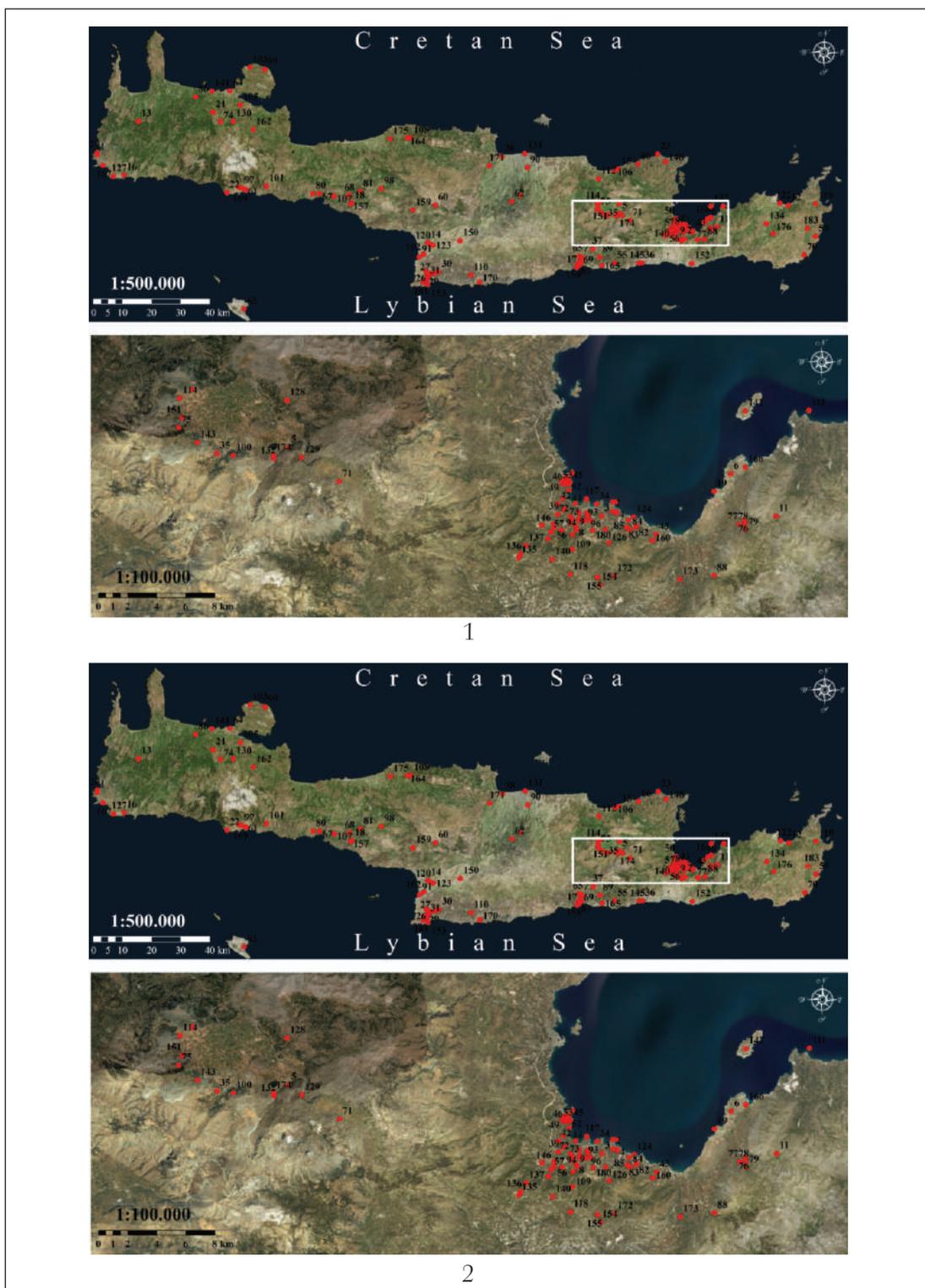
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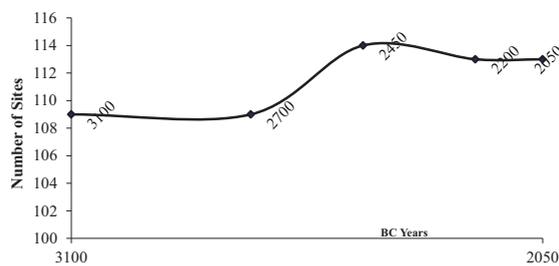
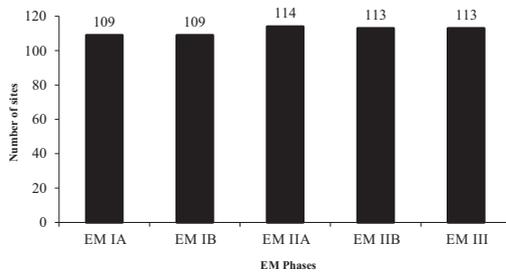
