Villas and farmsteads in the Pontine region between 300 BC and 300 AD: a landscape archaeological approach

Peter Attema and Tymon de Haas

Abstract

In this paper the authors present survey results of the Pontine Region Project (PRP), a long term research program of the Groningen Institute of Archaeology (GIA) in the Pontine region in central Italy. The survey data are integrated with topographical and environmental data from the various *land systems* that have been defined by project members in the study area. Specific attention is paid to case studies from the Lepine margins, the coastal zone between Nettuno and Circeo, and the Astura valley, areas that the authors refer to as examples of "traditional" land systems where Romanization led to a modification of well-established Archaic exploitation of the land, expressed in the installation of Roman colonies and the rise of various villa types.[1] In contrast to this, the creation of a Roman centuriation pattern in the *graben* area in the central part of the Pontine plain, well-known as the area of the former Pontine marshes, may represent a true act of colonization in a previously marginally exploited area. The analysis therefore suggests that Romanization in these areas was characterized by different rhythms and modes of change that are strongly related to either "traditional" or "colonized" land systems. Further systematic surveys will have to show whether this model can be extended to the whole of the Pontine region.

Introduction

The Groningen Institute of Archaeology (GIA) has been involved in the archaeology of the Pontine region since the late 1970s with the excavations at Satricum, and in the mid 1980s the Pontine Region Project (PRP) was started in order to study the landscape archaeology of the region. In this paper we present some of the results of the PRP with special attention for the Romanization of the area.[2] We describe settlement developments in the Pontine region in the light of Romanization, and illustrate how sub–regional variations in development can be related to differences in environmental conditions and local settlement and land use histories. We will begin with a short description of the study area and the available data sources, followed by a comment on the chosen approach, which is based on a division of the Pontine region into *land systems*. We then report on three case studies. In the first, developments in the foothill land system of the Lepine mountains will be looked at. The second case study concentrates on the Astura valley and the coastal land system between Nettuno and Circeo, while the third deals with the lower *graben* land system in the central part of the Pontine region, the area of the former Pontine marshes. Following an evaluation of the results, a brief comparison is made between developments in the Pontine region and those in other areas around the *Urbs*.[3]

Geographical and historical setting

The Pontine region is located in central Italy, about 60 km south of Rome, and extends along the Tyrrhenian coast from present-day Anzio to Terracina. It can be divided into three geophysical units (*Fig. 1*): to the northwest, the volcanic complex of the Alban Hills radiate out from the Volcano Laziale; the central part consists of the low-lying

[1] The authors are aware of the controversial nature of the term Romanization. Several scholars have in fact proposed to abandon the term at all, but we feel it is still a useful term to study the process "(...) of socio-cultural change that results from the confrontation of (proto)historical peoples with Roman power and an often dominant Roman culture." (Slofstra 2002, 17). We must note here that studying such trends for the early phases of Roman expansion is especially hard (however, see Attema & Van Leusen 2004a).

[2] We would like to thank our colleague Martijn van Leusen for his comments on the text. He and the second author prepared the illustrations. For an introduction to the aims of the Pontine Region Project and earlier work in the Pontine Region, see Attema 1993.

[3] We will limit ourselves to a comparison with the papers presented during the conference by Paolo Carafa on the *Suburbium* (Carandini *et al*. this volume), Helga Di Giuseppe on the Tiber valley (Di Giuseppe this volume), Zaccaria Mari on the *Ager Sabinu*s and *Tiburtinus* and Massimiliano Valenti on the *Ager Tusculanus* (both this volume).

Roman villas around the Urbs*. Interaction with landscape and environment. Proceedings of a conference held at the Swedish Institute in Rome, September 17–18, 2004.* Eds. B. Santillo Frizell & A. Klynne (The Swedish Institute in Rome. Projects and Seminars, 2), Rome 2005. www.svenska-institutet-rom.org/villa/

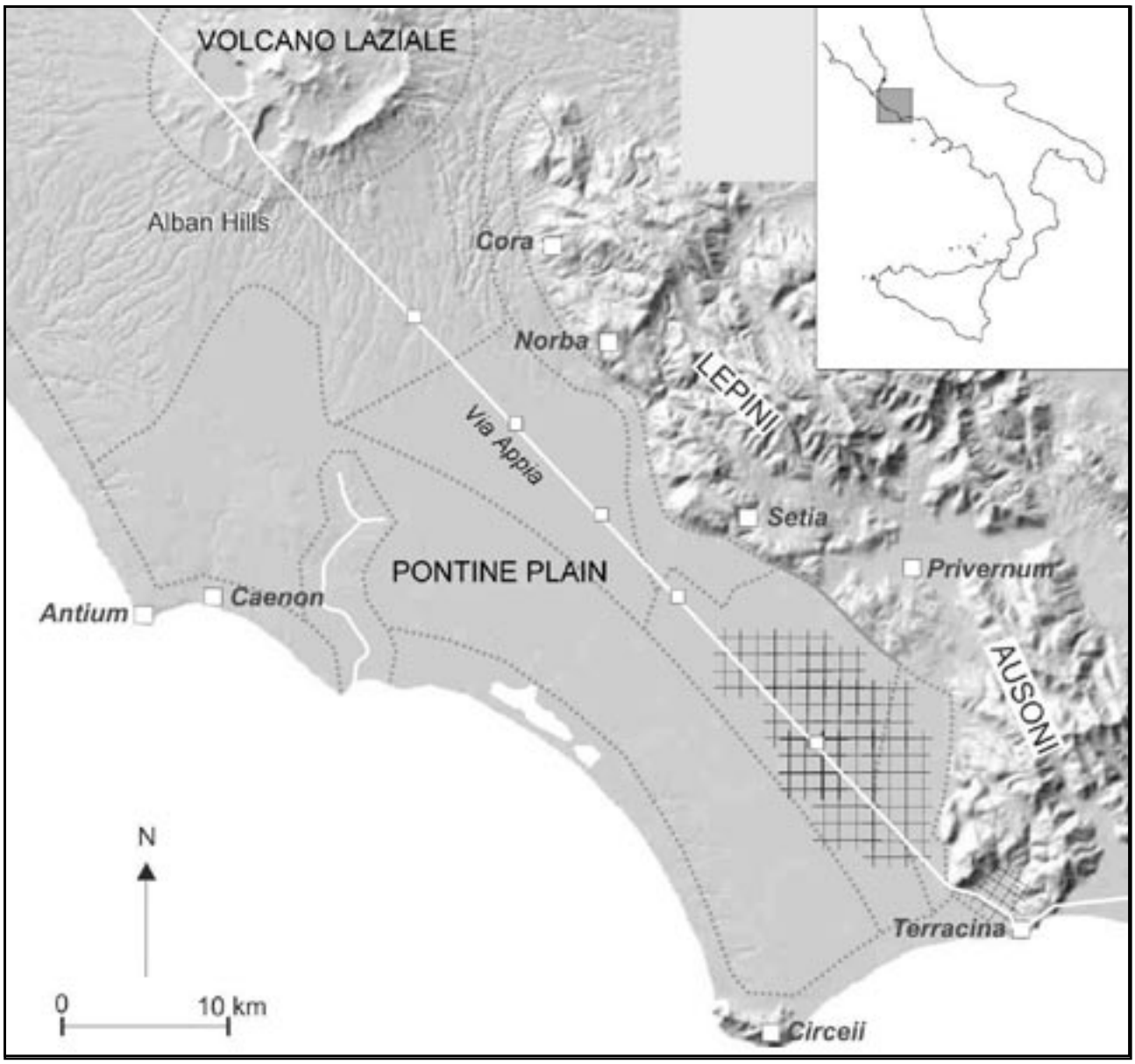

Fig. 1. The Pontine region with the three main geophysical units, Roman colonies and infrastructure.

and formerly marshy Pontine plain; this plain is bordered to the north and east by the mountain ranges of the Monti Lepini and Monti Ausoni.

The Pontine region was inhabited from the mid-Palaeolithic onwards, and protohistoric settlement was related to the natural transit routes that led along the footslopes of the Lepine mountains and Ausoni, along the coast on the fossil beach ridges and through the major river valleys.

The Via Appia connected the area of the Alban Hills directly to the colony of Terracina, which meant a major break with the protohistorical infrastructure of the region. Its construction at the end of the 4th century BC followed the installation of Roman colonies at Cora, Norba and Setia on the margins of the Lepine mountains, and Terracina and Circeii in the south-eastern part of the Pontine region.

These colonies possibly already played a strategic role in the struggles between the Latin tribes and the raiding Volscans from the early 5th century BC onwards. From the mid 4th century BC the colonies developed into proper urban centres with their own rural territories dotted with farmsteads and villas. The construction of the Via Appia triggered both agricultural and commercial developments in the central part of the Pontine plain. In general it is believed that settlement flourished in the Pontine region during all of the Republican and the early Imperial period, after which a decline in site numbers appears to indicate a strong contraction of the rural landscape. This view is, however, far too simplistic and does not take into account intraregional variations that arise from an analysis of the currently available archaeological data.

