

PROTOHISTORIC TO ROMAN SETTLEMENT ON THE LEPINE MARGINS NEAR NINFA (SOUTH LAZIO, ITALY)

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ABSTRACT: The Groningen Institute of Archaeology has conducted field walking surveys in the northern part of the Pontine plain, on the southwestern margins of the Lepine mountains, since 1987. The results of these surveys have only partially been published in accessible journals, and in a number of different formats. Archaeological knowledge and methodology has advanced during that period, and therefore the older studies must be reassessed as well. This article draws together and reassesses all the site-based information that is available from literature and fieldwork, including that of Italian and Dutch studies dating before 1987. All sites are classified according to their observed characteristics, and presented in the catalogue. The classification system itself is explained, and the site patterns are presented and discussed in chronological detail with attention to the biases caused by the variations in land use/land cover and in the intensity of archaeological research across the landscape.

KEY WORDS: Italy, Pontine region, site patterns, site typology, landscape archaeology, systematic biases.

1. INTRODUCTION

The aim of this article is to draw together and interpret all available archaeological site evidence for an approximately 9 km long stretch of the footslopes of the Monti Lepini (south Lazio, Italy), between the towns of Cori and Sermoneta (fig. 1). It focuses on the Iron Age to Roman history of settlement and land use in this landscape unit, but includes an evaluation of the evidence available for other less well studied landscape units within the study area.¹ Finds pre-dating the Iron Age and post-dating the Roman period will be mentioned but not discussed.

Parts of the study area were investigated by researchers from the Groningen Institute of Archaeology (GIA), using systematic pedestrian survey, in 1987–1988, 1995, 1998–1999 and 2002, but the preliminary results have not been easily accessible until now and no attempt has yet been made to assess all the evidence at once.

The main text of this article starts with an introduction to the landscape and research history of the study area (section 1), then discusses its archaeological record in terms of the known systematic biases (section 2). The chronological discussion in section 3 is based on a new system for site classification, the principles of which are explained in section 2.2 whilst the full details are provided in Appendix 1. Themes and questions arising from the discussion in section 3 will be taken up again in the broader interpretative discussion in section 4. The site catalogue for the study area, including information from non-GIA topographic stud-

ies and excavations,² is published in Appendix 2 and follows the site classification set out in Appendix 1.

1.1. Landscape

The study area can be subdivided on morphogenetic grounds into five major units (see fig. 2): the Lepine mountains and uplands (unit I); the Lepine footslopes (II); the alluvial cone formed by the Vado La Mola (III); the volcanic landscape (IV); and the Pontine basin (V). Each of these will be described briefly below, with notes on soils and relevant morphological, geological, and hydrological features.

The Lepine mountains and uplands form the largest unit within the study area. Geology and soils are based on limestone, with relatively fertile alluvial valley fills alternating with virtually bare limestone mountains, of which the two most important ones are the Monte Arrestino (863 m) in the north and Monte Carbolino (722 m) in the southeast. Soils of volcanic origin still occur in some parts of this unit, but within the study area only one significant patch has been preserved on the north side of the valley of the Vado la Mola (opposite the Valvisciolo monastery). Toward the southwest, this unit forms a scarp of some 350–400 m high which corresponds to a deep geological fault line, and along which sources of (sometimes sulphuric) water tend to concentrate (Cosentino *et al.*, 1998: p. 124).

The Lepine footslopes are a landscape unit formed by slope processes on the margins of the mountain and upland unit, resulting in a relatively narrow (c. 500 m) band of dark reddish-brown limestone-based colluvi-

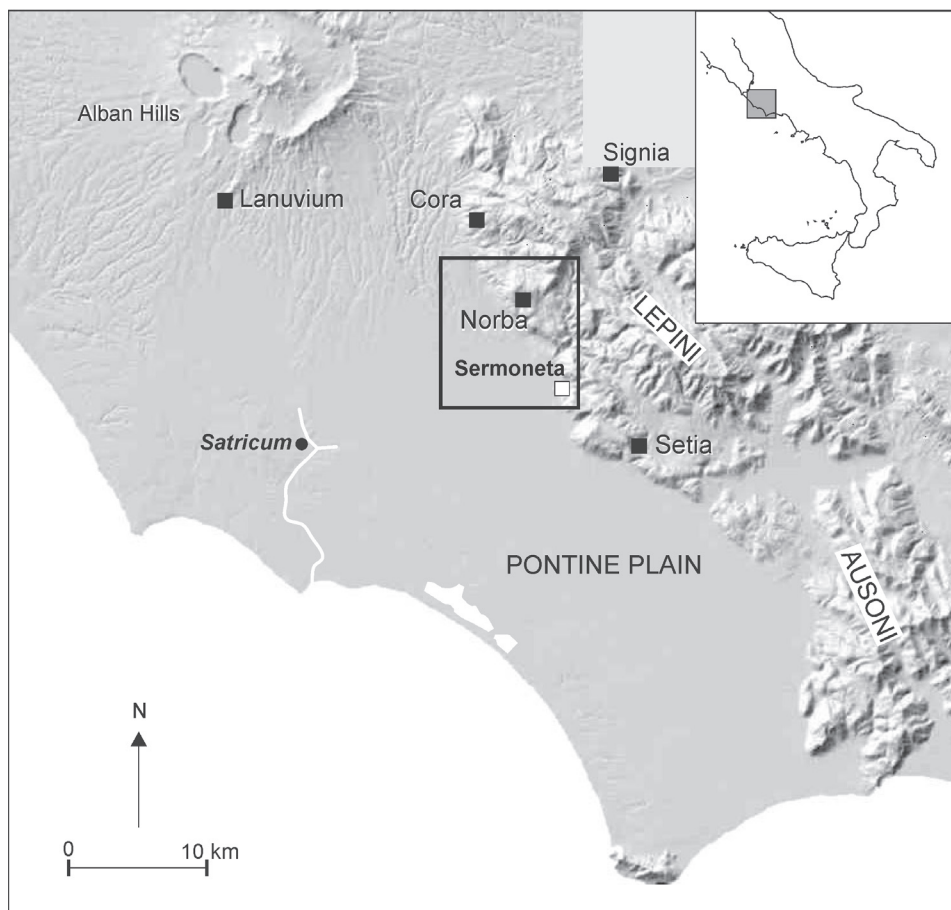


Fig. 1. Location of the study area in the Pontine region.

um (*chromic luvisols*). The upper boundary has been somewhat artificially drawn at a slope of 15 degrees – approximately where soils tend to become too thin for crops. The lower boundary coincides with the valley bottoms of the small (seasonal) streams that drain this unit. The morphology of the footslope unit has been significantly altered by the construction, *c.* 1930, of the Canale delle Aque Alte (also known as Canale Mussolini) and a minor railroad, the tracks of which have now been removed.

The alluvial cone of the Vado La Mola (Fosso dell'Abbadia) has been formed of erosion products from the Lepine mountains, and consists of *luvic phaeozem* soils. Several sinkholes (*sprofondi*) have recently formed in the lower part of this unit as a result of the erosion of the underlying limestone (Cosentino *et al.*, 1998: p. 123). The unit is bounded in the west by the Ninfa river, on the east by the Lepine scarp. It has a complicated morphology which appears to be related to successive displacements of the bed of the Vado la Mola, which today drains directly to the south

but which may well have followed a different course earlier in the Holocene. A secondary valley, originally draining northwest into the Ninfa, has been formed in the northern part of this unit. Like the footslopes, this unit is traversed both by the Canale Mussolini and by various railroad tracks built in the 1930s which have now been removed; as we shall see later on, the construction of these features used up a significant volume of soils taken from nearby accessible locations.

The volcanic unit forms the easternmost part of the Alban hills (Volcano Laziale). Its relatively soft tuff geology has resulted in a dissected landscape of ridges and valleys oriented northwest-southeast; the major drainage is by the Fosso Teppia. The unit is traversed by the Canale Mussolini as it turns toward the southwest, eventually to discharge into the Tyrrhenian sea. Sections of the ridges within this unit have been completely removed by quarrying for building materials. There is one patch of travertine-based soil contained within this unit, with a small lake that might conceivably have influenced settlement and land use

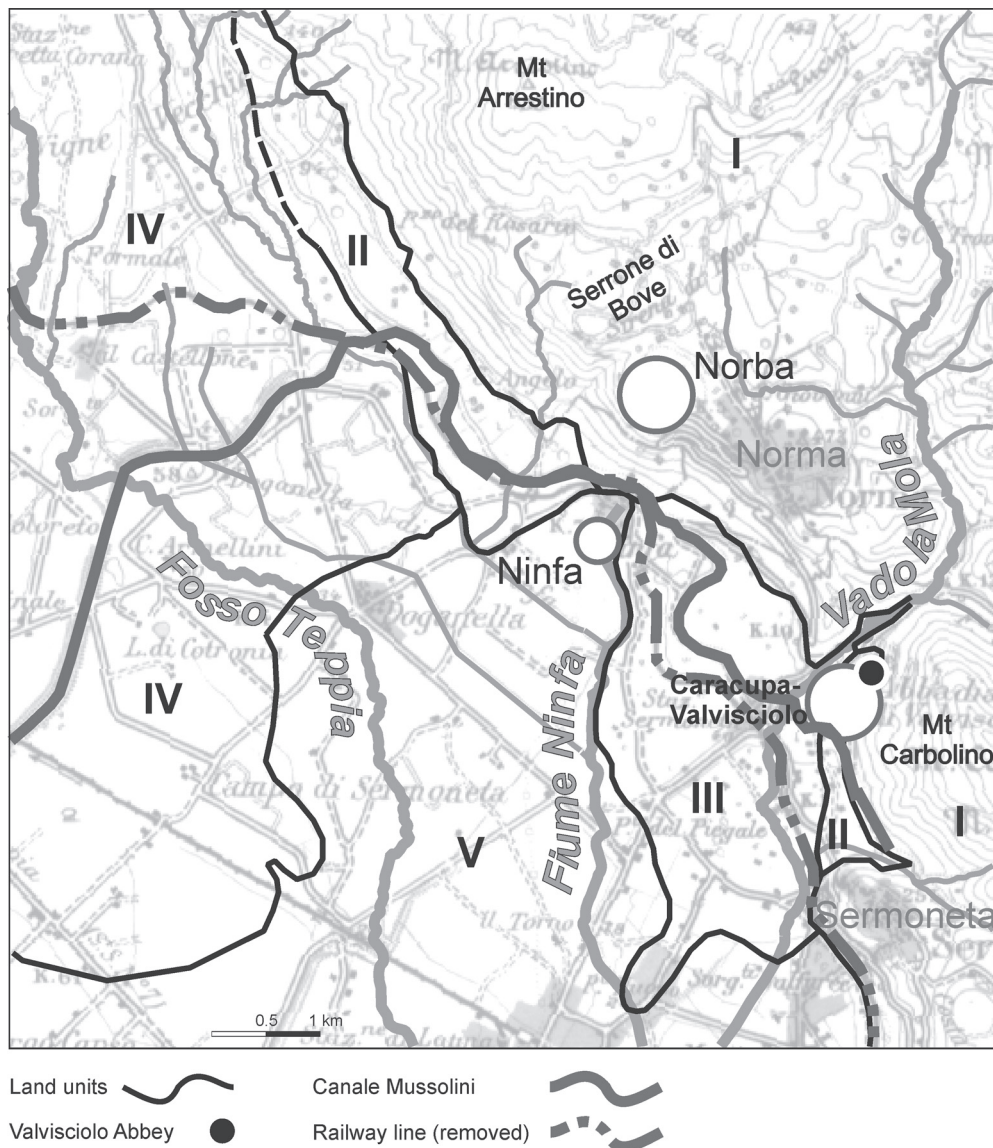


Fig. 2. Landscape units and topographic features of the study area. I – Lepine uplands, II – Lepine footslopes, III – alluvial cone, IV – volcanic unit, V – Pontine basin.

in the past, and which provides a potential source of material for architectural elements.

The fifth and final landscape unit within the study area is the Pontine basin, part of the graben structure and therefore largely sedimentary (alluvial) in nature. The two major streams through it are the Teppia and the Ninfa, but it should be kept in mind that the hydrology of this unit will have changed significantly after the 1930s, after which time spring and autumn Lepine flash floods were collected by the Canale Mussolini rather than reaching the plain. Because of differential compaction of the soils, the Teppia has formed a stream ridge running north-south. The source area

of the river Ninfa is of interest both because it lies immediately below the Lepine scarp and separates the footslope unit to its northwest from the alluvial cone unit to its southeast, and because of its historical importance (the medieval village of Ninfa lies on the banks of an artificial lake constructed in the 12th/13th century and fed by high-volume natural springs).

1.2. Research history (fig. 3)

The Pontine region has a long history of archaeological research. Already during the 19th century, scholars published topographic studies on the region (listed in

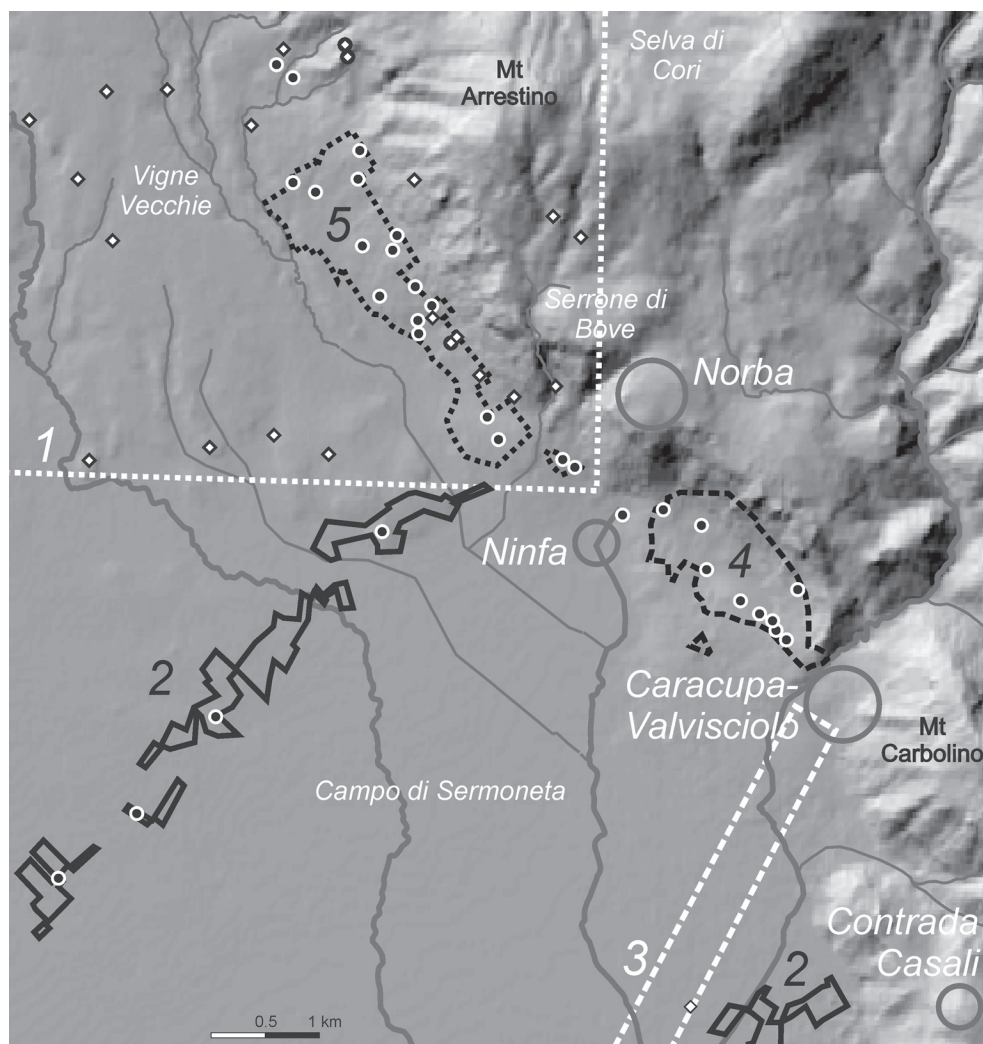


Fig. 3. Survey areas and sites discussed in the text. 1 – *Forma Italiae*: Cora (Brandizzi Vittucci, 1968), 2 – Agro Pontino Survey project 1981–7 (Holstrom *et al.*, 2004), 3 – Pontine Region Project 1987 (Attema, 1993a), 4 – Norba survey (King, 1995), 5 – Ninfa survey (Van Leusen, 1998).

Attema, 1993a: ch. 3). Interest at the time was focused on the sites fortified with impressive polygonal walls; scholars such as Thomas Ashby made tours of these sites, leaving impressive photographic documentation (Scott & Turchetti, 1994). The first scientific excavations in the area were undertaken at the start of the 20th century at the Roman colony of Norba (Savignoni & Mengarelli, 1901). Topographic research for the *Forma Italiae* project was pioneered by Lugli in the Pontine region in the 1920s, and in the 1960s grew to include the surroundings of the Latin colony of Cora (Brandizzi Vittucci, 1968). Dutch involvement in the archaeology of the Pontine region began in the late 1970s with the excavations carried out by archaeologists from the Universities of Groningen and

Amsterdam at Satricum (Maaskant Kleibrink, 1987: pp. 22–30; Waarsenburg, 1998), and a soil mapping project carried out in the Pontine plain by physical geographers from the University of Amsterdam (Sevink *et al.*, 1984). Various systematic rural field surveys by the Universities of Amsterdam and Groningen, the latter still ongoing, originated from these (Voorrips *et al.*, 1991; Attema, 1993a). In what follows we will sketch the research history of our study area in more detail, starting at the beginning of the 20th century. Two strands of research can be distinguished: an Italian tradition starting around 1900 and entailing excavations and topographical studies; and a Dutch tradition starting in the late 1970s and focusing on systematic pedestrian surveys.

Italian studies

The scientific study of Norba and related features began in 1901 with the work of Mengarelli and Savignoni, who excavated several trenches in the monumental sections of the town and discovered features dating from the late Archaic to the Imperial period. At the same time small-scale topographic studies were made in the surroundings of Norba in an unsuccessful attempt to locate its necropolis. Northwest of the town, at *Serrone di Bove*, Savignoni and Mengarelli located an enclosure as well as the remains of a road sub-structure, both in polygonal masonry (Savignoni & Mengarelli, 1901: p. 554; Quilici-Gigli, 1988: note 2). Within the enclosure, many ceramic fragments were observed and, although hardly any building remains were found, they interpreted the area as a *pagus* dated to the same period as Norba.

Savignoni and Mengarelli also visited the site of *Rova Rossa*, now better known as Monte Carbolino (Savignoni & Mengarelli, 1901: pp. 554–555). A series of polygonal walls following the contours of a rocky spur on the western face of Monte Carbolino retains what they considered to be habitation terraces associated with a group of Iron Age burials found further to the west at Caracupa.³ During subsequent campaigns in 1902, 1903, and 1905, both these tombs and a section of the terraces at Monte Carbolino were excavated (Savignoni & Mengarelli, 1903b; Mengarelli & Paribeni, 1909). The tombs, recently re-examined by Angle and Gianni (1990), range in date from the second half of the 9th century to the end of the 7th century BC. In the upper terraces, by then re-interpreted by the excavators as defensive structures, a 7th to 6th century votive deposit and several tombs were also discovered. The stratigraphic relation between one of these tombs and the terrace walls places the latter in the late 7th or 6th century BC as well.