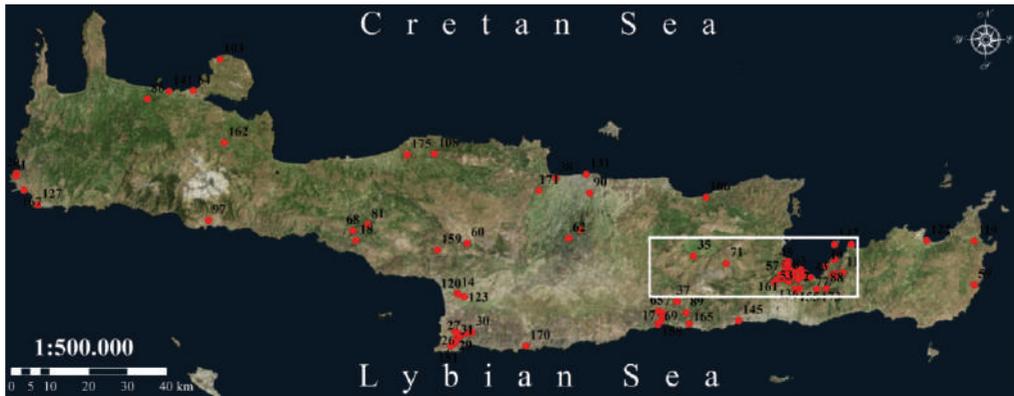
Pl. I. 1. Topography of Crete; 2. Final Neolithic settlements of Crete.



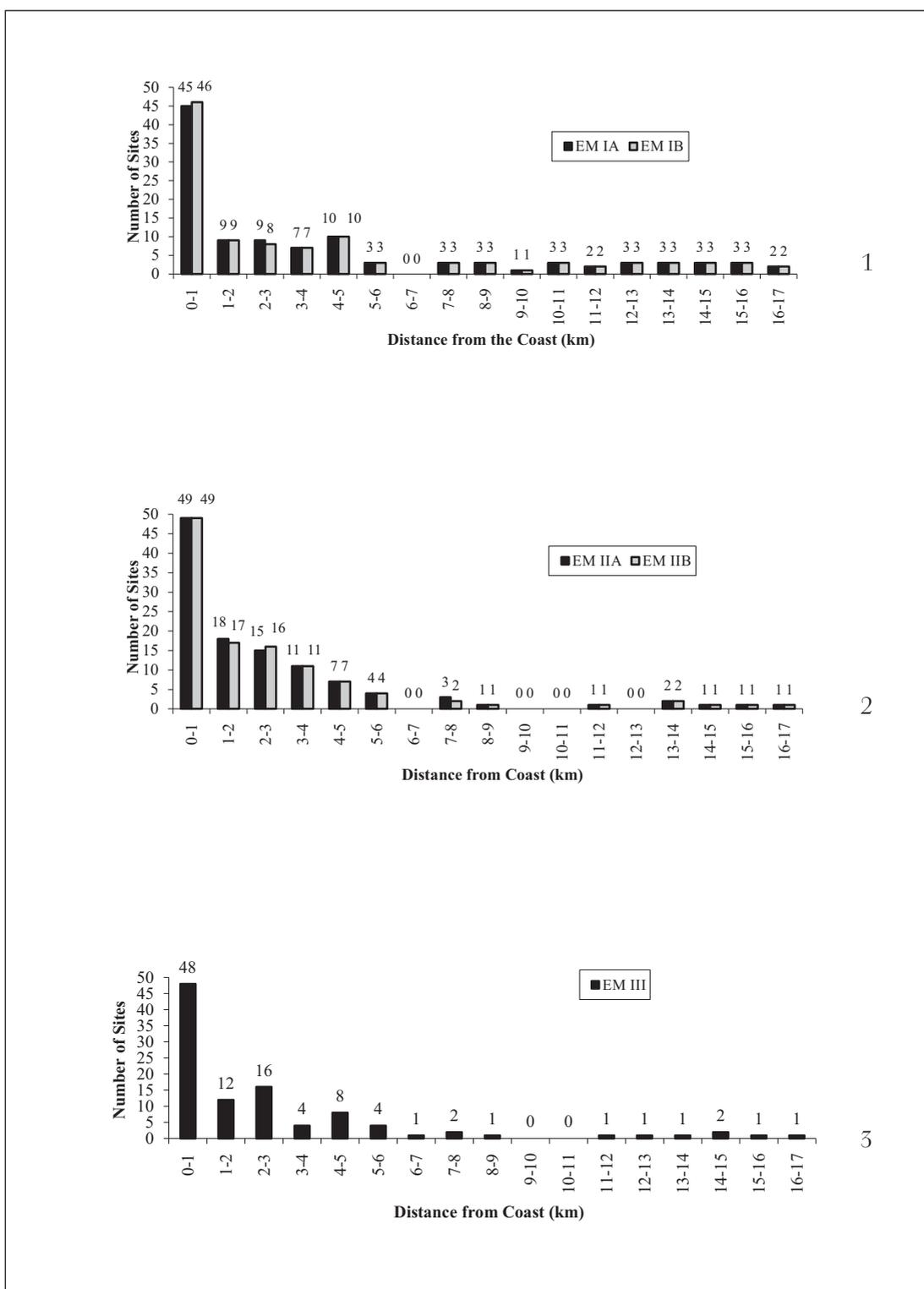
Pl. II. 1. EM IA settlements; 2. EM IB settlements.