Data sources

For our studies on the Roman landscapes of the Pontine region, we have three main sources of information

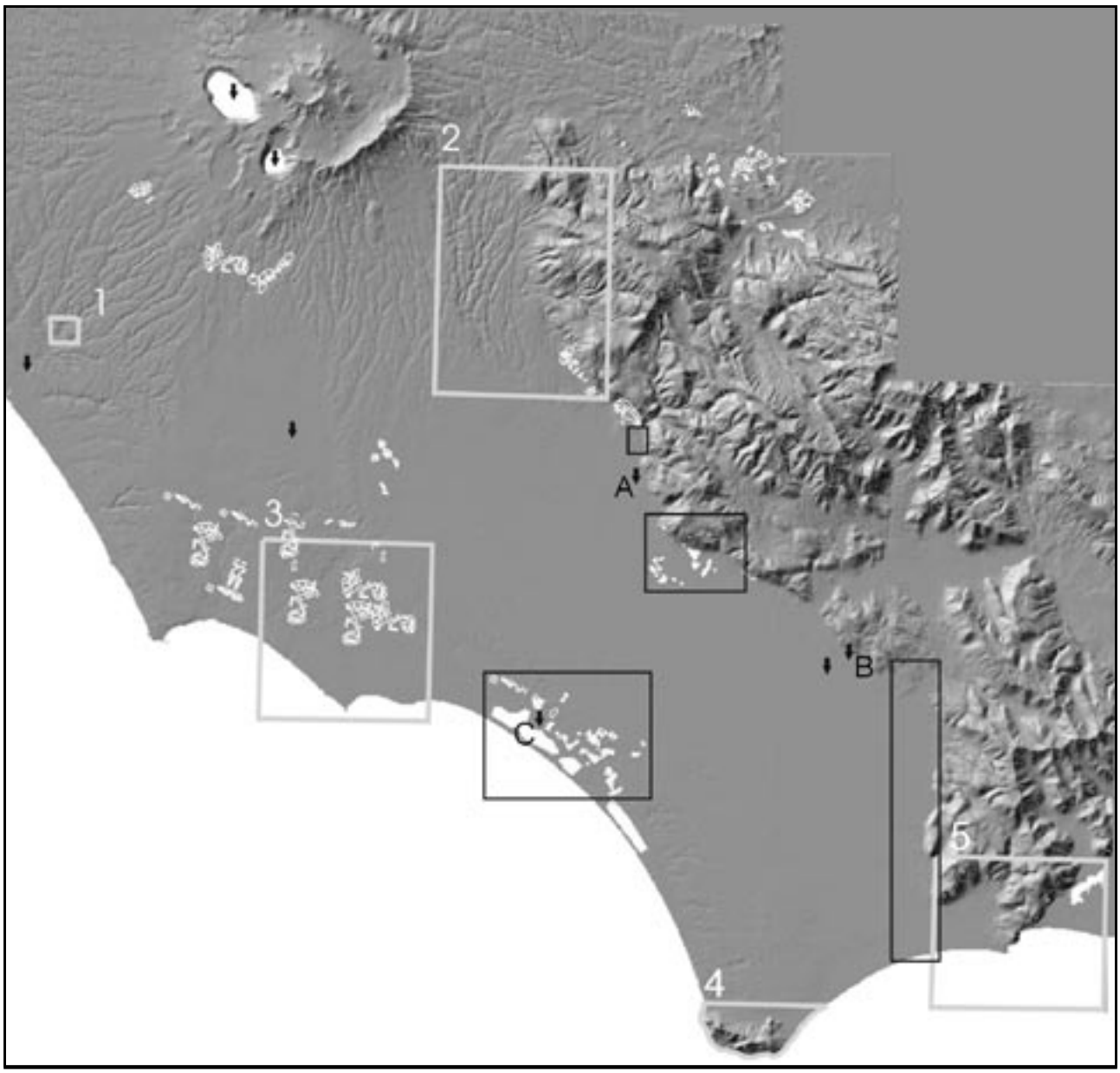

Fig. 2. Overview of the data sources available for the Pontine region: *Forma Italiae* study areas (grey frames): 1) Ardea, 2) Cora, 3) Astura, 4) Circeii, 5) Anxur/Tarracina); PRP surveyed fields (small white frames); PRP environmental survey areas (black frames); pollen cores (black arrows: A) Monticchio core, B) Laghi di Vescovo core, C) Fogliano core).

(*Fig. 2*). Topographic inventories that were carried out before the advent of modern field survey form the first of these sources. Such studies have mapped standing architecture, infrastructure and debris scatters at a time when agricultural mechanization and urbanization were far less developed than they are now. Fine examples are those by Marie-René De La Blanchère and Thomas Ashby in the early 20th century and, in the 1920s, the first *Forma Italiae* volumes by Giuseppe Lugli on Terracina and Circeii.[4] Studies from the 1960s and 1970s include Paola Brandizzi Vittucci's work on Cora and its surroundings, and Fabio Piccarreta's study of the lower Astura basin.[5] More recent work was done by Margherita Cancellieri in the southern part of the Pontine region and by Lorenzo Quilici and Stefania Quilici Gigli at and near Norba.[6]

Valuable though these sources are for our knowledge of the Roman rural landscape, they do not furnish the chronological resolution that is needed to describe in detail its origins, continuity, change and decline. For example, in the *Forma Italiae*, sites are mainly dated by the building techniques used; this implies that earlier habitation phases which used less durable building materials

[4] De La Blanchère 1984; Scott & Turchetti 1994; Lugli 1926, 1928.

[5] Brandizzi Vittucci 1968; Piccarreta 1977.

[6] Cancellieri 1985, 1986, 1987, 1990; Quilici & Quilici Gigli 1987, 2001.

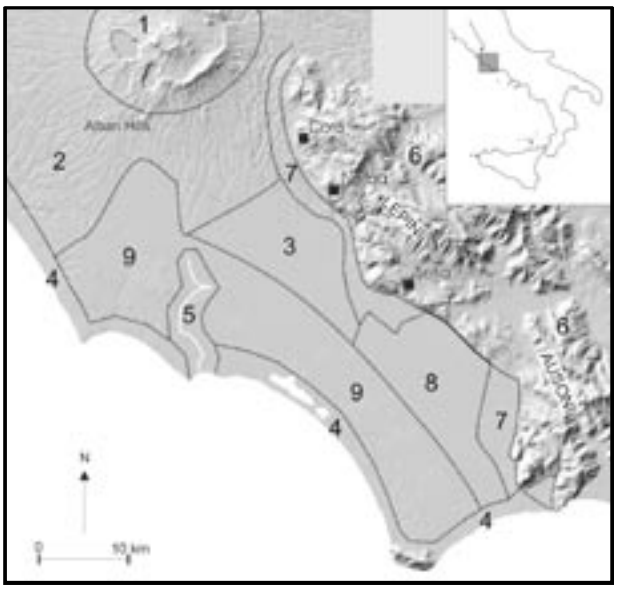

Fig. 3. The land systems of the Pontine region: 1) the Volcano Laziale; 2) the Alban hills; 3) the upper graben; 4) the coastal zone; 5) the Astura valley; 6) the Monti Lepini and Monti Ausoni; 7) the foothills; 8) the lower graben; 9) the marine terraces.

remain unrecorded. Although some pottery scatters were mapped in these publications, no systematic sampling of these scatters was done and only very generic dates were assigned according to the knowledge of the moment. This means that in spite of the high quality of these topographic inventories, they lack the time-depth needed for a diachronic reconstruction of the Roman rural landscape.