After 1910, scholarly interest in the Lepine margins waned; work was only resumed in the mid-1950s with aerial photographic studies of Monte Carbolino and Norba by Schmiedt and Castagnoli (1957). In the mid-1960s Paola Brandizzi Vittucci made a thorough topographic inventory of a 150 square km area (covering one and a half sheets of the IGM 25V map series) around the Roman colony of Cora for the *Forma Italiae* series, bringing together information from archival records and field observations (Brandizzi Vittucci, 1968). The information collected deals exclusively with remains of the Roman period – villas, cisterns, agricultural terracing, and roads. This area overlaps with the northwestern corner (c. 5 by 5 km) of our study area.

In the 1970s Annibale Saggi, a local scholar, collected and published a number of first- and second-hand reports of archaeological observations made mostly by agricultural workers in the surroundings of Norma (Saggi, 1977). Although valuable in themselves, many of these are only recorded by their local toponym and are therefore very difficult to trace nowadays. From the late 1980s, Lorenzo Quilici and Stefania Quilici-Gigli resumed the investigation of Norba, Serrone di Bove and Monte Carbolino. They showed that the polygonal walls at Monte Carbolino did in fact have a defensive function (Quilici & Quilici-Gigli, 1987; Quilici-Gigli, 1989). The site is now generally seen as the *arx* of a 7th/6th century proto-urban centre. Their investigations at Serrone di Bove yielded three sets of architectural remains: a subcircular wall encircling an area of c. 0.8 ha; revetments of a road running between Cora and Norba along the Lepine scarp; and a series of rectangular terrace walls probably of Republican date (Quilici-Gigli, 1988).

In the 1990s, the Quilici's focused their attention on Norba, proposing a revised date for its polygonal walls based on differences in building technique and on historical data (Quilici & Quilici-Gigli, 2001), and studying the road leading up to Norba from the plain (Quilici, 1991; Quilici & Tognon, 2001); they recently resumed excavations at Norba.

Dutch studies

As a result of archaeological finds made by Dutch geographers in the Pontine plain, archaeologists from the University of Amsterdam in the late 1970s began a new large-scale research project. The Agro Pontino Survey (APS) project entailed an archaeological survey of the entire Pontine plain, including historical, geological and soil research, as well as palynological studies (Voorrips *et al.*, 1991). It employed a stratified sampling approach in the New Archaeology tradition, in which five parallel fieldwork transects were established between the sea and the Lepine mountains. Two of these transects coincide, in part, with the present study area (Loving *et al.*, 1991: fig. 3). The *Norba* transect runs through the volcanic unit and contains 35 fields for a total area of 89 ha; the *Sermoneta* transect covers 15 fields in the Pontine Basin just southwest of Sermoneta, and an area of 18 ha. However, the main focus of this survey was on lithic materials, only preliminary publications are available, and the significance of its data on the ceramic periods is difficult to assess.

As an outgrowth of the Dutch excavations at Satricum, studies of the surrounding landscape by

Attema began in the mid-1980s. This Pontine Region Project (PRP) was the first in which the relationship between the surface archaeology and the physical landscape was explicitly studied, using both extensive transects and intensive site surveys. One of its low-intensity survey transects runs through the south-eastern section of our study area, covering 28 agricultural fields between the *via Appia* and the abbey at Valvisciolo (Attema, 1993a: pp. 113–122). Also within our study area, intensive site surveys were carried out from 1986 to 1988 at the protohistoric settlement sites of Caracupa and Contrada Casali. At Caracupa, the settlement related to the *arx* on the Monte Carbolino and the necropolis was preliminarily mapped in 1987 and intensively surveyed in 1988 (Attema, 1993a). The Archaic settlement of Contrada Casali, including a system of possibly ancient terracings, was discovered by Attema in 1986 during topographic studies, and systematically surveyed in 1988 (Attema, 1991; 1993a; 1993b). Due to very adverse visibility conditions – the central part of the hilltop is totally overgrown – only part of the hill could be surveyed.

The PRP continued under the direction of Attema in the 1990s, with fieldwork focusing on problems related to early colonization and Romanization in *Latium vetus* (Attema & Van Leusen, 2004). In 1995, 1998–1999 and 2002 field surveys aimed at the retrieval of Roman remains were conducted in the foothill zone between Valvisciolo and Cori, specifically to (re-) map the Republican system of small villas along the *via pedemontana*.⁴

In the summer of 1995, a two-week survey was carried out in the footslope and alluvial cone units south of ancient Norba. Aim of this study was to assess the (economic) relationship between the colony and its rural surroundings, focusing on the Roman villas (King, 1995; Bailey, 1995). The main surveying unit was the agricultural field, across which transects were walked by individual surveyors with an interval of 3 to 4 metres. Recording and sampling was in principle only done when a site had been defined. On site, a system of total collection from 4 by 4 m squares was used.

Research continued in 1998–9 with a further systematic site-oriented field survey in the area between Cori and Ninfa, later extended toward the southeast in order to connect with the area surveyed in 1995 (Van Leusen, 1998; Attema & Van Leusen, 1999). Although the methodology was still based on that of previous surveys, low-density ceramic scatters were now recorded for the first time. This more intensive approach resulted in the discovery of a large number of sites of the Archaic period, and also in a large increase in sites

of Roman date. In the most recent campaign of 2002, eight Roman ‘platform villas’ (see Appendix 1:B for a discussion of this term) were revisited to collect additional diagnostic materials with which to obtain a better understanding of the dating, layout, and economy of these small rural villas (De Haas, 2003).

2. THE ARCHAEOLOGICAL RECORD

The archaeological record is, of course, incomplete. Whether archaeological remains are deposited, preserved through the ages, and accessible at the precise moment when an archaeologist comes along to record them is perhaps in some part due to chance events which do not concern us here. Of much greater importance, however, are the systematic biases resulting from long-term geological processes, human exploitation of the landscape, and the models and methods that we as archaeologists have employed to select and record field observations. Such biases are systematic in the sense that they result in the preferential recording of certain *types* of archaeological remains over others, in certain *parts* of the landscape rather than others.⁵ In section 2.1 we present the major bias factors identified for the study area, and discuss some of their likely effects on the archaeological record. In our chronological discussion (section 3) and in the concluding discussion (section 4) we will take these biases into account when describing and interpreting the patterns that are visible within our data.

The archaeological record is also the outcome of a series of subjective judgements by topographers and archaeologists. The classification of survey finds into ‘sites’ and ‘non-site’ or ‘off-site’, for example, or the subsequent classification of the sites into meaningful site types, are still among the most problematic aspects of landscape archaeology, despite decades of discussion (for an overview, see Van Leusen, 2002: pp. 13.8–13.11). The use of site size as a classification criterion provides a case in point, with some authors, for example, distinguishing between ‘small’ and ‘large’ sites by applying a threshold value of 1500 m². However, no reason is given for the use of this particular value, nor is it clarified how the surface area of a site is to be measured objectively. More-over, we know of no cases where field methods were designed to generate site size estimates for multiple phases; hence published site sizes relate in most cases to the most dominant or visible site phase only. Indeed, surprisingly few publications of regional studies include explicit criteria by which field data was classified and interpreted, and even those concentrate exclusively on

a classification of the larger sites of the Roman period. This means that the majority of pre-Roman small sites discovered through modern intensive rural surveys, without any architectural remains, does not receive enough attention in regional analysis and interpretation. For the current study, our aim has been to devise and apply a site classification system based on the available evidence (section 2.2).

2.1. Bias factors

Natural (geological) processes

Long-term geological processes such as alluviation and colluviation have played, and are still playing, an important role in the formation of the landscape in the Lepine margins, and are partially responsible for the formation of the archaeological patterns that we observe. Besides forming landscape units through deposition, such as the footslope unit, the alluvial cone, and the Pontine basin itself, erosion must also have been responsible for the current shape of the mountainous hinterland.

Field observations by the PRP demonstrated that erosion and deposition in the study area were not always gentle and gradual processes (Attema, Delvigne & Haagsma, 1990: pp. 19–25 and 1999: pp. 105–111). Mud-flows emanating from the Vado la Mola and following the contemporary stream bed occurred from the Late Iron Age onwards, into the late Republican period, and deposited material up to 3 km away from the Monti Lepini, forming a 300 m wide land ‘tongue’ rising up to 4 metres above its surroundings. The archaeological finds from the Archaic period which have been ploughed to the surface in this area, showing evidence of extensive wear through water transportation, should therefore not be interpreted as evidence of local habitation; rather, they probably derive from the large Archaic settlement of Caracupa-Valvisciolo at the mouth of the Vado la Mola, and were transported over a large distance in one or more mud-flow events.

In combination with the decline of tree pollen around the 10th century BC (Haagsma, 1993; see also section 3.1), the earlier mud-flow sediments suggest an initial phase of deforestation in the upper watershed area feeding the Vado La Mola. As usual, however, there is no evidence to indicate that increased erosion was the direct result of human interference in the landscape (Bintliff, 2000). Both the mud-flows and the more normal alluvial and colluvial sheets developing in the direction of the basin may locally have covered over remains, resulting in an archaeologically ‘sterile’ zone especially for the protohistoric period.

Human impact on the landscape

Besides natural processes, human activities have also had an impact on the landscape. The most immediately visible of these are the major construction activities which, in the study area, date to the early 20th century. Probably more pervasive, however, are the effects of widespread agricultural practices since the 1960s, which bring to light archaeological remains under some conditions but hide them from view under others.

Among the construction activities that have obscured or even destroyed the archaeological record of the area in pre-modern times, we may list that of the artificial lake of Ninfa in the early 20th century and the quarrying of tuff and limestone for building material (major limestone quarries are located at Ninfa, Valvisciolo, and Monticchio). However, most important in this respect are the works carried out in the 1930s for the construction of the Canale Mussolini (nowadays: Canale delle Acque Alte) and the railroad between Cori and Sezze, with stations at Norma/Ninfa and Sermoneta Scalo (see fig. 2). Reports published by Saggi (1977) include several examples of finds and observations made during these works. Where the canal and railroad cross valleys, major earth movement was necessary to construct banks of up to 8 metres high, and the material for this must have been removed from nearby quarries; elsewhere the canal banks would have been constructed from soil taken out of the cutting itself.

As the records of these works, currently held in the provincial archives at Latina, have not yet been studied in detail, we can only gauge their effects by comparing the detailed topographic maps made in preparation for the *Bonifica* in the mid-1920s (IGM, 1927) with later topographic maps and with the present landscape. Significant amounts of soil were indeed removed from several hills and spurs cut by the canal and railroad, reducing their height by up to 15 m. Assuming that this soil was used to construct canal and railroad banks across nearby natural depressions in the landscape, we may conclude, 1) that the footprints of these constructions, plus the areas from where earth was quarried, must remain blank on the archaeological map, and 2) that, under some circumstances, archaeological finds may be made in the earth re-used in these constructions. Site 10530 (see Appendix 2 for details) is a good example of this, as the finds were made below the spot where the canal had broken through during flooding in October 1993. We may suppose that the finds together with earth from the banks, probably originally from a nearby

hill, were deposited downstream from this spot. Since the finds include one high-quality Archaic roof tile and one bucchero sherd, we tentatively identify this nearby hill as the location of an Archaic temple, remains of which are rumoured to have been observed by local amateur archaeologists.

Obviously, land use at the time when all modern archaeological research in the area was undertaken (c. 1960–2000) will have had the greatest and most immediate impact on the extent and composition of the archaeological record. Land use in the study area was mapped at a scale of 1:200,000 in the 1950s (CUS, 1960), and shows that the areas of most intensive tillage – related to the planting and tending of olive trees and vines – are concentrated on colluvial (olives) and volcanic soils (vines). That is, landscape units II (the footslopes) and III (the alluvial cone) are set aside almost entirely for this purpose, and units I (uplands) and IV (tuff) are used in this manner where-ever soils are not too thin or too clayey. Alternative land uses, requiring much less intensive tillage, make up the balance of units I and IV within the study area (cereals, wooded pasture, and mixed or deciduous woodland), and the whole of the Pontine basin (unit V; cereals). These differences in land use history imply that the archaeological record is much more complete for units II and III, and parts of I and IV, than it is for unit V and other parts of units I and IV.

Information about past and current land use processes can also be gleaned from notes made during the various archaeological survey projects. Brandizzi Vittucci (1968) only rarely comments on agricultural or building works, but in a few cases we can deduce their role in site discovery and destruction from the oral comments by local farmers and inhabitants she records. For example, at sites 11645 and 11647, building and agricultural works respectively caused the destruction of architectural remains prior to her survey; at sites 11648, 11659 and 11664, agricultural and building works prompted the discovery of the remains.

When Vittucci conducted her survey in the 1960s, agricultural mechanisation had only recently arrived in the area. The surveys of the late 1990s were conducted after more than three decades of, sometimes intensive, cultivation, and Vittucci's observations are therefore repeated and multiplied by those made in later surveys. The Norba survey team reported, for example, that sites were correlated with dark brown soils whereas the non-site area was characterized by 'clearly more reddish' soil (*i.e.*, subsoil ploughed up; King, 1995: p. 12). Archaeological remains were

also found to have been moved, either to nearby farm buildings (in the case of re-usable building stone or decorative pieces of stonework) or just to dumps at nearby dry gulleys or field boundaries (smaller stones and larger pottery fragments; such dumps were observed at sites 10504, 10957, and 10958). The Ninfa survey team, in its turn, reported local tuff and sand quarries in two locations, deep agricultural working of fields including levelling and removal of ancient agricultural terraces at many of the sites recorded by Vittucci (*e.g.*, at sites 11645 and 11646), deep ploughing of upper slopes for olive trees (*e.g.*, at site 10512), and building activities (*e.g.*, site 10515 which appears cut by a gravel road, and site 10952 which is damaged by road cuts and a modern pipe trench). Again, during revisits in 2002 the land owner at site 11650 recalled that before an olive orchard was planted at the site circa 1960, the remains of two structures (probably a large cistern and part of the main building) were completely destroyed. In general, many terrace retaining walls and field boundary walls are no longer maintained, so the above instances of active destruction are accompanied by a general process of deterioration of such architectural remains.

Research and methodological biases

Besides 'visibility' biases caused by factors beyond our control, such as the geological and land use biases discussed above, another significant set of biases results from the way we archaeologists conduct our research. For one reason or another, archaeologists have preferred to record information about discrete 'sites' rather than about the landscape as a continuous surface, and about monumental (*i.e.*, Roman) remains rather than about mere surface scatters of sherds. Archaeologists that conducted systematic field surveys have chosen to do so almost exclusively in large arable fields, and have avoided landscape units that are difficult to access or are perceived to be archaeologically uninteresting. Finally, there are limits to our collective knowledge, which bias the way we generate information from field data. In older studies, for example, knowledge of pottery typochronology was very limited so certain periods (*e.g.*, the post-Archaic and mid-Imperial periods) could not be recognised at all. We have attempted to assess the nature and scale of these biases on the data set presented in Appendix 2, and have indicated in our discussion in section 3 where the absence of evidence should not imply evidence of absence.

The effects of site discovery, analysis, and reporting processes can most easily be seen at work in the

earlier topographical studies, with their reliance on reported finds leading to a 'preference' for tombs and standing architecture. Brandizzi Vittucci (1968), for example, records only a few pre-Roman or non-architectural sites among the 221 sites listed. However, later investigations too continue to suffer (if more subtly) from biases due to the fact that we can recognize some find types more easily than others. For example, for the Iron Age and Orientalizing periods and, to a lesser extent, the Archaic period as well, we believe that the picture as it emerges from our own intensive site-oriented surveys is still biased due to a deficient site sampling strategy. Revisits by one of us (De Haas) to a number of known villa sites in 2002 have established that at least half of these also carry a limited amount of Orientalizing material, hence it is very well possible that many more sites will be found to have Iron Age or Orientalizing phases. The current density of identified Archaic sites indicates that this effect is not such a big problem here, except perhaps where Archaic materials are 'swamped' in sites with a predominantly Roman assemblage.

Similar effects also bias our data on the Roman periods. For example, in order to date sites to the mid-Imperial period, we are largely dependent on African red slip wares. However, these (and especially the more frequent coarse forms Hayes 196 and 197) were not recognized in most of the surveys, so for this period we are almost entirely dependent on information obtained through recent restudy of the material collected earlier. Since not all material was available for restudy it is likely that more sites do in fact contain mid-Imperial wares and hence should be ascribed to this period. This is *a fortiori* the case with the Roman villa sites recorded by Brandizzi Vittucci, leading to an apparent strong reduction in site numbers for the northwestern part of our study area.

2.2. Site classification

In evaluating the available data for the current study, one of our first tasks has been to compose a new site classification based directly on the characteristics of the site assemblage rather than on 'ideal' site types. Our classification is described in full in Appendix 1, but here we will explain our aims and procedures.

Our primary aim has been to create a classification that is based directly on patterns in the archaeological evidence we have been able to collect for the 78 sites in our catalogue (Appendix 2). Criteria for each class are mainly qualitative (presence or absence of certain find types and features), but are supplemented by some quantitative criteria (mainly site size) and locational

criteria (topographic position, nearness to other relevant sites). This approach differs from that of others, in that any functional interpretations of these classes are deliberately considered to be secondary and provisional constructs. Hence, whenever additional data become available, sites can be moved from one class to another, or classes may be split to reflect the formulation of an additional classification criterion.

Because our site classes are based on *observed* similarities and differences in the site assemblage, they may in reality be composed of multiple site 'types'. For example, a class may in fact be composed of both seasonal 'sheds' and permanently inhabited 'farms', as well as rural cemeteries, but if we could not distinguish between these on the basis of the available evidence, we must put them in the same class. This need not always be caused by the relatively low quality of the information that is currently available for many sites in the study area; it may also be due to the fact that some site types simply do not present a sufficiently distinct finds assemblage. Conversely, the characteristics of a single site may also lead to its classification into multiple classes, because some classification criteria only relate to a specific aspect of site function (e.g., 'cultic' or 'defensive'). This of course primarily affects the larger complex sites such as Caracupa-Valvisciolo and Norba.

Finally, we have taken into account the fact that multi-period sites may present different evidence for different periods. For example, simple rural post-Archaic sites can become more elaborate in the Republican period and are therefore classified differently. In point of fact, the system of classification as a whole is flexible in a diachronic sense, so that we can apply different criteria, and classify sites accordingly, per period. For the current study, we have devised two separate classification systems for the 'protohistoric' and 'Roman' periods, with the regular appearance of new building materials (roof tiles and dressed stone walls) forming the watershed. We have chosen to include the post-Archaic sites in the 'Roman' classification, because this is the period in which the occurrence of tiles on rural sites becomes very common. In historical terms, the post-Archaic period (500–350 BC) marks a supposed initial phase of Romanization, and we hope to be able to study this process in more detail in the future.

Our classification for the 'protohistoric' period (Bronze Age to Archaic) uses 44 sites. The scarcity of evidence for the earlier periods, and an apparent lack of differentiation in the large group of Archaic surface scatters, limit the number of classes to five. 66 'Roman' (Post-Archaic, Republican, early and mid-

Imperial) sites have been included in a more elaborate second classification, which consists of nine classes. For the detailed criteria used in these two classifications we refer the reader to Appendix 1.