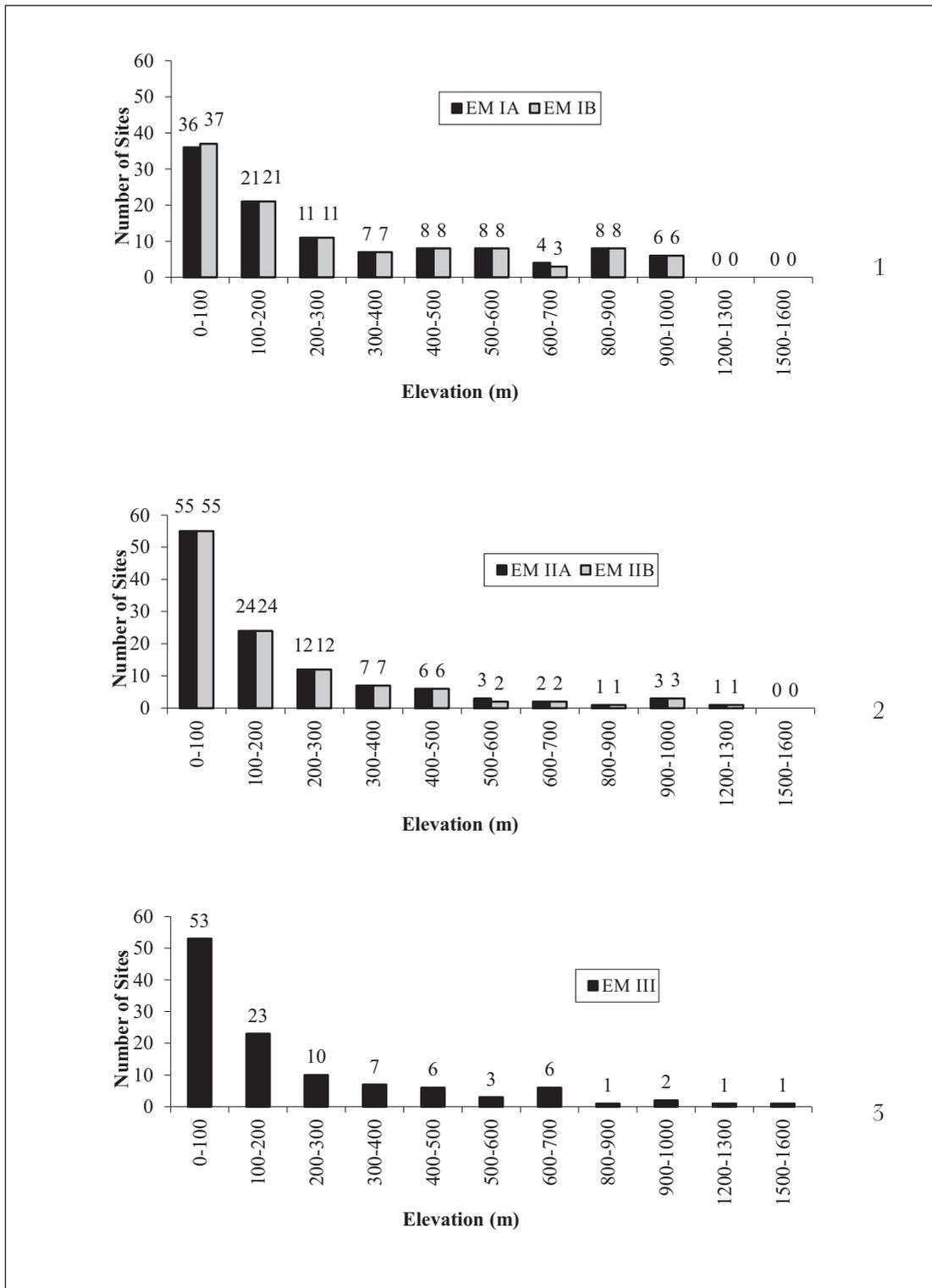
Pl. III. 1. EM IIA settlements; 2. EM IIB settlements.