Our second source of data, the intensive field walking surveys of the PRP, partially makes up for these shortcomings. The pottery samples collected on the Roman sites identified by the PRP have revealed that many of these originate in the Archaic and post-Archaic periods or even earlier, and that many continue into the 3rd century AD.[7] Our programme of revisits to those *Forma Italiae* sites that are still accessible, corroborates this trend: pottery collected on these sites shows the same date range, from the Orientalizing and Archaic period to mid Imperial times. A similar picture also emerges from the ceramic data collected in the Agro Pontino Survey, carried out by the University of Amsterdam in the 1980s.[8]

Our third source of information is composed of environmental surveys, which include soil and sedimentation studies, pollen cores and historical cartography.[9] Such studies contribute to the reconstruction of the environment in which the Roman rural landscape of the Pontine region developed. With the environmental data, land evaluations are performed in order to establish the productive potential of the landscape in antiquity. This is necessary, because large parts of the region have undergone considerable changes in the past due to erosion and sedimentation, vegetational changes, changes in hydrography, and finally the wholesale reclamation of the area in the early 20th century.[10]

The land systems approach

The detailed land evaluation study carried out for the Pontine region by Van Joolen has shown that the Pontine environment is a complex mosaic of larger and smaller *land units* with sometimes subtle physical differences that affected their productive potential.[11] An analysis on this level would, however, be too detailed for the present study; we have therefore chosen to discuss the Pontine region at the level of *land systems* (*Fig. 3*). A land system may be defined as an area or group of areas with a recurring pattern of landforms, soils and vegetation.[12] The land systems that we will discuss in our three case studies are the Lepine margins, basically the lower slopes of the calcareous Lepine mountains (*Fig. 3, 7*); the Astura river valley and adjacent alluvial and marine terraces (*Fig. 3, 5*); the coastal margins characterized by fossil beach ridges with sandy-marine sediments (*Fig. 3, 4*); and the lower part of the graben, a poorly drained depression filled with clayey and peaty sediments (*Fig. 3, 8*).[13] At the beginning of each case study we will outline the main characteristics of the relevant land system(s) and summarize any relevant information on its landscape development as well as its (potential) land use in antiquity. This we will do to establish the relationship between Roman settlement and land use histories on the one hand, and environmental and socio-economic factors that are specific to each land system on the other.

Case study 1: the land system of the Lepine margins

The first case study comprises the transition from the Pontine plain to the Monti Lepini and Monti Ausoni, which we have defined as the land system of the foothills (*Fig. 3, 7*). We will focus on an archaeologically well-studied part of this land system, centred on the slopes below the Roman colony of Norba, an area we in this paper refer to as the Lepine margins (*Figs. 4 & 5*).

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[7] In our research, we use the following periodization: Iron Age (1000–700 BC); Orientalizing (700–600 BC); Archaic (600–500 BC); Post–Archaic (500–350 BC); Republican (350–30 BC); Early Imperial (30 BC–100 AD); Mid Imperial (100 AD–300 AD). See also Attema 1993.

[8] Voorrips *et al*. 1991; Holstrom *et al*. 2004.

[9] Van Joolen 2003; Attema *et al*. 1999; Attema & Delvigne 2000.

[10] For the changes in the landscape brought about by the fascist land reclamations, see Koeppen 1941.

[11] Van Joolen 2003. For the present paper, we have extended and modified her land system classification. Van Joolen uses a three–step scale to indicate land suitability (not suitable – marginally suitable – suitable).

[12] See Van Joolen 2003, 25 and, for a more elaborate definition: 165.

[13] See Sevink *et al*. 1984.

Fig. 5. The landscape of the Lepine margins.

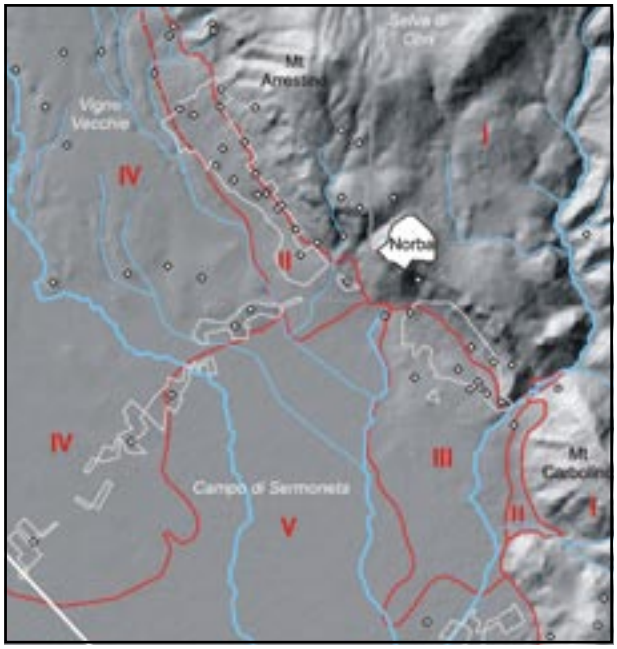

Fig. 4. The Lepine margins with various research areas (grey frames) and sites (dots). Red lines indicate the five main morphogenetic units: I) Lepine mountains, II) footslopes, III) alluvial cone, IV) tuff hills, V) Pontine basin).

Morphogenetically, the land system consists of five major units: to the northeast, the Lepine mountains with its bare limestone slopes and more fertile alluvial valley fills (*Fig. 4, I*); the colluvial Lepine footslopes, formed by slope processes on the Lepine mountains (*Fig. 4, II*); the alluvial cone of the Vado La Mola stream, also built up of eroded material from the Lepine mountains (*Fig. 4, III*); the volcanic northwest-southeast oriented tuff hills to the west (*Fig. 4, IV*); and, finally, to the southeast, part of the alluvial Pontine plain (*Fig. 4, V*).

Soil thickness on the slopes varies considerably: from 5 cm on the higher slopes to more than 150 cm on the colluvial footslopes. The fertile Lepine river valleys and the small alluvial fans are classified by Van Joolen as suitable for subsistence farming in the Bronze Age as well as in the Iron Age, while most other landforms have problems with moisture and/or nutrient availability. Subsistence farming is the most likely type of land use practised in this area, as elsewhere in the naturally drained parts of the Pontine region before Romanization.

Of the five land units, the alluvial fans and valley fills are classified as marginally suitable for the growing of cereals. The slopes of the Lepine mountains are thought marginally suitable for olive cultivation in combination with cereal cultivation (known in Roman agricultural practice as *cultura promiscua*) and suitable for specialized olive cultivation. Present-day land use, consisting of olive cultivation on the footslopes and grazing on the higher parts of the slopes and uplands, may in fact reflect land use in the Roman period.[14] The introduction of olive cultivation in combination with an increasingly open landscape has indeed been attested for this period in one of the PRP's pollen studies at Monticchio near Norba (*Fig. 2, A*).[15] The Laghi di Vescovo pollen core, taken in the Pontine basin to the southwest, indicates that sweet

[14] Van Joolen 2003, 91–92.

[15] We refer here to the Monticchio pollen core near Sermoneta: see Haagsma 1993, 252–253.

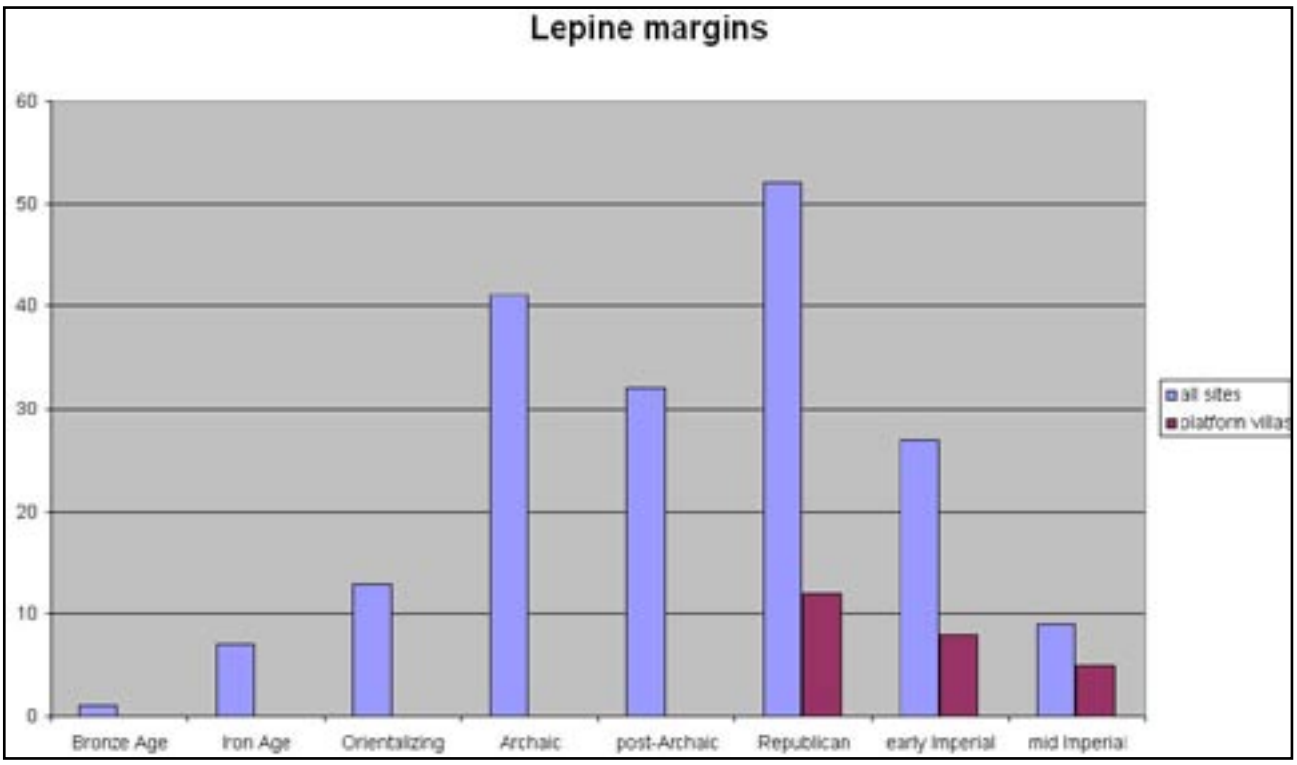

Fig. 6. Settlement development in the Lepine margins.