3. HISTORY OF SETTLEMENT AND LAND USE

Following a discussion of the available evidence on the history of climate and vegetation (section 3.1), and of the evidence for ancient roads and other elements of infrastructure (section 3.2), we here present a chronological review of the available evidence for settlement and land use in the study area. This review is based on the classification system set out in section 2.2 and Appendix 1, and is linked throughout with the catalogue of classified sites (Appendix 2). With regard to sections 3.3–3.7 it should be noted that the presentation and discussion of the evidence in each chronological section is ordered in three consecutive parts. First we discuss the number and classes of sites for the period and the degree of continuity from the preceding period for each of the five landscape units; next, we discuss biases and other problems with the evidence; then we conclude each section by noting patterns in these data and suggesting some interpretations for these patterns.

3.1. Notes on climate and vegetation

The climate and vegetation on the western (seaward) side of the Lepine mountains are positively influenced by the spring line at the foot of the mountains and by orogenic rains, in which the relatively humid sea winds are forced upwards by the Lepine scarp and then lose their capacity to carry water in the colder air. Orogenic rains provide relief from the summer drought which limits the use of other parts of the Lepine mountains, and must therefore be regarded as an important factor in the long-term history of settlement and land use of our study area.

The broad development of climate and vegetation has been studied using pollen analysis and palaeo-geographic land evaluation (Haagsma, 1993; Van Joolen, 2003). Pollen studies conducted by the PRP at Monticchio (just south of Sermoneta, Haagsma, 1993) provide information on the environment in the first millennium BC, but because the pollen phases were not dated it is not possible to relate these developments securely to the archaeological history of the study area.⁶ However, in combination with the results of a systematic evaluation of the agricultural land use potential and technological developments in

the Pontine region by Van Joolen (2003), some broad outlines may be sketched.

Pollen phase 1 of the Monticchio core, broadly starting in the Early Iron Age, is characterized by a decrease in arboreal pollen, and an increase in non-arboreal pollen, which implies human interference in the landscape (tree felling). Although there is no direct evidence for Archaic agricultural activities in the Pontine basin, the land was probably used for grazing because the pollen spectrum implies an open landscape with locally marshy conditions. Pollen phase 2, which includes the post-Archaic and Republican periods, shows a peak in herbaceous pollen while arboreal pollen values remain low. Such a spectrum again points to the existence of an open landscape, but the (re-)appearance of some trees may imply that the forests on the Lepine slopes were regenerating. By the end of this phase, however, these trees disappear and are replaced by olive, chestnut and walnut, which were probably planted. The appearance of these cultivated trees has been linked to the establishment of a system of rural villas in the 3rd/2nd century BC (Haagsma, 1993: p. 253; Attema, Delvigne & Haagsma, 1999: p. 116). High values for *vitis* (grape) occur as well, but these could well be due to a wild variant. Also at the end of pollen phase 2, peat was being formed locally, and whilst pollen phase 3 (possibly starting in the early Imperial period) shows an increase in arboreal pollen, most species represent a local wet vegetation.

The land evaluation by Van Joolen (2003: pp. 142–146 and 243–244) complements these results. She argues that, in the Bronze Age, the alluvial fan, dry alluvial sections of the basin, and upland river valleys were all suitable for subsistence farming (including emmer and other wheats). In the Iron Age, the Lepine footslope deposits and dry alluvial sections of the basin became marginally suitable for polyculture (cereals with grapes and/or olives). From the Archaic period onwards all upland and lowland alluvial zones became suitable for the growing of barley, millet and other wheats as well as polyculture and subsistence farming; specialized olive cultivation also becomes possible in all of these areas as well as on the steeper slopes of the Lepine mountains.

Clearly, the history of climate and vegetation within the study area is still very sketchy and, together with the land evaluation, can only provide a broad context for the chronological discussion which is to follow.

3.2. Notes on infrastructure (fig. 4)

Any discussion of the infrastructure of the study area must start with the ancient *pedemontana* road, prob-

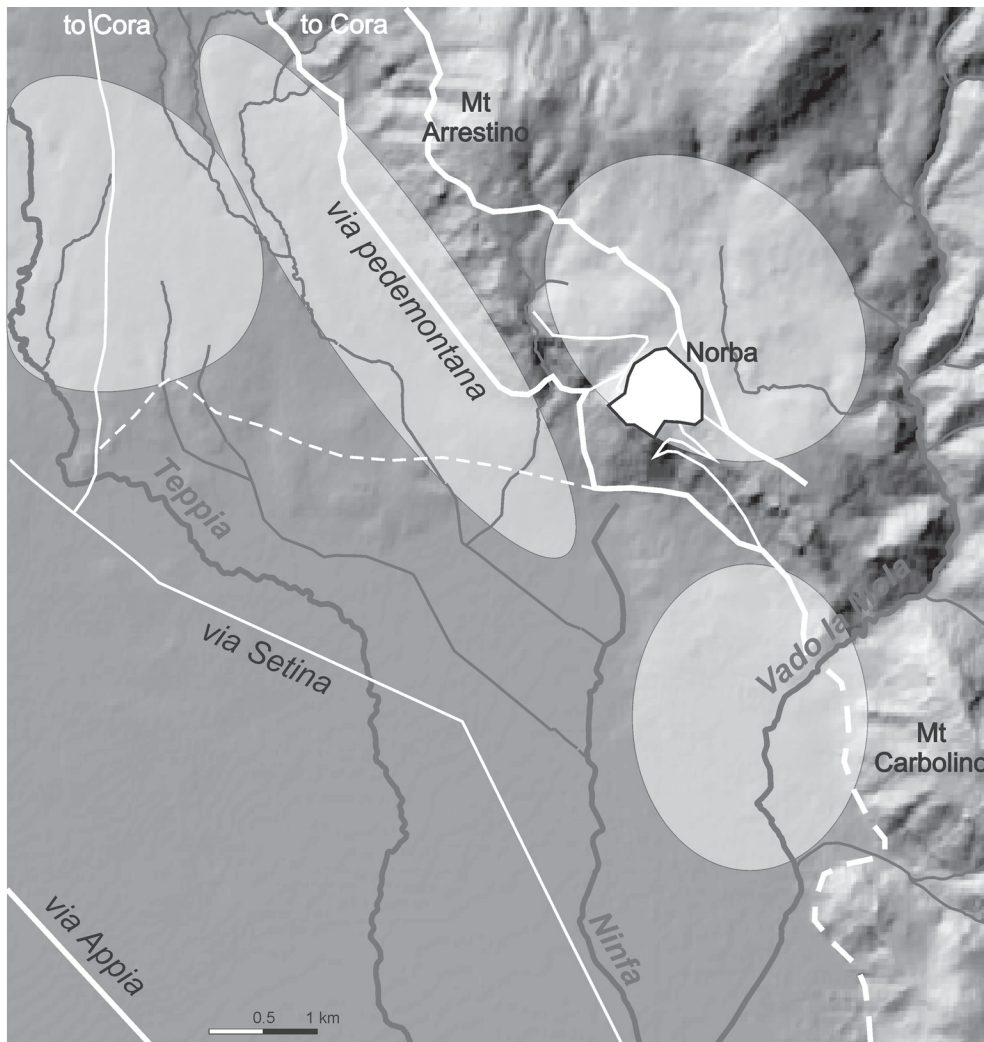


Fig. 4. Reconstruction of Roman infrastructure, and areas of hypothetical Republican land divisions (after Chouquer & Favory, 1987: fig. 7).

ably originating as a track in the protohistorical period, that followed along the footslopes of the Monti Lepini. Although the dated evidence (sections of road revetment, sites 11622, 11649, 11652, and 11653) is Republican, this road remained in use until subrecent times, and even now tracks and mule-paths still follow the same line. Brandizzi Vittucci (1968: pp. 19–30) reconstructed the line of this road on the basis of early aerial photographs.

In addition to the *via pedemontana*, the protohistoric to Archaic infrastructure must have included routes connecting the mountains to the plain. It is likely that one such route, used also for transhumance, passed through the valley of the Vado la Mola.

Another ancient route through the area is the *via Setina*, which is supposed to have run from Velletri (Velitrae) via Sezze (Setia) to Terracina at the south-

eastern tip of the Pontine plain in the post-Archaic period, and became less important when, in the late 4th century BC, the *via Appia* was extended towards Terracina. However, the road must have remained in use throughout the Roman period because an inscription tells us about paving done by two magistrates of Sezze, and the road is also mentioned by Roman writers in the 2nd century BC and the 2nd century AD (Brandizzi Vittucci, 1968: p. 30). It was still in use in the 8th century AD, by which time the *via Appia* had been abandoned due to marshy conditions. For the westerly section of the *via Setina*, Brandizzi Vittucci (1968: pp. 29–30, 134–136) reports direct evidence in the form of pavement blocks in two locations just outside our study area; the remainder of the route is conjectural and based on the evidence of late 17th century maps.

A third ancient road, running parallel to the *via pedemontana* along the top of the Lepine scarp, connected the colonies of Cora, Norba, and Setia, and the intermediate smaller settlements and fortifications in Roman times. The road passing through Norba's Porta Furba and Porta Signina, located on the western side of the town, leads northwards, probably first to the Serrone di Bove where a section of road revetment has been found (site 10596; Quilici-Gigli, 1988; 1989), then north-westwards to site 10622, and finally towards Cora and Signia.

Norba's Porta Maggiore and Porta Ninfa are located on its eastern side (Quilici & Quilici-Gigli, 2001: fig. 87), and connect both to the road leading down to the *via pedemontana* (evidence for the late Republican improvement of which connection was found at site 10534, see Quilici & Tognon, 2001) and, probably, a road leading east towards present-day Norma (Quilici & Quilici-Gigli, 2001: fig. 1) and on into the town's rural hinterland (Savignoni & Mengarelli, 1901: pp. 519–520; see also Saggi, 1977).

Besides establishing the *via Appia* as the main military thoroughfare, Roman colonisation in the Pontine region also brought centuriation of some areas suitable for agricultural exploitation. Within the study area, there is no direct evidence for such land divisions, but Chouquer and Favory (1987: pp. 99–101) have proposed several areas of centuriation both in the uplands and the lowland volcanic, footslope and alluvial cone units on the basis of the direction and interval of certain modern roads and parcel boundaries (schematically indicated in figure 4). Drawing a parallel with similar systems found elsewhere, they date this land division to the final 4th or early 3rd century BC. However, we consider the presence of these land divisions not well supported on current evidence.

Even if no formal land divisions were ever made in the study area, there must still have been a variety of roads and tracks connecting those mentioned above. Within our study area we have evidence for two: one is a gravel road connecting the town of Cora to the *via Setina* (evidence at sites 11657 and 11663), the other is a minor road leading down to the *via pedemontana* from Norba's western gate. Sites 11666 and 11667 indicate the presence of a third minor road, possibly from the area of Castellone (site 11664) to the *via pedemontana* below Norba.

Of the streams in the area, only the rivers Teppia and Ninfa may have been navigable for part of their length; because of their general north-south alignment they could have served for moving goods between the plain and the mountains. Further water transport was created in the late Republican period, by which time

a canal large enough to carry barges had been dug alongside the *Via Appia* (Horace, *Satyres* 1.5).⁷

3.3. Bronze and Iron Ages, including the Orientalizing period, c. 2000–600 BC (figs 5 and 6)

As already mentioned in section 1, archaeological evidence for the Neolithic is exceedingly scarce, but we must assume that there was at least some habitation and land use taking place in the study area. Reports of the discovery of a greenstone adze at *Pozzo del Rosario* south of Monte Arrestino (Saggi, 1977: p. 21), and two (e-)Neolithic skeletons at the present quarry site *Vaccareccia* (Landra, s.d.), are all we have for this period. For the Bronze Age stray finds from Caracupa-Valvisciolo (site 10879), such as a well-burnished dark impasto sherd with incised decoration, indicate that this settlement probably has Bronze Age roots. However, archaeological evidence remains very scarce until the start of the Iron Age (c. 1000 BC), when a number of habitation and grave sites are found both on and below the Lepine scarp.

Iron Age finds are reported from five sites (see fig. 5). The excavations at Caracupa-Valvisciolo, as noted in the introduction, yielded several 8th century BC tombs and the votive deposit also contained some 8th century finds (Attema, 1993a: p. 179, table 4). In view of the number of graves (56) dated to the period 830–720 BC, it must be assumed to have been a small community, and this is confirmed by the subsequent intensive site survey conducted by Attema. Three other sites, one of which may represent some tombs, are defined on the basis of surface finds made in the 1998/99 intensive surveys; the fifth site (10535) is based on reports of Iron Age tombs having been discovered near Ninfa. For the Orientalizing period (the final phase of the Iron Age), a sharp increase in the number of sites can be seen (fig. 6). Three out of the four full Iron Age sites continue into this period but at least nine others appear to have been newly founded.

Whilst the earlier Iron Age sites are all located in the footslope zone, Orientalizing finds are also found in landscape units I (at Norba, site 10599) and IV (site 13470). Given the difficulty of detecting undiagnostic Iron Age sherds, however, nothing can be deduced from the virtual absence of full Iron Age finds in units I, IV and V, which were investigated with little if any intensity or which have a sedimentary regimen.⁸ It is significant that, except for Caracupa-Valvisciolo itself, all of the Bronze and Iron Age sites in the study area were found either during the very intensive Ninfa 1998/99 survey, or were discovered in the course of excavation works (examples in Saggi, 1977), or dur-

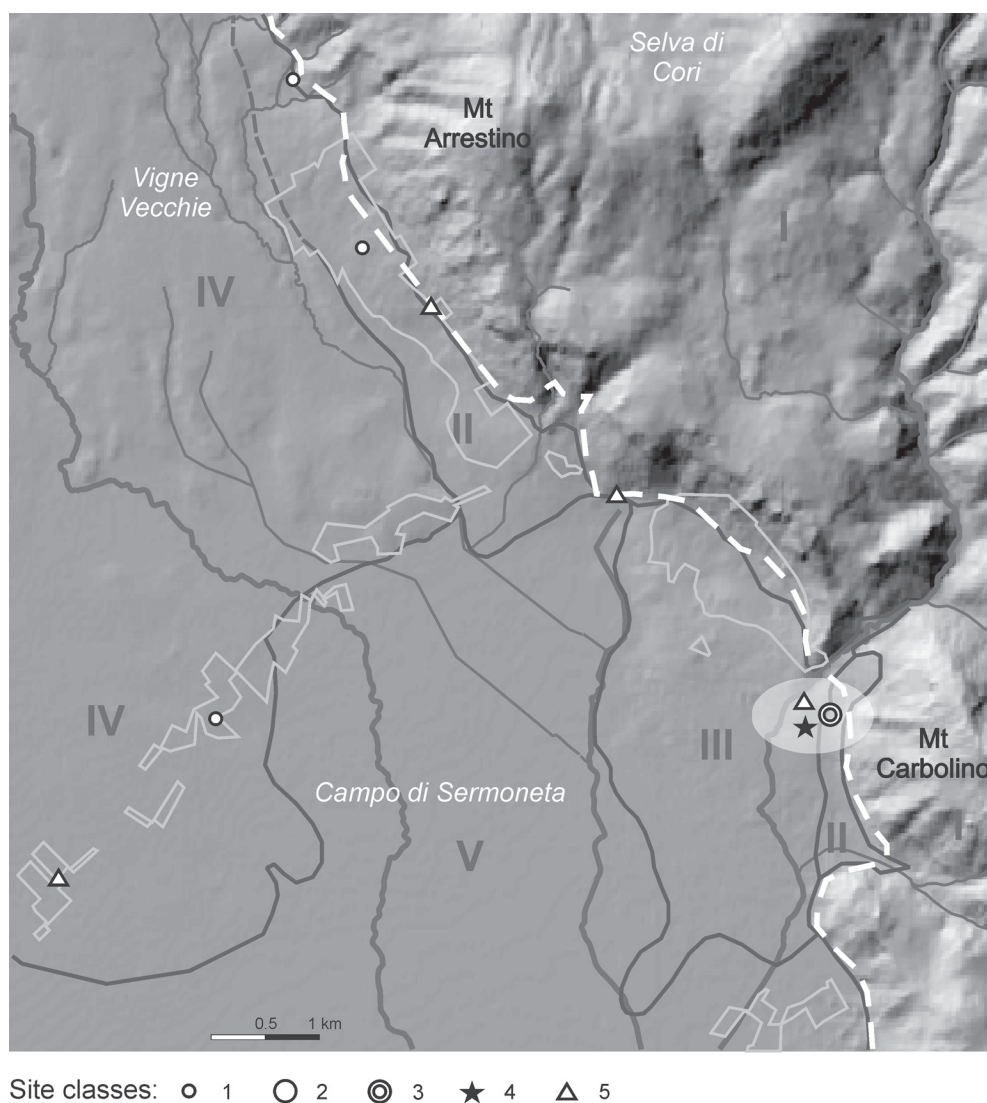


Fig. 5. Classified sites of the Bronze and Iron ages. 1. small impasto scatter; 2. large impasto scatter; 3. complex impasto site, 4: site with evidence for cultic use, 5: tomb(s).

ing site re-visits,⁹ or were identified in a re-study of older survey material.¹⁰ Since the chances of detection of Iron Age material increase during the intensive investigation of sites of later periods, it is quite possible that many of the known sites that have not yet been revisited for detailed study have an Orientalizing phase too. The combination of a low probability of detection and a fairly regular occurrence means that it is unlikely that even small and diffuse scatters of Iron Age impasto should be interpreted as off-site material. There does not appear to be a correlation between early occupation and any particular soil type.

Further evidence for Iron Age finds comes out of the topographic research by Saggi (1977) but is not

precisely locatable. Thus, Saggi (1977: pp. 9, 13, 21, 31, 60) reports Bronze and Iron Age tombs at *Le Grutti*, near the presently deserted monastery of S. Angelo and some caves which were supposedly inhabited in prehistory. Other Iron Age burials are reported at *Rave* – the steep slopes just below modern Norma – and Saggi suggests that these, in connection with numerous megalithic walls in the same area (interpreted as later road revetments by Quilici-Gigli), indicate the presence of a defended site, similar to that of Caracupa-Valvisciolo. Early Iron Age tombs were further reported by Saggi near the present site of Ninfa (site 10535), and a cinerary urn at *La Mancinella* (an area adjacent to the Caracupa cemetery).