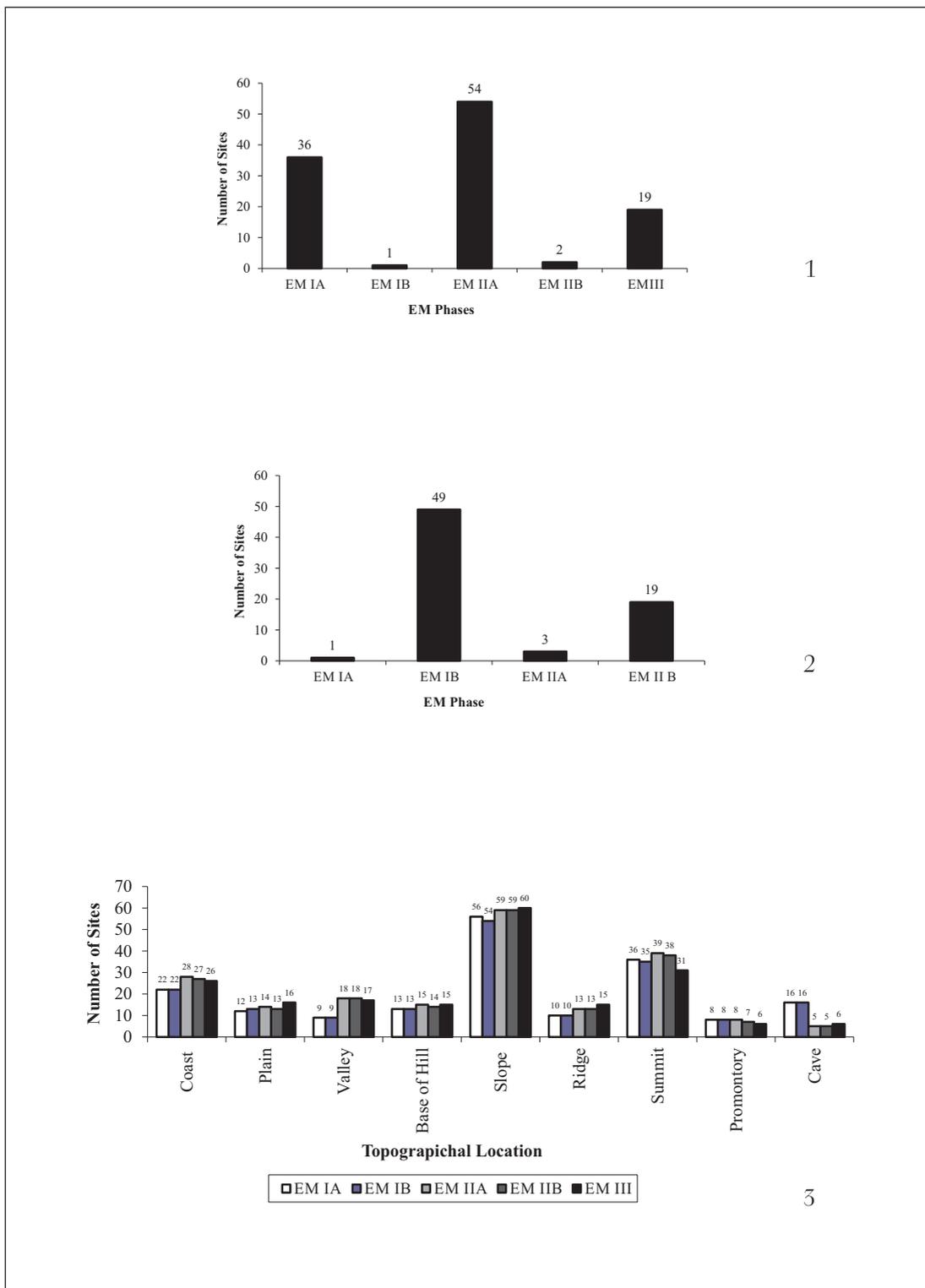
Pl. IV. 1. EM III settlements; 2. Number of sites in the phases of the EM period; 3. The number of EM sites in relation to BC years.



Pl. V. 1. EM I site distribution based on distance from the coast; 2. EM II site distribution based on distance from the coast; 3. EM III site distribution based on distance from the coast.



Pl. VI. 1. EM I site distribution based on elevation above sea level; 2. EM II site distribution based on elevation above sea level; 3. EM III site distribution based on elevation above sea level.



Pl. VII. 1. Emergence of EM sites; 2. Abandonment of EM sites (at the end of each phase); 3. Topographical location of EM sites.