chestnut and olive were grown on the slopes from the Roman period onwards (*Fig. 2, B*).[16] As in the Monticchio pollen core, there is no evidence for vine cultivation, but we must note that this is hard to trace in pollen diagrams. The Pontine basin to the southeast is classified as marginally suitable for both cereals and a polyculture of cereals and olives, as well as for subsistence farming. Although we have no land evaluation data for the volcanic tuff hills to the west, these have very fertile soils and, in spite of possible problems with drainage, will have been suitable for all types of land use. Nowadays the volcanic soils are much valued for the cultivation of grapes. We may conclude, then, that the land system of the Lepine margins was especially suitable for subsistence farming, and that specialization on olive culture was possible and indeed occurred in Roman times, possibly in combination with cereals. Parts of the land system were marginally suitable for the cultivation of grapes, but this, as stated, cannot be traced in the pollen record.

We now turn to the archaeological studies available for this area (*Fig. 4*). At the start of the 20th century, archaeologists' attention was focussed on Roman Norba and the protohistoric site of Caracupa Valvisciolo on the slopes of Monte Carbolino, where excavations were carried out by Savignoni and Mengarelli.[17] After a period of relative neglect, topographic research by Italian scholars revived from the 1950s and 60s, continuing up to the present day.[18] Our own work in the foothills, preceded by limited surveys by the Agro Pontino Survey project, started in 1987 with both transect surveys and intensive site surveys.[19] Since then, additional intensive surveys have taken place in 1995, 1998, 1999 and 2002.[20] Environmental studies focussing on sedimentation processes were conducted as part of this work.[21]

Combining data from our own surveys and from other studies, we can trace occupation of the foothills to the Bronze Age and possibly even the Neolithic.[22] In the Orientalizing and Archaic periods, the site of Caracupa Valvisciolo on the slopes of Monte Carbolino developed into a proper proto-urban centre.[23] Whereas in previous studies, the Lepine margins seemed almost void of rural settlement in the Archaic and post-Archaic periods, our recent surveys have revealed many small Archaic sites that probably represent subsistence farms.[24] When Caracupa Valvisciolo disappears at the end of the Archaic period, this pattern of small farmsteads expands over most of the foothills in the post-Archaic period, matching the exploitation potential deduced from the land evaluation.

[16] Van Joolen 2003, 153–177.
[17] Savignoni & Mengarelli 1901, 1903; Mengarelli & Paribeni 1909.
[18] Schmiedt & Castagnoli 1957; Brandizzi Vittucci 1968; Quilici & Quilici Gigli 1987, 2001; Quilici Gigli 1989.
[19] For the Agro Pontino Survey project, see Voorrips *et al*. 1991 and Holstrom *et al*. 2004; for the results of the PRP up to 1991, see Attema 1993.
[20] Van Leusen 1998; Attema & Van Leusen 2004b; Van Leusen *et al*. forthcoming.
[21] Attema *et al*. 1999; Attema & Delvigne 2000.
[22] Saggi 1977: 21 & 65.
[23] For the site, see Savignoni & Mengarelli 1903; Mengarelli & Paribeni 1909; Quilici & Quilici Gigli 1987; Angle & Gianni 1990; Attema 1993.
[24] For the periodization, see note 7 above.

Fig. 7. The landscape of the Astura valley.

Fig. 8. The landscape of the coastal land system.

In the mid 4th century BC, the colony of Norba developed its urban layout.[25] In the Republican period, the number of rural sites in the area peaks (*Fig. 6*).[26] Some farms of the previous periods are replaced by a new rural site type, the so-called platform villa. These are wooden farm buildings built on earth-filled terraces contained by walls of heavy polygonal masonry. That we deal with domestic rural structures is clear from the presence of fine wares besides kitchen, storage and transport pottery. Of the farm buildings, the heavy terrace retaining walls and tile scatters tend to be preserved, and in some cases elements of more elaborate architecture (mosaic tesserae, painted wall plaster) occur. Diagnostic pottery retrieved from the terrace fill of one of these sites indicates that this particular platform was built in the course of the 3rd century BC. Parallel to the decline of Norba as an urban centre after the civil wars in the 1st century BC, the number of rural sites decreases from early Imperial times. The presence of 3rd century AD red slip wares, however, indicates that occupation at a fair number of platform villas, and some of the other farms, continued into the mid-Imperial period.

Considering the site density in the area, the platform villas were probably modest estates and part of a rural system that also comprised simpler farmsteads. The land evaluation for the Roman period suggests that these estates, besides growing cereals, may have specialized in olive cultivation.[27] Occasional finds of press beds corroborate the pollen evidence in this respect.

The evidence for changes in site types and agricultural specialization, together with the striking continuity between the Roman rural sites and their Archaic and post-Archaic predecessors, allow us to conclude that we deal with a dual development of locational continuity on the one hand and socio-economic change on the other. While rural exploitation of the Lepine margins remained intensive, by the 3rd century BC Romanization had brought investments in the building of platforms, specialization in oleoculture, possibly an increase in the size of land holdings, and a modest use of slave labour.[28]

We may relate these socio-economic changes to the rise of the Roman colonies on the edge of the Lepine mountains: Norba, Cora and Setia provided a regional market for the produce from the platform villas and other rural sites. The towns themselves acted as the political and administrative centres for their rural territories which, besides the Lepine margins, also included the uplands. Since there are no indications for the rise of *latifundiae* in the late Republican or Imperial period, we conclude that rural exploitation continued to be characterized by medium-size villas and small-size farmsteads.

Case study 2: the Astura valley and coastal land systems

For our second case study we move to the lower Astura basin, where we have concentrated survey work in the last two years. We distinguish two land systems in this area: on the one hand, there is the well-drained undulating landscape of the Astura valley of marine/alluvial origin with at times fertile soils (*Fig. 3, 5; Fig. 7*); on the other hand, the beach ridge area, which extends along the coast to the northwest and southeast (*Fig. 3, 4*). These elongated ridges are here and there covered by aeolian sands and separated by relatively narrow valleys filled with both lagoonal and fluvial sediments (*Fig. 8*). The present-day relief in both areas does not, however, fully reflect the relief of the ancient landscape, in that certain valleys have been widened and other areas have been levelled since 1927.[29]

[25] Quilici Gigli 1998; Quilici & Quilici Gigli 2001.

[26] We are aware of the problems of unequal length of the periods (for example, the post–Archaic period is 150 years, while the Republican period spans 320 years). However, considering the fact that by far the most ceramic material on sites can be dated to the Republican period, we feel that the high number of Republican sites indeed represents a peak in occupation.

[27] Van Joolen 2003, 244.

[28] See also: De Spagnolis 1982; Cassieri & Lutazzi 1985; Vallat 1987; Torelli 1990; Arthur 1991.

[29] After Van Joolen 2003, 68; for a quantification of historic relief change in the Fogliano area since 1927, see Feiken & Van Leusen 2001. During surveys of the PRP in the Astura valley in 2003, the same phenomenon was recorded, but not quantified.