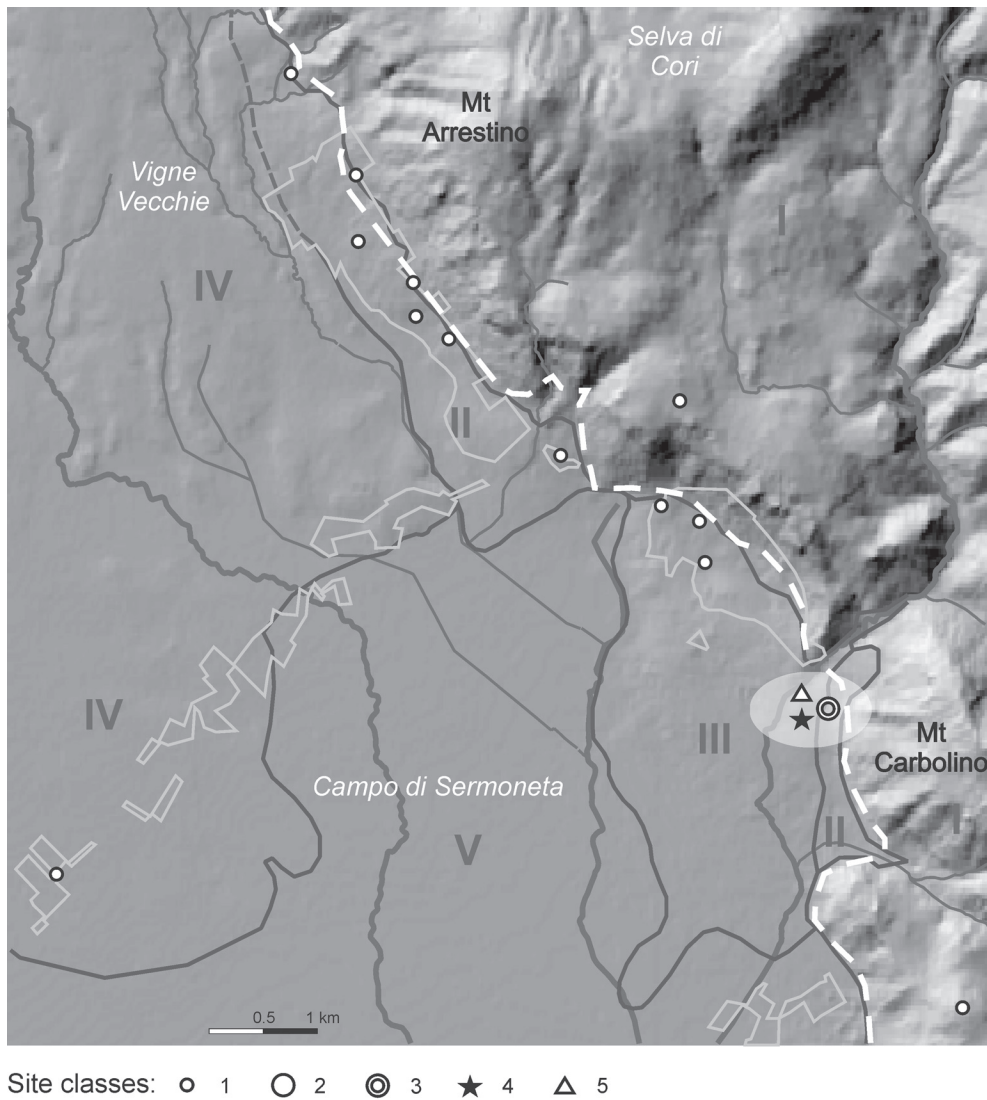


Fig. 6. Classified sites of the Orientalizing period. 1: small impasto scatter, 2: large impasto scatter, 3: complex impasto site, 4: site with evidence for cultic use, 5: tomb(s).

All of this direct and indirect evidence may be thought of as representing the rural hinterland to the ‘central place’ of Caracupa-Valvisciolo, which in its location and variety and quantity of evidence clearly takes a special position. Funerary evidence indicates that society was already stratified (Angle & Gianni, 1990), and a simple site hierarchy is probably already in existence locally: tombs and votive deposit indicate that Caracupa-Valvisciolo had some degree of central place/elite function, whereas some of the class 1 rural sites are likely to represent either small subsistence farms or temporary facilities similar to the modern *capanne*. If the general scarcity of sites is not due to the visibility biases outlined above, then we may offer

a number of explanations between which we cannot choose given the present lack of evidence: it may be that settlement was mainly clustered and we happen to have studied an area without such clusters; it may be that life was largely based on *transhumance*, leaving only ephemeral evidence; or it may simply be that the population density at this time was still very low so there are not many habitation sites to be discovered by archaeologists. Renewed intensive survey will be needed to collect evidence for or against these scenarios.

The habitation site of Caracupa-Valvisciolo expands in the Orientalizing period, whilst the small votive deposit and necropolis that signal centralized

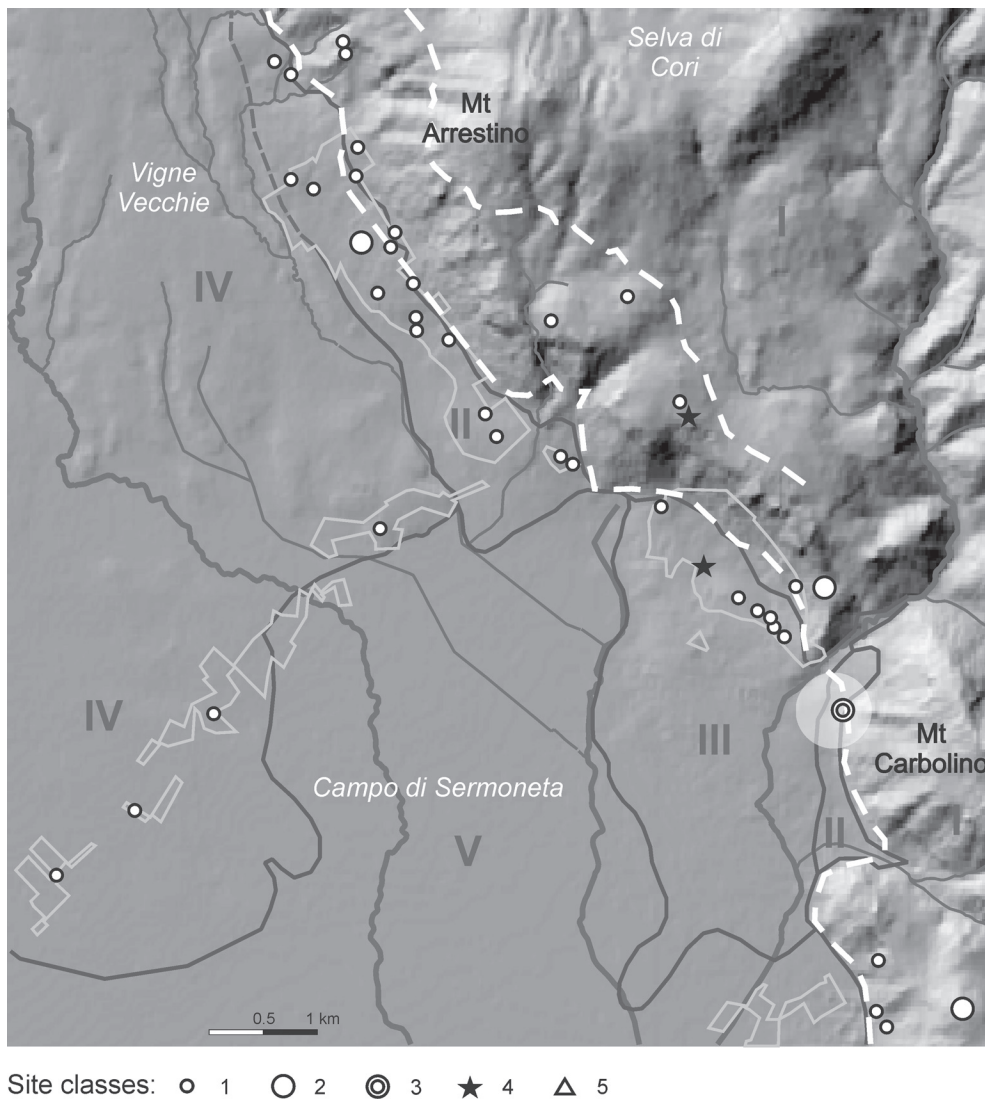


Fig. 7. Classified sites of the Archaic period. 1: small impasto scatter, 2: large impasto scatter, 3: complex impasto site, 4: site with evidence for cultic use, 5: tomb(s).

habitation and cultic functions continue to be used. The apparent absence of class 1 sites within a radius of 1.5 km from the central place leaves open the possibility that the immediately surrounding territory was exploited directly from this centre. However, intensive survey of this catchment area would be needed to confirm or contradict this hypothesis.

The more intensive use of the footslope unit II in the Orientalizing period may reflect an extension of logging activities as suggested by the pollen data and by models for the protohistoric exploitation in Etruria (Cifani, 2002), but although the *via pedemontana* may already have existed in some form in this period, the pattern of known sites should not be seen as depend-

ing in any way on it. There is a hint of a regular interval of 300–350 m among class 1 sites in figure 6, which suggests that this unit, at least, was ‘infilled’ by the end of this period. It is therefore likely that future intensive survey, and revisits to Vittucci sites, will turn up more evidence for Orientalizing occupation in all units except V, where sedimentary conditions make it unlikely that any Iron Age or older material will be found at the surface.

3.4. The Archaic period, c. 600–500 BC (fig. 7)

There is a high degree of settlement continuity from the Orientalizing period into the Archaic – only one of

the previously inhabited sites having been abandoned by the start of the 6th century –, but at the same time no less than 28 new sites were founded. In total, 41 sites were occupied during the Archaic period and this forms an all-time peak in occupation density. The number of small (class 1) rural sites undergoes an especially rapid (fourfold) expansion; however, these sites with their relatively dense ceramic scatters of a uniform red firing ware are also easily detected, so the difference with the preceding periods may be somewhat exaggerated.

Class 1 sites are now attested away from the Lepine scarp as well, for example at Serrone di Bove (site 10598) in unit I, and possibly at several locations in unit IV.¹¹ It seems likely that future research will find more intensive use of these zones as well.¹² In several cases, class 1 sites also occur very close to each other (50–100 m, see fig. 7), which appears to indicate that we are not dealing with contemporary habitation sites of equal status in all cases. Potential explanations for this observation include: some sites may represent temporary or seasonal, rather than permanent, structures or activities; some class 1 site clusters may represent complex family farms including several structures and/or activity areas; or, some clusters represent several independent single family farms forming a ‘hamlet’.

The Archaic period saw the rise of a second class of larger rural sites, examples of which are sites 10880 (Contrada Casali), 10533 (Colle Gentile) and 10514. The former (c. 8.75 ha) originated in the Orientalizing period and occupies a hilltop in the south-eastern corner of our study area; intensive site surveys indicate that we deal here with an Archaic settlement consisting of several farmsteads (Attema 1993a, pp. 139–155) that exploit the direct vicinity of the hill. Site 10514 is located in unit II, some 6 km to the northwest of Caracupa-Valvisciolo, and occupies a surface of c. 4 hectares. Here we probably also deal with a hamlet, but its agricultural hinterland seems rather small since other rural sites occur within 500 metres from it. The assignment of site 10533 to class 2 is based on an assessment by Quilici-Gigli (1991) and is not certain; other sites that may yet turn out to fall within class 2 are Serrone di Bove 1 (10595) and Norba (10599). For Serrone di Bove, it is unclear to what period the main occupation of this site and its defensive walls should be dated. Being located at a minor access point between up- and lowlands, it may therefore have had a similar, if less important, controlling function to that of the sites of Caracupa-Valvisciolo and Colle Gentile. The status of Norba is also unclear for the Archaic period, but occupation at the minor acropolis

has been proposed by various scholars. Possibly this phase can be connected to the first Roman colonizing events (Attema, 1993a: pp. 83–87).

The growing number of site classes present in the Archaic period is a clear indication that site hierarchy develops further. Caracupa-Valvisciolo had by now developed into a large centre with proto-urban characteristics.¹³ The intensive survey executed by Attema indicates that settlement had spread over an area of 48 hectares; and the find of iron slag indicates that specialized craft activities probably took place here. This centre had a separate defensive *arx* built against a spur of the Monte Carbolino, consisting of an intricate system of terraces of up to 8 metres high, which could easily be defended. The existence of class 2 sites that are either larger than usual, or show signs of a defensive function (e.g., Colle Gentile 10533, see Quilici & Quilici-Gigli, 1991), indicates the growth of an intermediate level in the site hierarchy. However, the rank-size distribution for this period is of the ‘primate’ type, because the bulk of sites in the Archaic are still the small, rural sites of class 1.¹⁴

The spatial distribution of class 1 sites may indicate more complex socio-economic ties: the fact that two or more small sites are often located in very close proximity may indicate that these should be interpreted as one production unit (see fig. 7). Whether these are still subsistence farms at this time is unclear; unfortunately we do not have much off-site information that could give an indication of the presence and scale of any manuring practices that would suggest ongoing surplus production. Caracupa-Valvisciolo itself may have partially depended on surplus production by class 1 farms in unit III.

Given the presence of sites on the Lepine margin, it is possible that a second route (additional to the *via pedemontana*) following the Lepine scarp was in operation by this time. A similar argument can be made for landscape unit IV, where a relatively high site density presupposes the presence of a system of tracks, but there is no direct evidence for any of these.

Another aspect of the Archaic period is the rise of various cult sites (class 4). Whilst the votive deposit of Caracupa-Valvisciolo goes out of use by the 6th century BC, at Norba a late Archaic antefix has been found (Attema, 1993a: p. 87) and local farmers claim the presence of a temple in the foothills below Norba; another Archaic antefix is possibly provenient from this area (Attema, pers. comm.). Finds at site 10530 (high quality tiles, *bucchero*) support the existence of such a cult site in this area, but its location cannot be pinpointed at this time because the original context of none of these finds is known. No tombs have been

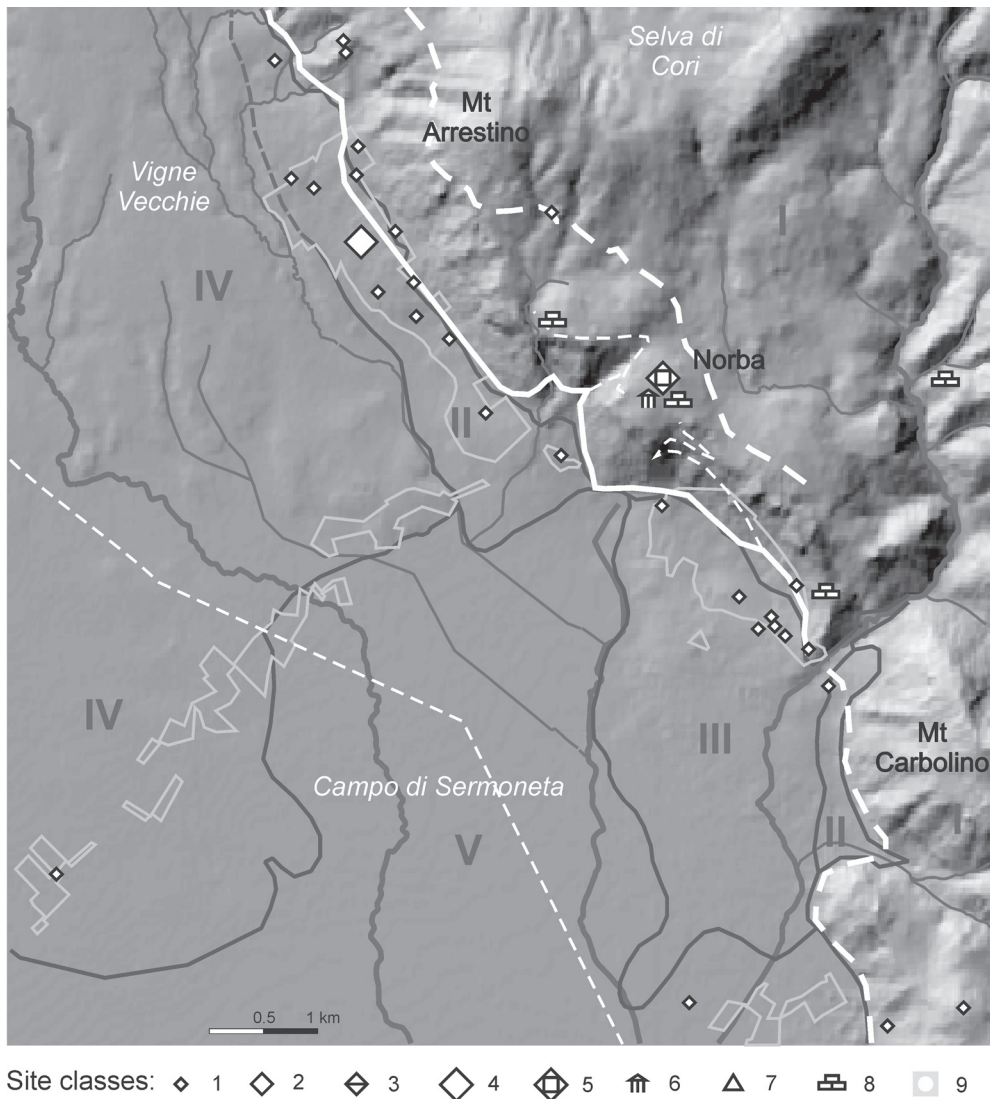


Fig. 8. Classified sites of the post-Archaic period. 1: simple rural site, 2: modest rural site, 3: elaborate rural site, 4: large site, 5: large complex site, 6: cultic site, 7: tomb(s), 8: defended site, 9: road.

identified for this period, so a major change in burial customs must be assumed (Colonna, 1977).

3.5. Post-Archaic period, c. 500–350 BC (fig. 8)

After the Archaic period, six or seven sites out of a total of 41 are abandoned. The large majority of sites, therefore, shows continuity into the post-Archaic period. Only four new sites are founded in the post-Archaic, two of which (sites 10532 and 11621) are located outside the footslope and alluvial cone units and away from the Lepine scarp in unit I.¹⁵

The rural settlement pattern of the post-Archaic period appears fairly similar to that of the Archaic, with

some reduction in the number of class 1 sites but otherwise a high degree of settlement continuity. In fact, all of the sites revisited by De Haas in 2002 have evidence for a continuous occupation from the Archaic period into mid- or late Republican times, in the form of coarse wares datable to the 5th to 3rd century. These observations provide us with our least biased measure of continuity for the post-Archaic period.

Two new site classes make their appearance in the post-Archaic: large complex sites (class 5) and defensive sites (class 8). Norba itself now develops into a large, complex defended site; the other three defended sites are located on the Lepine margin as well (sites 10595 and 10533), or in a similarly strategic location

in the hinterland (site 10532).¹⁶ The shrinking finds area indicates that Contrada Casali (site 10880) in this phase probably reverts from a class 2 site into a single farmstead (class 1).

Regarding the distribution of sites and site classes in the various landscape units, it must be kept in mind that the post-Archaic, as a distinct period, was not used until the 1990s, and therefore almost no sites can be assigned to this period in landscape units IV and V. Traditionally the 5th to mid-3rd centuries suffered from a limited knowledge of ceramic shapes; with the data from Satricum (both votive deposit 2 and fabric studies) this bias has been reduced and most post-Archaic tile and pottery can now be recognised either by fabric or by form (e.g., white-firing Augite-tempered tile and the 'almond rim'; Attema *et al.*, 2003; Bouma, 1996).

The site hierarchy as described for the Archaic period does not, in essence, change much in the subsequent post-Archaic period. There is, however, a very clear and important shift in settlement focus from the Caracupa-Valvisciolo area to the Norba area, reflected as well in the location of cult sites: the cultic features at Caracupa-Valvisciolo are abandoned, whereas the sanctuaries below and in Norba show continuity. At the very beginning of the post-Archaic period, a Roman colony is said by Livy to have been established at Norba; it is not clear whether Caracupa-Valvisciolo could still have been in use at that time as a defended site, but apparently its position at the entrance to the hinterland had by then already lost its previous importance. Perhaps this shift also indicates the diminishing importance of the supposed Archaic 'transhumance economy'.

The rural sites show no clear signs of a change in production mode concomitant with the reported 5th century Roman colonization of Norba, as far as site size and assemblage are concerned. At least two small Archaic sites in the foothills are deserted in the post-Archaic period, their holdings perhaps assimilated by neighbouring larger farms. The northwest to southeast oriented infrastructure of the area continues to develop during this period, with the *via pedemontana* almost certainly in use and the *via Setina* and the road along the top of the Lepine scarp between Cora and Norba developing in parallel to a local system of access roads of Norba.