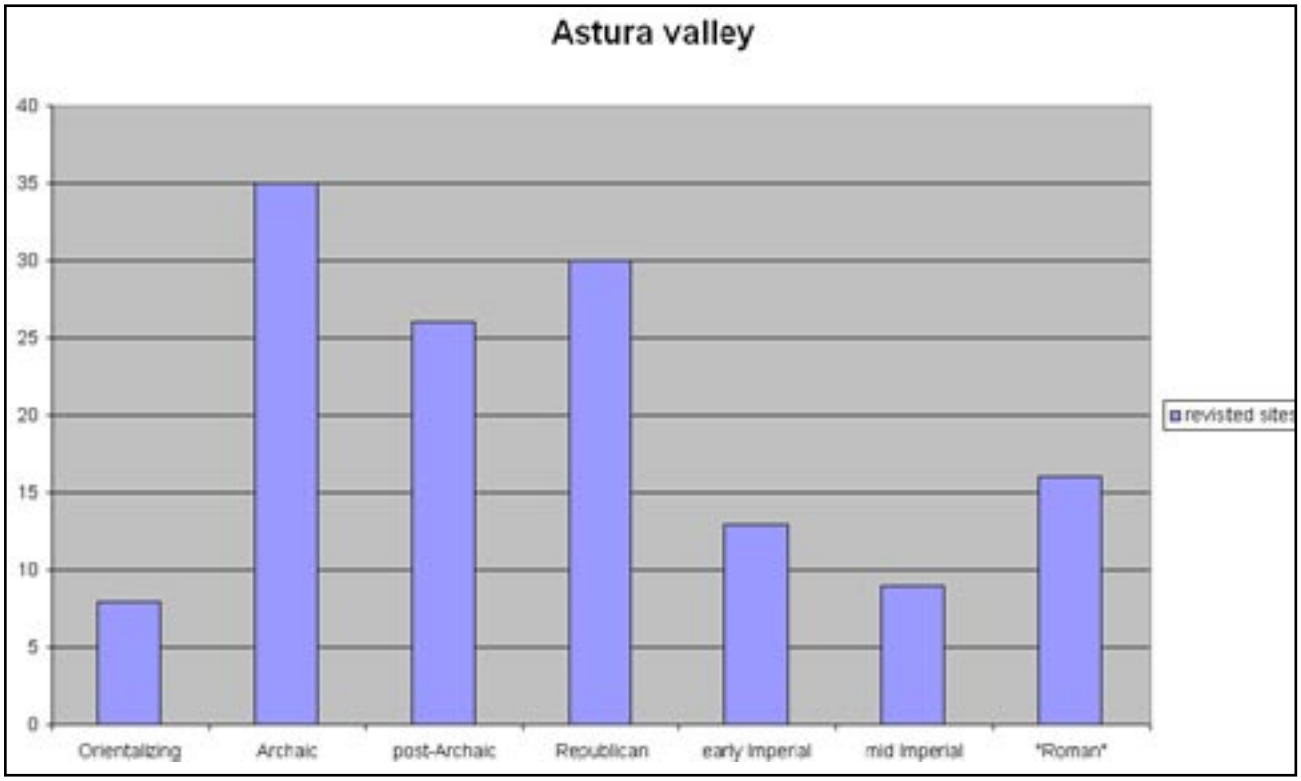

Fig. 10. Settlement development in the Astura valley.

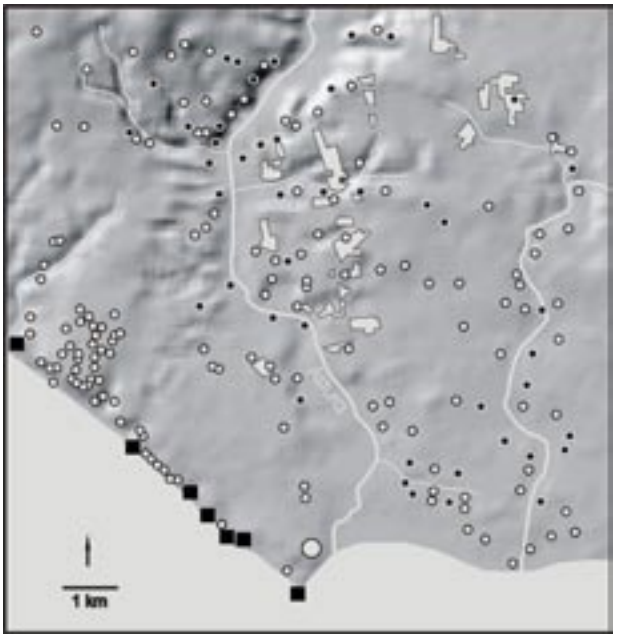

Fig. 9. The Astura valley with rural sites located by Piccarreta (small white dots), rural sites revisited by the PRP (black dots), coastal villas (black squares) and the larger settlement of Astura (large white dot). Fields surveyed by the PRP are indicated as white areas.

The Astura valley was not part of the land evaluation performed by Van Joolen, and therefore we cannot yet present a classification of land use suitability. We may remark here that the area is nowadays used for a variety of crops including olives and grapes. Suitability for subsistence farming in the protohistorical period in this land system probably will not have differed significantly from that of the coastal land system, where areas suitable for subsistence farming (beach ridges) alternate with areas that are classified as unsuitable (lagoons/dunes). In the Astura valley area lagoons do not occur, although there were plenty of marshy areas (*stagni*). As far as Roman farming is concerned, the clayey/sandy areas behind the present-day dunes in the coastal land system were classified as marginally suitable for the cultivation of wheat, and for specialized olive cultivation and polycultures of wheat with either olives or grapes.[30] Remarkably, the beach ridges are the only part of the landscape that is deemed suitable for specialized olive cultivation without reserve. A large part of the Astura valley area is composed of such beach ridges.

For the coastal land system, additional evidence is available from a pollen core taken in sediments of the Fogliano lagoon (*Fig. 2, C*). The pollen zone covering the Roman period shows an intensification of farming activities in an increasingly dry environment, as aquatics significantly decrease throughout the pollen zone. The surrounding alder-willow forest is replaced by an open landscape of mirte, grasses, heath and sedges. Regionally, the common oak/hornbeam/hazel forest regenerates and the variety of trees diminishes. According to Van Joolen deforestation and preparation of the land for olive cultivation may have caused this phenomenon. The percentage of olive pollen does indeed increase towards the upper level of the pollen zone. The lithology of the core indicates an increasingly dynamic environment in terms of

[30] Van Joolen 2003, 142–146 and tables 4–6 in appendix C–II.

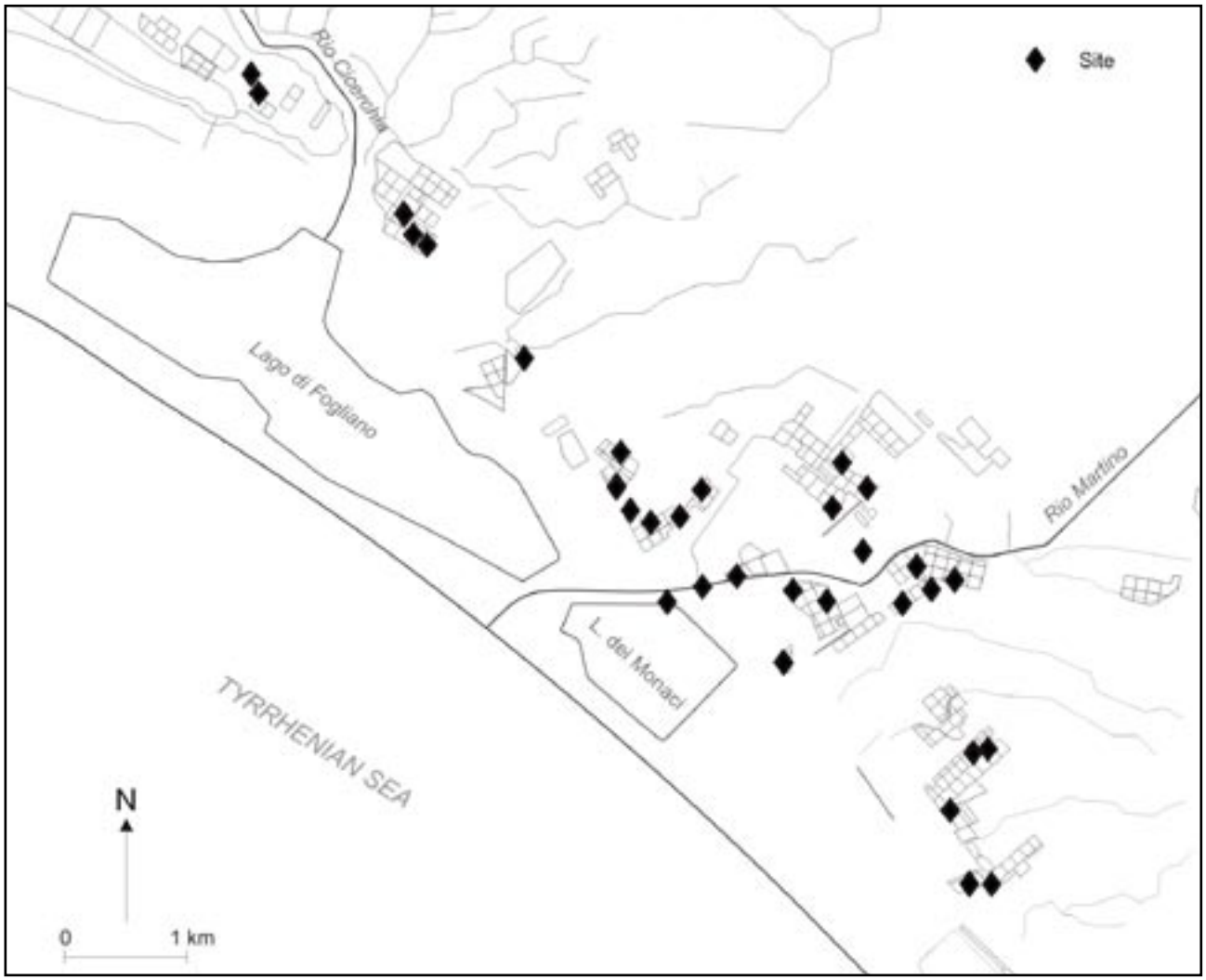

Fig. 11. The Fogliano survey area. Black frames indicate surveyed blocks; black diamonds indicate sites.