The rise in the number of defended/defensive sites (class 8) appears to reflect the historically turbulent period of the Volscan wars. Although there is no direct evidence that the Volscan wars had any great influence on the pattern of small rural sites, perhaps the general poverty of the pottery assemblages does indicate that

the normal systems of production and consumption were disturbed to the degree that distinctive pottery forms and fabrics were no longer distributed across the landscape. The same is, however, not the case for roof tiles: the appearance of roof tiles of identical fabric in most if not all rural sites indicates that production was centralized and took place on a relatively large, if not 'industrial', scale probably at or near Norba (Attema *et al.*, 2003: p. 378). Moreover, the simultaneous appearance of light-coloured fabrics based on non-oxidizing clays is an additional indication for such a mode of production.

3.6. Roman Republican period, c. 350–30 BC (fig. 9)

Although the total number of classified sites jumps from 33 in the post-Archaic period to 53 in the Republican period, this is to a large extent due to the fact that Republican sites were more easily recognised in topographic studies. When we confine our observations to the well-investigated footslope zone, there is again a very strong measure of continuity: only three post-Archaic sites were abandoned. A 'Republican colonization' in the sense of a widespread rural plantation of Roman citizens in the area is therefore not attested.

To start off at the top of the site hierarchy, Norba had by now developed into a full-sized town with defensive walls, a regular street plan, public buildings, temples, etcetera. Two sites of class 4 form the secondary level in the hierarchy: 10514 which continues from the post-Archaic, and 13470 which lies near the *via Appia* in the southwestern corner of our study area, and develops from a smaller site. The previously undifferentiated level of rural sites now shows a more pronounced typology: out of many class 1 small sites, modest and elaborate rural sites (classes 2 and 3) develop. Many of these, moreover, are easily detected because of the remains of their building platforms, contained by walls in polygonal masonry (and, at a later stage, stone and cement walls). Evidence for habitation in unit IV now becomes plentiful, and extends to the very boundary with unit V. From their placement in the landscape it appears that locations affording relatively open views are preferred. In unit I, modest rural sites are now also found some considerable distance away from the Lepine scarp, suggesting that the rural hinterland of colonies like Norba also included the Lepine uplands.

The Republican period also sees the re-emergence of formal urban and rural cult buildings, as well as cult activities and burials tied to rural habitation sites. Examples of the former are the various temples at

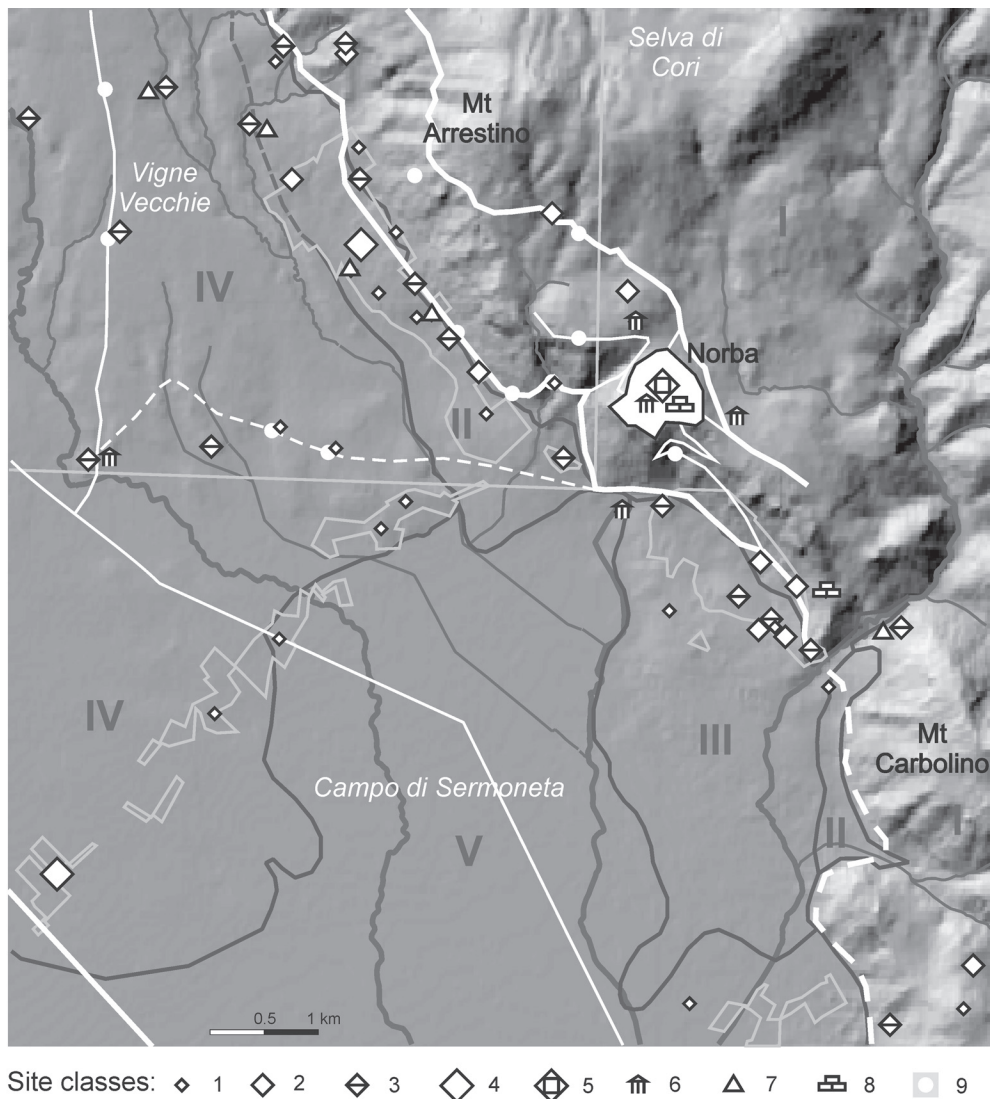


Fig. 9. Classified sites of the Republican period. 1: simple rural site, 2: modest rural site, 3: elaborate rural site, 4: large site, 5: large complex site, 6: cultic site, 7: tomb(s), 8: defended site, 9: road.

Norba (Savignoni & Mengarelli, 1901; 1903a) and the rural temple referred to by Pliny (*Naturalis Historia* II, 209 and 240; III, 57).¹⁷ Evidence for cult activities and tombs associated with rural habitation is found at several sites, for example at 11659 and 11664. These types of activity (especially tombs) now become more easily recognizable than in previous periods by the use of worked and/or inscribed stone. Obviously, there must also have been a monumental cemetery for Norba; such cemeteries were in most Roman towns located outside the town gates on the access roads. Saggi suggests the presence of such a necropolis on the *via pedemontana*, in two areas called *Freccicare* and *Colle della Mentuccia* where workers reported

finding ‘many tombs, some with inscriptions’ (Saggi, 1977: p. 57). In view of the relatively large horizontal and vertical distance to the town we reject this idea; Norba’s necropoleis are more likely to have been located on access roads to its north and southeast. The reported tombs may instead be related to nearby rural habitation sites such as 11651, 10504 and 10506.

The archaeological evidence for the presence of defended sites in the Republican period is unclear: most defended sites have been ascribed to the Archaic and post-Archaic periods, but obviously these defences could well have remained in place during the Republic. However, until these sites are studied more systematically, elementary information about their lo-

cation, character, and dating is simply not available.

Nearly all of our evidence for the presence of roads is dated to the Republican period and later, and a large number of sites has been tentatively linked to the infrastructure of paved or gravel roads that we described in section 3.2. It should be kept in mind that this method of dating carries an evident risk of circular reasoning; direct detection of roadbeds (*e.g.*, from aerial photographs or geophysical surveys) is much to be preferred above the 'connect the dots' approach adopted by topographers.

The Republican is probably the period least negatively influenced by visibility and research biases: ceramic wares and shapes are relatively well known and easily recognisable in the field. Moreover, the most commonly occurring building techniques can mostly be dated within this period. Therefore a large number of 'new' sites *seems* to appear in the Republican period especially in the area studied by Brandizzi Vittucci: since she could not yet recognize materials dating to the post-Archaic, almost all of her sites are dated to the Republican and Imperial periods only. One major research problem we still share with Vittucci is our relative inability to make chronological distinctions within the three centuries of the Republican period; for the moment we are forced to assume (for lack of contradictory evidence) that all farms were in use during most of this very long period. Another type of bias is caused by the varying intensity of research in the different land units. For example, the general density of farms in unit IV may in reality have been similar to that mapped in units II and III, and the lack of research in unit I, along with the fact that some farms have now been mapped there, suggests that further study could reveal a substantial upland agricultural activity.¹⁸

In the early Republican period, Norba develops into a walled town and regional market, administrative, and cult centre, and our rural site evidence indicates that the structure of settlement and land use around it changes to reflect this. The investments made in rural villa platforms, agricultural terraces, cisterns and roads suggest the development of a local economy centred mostly on Norba, but with production and consumption taking on regional elements as well (amphoras, possibly provenient from potteries on the Latial coast (Mater, 2005: pp. 141–145); distribution of 'petites estampilles' black gloss ware from Rome).

At the same time, the *via Appia* was extended through the Pontine basin (*c.* 312 BC) and road stations were constructed along it, which probably contributed to the development of settlement and exploitation in land units IV and V.¹⁹ It formed an important

connection to Rome and perhaps to Terracina at the southeast corner of the Pontine region as well, whence agricultural products could easily be shipped for distribution over a wider area. As a consequence, the *via pedemontana* lost its role as the primary connection, but it was surely still functioning.

Our class 3 in units II and III includes sites characterized by modest platforms with retaining walls in polygonal masonry. Some of our surveys show that the latter do not date before the 3rd century BC (De Haas, 2003). Various scholars suppose – and our surveys support this – that these platform sites were modest villas of a type that evolved from the 3rd century BC onwards. The regular distribution of such platform villas over the foothill zone implies a rational exploitation.²⁰ Palynological research hints at the introduction of olive cultivation in the area in the 3rd century BC and the fact that olive press beds have been found at similar sites just outside our study area indeed form a link to olive cultivation for these platform sites.²¹ It therefore seems likely that the rise of the platform villa should be connected predominantly to market oriented production of olive oil. The class 3 sites recorded by Brandizzi Vittucci in unit IV in most cases lack the typical building platforms, but in our view probably represent the same type of production unit. This would imply that landscape unit IV, like units II and III, was systematically exploited by modest estates. Their produce was no doubt traded at the regional centre of Norba, but the estates were most probably also part of wider trade networks.

Based on their spatial distribution and their ceramic assemblages, many class 1 and 2 sites probably represent either simple farms or outbuildings and other structures related to agricultural production. The latter are often located close to class 3 sites (see fig. 9), predominantly contain storage and transport vessels (and no fine wares), or consist of cisterns or agricultural terracings. However, other class 1 and 2 sites do not distinguish themselves at all clearly from class 3 sites, and further field and material studies are needed to clear up this aspect of the classification.

3.7. Early and mid-Imperial period, 30 BC–AD 300 (figs 10 and 11)

Although the peak in settlement occurred during the Republican period, a significant continuation of occupation can be seen in the early Imperial period. The most remarkable difference with the preceding period is the great reduction in class 1 and class 2 sites, whereas other classes remain relatively stable: class 3 sites still appear to be distributed relatively regu-

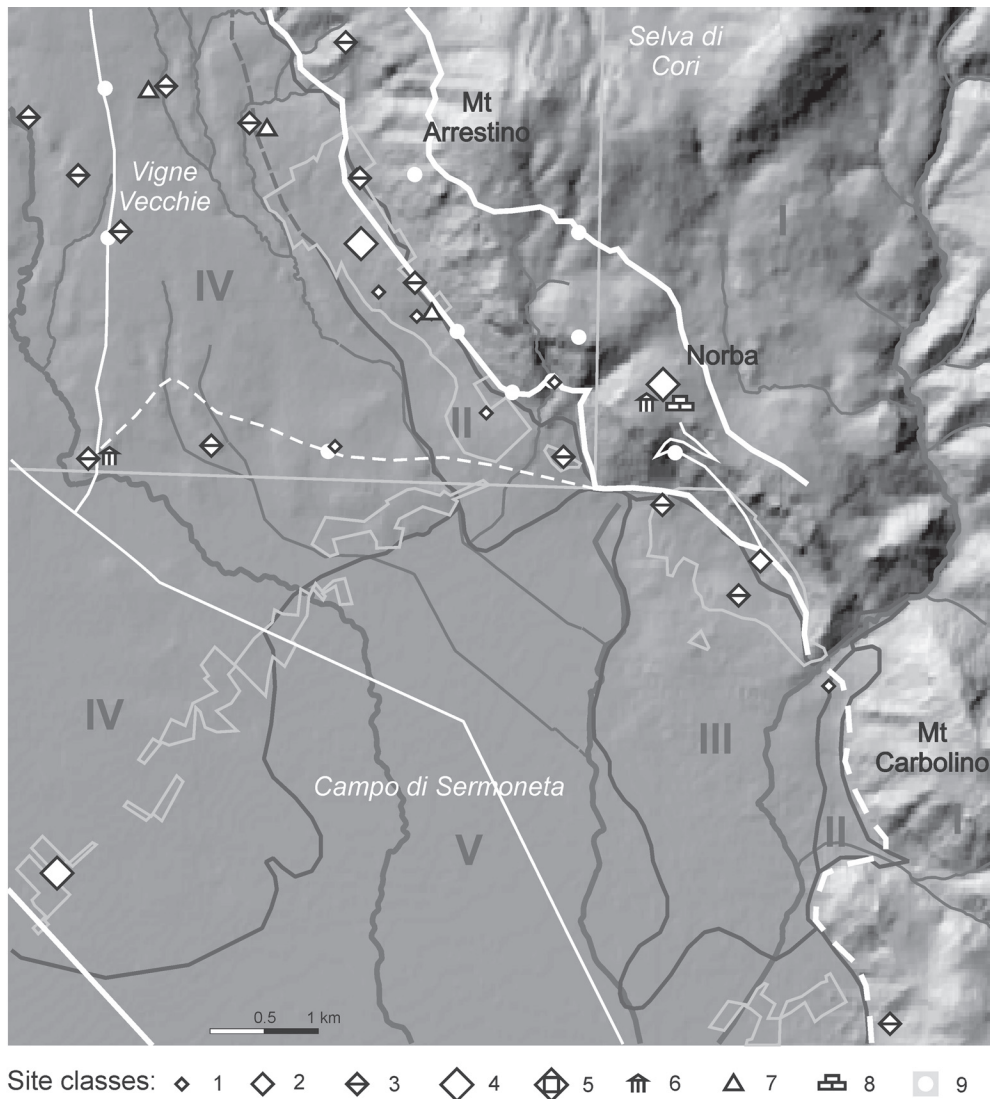


Fig. 10. Classified sites of the early Imperial period. 1: simple rural site, 2: modest rural site, 3: elaborate rural site, 4: large site, 5: large complex site, 6: cultic site, 7: tomb(s), 8: defended site, 9: road.

larly, about once every kilometer, in the well-investigated parts of landscape units II and III. Although the number of sites is further reduced in the mid-Imperial period, the rural system appears to continue until the mid-3rd century AD.

However, it is possible that this picture is partly caused by research biases. Firstly, the dating into the early and mid-Imperial period depends on the presence of imported fine wares and amphoras, which may simply not occur in the assemblages of poor sites. Secondly, the mid-Imperial period can nowadays be inferred from the presence of amphora types and African Red Slip Ware (ARSW), which were not recognized in early topographic surveys (see also sec-

tion 2.1). This means that nothing should be deduced from the scarcity of mid-Imperial sites, in particular in land units I, III and IV. Finally, it is not clear whether the fact that no sites can be securely dated later than the mid 3rd century represents a real collapse of the existing system of rural habitation and exploitation. It is also possible that this is partly due to a lack of diagnostic wares and forms and this certainly is a topic for future study.

However, it is clear that by the early Imperial period significant changes in the site hierarchy are taking place. The urban centre of Norba had during the Social War taken the side of Marius and was subsequently burned to the ground by its inhabitants in 81

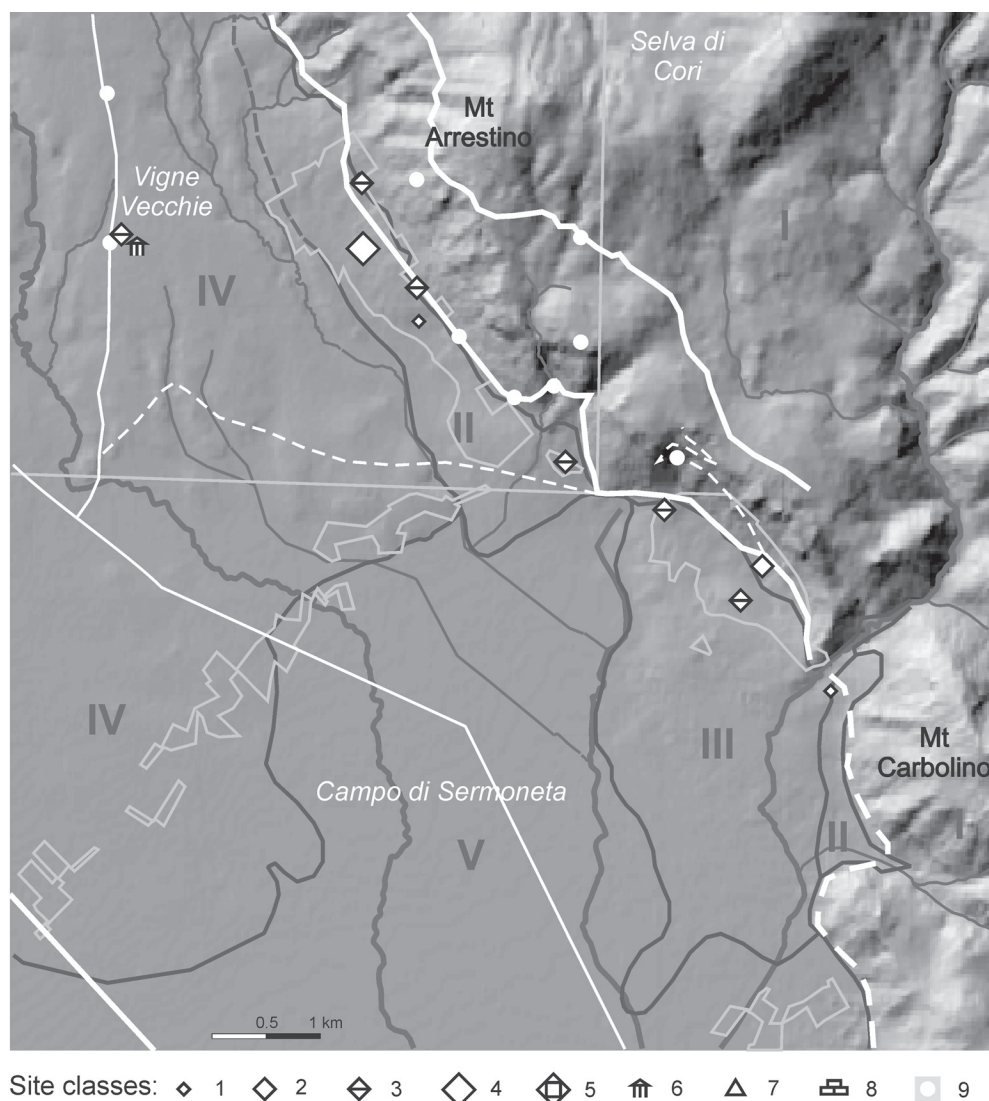


Fig. 11. Classified sites of the mid-Imperial period. 1: simple rural site, 2: modest rural site, 3: elaborate rural site, 4: large site, 5: large complex site, 6: cultic site, 7: tomb(s), 8: defended site, 9: road.

BC (Appian, *BCiv* 1.94c–1.95a). There are some traces of reoccupation and some of the temples continued to be frequented, but the site no longer functioned as a regional administrative and economic centre (Quilici-Gigli, 1998: p. 11). If Coarelli (1982) is correct in placing the municipium *Ulubrae* in the northwestern section of our study area (site 11662), then the administrative functions of Norba could have been taken over by that town.

The observed thinning but still regular distribution of class 3 sites suggests that some kind of reorganization of the structure of land ownership and/or land use took place by the late 1st century BC. The regular spacing of these sites, and the similarity of their

finds assemblages, indicates that a non-hierarchical system of rural villas may have developed, with a few possibly larger estates such as the Tiberian villa at Castellone (site 11664) interspersed. The disappearance of Norba as a local market may have meant that agricultural production was now destined for regional centres such as Antium and Terracina and was centralized on fewer estates.

Although the same rural site types continue to exist into the mid-Imperial period, the drastic reduction in site numbers – from 24 to 10 – requires an explanation. Possibly exploitation became more and more centralized with the villa as the centre; the even distribution of sites could then point to a more extensive mode of

production on larger estates, although the site assemblages show no evidence for enlargements of the sites themselves. The settlement pattern also indicates that the *via pedemontana* must have remained in use.

4. CONCLUDING DISCUSSION

Taking into account our discussion of the archaeological record and its biases in section 2, we will here attempt to relate aspects of the settlement and land use history of the study area to its morphology, geology and soils. The discussion will be largely chronological, picking up themes introduced in section 3, and will be concluded with an assessment of the archaeology of the study area within the wider region.

To a great extent, the structure of protohistorical settlement in our study area appears to have been related to the practise of short transhumance, which requires seasonal use of both lowland and highland zones. The most important settlement, both in terms of demography and of features such as defences, cemeteries, and ritual, was located at the main access point to the hinterland: the valley of the Vado la Mola. In fact, the area is considered to be relatively rich in Iron Age remains mainly because of the graves associated with Caracupa-Valvisciolo. However, transhumance is likely to have been practised within the context of a subsistence economy based on mixed farming.

Several recent studies agree that the first major observable rural expansion in the Pontine Region took place in the late Orientalizing/early Archaic period (Attema & Van Leusen, 2004: pp. 173 and 185; Attema *et al.*, 2001: p. 156), and this is also what we observe in our study area. By the end of the Archaic period this increased site density led to size differentiation, spatial clustering, and functional differentiation. Even though the study area is too small to provide direct evidence, ancient historians have given toponymical evidence for a system of 6th century settlement clusters, possibly in the form of open villages (*e.g.*, Livy, *Ab Urbe Condita* 1.38).

The observed standardisation of pottery forms and fabrics provides further evidence for the existence of workshops in such central places. Especially the widespread use of a uniform red impasto pottery in the Archaic period indicates a transition to a central Italian pottery culture, based on a 'workshop' type of production connected with central places (Nijboer, 1998) distributed roughly every 7–12 kms across the landscape. The culturally determined absence of detectable evidence for graves of the Latial culture has already been remarked on by others (Colonna, 1977);

we therefore submit that class 1 sites for this period will probably represent habitation rather than funerary activity.

Despite the widespread destruction one might expect to result from the so-called Volscan wars of the 5th and 4th centuries BC, the post-Archaic settlement pattern is essentially a continuation of the Archaic one. This is consistent with the episodic character of the 'wars', which would have mostly consisted of cattle raids and punitive expeditions. In that context the increased evidence for construction of site defences, or even the establishment of sites with a primarily defensive purpose, in the post-Archaic is understandable. Their placement in landscape unit I appears to indicate a desire for 'area' defense – either specifically to defend Norba and its immediate hinterland, or as part of a wider, more complex system to defend communication routes along the foothills and provide the rural inhabitants with advance warning against raids (*cf.* Attema, 2000: pp. 115–126). The study of these defensive systems and their relation with the landscape is another attractive focus for future research.

According to ancient sources the earliest Roman colonisation of the Pontine region, and specifically of Norba in our study area, dates to the very beginning of the 5th century BC. However, widespread evidence of Rome's influence remains absent until the mid-4th century. In this respect the study area resembles the landscape around other Roman colonies in and around the Pontine region (Attema & Van Leusen, 2004; see below). It remains unclear to what degree Romanization involved actual colonization (*i.e.*, the plantation of Roman citizens in the area), as opposed to much less disruptive processes of incorporating local populations into 'Roman' administrative, economic and cultural systems. Within the study area the majority of rural sites display changes in building styles and economic functioning consistent with Romanization only from the 3rd century BC onwards, in other words, some two centuries after the historic start of this process. For a more extensive discussion of the problems of early Roman colonization in the Pontine region we refer the reader to Attema & Van Leusen (2004: pp. 191–193).

Another early large-scale change that can be related to the Romanization of the Pontine region is the extension, towards the end of the 4th century BC, of the Via Appia towards Terracina and Campania. The opening up of this route stimulated the growth of road stations such as Tres Tabernae, which in their turn would have stimulated some local trade, the activation of secondary routes between the Appia and the

Lepine mountains, and the agricultural exploitation of suitable parts of landscape unit V. In this respect the land divisions proposed by Chouquer and Favory (1987; see fig. 4) for our study area fit in well, but more convincing evidence will be needed. However, in the light of infrastructural developments, the rise of a 'Roman' system of agricultural exploitation within the study area should take place in the 3rd century, which accords well with the dates established for a selection of rural villa sites.

From our discussion of the distribution of sites of classes 1, 2 and 3 in what may be presumed to be the territory of the colony of Norba, one may even estimate that there is room for some 40 simultaneous rural villa estates; this might form the starting point for a future analysis of the socio-economic structure of the colony. In the light of the discussion on the socio-economic position of the platform villa, which appears to be the characteristic form assumed by Roman Republican exploitation of the footslope unit, an estimate of the arable land available to each site would be very useful. A preliminary estimate, based on the positions and intervals of the known sites, yields an average maximum estate size of some 52 hectares (or about 200 *iugera*), indicating that the platform villas controlled modest estates – the figure is larger than that quoted by Lafon (2001) for simple villas (50 *iugera*) but not indicative of very large estates. Data from future surveys will have to show whether more contemporary sites were in fact present in the area, which would reduce the average maximum estate size.

The systems of settlement and land use established in the Republican period continue into the Empire without any apparent change in the scale of production. Although absolute numbers of rural settlement sites appear to drop precipitously toward the mid-Imperial period, we must reckon with the different duration of these periods and with research biases. Rural villas and estates remain relatively small into the Empire, and no evidence for the installation of *latifundiae* has been found within the study area. From the lack of any evidence that these sites continued after the 3rd century AD it may be inferred that the rural systems of exploitation collapsed at this time. Some scholars have advanced the idea that deteriorating soil drainage conditions led to expansion of the Pontine marshes, and therefore to worsening living conditions due to malaria and other diseases, already in the early Imperial period (references in Sallares, 2002). However, it is not clear that this should have affected units I–IV within our study area, and we therefore believe alternative explanations will have to be sought.

One of the issues central to a reconstruction of the long-term history of settlement and land use in any area is that of site continuity. To what degree were habitation sites in continuous use, and when were significant numbers of such sites abandoned or founded? Here we find ourselves obviously limited by the low typo-chronological resolution of a data set derived almost exclusively from surface survey. But, more importantly, the biases discussed in section 2.1 disqualify a large part of our site data from being used in a study of settlement continuity. Given the nature of this archaeological database, which can be said to be representative for one landscape unit (the footslopes) only, we must be careful not to read too much in the spatio-temporal patterning of sites as depicted in figures 5 to 11. Even within the footslopes unit there have been significant differences in the intensity and quality of research, with the best studied sites tending to provide the most evidence for continuity. Thus, at the 'Republican' rural villa sites re-investigated by De Haas in 2002 (De Haas, 2003) there is evidence for a continuous occupation of virtually all sites from the Archaic period through the 1st century into the 2nd, or even the first half of the 3rd century AD.

It should, of course, be kept in mind that sites with a discontinuous settlement history tend to be archaeologically less visible than multiperiod sites, and the sample of known sites is probably biased in favour of a high degree of continuity. We therefore believe a) that revisits to the known archaeological sites in the other landscape units will probably result in a high degree of continuity as well, and b) that future systematic and intensive survey of these units must be based on a spatial sampling scheme designed to avert the danger of such biases.

How does our study area compare with adjacent parts of the region and with neighbouring regions? If we compare the densities and patterns displayed by the sites in our study area to those of nearby areas that were previously studied by the Pontine Region Project (Attema & Van Leusen, 2004), we may note some similarities especially with the landscapes around the Roman colonies of Signia on the northern rim of the Lepine mountains and Lanuvium in the Alban hills (see fig. 1).

In these areas, the volcanic land unit was found to be very conducive to demographic expansion and rural infill from the protohistoric period onwards, although significant differences in recorded site density remain (Attema & Van Leusen, 2004: pp. 189–190). We should expect a similar pattern at least for landscape unit IV in our study area even if the evidence, for the

present, is absent. In fact, the Signia and Lanuvium studies support our suggestion that significant biases are operating against us in landscape unit IV.

The high degree of Archaic to Roman settlement continuity at most sites in the Signia and Lanuvium surveys is another characteristic in common with our study area, which indicates that a planned and aggressive Roman ‘colonization’ is unlikely to have occurred. Our study area further resembles the region around Signia in that it, too, provides evidence that the centre of gravity of the settlement system moves to the location of the newly established colony in the post-Archaic period. The demographic impact of the historically attested colonization events in places such as Signia and Norba, however, needs further study. Initially, low numbers of colonists were mainly concerned with maintaining strategic defensive locations (*arx*), but even a small Roman colony may have had a significant impact on the demography of our study area, and might be archaeologically visible in the increased extent and intensity of agricultural exploitation of Norba’s hinterland.

In the Alban hills Attema found indications in the composition of the site assemblages of the Roman Republican period (Attema & Van Leusen, 2004: p. 187) of a shift in the settlement pattern, from a dispersed one consisting of a large number of small farmstead sites to a nucleated one in which individual hill systems were exploited from single large villa sites with numerous outbuildings. Being nearer to Rome, it might be thought that developments here went farther than they did in the remoter Ninfa study area, but our data indicate that a broadly similar shift in agricultural exploitation may also have taken place there. It appears that the rate and reach of such processes were adapted to the possibilities afforded by the local physical, economic and political landscape.

8. NOTES

1. The following simplified period indications are used throughout: Iron Age 1000–700 BC, Orientalizing period 700–600 BC, Archaic 600–500 BC, post-Archaic 500–350 BC, Republican 350–30 BC, Early Empire 30 BC–AD 100, Middle Empire AD 100–300.
2. A full catalogue of sites resulting from GIA investigations in the Pontine Region is in preparation (Attema & De Haas, in prep.).
3. In the alluvial cone unit, close to the railway station at Sermoneta Scalo.
4. For a discussion of infrastructure, see section 3.2.
5. For a more detailed discussion of the role of bias models in relation to landscape archaeology, see Van Leusen, 1996 and Van Leusen, 2002: chapter 4.
6. Although three radiocarbon dates were taken, they do not date the pollen phase boundaries (Haagsma, 1993).
7. This canal may have been based on the much earlier drainage ditch reportedly dug by the consul Cethegus in 160 BC (Livy, Ep. XLVI).
8. The detection of protohistoric *impasto* is negatively influenced by visibility conditions: in bad conditions, the *impasto* is the first find category not to be found (Attema & Van Leusen, 2003: p. 92).
9. At least half the sites reinvestigated by De Haas (2003) were occupied from the Late Iron Age (7th century) onwards.
10. Thus, Orientalizing pottery was found during re-study of the APS project finds for site 13470 (pers. comm. L. Alessandri).
11. However, we consider the dates provided by the Agro Pontino Survey team (Holstrom *et al.*, 2004) to be unreliable because re-study of some of their material stored in the Tivoli depot proved it to be erroneously ascribed to the Iron Age or the Archaic period (L. Alessandri, pers. comm.).
12. One good target for future research would be the area of travertine-based soil contained within unit IV, which centers on a small lake that might have attracted relatively stable settlement and land use in this period.
13. Coarelli (1982: p. 265) also places the Archaic Latin center and later Roman municipium of Ulubrae in our study area on the basis of an inscription found in situ at site 11662; on geomorphological grounds he estimates the size of this settlement at c. 12 ha – *i.e.*, similar to that for Caracupa-Valvisciolo. However, this identification is not yet supported by direct evidence.
14. The Rank Size Rule (Zipf, 1949) notes the relationship between the ranks of sites and their populations. The degree of primacy refers to the dominance of the largest site over the rest.
15. One other site (10863) lies just beyond the boundary of unit III in the plain, but according to Attema (pers. comm.) it is located on sediments belonging to unit III.
16. Several defended sites not included in our catalogue have been reported. For example, in the not precisely known location of *Formiciglio*, nearby but to the west of the Serrone di Bove, Saggi (1977: p. 62) reported a structure in polygonal masonry (subsequently pulled down by farm hands) that, from its position, was thought to provide defence in the direction of Cora. Higher up the same slope, near the modern road between Norma and Montellanico, early black gloss ware was found, lending credence to a post-Archaic or early Republican date for that structure. At *Colle Ferraro*, just across the valley from the defended site of La Murella (site 10532), another site of unknown date, but apparently designed as part of the defensive system along the Lepine scarp, was reported by Del Lungo (2001: p. 66).
17. The present remains of terracing at Serrone di Bove – perhaps to be identified with those excavated at the start of the 20th century by Savignoni and Mengarelli – are also interpreted as a sanctuary by Saggi (1977).

18. Especially the relatively level areas (with a slope less than 16 degrees) that provide some view over the surroundings present likely zones for these farms.
19. We may tentatively identify class 4 site 13470 with the historic road station of *Tres Tabernae*.
20. Some 'gaps' in this distribution could be filled by further survey. For example, in the northern part of landscape unit III, in the unknown location Termine, Saggi (1977: p. 72) reports the remains of a Roman villa (consisting of stretches of walls, a diverticulum, and a well) and the find of a cult/boundary stone.
21. Agricultural land use in the later Roman, Medieval, and early modern periods has not been reviewed for this article, but post-Medieval historical cartographic sources do allow the conclusion that the study area has been part of a traditional olive oil production zone since at least the Renaissance. In the light of our argument, it is not unlikely that this situation reflects land use in the Roman period.

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APPENDIX 1. SITE CLASSIFICATION

This appendix gives the criteria for the classification of sites of the Bronze Age to the Archaic period (A) and the post-Archaic to the mid-Imperial period (B). For each class, it lists and briefly discusses the qualifying sites. Although the classes are purely descriptive, in some cases a probable site type is suggested as well. Sites that qualify for the criteria of more than one class have been listed under both; site assemblages that qualify for different sets of criteria in different periods have been listed in different classes for these periods.

A. SITE CLASSIFICATION FOR THE PROTOHISTORIC AND ARCHAIC PERIODS

This classification is based on the site assemblages and spatial characteristics of 44 sites of the protohistoric and Archaic periods (fig. A1; 1 Bronze Age, 7 Iron Age, 14 Orientalizing period, 41 Archaic).

Pottery assemblages include thin, medium, and thick *impasto* pottery, and *bucchero*. Occasionally, spindle whorls and metal objects occur as well. Building materials include roofing tile (although these are not always distinguished from dolium fragments) and *grumo* (daub); architectural remains are only known in the form of terrace retaining walls for this period. Where sites are located in special topographic positions (e.g., hilltops), this has been used as a supporting criterion.

Following the description of the classification criteria, a list of sites is included for easy reference to the site catalogue (Appendix 2). A brief comment on the class as a whole is then provided, along with a tentative interpretation.

Class 1. Small impasto scatters

Pottery: always thin and/or medium *impasto*, often thick *impasto*
 Building materials: usually absent, but *grumo* was found on one site
 Architecture: not present
 Size: typically no larger than 0.25 ha
 Location: not on steep slopes
 Sites: 10502, 10504, 10505, 10506, 10507, 10508, 10509, 10510, 10511, 10514, 10515, 10516, 10517, 10518, 10520, 10521, 10522, 10530, 10595, 10598, 10599, 10865, 10866, 10867, 10879, 10880, 10954, 10956, 10957, 10958, 10959, 10960, 10961, 10962, 11633, 11634, 11650, 13470, 13471, 13474, and 13587

Class 1 holds the most common protohistoric/Archaic site type (41 sites; 1 Bronze Age, 3 Iron Age, 13 Orientalizing, 36 Archaic). It may be that this class in fact contains several categories of simple rural sites or even more complex sites, for example sites 10595 (Serrone di Bove) and the early phases of sites 10879 (Caracupa-

Valvisciolo), 10880 (Contrada Casali) and 10514. In the absence of reliable size estimates for the sites of this class, we cannot subdivide it any further. The majority of class 1 sites should probably be interpreted as either temporary or seasonal cabins, or simple family farms.

Class 2. Large impasto scatters

Pottery: always thin and/or medium *impasto*, sometimes thick *impasto* and/or spinning utensils
 Building materials: sometimes *grumo* and/or tile
 Architecture: often terraces with retaining walls
 Size: larger than 1 ha
 Location: variable, but includes strategic positions (hilltops)
 Sites: 10514, 10533 and 10880

This class includes three Archaic sites: 10880 (Contrada Casali), 10533 (Colle Gentile) and 10514. These have a more extensive ceramic assemblage and more building materials than class 1 sites. Their size implies that several households lived together. In two cases, architecture occurs in the form of terrace retaining walls in 1st polygonal style, pointing at some basic communal investments. Given the variation within this class, we are not convinced that these three sites form a natural group; for the time being, we interpret class 2 sites as simple hamlets based on subsistence farming, although site 10533 had a defensive function as well (see also Roman class 8, Appendix 1: B).

Class 3. Complex impasto sites

Pottery: thin, medium and thick *impasto*, *bucchero*, and spinning utensils
 Building materials: *grumo* and tile
 Architecture: terrace retaining walls
 Size: larger than 10 ha
 Location: part of the site is in strategic defensive position
 Site: 10879

Only the site of Caracupa-Valvisciolo (10879) falls within this class. Both the abundance and wide range of archaeological finds (tombs, defensive terraces, votive deposit, settlement debris including *bucchero* pottery, *grumo* and tiles) and its size (48 hectares combining habitation area, necropolis and *arx*) make this site unique within the study area. From the Iron Age onwards, it must have housed a considerable population, with evidence for some sort of central control and for social stratification (Angle & Gianni, 1990). The presence of metal slag points at specialized activities, while the material from the graves and votive deposit (*bucchero*, metalwork) points at trade contacts. The site may well have functioned as a regional (religious) center and defended *refugium* (Quilici & Quilici-Gigli, 1987; see also Attema, 1993). Since we have only one example in this class, it cannot be determined whether the size threshold value given here is valid in general.