sediment supply. The tendencies noted in the pollen zone described here may therefore tentatively be connected with increasingly intensive land use in the lagoonal area from the Archaic period onwards.[31]

Turning to the settlement patterns, the Astura valley is one of the major river valleys in the Pontine region and has attracted settlement from the early protohistorical period onwards. It connected the densely settled area of the Alban Hills with the coastal zone, where we have evidence for specialized exploitation of coastal resources especially in the stretch of coast between present-day Nettuno and Torre Astura but extending as far as Ostia in the northwest and Terracina in the southeast.[32] In the late 1970s Fabio Piccarreta mapped a dense pattern of Roman sites in his *Forma Italiae* volume on the Astura valley (*Fig. 9*).[33] From the late 1990s, the PRP focussed its attention on the coastal zone with surveys in the Fogliano area, excavations and mapping projects on the coast near Nettuno, and surveys in the Astura valley.[34] In the course of these surveys we have revisited 46 sites that were still accessible out of the approximately 200 sites mapped by Piccarreta in order to retrieve more precise dating evidence. Many of these sites only yielded very small pottery samples, because of adverse visibility conditions. Nonetheless, most of the Roman sites proved to have a post-Archaic and/or Archaic predecessor and some of the sites yielded red slip wares that suggest that they functioned well into the 3rd century AD (*Fig. 10*).

These developments in rural settlement are very similar to those observed in the Lepine margins. Some of the Republican sites in the Astura valley can probably be classified as modest *villae rusticae* of a size comparable to that of the Lepine platform villas; others may well have been simple farmsteads.

In the northernmost part of the coastal zone, *villae marittimae* established in the late Republican period form an important part of the settlement system (*Fig. 9*). Although these large and luxurious villas were elite seaside residences, they probably also had a productive function: they were often equipped with large basins meant to raise fish. At the villa of *Le Grottacce*, investigated by us, amphorae (probably used for olive oil transport) were produced, and another villa further north probably exploited

[31] Van Joolen 2003, 153–177.
[32] Alessandri 2000/2001; Attema *et al*. 2003.
[33] Piccarreta 1977.
[34] Attema *et al*. 2002; Attema *et al*. 2003.

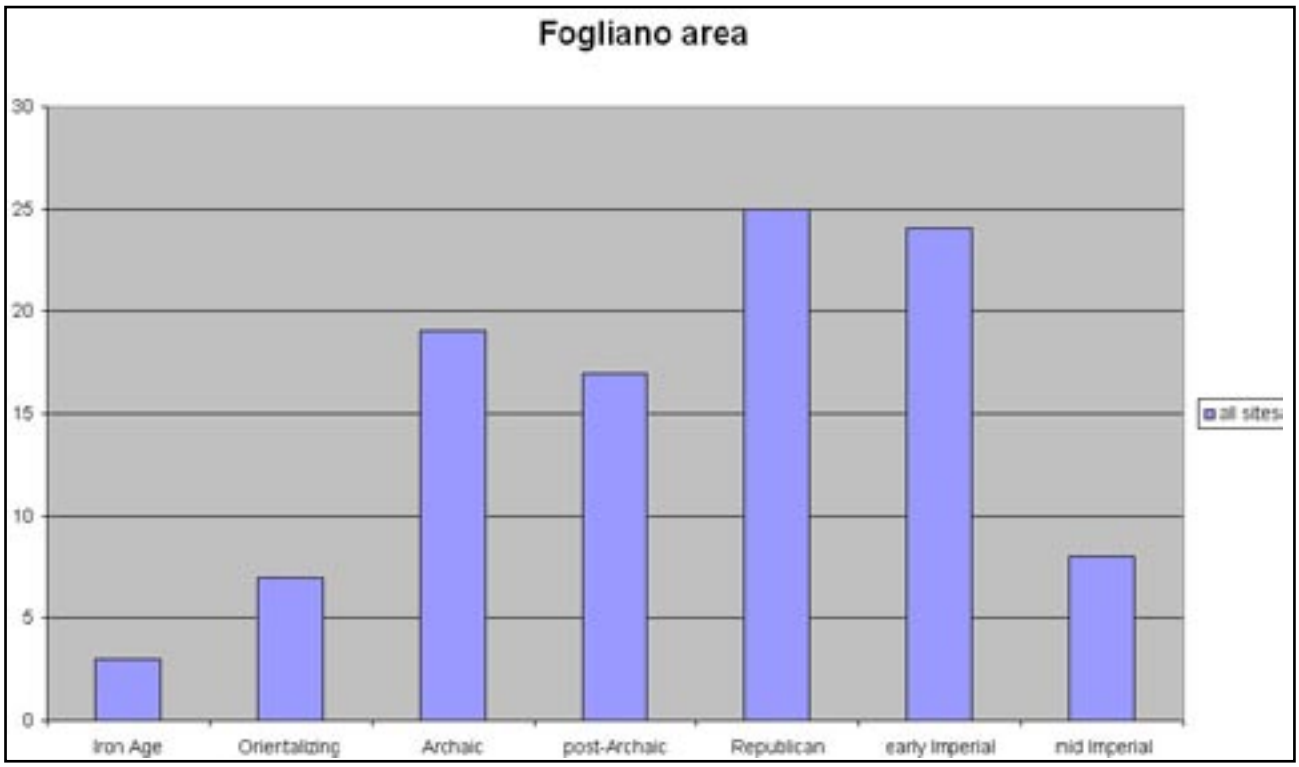

Fig. 12. Settlement development in the Fogliano area.

sulphur deposits.[35] In our opinion, the production of containers for agricultural produce points to an economic relation or interdependence between the coastal residences and the rural sites in the coastal zone and the Astura valley.

Moving along the coast to the south to the southernmost part of the coastal land system with its lagoons and beach ridges, the nature of rural infill as indicated by the 1998 survey on the ancient beach ridges near lake Fogliano changes (*Fig. 11*). Here protohistorical infill of the landscape was limited and Romanization began slightly later (*Fig. 12*).[36] Moreover, the Fogliano area has not yielded evidence for large coastal villas, which suggests a less intensive coastal exploitation in Roman times.[37]

The overall site pattern in this area ties in remarkably well with the land evaluation, which indicates that the inland parts of the Astura valley and the coastal land system were both especially suitable for subsistence farming, and that specialized olive production may also have taken place. The coastal and lagoonal area had additional resources: hunting, fishing, salt extraction, fish breeding and pottery production formed important opportunities in the local economy. From the dense site pattern, it appears that the Astura valley and the adjacent coastal zone were a flourishing, intensively exploited and well developed area where Romanization, as in the Lepine margins, came in the form of modest estates that show a strong degree of continuity from the Archaic and post-Archaic. As in the Lepine margins, we do not have evidence for the establishment of large estates in the Imperial period, with the exception of the large *villae marittimae* in the northern part of the coastal land system. The relationship between these large coastal villas and the rural farmsteads and villas in the hinterland needs further investigation.

In our view, the density of Roman rural sites is related to the presence or absence of Roman colonies. Whereas in the Lepine margins the Roman colonies of Cora, Norba and Setia functioned as market places for rural produce, the Roman colony of Antium and its port Caenon will have functioned as market and transhipment places for the rural products from the farms in the Astura valley and for the fish from the villas on the adjacent coast.[38] The supposed fall-off in site density and the observed lack of *villae marittimae* moving away from Antium and Caenon in the direction of the Fogliano area seem, from a geographical point of view, only logical.[39]

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[35] Higginbotham 1997; Attema *et al*. 2003; Quilici & Quilici Gigli 1984.

[36] Attema *et al*. 2002; this picture conforms to the trends that are visible in the Fogliano pollen core.

[37] One larger site is known in this area on the northern edge of the *Lago dei Monaci*. This site is, however, not located directly on the coast and has been interpreted as the road station of *Ad Turres Albas*, Egidi 1980 (but see, however, Brundizzi Vittucci 1998 and Attema & de Haas forthcoming).

[38] For a description of the archaeological data on Antium and Caenon, see Brandizzi Vittucci 2000.

[39] The PRP is now concentrating on mapping the rural territory of ancient Caenon as part of the project "*Carta Archeologica per il Comune di Nettuno*". The results of the survey campaign in 2004 show a sharp increase in site density near this Roman port settlement.

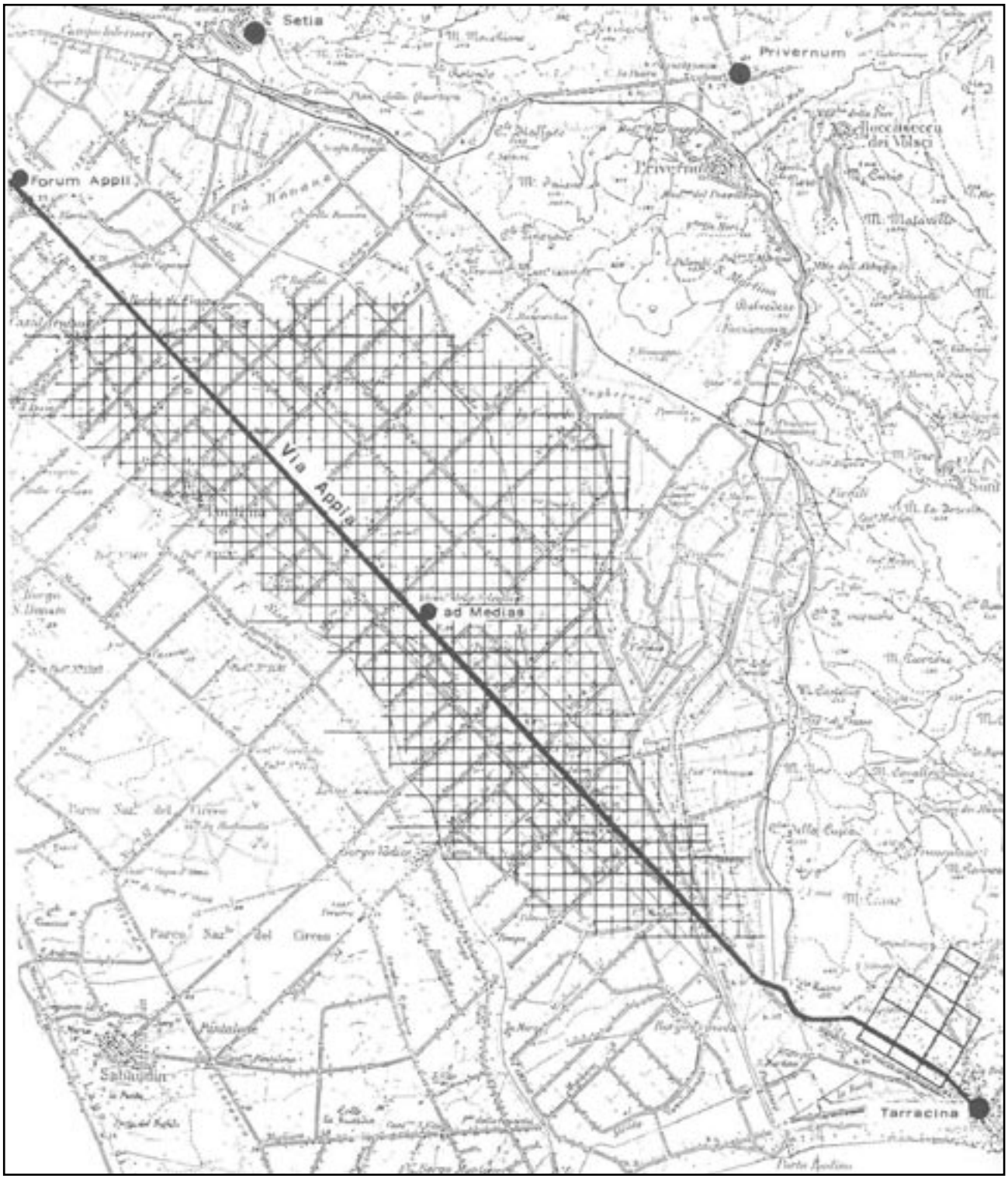

Fig. 13. The reconstructed land division systems in the lower graben and the valley of Terracina (after Cancellieri 1990, fig. 1).

Case study 3: the lower graben[40]

Our third case study comprises the central part of the Pontine plain, the lower part of the so-called *graben*, a former lagoon that in the course of time became filled up with clayey sediments (*Fig. 3, 8*). Its low elevation (about 1 m above sea level) obstructs drainage to the sea and it has long been known as the *palude pontine*, the notorious Pontine marshes. In van Joolen's suitability classification the *graben* area is unsuitable for all kinds of agriculture both in the protohistorical periods and in the Archaic and Roman periods because of its wet conditions. This is largely based on data from a pollen core taken in the *Laghi di Vescovo* in the northern part of the *graben* (*Fig. 2, B*).

[40] In Van Joolen's study, this area was part of the Latina land system, which also includes the Amaseno river valley and the Sezze alluvial sheet.

However, this presumed unsuitability of the area for any kind of farming stands in strong contrast with the archaeological patterns that have been detected in the landscape. Based on aerial photographs and topographic maps, Margherita Cancellieri reconstructed a substantial land division scheme in the central part of the *graben* (*Fig. 13*).[41]

The orientation of this system implies a date before the construction of the Via Appia, probably at the end of the 4th century BC.[42] The area indicated by Cancellieri measures about 23,000 hectares and, assuming an allotted plot size from 2 to 15 *iugera*, could have furnished agricultural plots for 46,000 to 6,000 Roman colonists. The system suggests intensive cultivation from the 4th century BC onwards, and as the area is quite distant from any of the Roman colonies, is likely to have been worked by farmers who lived on their plots in what were probably modest farmsteads. Lack of intensive surveys make Cancellieri's claim, however, hard to substantiate as yet.[43] The implementation of a land division and subsequent intensive farming would have made a tight control of the hydrology in the area necessary.[44] If it is proven to exist, the land division suggests a colonization *ex novo* of the *graben* area, which almost certainly was marginally settled in the protohistorical period.[45] As such it would have been readily available for reclamation by the Romans.

The early Republican land division system in the *graben* does not, however, stand on its own: in the adjacent valley of Terracina, which is part of the foothill land system, another centuriation pattern is known (*Figs. 13 & 14*).[46] Although opinions differ on its dating and evolution, its orientation implies that the construction of the Via Appia forms a *terminus post quem* for the centuriation grid.[47] Assuming that Terracina was already a flowering Volscan centre in the 6th and 5th centuries BC, we suggest that this centuriation system, unlike the one in the plain, was preceded by older rural occupation. We have, however, no archaeological data to support this assumption. Sites have been reported within the centuriated area by Giuseppe Lugli in the 1920s, but these are all large villas with architectural remains that, according to Lugli, date to the 2nd and 1st centuries BC.[48] If we assume incoming colonists at the end of the 4th century BC, a number of sites far larger than that reported by Lugli is to be expected. It is possible that the first colonists dwelt in the town of Terracina, and that the Roman villas appeared only at a later stage as the first rural habitation sites. It is also possible that the small allotted plots did contain small farms, now represented by tile and pottery scatters, but that these were overlooked by Lugli. These small sites may in the course of time, as in the Lepine margins, have (partly) been amalgamated into larger estates. Intensive survey might solve this question: revisits to known villa sites aimed at diagnostic pottery sampling in combination with field surveys aimed at finding small pottery scatters may show that the developments in the centuriated valley of Terracina resemble those in other parts of the Lepini and Ausoni foothills. The fact that the area was centuriated could then be interpreted as an act of appropriation of hostile Volscan territory.

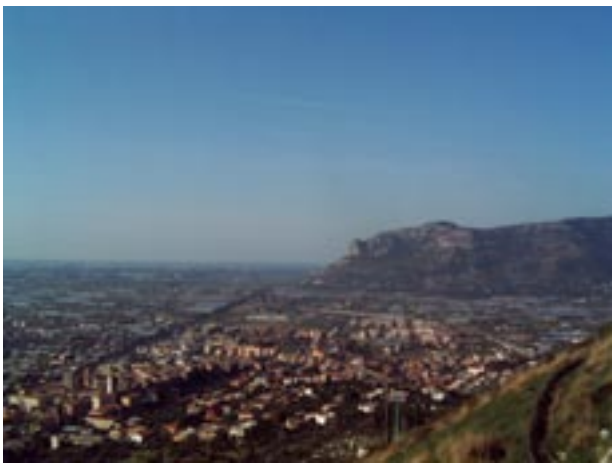

Fig. 14. The landscape of the valley of Terracina.

Comparing land systems and land use histories

In the three case studies presented in this paper we have demonstrated how various land systems within the Pontine region were subject to different modes and moments of Romanization. Some land systems, such as the Lepine margins, the Astura valley and the coastal strip, are characterized by long term histories of settlement and land use with rural infill starting in the protohistorical period. Other parts of the landscape, notably the *graben* in which the former Pontine marshes were located, may only have been settled and exploited for arable farming temporarily. Whereas the former may therefore be called "traditional" land systems in which the Archaic rural landscape was Romanized, the graben was apparently colonized *ex novo* in the late 4th century BC. This different development can be related to the more limited possibilities offered by its specific environment: the *graben* area functioned as a rural landscape on the middle long term only, depending on political decisions and technological know-how in the field of hydrology.