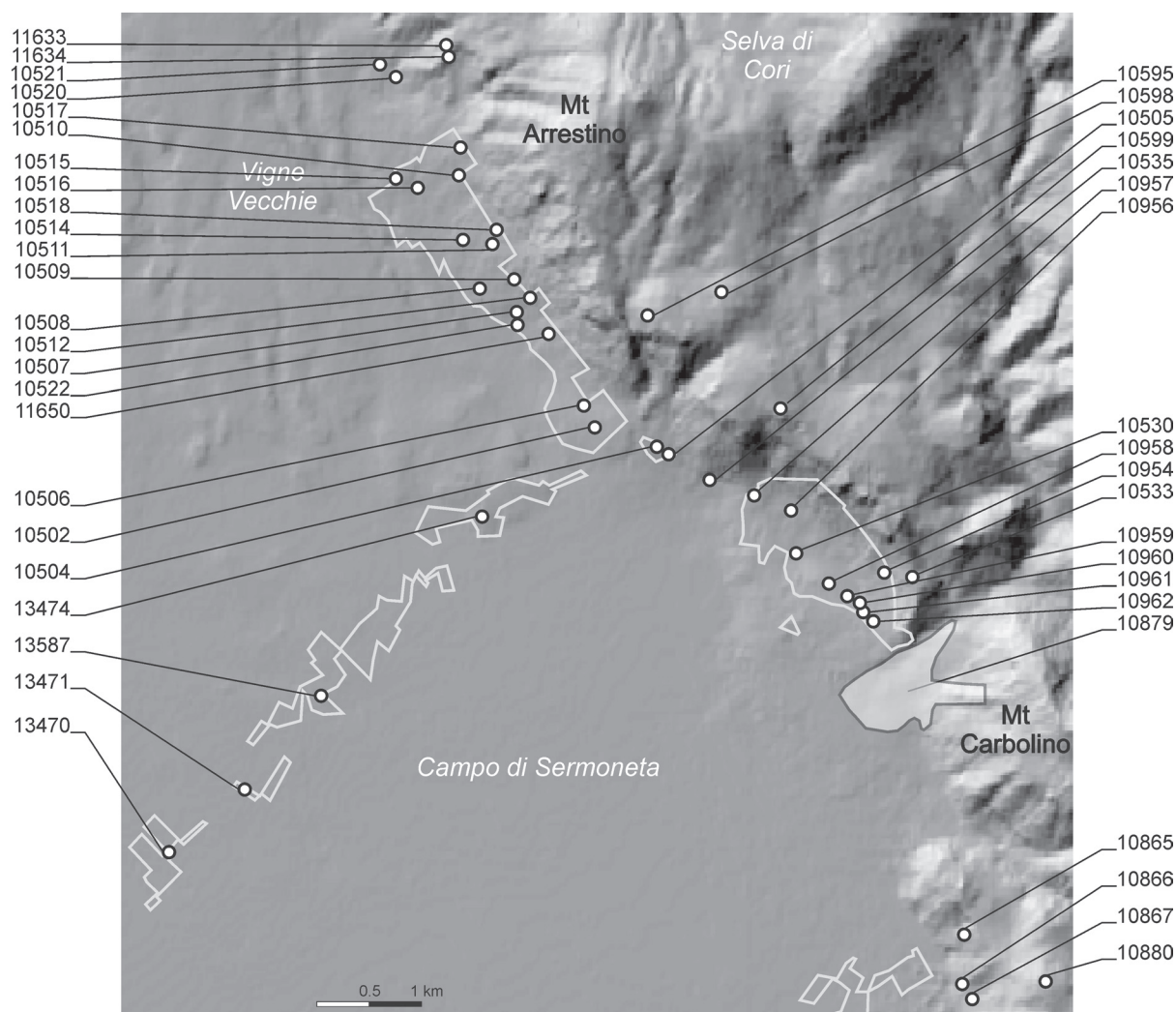


Fig. A1. Bronze Age to Archaic site index.

Class 4. Sites with evidence for cultic use

Pottery: thin, medium and thick *impasto*, bucchero, miniature pottery

Building materials: *grumo* and tile

Architecture: architectural terracottas

Size: not used as a criterion

Location: not used as a criterion

Sites: 10530, 10599 and 10879

Three sites have yielded exceptional finds that indicate cultic activities (1 Iron Age, 2 Orientalizing, 2 Archaic). Site 10530 contains a relatively large proportion of nicely finished roofing tile and fine wares including *bucchero*. Such finds are otherwise only found at Caracupa-Valvisciolo and Contrada Casali. According to local farmers, a terracotta antefix has also been found in this area and we believe that these high quality finds point to the presence of a small cult building in the area, dating to the Archaic period. The votive deposit of Caracupa-Valvisciolo (10879) clearly proves cultic activ-

ity on this site as well, dating to the Iron Age and Orientalizing periods. Finally, the find of a late Archaic antefix may indicate cultic activity in an early phase at Norba (10599).

Class 5. Tombs

Pottery: thin and/or medium *impasto*

Special finds: spindle whorls, sometimes metal finds

Building materials: none present

Architecture: none present

Size: not used as a criterion

Location: may occur on slopes that are too steep for class 1

Sites: 10512, 10535, 10879, and 13470

Four sites are classified as tombs (4 Iron Age, 1 Orientalizing). Site 10512 yielded, besides *impasto* pottery and spindle whorls (otherwise only attested at Contrada Casali and at Caracupa-Valvisciolo, but not at any class 1 site). Considering the absence of building

material and architecture and the steep slope on which this site is located, we tentatively interpret it as (a group of) burials. Other early Iron Age tombs (10535) were reported in Saggi 1977, but their precise location near Ninfa is not known. Parts of an Iron Age/Orientalizing necropolis have been excavated at Caracupa-Valvisciolo and here spinning utensils are commonly deposited as well as impasto pottery and metalwork. Saggi (1977) reports several more Iron Age tombs in the uplands, but we have no location for these sites. At site 13470 a 'horned' early Iron Age cinerary urn was identified among the finds of the Agro Pontino Survey project during re-study by L. Alessandri (pers. comm.).

B. SITE CLASSIFICATION FOR THE POST-ARCHAIC AND ROMAN PERIODS

We have classified a total of 66 sites dating to the post-Archaic and Roman periods (fig. B1). Based on the presence of diagnostic pottery wares and, in some cases, building techniques, we have distinguished 33 post-Archaic, 53 Republican, 26 early Imperial and 10 mid-Imperial sites (excluding roads). Our site classification for this period is again based on the composition of ceramic assemblages (coarse wares, fine wares, *dolia*, and *amphorae*), the presence of certain building materials (tiles, terracottas) and architectural remains (stones, standing walls, terrace retaining walls, cisterns, etc). *Opus reticulatum* has been dated to the Republican period, *opus lateritium* to the Imperial period; the presence of luxury architectural elements has been regarded as indicating a probable early Imperial date, possibly extending into the mid-Imperial period. Unfortunately the presence or nature of architectural remains could not be used as a criterion for the post-Archaic period because no diagnostic building techniques have been observed. In the absence of other indications for complexity we have therefore classed all post-Archaic settlement phases of more complex rural sites into class 1. Where possible, site size and/or locational characteristics have been used as additional or supporting criteria.

Following the description of the classification criteria, a list of sites is included for easy reference to the site catalogue (Appendix 2). A brief comment on the class as a whole is then provided, along with a tentative interpretation.

Class 1. Simple rural sites

Pottery: always coarse and/or fine wares, sometimes *amphora*/*dolium*

Building materials: almost always roofing tile

Architecture: none present

Size: not used as a criterion, but typically no larger than 0.25 ha

Location: not used as a criterion

Sites: 10504, 10506, 10507, 10508, 10509, 10510, 10515, 10516, 10517, 10518, 10521, 10863, 10867, 10879, 10880, 10952, 10954, 10957, 10958, 10959, 10960, 10961, 10962, 10963, 11621, 11633, 11634, 11650, 11666, 11667, 13470, 13474, 13477, 13478, and 13587

Ceramic scatters without any architectural features present (excepting roofing tiles), constitute our first and most numerous class. Our database contains 35 such sites (28 post-Archaic, 17 Republican, 5 early Imperial and 2 mid-Imperial). The site assemblage typically consists of roofing tiles, coarse wares, and fine wares and sometimes includes *amphora* or *dolium* (in two cases the presence of tiles was not reported). For four sites we have a reliable size estimate, ranging from 400 to 2500 m². Most class 1 sites should be interpreted as modest family farm structures built out of perishable materials with a (partially) tiled roof, but other site types such as agricultural outbuildings, sheds or simple tombs may also be present in this class. The discovery of additional finds categories in targeted site revisits could well lead to the reclassification of some class 1 sites to classes 2 or 3.

Class 2. Modest rural sites

Pottery: always coarse and/or fine wares, sometimes *amphora*/*dolium*

Building materials: almost always roofing tile

Architecture: stones, remains of standing walls or terrace retaining walls, cisterns or *cuniculi*

Size: not used as a criterion

Location: not used as a criterion

Sites: 10515, 10531, 10598, 10954, 10955, 10959, 10962, 11621, 11634, and 11651

This class contains ten site assemblages (10 Republican, 1 early Imperial, 1 mid-Imperial) containing the same pottery as in class 1 as well as architectural features such as remains of standing and terrace retaining walls, a cistern or a *cuniculus*. We have size estimates for three class 2 sites, ranging from 200 to 5000 m².

Whilst it appears that all the sites in this class represent structures relating to modest farmsteads, further study may allow a subdivision into classes distinguishing small farmsteads from agricultural outbuildings. Furthermore, since many of these sites were investigated under bad visibility/conservation conditions, future study may upgrade some of them to class 3.

Class 3. Elaborate rural sites

Pottery: almost always coarse and/or fine wares, sometimes *amphora*/*dolium*

Building materials: almost always roofing tile

Architectural remains: besides (foundation) wall remains and/or agricultural terraces, a cistern or *cuniculus*, also building platforms and/or traces of luxury architecture (columns, painted plaster, tesserae)

Size: not used as a criterion

Location: not used as a criterion

Sites: 10504, 10509, 10510, 10519, 10867, 10952, 10957, 10958, 10960, 10965, 11633, 11650, 11658, 11659, 11660, 11662, 11663, 11664, 11665.

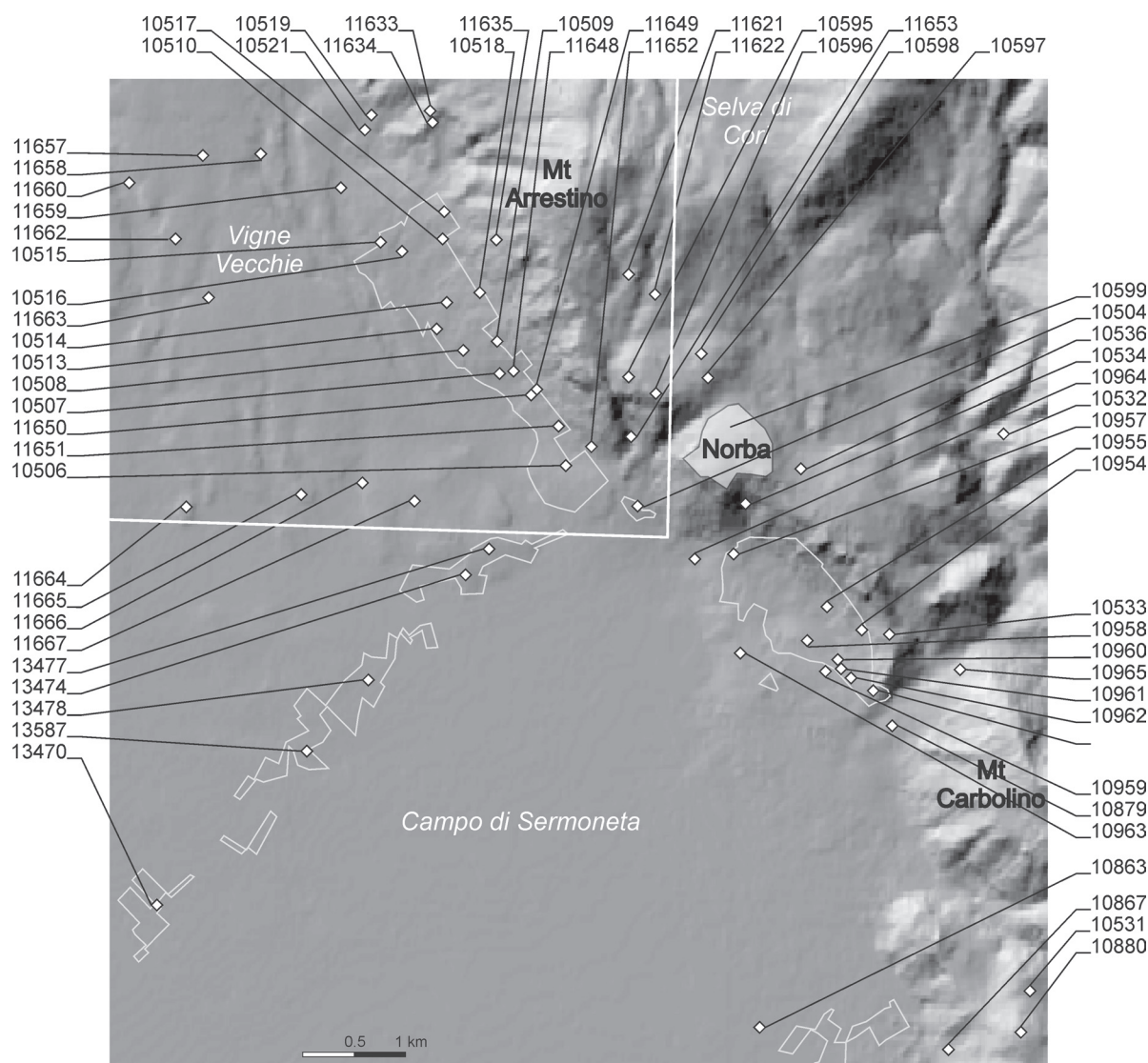


Fig. B1. Post-Archaic to Imperial site index.

Our third class comprises 19 sites (18 Republican, 14 early Imperial, 6 mid-Imperial), all yielding extensive ceramic assemblages and architectural remains (building platform, standing walls or wall blocks) in combination with elements of architectural luxury (tesserae, marble, painted plaster, columns) and/or elements of agricultural investment (cisterns, terraces, millstones, drainage canal). We have two site size estimates (5600 and 20,000 m²), indicating that this class may generally be larger than class 1 and 2 sites.

Class 3 includes the so-called 'platform villa', representing modest farm buildings on platforms constructed in polygonal masonry or *opus caementicium* (11659, 10519, 11650, 10504, 10958, 10957, 10510, 10509, 10867, 10952, 10960, 10965) against a slope or, in one case, on a hill crest (10958). The platforms and their retaining walls are only partially preserved and, in general, badly eroded by modern agriculture. The length of four platforms could

still be measured, one being 27.5 m, another 31 m, and the remaining two 33 m. All sites yield roofing tile, sometimes concentrated on or behind the platform as predicted by Lafon (2001: pp. 27–29, fig. 9). Most of them also have remains of architecture in *opus caementicium*, *opus incertum* or *opus reticulatum*, and some possess a modest degree of luxury in the form of mosaics or plastered walls. These observations attest to phases of (re-)building between the 3rd and 1st centuries BC (De Haas, 2003); whether the oldest of these structures were built at the same time as the platforms themselves cannot be said at this time.

Class 3 also includes sites that have no building platform but do include luxury items and sometimes agricultural features (11658, 11665, 11660, 11633, 11662, 11663). The construction of a platform seems to be conditioned by the topography, and since the ceramic assemblages are identical we see no significant functional

differences between the two groups. Both, in our view, represent modest rural estates producing for the local market.

Class 4. Large sites

Pottery: coarse and/or fine wares, amphora and/or dolium

Building materials: roofing tile

Architecture: sometimes luxury architecture (painted plaster)

Size: 4 ha or larger

Location: along major road

Sites: 10514, 10599, and 13470

Class 4 is made up of three sites, which are distinguished from class 3 by their size (1 post-Archaic, 2 Republican, 3 early Imperial, 1 mid-Imperial). Site 10514 measures 4 hectares and had probably already developed into a hamlet in Archaic times. Its nature in later periods is not clear but until further research we uphold its interpretation as a hamlet. Although we have hardly any information on the finds at site 13470 (APS site 470), we tentatively group it here because the APS database refers to its exceptional size; it is located near the *via Appia* and we tentatively interpret it as the road station known as *Tres Tabernae*. The early Imperial phase of site 10599 (Norba) is classified here because historical sources indicate that the town was destroyed in the Social War; finds indicate that the site continued in a more modest fashion.

Class 5. Large, complex sites

Pottery: coarse and fine wares, amphora, dolium

Building materials: roofing tile

Architecture: fortification walls, roads, temples, public buildings, simple and luxury architecture

Size: not used as a criterion, but probably at least 10 ha

Location: not used as a criterion

Site: 10599

Only site 10599, the town of Norba, falls within this class (with post-Archaic, Republican and early Imperial material). It is situated strategically on a plateau overlooking the Pontine plain; its defensive walls in polygonal masonry enclose an area of more than 37 hectares. The town includes systematically planned residential zones as well as two acropoleis with temples, a forum and the usual public buildings. Both the wall circuit and urban layout date to the early Republican period, but Norba was probably already a relatively large site in the post-Archaic period.

Class 6. Cultic site

Pottery: not used as a criterion

Special finds: anatomical votives, votive statues, libation stones, altars

Building materials: sometimes architectural terracottas

Architecture: sometimes luxury architecture elements (worked travertine and marble blocks, column segments)

Location: special location (hilltop, near water source)

Size: not used as a criterion

Sites: 10536, 10597, 10599, 10964; possibly 11663 and 11664

Six sites have yielded evidence for a cultic function (1 post-Archaic, 5 Republican, 2 early Imperial, 1 mid-Imperial). The presence of votive terracotta's at site 11664 and a votive inscription at site 11663 indicates that these class 3 sites had a cultic function too, but it may have been purely local. Site 10964 consists of the remains of a Republican temple in the artificial lake of Ninfa. The interpretation of site 10597 as a cultic site is not generally accepted, but the find of a libation stone implies some special, cultic activity. Site 10536 is interpreted as a cultic site on the basis of the peculiar finds assemblage (animal bones, charcoal, BG) and the possible presence of an altar stone. At site 10599 (Norba) the remains of several temples have been excavated.

Class 7. Tombs

Pottery: presence of fine wares

Building materials: roofing tile

Architecture: some luxury architecture elements (marble elements, funeral altars and inscriptions)

Size: sometimes very discrete and small

Location: not used as a criterion

Sites: 10513, 11648, 11658, 11659, 10965

Five sites have yielded evidence for the presence of (groups of) tombs. Since closer dating to either the Republican or the early Imperial period is not possible at the moment, we have used the presence of habitation to assign a date to some tombs. Site 11648 yielded tiles of a *cappuccina* tombs and a marble decoration fragment and can probably be interpreted as a Republican/early Imperial cemetery. Site 10513 yielded fine wares and roofing tile and, in view of its very limited size (50 m²), is probably a single Republican *cappuccina* tomb. Sites 10965, 11658 and 11659 are all class 3 sites that include evidence for tombs. It is unlikely that all tombs would have contained the distinguishing luxury elements; several rural tombs and cemeteries may therefore well have been classified as class 1.

Class 8. Sites with evidence for a defensive function

Pottery: not used as a criterion

Building materials: not used as a criterion

Architecture: defensive terracing walls

Size: not used as a criterion

Location: strategic position

Sites: 10532, 10533, 10595, 10599

Four sites clearly have a defensive function (4 post-Archaic, 2 Republican, 1 early Imperial). They are enclosed by walls and are located in strategic positions (hilltops or promontories). As the walls themselves cannot be dated with any precision, we have assumed a date in the post-Archaic where no other evidence was available.