[41] Cancellieri 1985, 1990.
[42] Cancellieri 1990, 66–67.
[43] Within the framework of the PRP, intensive surveys are planned for the period 2005–2009.
[44] See also Cancellieri 1986.
[45] This is suggested by the available data from the Agro Pontino Survey; see Koot 1991.
[46] Longo 1985; Cancellieri 1990. Other centuriation patterns have been proposed for areas near Sezze and Norba, but the archaeological evidence for these patterns lacks; see Chouquer & Favory 1987, 98–102.
[47] The development of the centuriation grid is discussed by Chouquer & Favory 1987, 105–109; they discern a limited land division system of small 2 *iugera* plots dating to 329 BC and propose a much later date for the centuriation system; see also Cancellieri 1990, 70–71.
[48] Lugli 1926; a considerable part of the sites are platform villas (nrs. II.4, II.8, II.12, II.13, II.26, II.34, II.43, II.44).

We have also demonstrated how the chronology and intensity of settlement and land use varied within certain land systems. Survey results obtained in the coastal area near the Astura valley show that here Romanization took place earlier and more intensively than in the Fogliano area to the southeast. This difference is probably strongly related to the presence or absence of Roman colonies. A similar "fall-off pattern" is to be expected in the Ausoni margins, where Roman colonies are sparser than in the Lepine mountains. A more detailed analysis of Roman modes of exploitation of the Ausoni margins and the *graben*, their relation to (the valley of) Terracina, and the role of the Via Appia and the Amaseno river in these developments is especially needed.

Discussion: comparing the Pontine region with the *Suburbium*, the Tiber valley and the Alban Hills

In comparison with the other areas discussed in the conference, the Pontine region is in a more peripheral position with respect to the *Urbs*. It lies between 60 (the Astura valley) and 120 km (Terracina) from Rome and consists of rather rugged limestone mountains and a marshy plain. Considering this marginal position and character, it does not qualify as the natural hinterland of Rome. This offers an interesting possibility to compare its development in the Roman period with that of the landscapes located closer to Rome, as presented in papers on the Roman landscape of the northern and southern *Suburbium* of Rome, on the *Ager Sabinus* and *Tiburtinus* and on the *Ager Tusculanus*. From a methodological point of view, the Tiber Valley Project offers an especially interesting comparison with our project.

A first comparison regards the evolution of Roman landscapes. Both the areas discussed in the above–mentioned papers and the Pontine region show a conspicuously strong measure of continuity in rural occupation with previous periods.[49] Results from both the *Suburbium* survey and the Tiber Valley survey make clear that the evolution of the Roman rural landscape in Central Italy is firmly rooted in the late Iron Age agricultural colonization of the landscape, and that the rise of the villa as a site type has its roots in the Archaic farmstead. Judging from the developments in the Pontine region, this was therefore not unique to the landscapes of South Etruria and the *Suburbium*.

There are, however, also important differences which indicate that the Pontine region was in some respects indeed more marginal than areas closer to Rome. On the one hand, the villa of the Auditorium may indicate that the development of the villa landscape started earlier around Rome.[50] On the other hand, although the *ager Tuscolanus*, *ager Tiburtinus* and *ager Sabinus* show site densities comparable to those of our "traditional" land systems, the development of proper villa types seems more marked.[51] The platform villa is a case in point: whilst simple platform villas developed both near Rome and in the Pontine region, their development into more elaborate residential villas is limited to the zones near Rome. The majority of the platform villas we investigated in the Lepine margins did not show signs of later expansion. In fact, large residential villas are very rare in the rural landscape of the Pontine region: clusters of such large villas are known only in limited zones near Roman colonies.[52] In this respect, the Alban Hills seem to form the border between the 'core area' around Rome and the more marginal Pontine region.

The differences and similarities noted above are, however, hard to substantiate without a sound methodology of comparison. If we want to compare between different research projects on a more detailed level, we will have to account for differences in methodology. The following problems, in our view, need special attention in order to improve the possibilities for interregional comparisons. As is clear from the experiences gained within the Tiber Valley Project, the *Suburbium* "experiment" and our own project, issues of continuity/discontinuity can only be dealt with by detailed ceramic studies, while problems of relatively poorly known phases have to be accounted for. The post-Archaic period (500 – 350 BC) is a case in point here. Di Giuseppe in her paper refers to this period as one with an impoverished material culture, and in survey data from the Pontine region too this period is difficult to identify and interpret.

Furthermore, in order to compare site types and settlement patterns, more attention should be focussed on issues of site definition and site classification. This means that the methods by which the landscape was investigated

[49] We refer here to the paper presented by Paolo Carafa, Andrea Carandini and M.C. Capanna "Origin and Development of Roman landscape: the suburbium "experiment" (this volume) and the one presented by Helga di Giuseppe "Villae e villulae nella media valle del Tevere" (this volume), but see also Di Giuseppe *et al*. 2002. Similar observations have been made elsewhere, see for example Terrenato 1998.

[50] The fact that we have not found such sites in our surveys may, however, also be due to survey methods and problems of recognizability. We have recently noted that Archaic sites sometimes form clusters; the interpretation of these clusters is not yet clear.

[51] We refer here to the papers by Zaccaria Mari "La villa romana tardo-repubblicana nell'ager Sabinus e Tiburtinus: tra fonti letterarie e documentazione archeologica" (this volume) and by Massimiliano Valenti "Ager Tuscolanus: il paesaggio, il sistema insediativo residenziale e le produzioni agricole in età romana". Valenti notes that in the *ager Tuscolanus* in the late Republican period, large villas are on average located 1 km from each other a density comparable to the density of simpler platform villas in the Pontine region.

[52] Large coastal villas are known in the zone between Antium and Astura (Piccarreta 1977) and near Circeii (Lugli 1926). Other large villas are found near Terracina (Lugli 1928) and Sezze (Zaccheo & Pasquali 1972).

and sites were recorded need to be made explicit.[53] For example, both the Tiber Valley and Pontine Region projects – and we could mention more – have shown that a highly intensive survey with a 20% coverage of the landscape will record more and smaller sites than a topographical survey that typically maps architectural remains and large pottery scatters only. Some of the questions that arise are:

1) How do we compare site patterns if the lowest category in the site classification in one project is a pottery scatter of a mere 80 m^2 with plain pottery only, and the lowest category in another has an area of 1000 m^2 with all kinds of luxury indicators? The obvious answer would be to publish explicit site classifications in combination with detailed site catalogues.

2) How do we compare the evolution of the rural landscape if we do not dispose of trustworthy diachronic data? This, in our view, can only be achieved by preferably all-period (site) surveys and detailed pottery studies.

3) How do the landscapes themselves compare, what was the potential of each landscape unit for healthy living, production and easy communication? Physical geographical research and land evaluation may reveal the sometimes subtle differences that existed within apparently homogeneous areas.[54] Environmental research therefore should be an integral element in any study.

These, in our view, are issues that have to be dealt with in order to arrive at an integral picture of the differential evolution of the Roman villa landscape in central Italy in relation to the local landscape.[55]

This, of course, is not to say that any comparison would be futile at the moment. From the above discussion it has already become clear that the trajectory towards the Roman villa landscape may have been quite comparable in the Pontine region and in landscapes nearer to the *Urbs*. The distance of the Pontine region to Rome, however, was such that its evolution was less influenced by social and economic developments in and around Rome.[56] We may therefore assume that the socio-economic position of the Roman colonies in the Pontine region more strongly influenced the evolution and development of the Roman villa landscape than that of the *Urbs* itself, which may well account for the fact that the area preserved its rural character during all of the Roman period.

Peter Attema and Tymon de Haas
p.a.j.attema@rug.nl
t.c.a.de.Haas@rug.nl

[53] To date, the results obtained in the PRP are probably best compared with those obtained in the Tiber Valley Project as in both cases intensive field survey and (re–elaboration of) data from topographical surveys, such as were carried out in the *Forma Italiae* series, are being integrated; in both cases detailed pottery studies are performed.

[54] The case study on the area of Centocelle "Interpretazione dei dati archeologici nella ricostruzione storica e ambientale del paesaggio suburbano: l'area di Centocelle nel suburbio sudorientale" presented by Rita Volpe and Antonia Arnoldus-Huyzendveld showed the importance of such studies (this volume).

[55] In the final discussion of the Conference Elizabeth Fentress proposed the creation of a GIS database entailing all Roman landscapes around the *Urbs*.

[56] The Imperial villas at Antium (Brandizzi Vittucci 2000) and on the *Lago di Paola* (Lugli 1928), which we have not discussed in this paper, form exceptions to this model.

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