Norba (10595) has of course been studied extensively, but the other three sites have only been mapped topographically under very adverse visibility conditions; our knowledge of their ceramic assemblages is therefore very limited. At site 10595 (Serrone di Bove 1) the presence of building terraces, tiles and coarse wares may indicate that it functioned as a defensible residential site; whether sites 10532 (La Murella, 2.6 ha) and 10533 (Colle Gentile) were permanently inhabited cannot be said at the moment.

Class 9. Roads

Pottery: not used as a criterion

Building materials: not used as a criterion

Architecture: pavement blocks or road revetment walls

Size: not used as a criterion

Location: not used as a criterion

Sites: 10534, 10596, 11622, 11635, 11649, 11652, 11653, 11657, and 11663; possibly 11666 and 11667

Eleven sites have not been ascribed to a specific period; these are all infrastructural sites and consist of either pavement blocks or road revetments, both indicating roads. A date is hard to ascribe to these finds, but they can most likely be connected to the Republican and Imperial settlement system. For periods in which the evidence is equivocal and associated habitation is no longer attested, we have omitted these infrastructural sites from the period map; this is the case for sites 11666 and 11667, which have only yielded a single pavement stone which may have been re-used from elsewhere.

APPENDIX 2. SITE CATALOGUE

Sites are listed in order of GIA site ID, with alternative ID's given in parentheses. X (easting) and Y (northing) are given according to the Rome 1940 system used in the 25V series of Istituto Geografico Militare topographic maps. Site sizes, where recorded, are generally estimates based on variable criteria. A standard sample is a systematic 20% sample unless otherwise indicated; a stringsquare sample is a 100% sample taken within a 4 by 4 m square; a grab sample is an unsystematic and unrepresentative sample.

Abbreviations used for pottery types: BG = black gloss; TS = terra sigillata; ARSW = African red slip ware.

Abbreviations used for period names: BA = Bronze Age; IA = Iron Age; Orient = Orientalizing; Arch = Archaic; pArch = post-Archaic; Rep = Republican; eImp = early Imperial; mImp = mid-Imperial.

10502 (Ninfa 1998 site 2)

X 2348481; Y 4606059

Method: transect survey, very good visibility; standard sample (30% coverage)

Size: unknown

Finds: possibly Orientalizing, early Archaic wares: *impasto* and dolium

Remarks: –

Class: Arch class 1

Refs: Van Leusen, 1998: p. 3; Attema & Van Leusen, 1999: p. 28; Gaskell, 1998

10504 (Ninfa 1998 site 4)

X 2349057; Y 4605870

Method: transect survey and intensive site survey, varying visibility; standard sample, stringsquare samples and diagnostic samples

Size: unknown

Finds: Orientalizing and Archaic *impasto*: common red slip, dolium; post Archaic, Republican and early to mid-Imperial wares: tile, amphora, coarse wares, fine wares including BG, TS and ARSW; remains of platform retaining walls of polygonal masonry and several blocks reused in modern terracing walls; remains of circular building in *opus caementicium*

Remarks: resurveyed intensively in 2002 by De Haas

Class: Orient and Arch class 1; p. Arch class 1; Rep to mImp class 3

Refs: Van Leusen, 1998: p. 3; Attema & Van Leusen, 1999: p. 28; Gaskell, 1998; De Haas, 2003: site 6

10505 (Ninfa 1998 site 5)

X 2349175; Y 4605805

Method: unsystematic survey, very low visibility; grab sample

Size: unknown

Finds: Archaic *impasto*

Remarks: low amount of finds, but also low visibility

Class: Arch class 1

Refs: Van Leusen, 1998: p. 3; Attema & Van Leusen, 1999: p. 28; Gaskell, 1998

10506 (Ninfa 1998 site 6)

X 2348371; Y 4606257

Method: transect survey, good visibility; standard sample (25% coverage)

Size: 1200 m²

Finds: Archaic, post-Archaic, Republican and early Imperial wares: tile, coarse wares and fine wares including BG and TS

Remarks: –

Class: Arch class 1; pArch to eImp class 1

Refs: Van Leusen, 1998: p. 3; Attema & Van Leusen, 1999: p. 28; Gaskell, 1998

10507 (Ninfa 1998 site 7)

X 2347729; Y 4607144

Method: transect survey, good visibility; grab sample

Size: unknown

Finds: Orientalizing, Archaic, post Archaic, Republican and early to mid-Imperial wares: common red slip *impasto*, tile, dolium, amphora, coarse wares and fine wares including TS and ARSW

Remarks: finds mainly from off-site context in adjacent field

Class: Orient and Arch class 1; pArch to mImp class 1

Refs: Van Leusen, 1998: p. 3; Attema & Van Leusen, 1999: p. 28; Gaskell, 1998

10508 (Ninfa 1998 site 8)

X 2347386; Y 4607374

Method: transect survey, good visibility; standard sample (25% coverage)

Size: 1200 m²

Finds: Archaic, post-Archaic, Republican and early Imperial wares: coarse wares and fine wares including TS

Remarks: –

Class: Arch class 1; pArch to eImp class 1

Refs: Van Leusen, 1998: p. 3; Attema & Van Leusen, 1999: p. 8; Gaskell, 1998

10509 (Ninfa 1998 site 9, Vittucci site 47)

X 2347706; Y 4607450

Toponym: Pezze di Ninfa

Method: unsystematic survey and intensive site survey, varying visibility; diagnostic samples

Size: unknown

Finds: Orientalizing, Archaic, post Archaic, Republican and early to mid-Imperial wares: common red slip *impasto*,

tile, dolium, amphora, coarse wares and fine wares including *BG*, *TS* and *ARSW*; 65m stretch of wall in polygonal masonry, no corners observed

Remarks: resurveyed intensively in 2002 by De Haas

Class: Orient and Arch class 1; p-Arch class 1; Rep to mImp class 3

Refs: Van Leusen, 1998: p. 3; Attema & Van Leusen, 1999: p. 8; Gaskell, 1998; Brandizzi Vittucci, 1968: p. 123; De Haas, 2003: site 7

10510 (Ninfa 1998 site 10, Vittucci site 46)

X 327420; Y 4607515

Toponym: Pezze di Ninfa

Method: unsystematic survey and intensive site survey, varying visibility; grab sample(?) and diagnostic samples

Size: unknown

Finds: Orientalizing, Archaic, post-Archaic, Republican and early to mid-Imperial wares: *impasto*, tile, amphora, dolium, coarse wares and fine wares including *BG*, *TS* and *ARSW* (Hayes form 8, 80/90 – 2nd cent. AD); platform (length 32 m) in 3rd polygonal style with traces of a doorway and a passage in frontal retaining wall; three (agricultural?) terracing walls; lead *fstula*; *tes-serae*

Remarks: resurveyed in 2002 by De Haas

Class: Orient and Arch class 1; p-Arch class 1; Rep to mImp class 3

Refs: Van Leusen, 1998: p. 3; Attema & Van Leusen, 1999: p. 8; Gaskell, 1998; Brandizzi Vittucci 1968: pp. 121–123; De Haas, 2003: site 9

10511 (Ninfa 1998 site 11)

X 2347502; Y 4607788

Toponym: Pezze di Ninfa

Method: transect survey, good visibility; standard sample (10% coverage)

Size: 1500 m²

Finds: Archaic wares: dolium

Remarks: material provenient from higher up-hill?

Class: Arch class 1

Refs: Van Leusen, 1998: p. 3; Attema & Van Leusen, 1999: p. 8; Gaskell, 1998

10512 (Ninfa 1998 site 12)

X 2347858; Y 4607259

Method: transect survey, very good visibility; standard sample (40% coverage)

Size: 400 m²

Finds: Iron Age *impasto*; part of a spindle whorl

Remarks: site may be larger but could only be partially surveyed

Class: IA class 5

Refs: Van Leusen, 1998: p. 3; Attema & Van Leusen, 1999: p. 8; Gaskell, 1998; Brandizzi Vittucci, 1968: p. 123

10513 (Ninfa 1998 site 13)

X 2347140; Y 4607574

Method: transect survey, good visibility; total sample

Size: 50 m²

Finds: Republican wares: tile and *BG* ware; stones

Remarks: single *tomba a cappuccina*

Class: Rep class 7

Refs: Van Leusen, 1998: p. 3; Attema & Van Leusen, 1999: p. 8; Gaskell, 1998

10514 (Ninfa 1998 site 14)

X 2347218; Y 4607817

Method: transect survey, very good visibility; grab sample

Size: 4 ha

Finds: Iron age and Orientalizing *impasto*; Archaic, post Archaic, Republican and early to mid-Imperial wares: tile, dolium, amphora (a.o. *Globular type*, *Claudian* – end 3rd/start 4th cent. AD), coarse wares and fine wares including *BG*, *TS* and *ARSW* (cf. Hayes forms 9b, 14A, 196, and 197, start 2nd–mid 3rd cent. AD); grumo, painted plaster, slag

Remarks: the size of the surface scatter has not been measured for all periods separately, hence the classification is not entirely certain

Class: IA and Orient class 1; Arch class 2; pArch to mImp class 4

Refs: Van Leusen, 1998: p. 3; Attema & Van Leusen, 1999: p. 8; Gaskell, 1998

10515 (Ninfa 1998 site 15)

X 2346603; Y 4608401

Toponym: Fossateglio

Method: transect survey, good visibility; standard sample

Size: 200 m²

Finds: Archaic, post-Archaic and Republican wares: tile, dolium, amphora, coarse wares and fine wares; large stones

Remarks: –

Class: Arch class 1; p-Arch class 1; Rep class 2

Refs: Van Leusen, 1998: p. 3; Attema & Van Leusen, 1999: p. 8; Gaskell, 1998

10516 (Ninfa 1998 site 16)

X 2346795; Y 4608321

Method: transect survey, visibility unknown; sampling method unknown

Size: unknown

Finds: Archaic and post-Archaic wares: tile, dolium and coarse wares

Remarks: no site form found

Class: Arch class 1; pArch class 1

Refs: Van Leusen, 1998: p. 3; Attema & Van Leusen, 1999: p. 8; Gaskell, 1998

10517 (Ninfa 1998 site 17)

X 2347211; Y 4608699

Method: transect survey, visibility unknown; sampling method unknown

Size: unknown

Finds: Archaic, post-Archaic and Republican wares: tile, dolium, amphora and coarse wares

Remarks: field record for this site is lost

Class: Arch class 1; pArch and Rep class 1

Refs: Van Leusen, 1998: p. 3; Attema & Van Leusen, 1999: p. 8

10518 (Ninfa 1998 site 18)

X 2347544; Y 4607916

Toponym: Pezze di Ninfa

Method: transect survey, good visibility; standard sample (75% coverage)

Size: 2500 m²

Finds: possibly late Orientalizing and Archaic, post-Archaic and Republican wares: tile, coarse wares and fine wares

Remarks: –

Class: Arch class 1; pArch and Rep class 1

Refs: Van Leusen, 1998: p. 3; Attema & Van Leusen, 1999: p. 8; Gaskell, 1998

10519 (Vittucci site 45)

X 2346504; Y 4609619

Toponym: Rova Rossa/Grotte Morsa

Method: topographic survey, unknown visibility; no samples

Size: unknown

Finds: vaulted underground cistern in *opus caementicium*; wall in *opus reticulatum*; some tile, dolium and coarse wares; sculptured stone

Remarks: revisited 1998 as Ninfa survey site 19, site was by then completely destroyed. A recent dump presumably containing finds from this site was found some 80m to the south-east, at coordinates 2346588/4609538

Class: Rep class 3

Refs: Brandizzi Vittucci, 1968: p. 121; Attema & Van Leusen, 1999: p. 28

10520 (Ninfa 1998 site 20)

X 2346585; Y 4609373

Method: unsystematic survey, unknown visibility; grab sample

Size: unknown

Finds: Iron Age, Orientalizing and Archaic *impasto*

Remarks: field record for this site is lost

Class: IA to Arch class 1

Refs: Van Leusen, 1998: p. 3; Attema & Van Leusen, 1999: p. 8; Gaskell, 1998

10521 (Ninfa 1998 site 21)

X 2346433; Y 4609499

Method: unsystematic survey, unknown visibility; grab sample

Size: 2500 m²

Finds: Archaic, post-Archaic and Republican wares: tile, dolium, amphora, coarse wares and fine wares

Remarks: site itself not surveyed, sample from side of the road; close to Vittucci site 45, part of same villa complex?

Class: Arch class 1; pArch and Rep class 1

Refs: Van Leusen, 1998: p. 3; Attema & Van Leusen, 1999: p. 8; Gaskell, 1998

10522 (Ninfa 1998 site 22)

X 2347720; Y 4607047

Method: transect survey, unknown visibility; standard sample

Size: unknown

Finds: late Orientalizing or Archaic *impasto*

Remarks: site was defined after post-processing revealed a relative concentration of material in one transect

Class: Arch class 1

Refs: –

10530 (Ninfa 1999 site 30)

X 2350367; Y 4604863

Toponym: Pellicio

Method: transect survey, very good visibility; diagnostic sample

Size: unknown

Finds: Orientalizing and Archaic wares: common red slip *impasto*, bucchero, high quality tile, dolium and both thick and thin coarse wares

Remarks: farmers and amateur archaeologists report a ‘temple’ in the area; finds at this site may not be *in situ* but rather derive from this temple somewhere to the east, when soil was re-used for the construction of the canale Mussolini

Class: Orient class 1, Arch class 4

Refs: –

10531 –

X 2352830; Y 4601209

Toponym: San Francesco

Method: topographic survey; no samples

Size: unknown

Finds: section of wall in *opus reticulatum*

Remarks: re-used in the construction of a small church dedicated to San Francesco

Class: Rep class 2

Refs: –

10532 –

X 2352553; Y 4606571

Toponym: La Murella

Method: topographic survey

Size: c. 2.5 hectares

Finds: enclosure wall in polygonal masonry

Remarks: –

Class: pArch class 8

Refs: Saggi, 1977: pp. 68–9

10533 –

X2351502; Y 4604636

Toponym: Colle Gentile

Method: topographic survey

Size: unknown

Finds: at least six tracts of walls in 1st polygonal style forming at least three terraces; Archaic impasto, post-Archaic and Republican coarse wares

Remarks: located in a strategic position on the spine opposite Monte Carbolino

Class: Arch class 2; pArch and Rep class 8

Refs: Saggi, 1977: p. 63; Quilici-Gigli, 1991

10534 –

X 2350087; Y 4605952

Method: not surveyed

Size: unknown

Finds: road substructure in polygonal style; pavement in small blocks with *calcestruzzo* fill below

Remarks: the road was reconstructed over a length of 3 km, bridging an elevation difference of 300 m between Norba and the *via pedemontana*. It follows natural ridges and artificial terraces of up to 7–13 m high, revetted by polygonal masonry walls. About 6.5 m wide, the road was paved with small blocks overlying layers of *calcestruzzo*; on which chemical analysis was performed in one location, showing that the pavement dates to the 2nd century BC and repairs were made in the 2nd or early 1st cent. BC. Quilici-Gigli (1998: p. 30) dates the construction of this road to the early 3rd cent. BC

Class: Roman, class 9

Refs: Quilici & Tognon, 2001; Quilici, 1991; Quilici-Gigli, 1998

10535 –

Toponym: Ninfa

Method: topographic survey

Finds: Iron Age tombs

Remarks: reported in Saggi 1977; precise location unknown

Class: IA class 5

Refs: Saggi, 1977: p. 21

10536 –

approx. X 2350700; Y 46006300

Toponym: San Giovanni / Ristorante Polifemo

Method: topographic survey

Finds: BG, one fragment with a palmette stamp; large amount of carbon and animal bones;

rhomboid stone

Remarks: stone interpreted as a possible altar stone by Saggi (1977)

Class: Rep class 6

Refs: Saggi, 1977: p. 19

10595 (Serrone di Bove 1)

X 2348955; Y 4607145

Toponym: Serrone di Bove

Method: topographic survey, unknown visibility; no samples

Size: 8000 m²

Finds: Archaic and post-Archaic wares: coarse wares, tile; enclosure wall in crude (1st?) polygonal style; building terraces

Remarks: Savignoni and Mengarelli possibly excavated impluvium in this area

Class: Arch class 1; pArch class 8

Refs: Quilici-Gigli, 1988; Quilici-Gigli, 1989; Saggi, 1977: p. 70; Savignoni & Mengarelli, 1901

10596 (Serrone di Bove 2)

X 2349218; Y 4606993

Toponym: Serrone di Bove

Method: topographic survey; no samples

Size: unknown

Finds: road substructure in 2nd polygonal style

Remarks: road runs in direction of Norba, goes on in direction of Cori?

Class: Roman, class 9

Refs: Quilici-Gigli, 1988; Quilici-Gigli, 1989

10597 (Serrone di Bove 3)

X 2349706; Y 4607135

Toponym: Serrone di Bove

Method: topographic survey, no samples

Size: unknown

Finds: three terraces in 3rd/4th polygonal style with passageway leading upwards; 'libation stone'

Remarks: the remains of a nearby building are perhaps to be identified with the cultic site excavated by Savignoni and Mengarelli in 1901

Class: Rep class 6

Refs: Quilici-Gigli, 1988; Quilici-Gigli, 1989; Savignoni & Mengarelli, 1901

10598 (Serrone di Bove 4)

X 2349660; Y 4607385

Toponym: Serrone di Bove

Method: topographic survey, grab samples

Size: unknown

Finds: Archaic impasto; wall in polygonal masonry, at least 10m long and one or two courses high

Remarks: discovered 2001, revisited 2004

Class: Arch class 1; Rep class 2

Refs: –

10599 –

X 2349567–2350264; Y 4606150–4606748

Toponym: Norba, Città

Method: not surveyed; no samples

Size: 38 ha

Finds: Orientalising finds in *lacus* area; Archaic finds in small acropolis area, ao temple antefix; post-Archaic to late Republican/early Imperial urban layout with housing blocks, roads and public buildings; fortifications in various polygonal styles

Remarks: well studied site; topographically mapped and excavations of temple terraces, buildings and fortification walls and recently also two late Republican *domi*

Class: Orient class 1; Arch class 1 and 4; pArch and Rep class 5, 6, 8; eImp class 4, 6, 8

Refs: Excavations: Savignoni & Mengarelli, 1901; Savignoni & Mengarelli, 1903

Topographic research: Quilici-Gigli, 1989; Quilici-Gigli, 1998; Quilici & Quilici-Gigli, 2001; Schmiedt & Castagnoli, 1957; Biffani, 1994a

General: Attema, 1993: p. 87

Cult places: Bouma, 1996: pp. 65–68

10863 (Norba transect site 8a)

X 2350170; Y 4600910

Toponym: Contrada Trentossa

Method: transect survey, good visibility; standard sample (% coverage unknown)

Size: unknown

Finds: post-Archaic and Republican wares: *impasto*, tile and coarse wares

Remarks: Archaic material in Contrada Trentossa is not *in situ*, material transported from Vado la Mola during mud flows (Attema, Delvigne & Haagsma, 1990: p. 27)

Class: pArch and Rep class 1

Refs: Attema, 1993: p. 275

10865 (Norba additional transect site 10)

X 2351964; Y 4601304

Toponym: Fontanella

Method: transect survey, optimal visibility; standard sample (% coverage unknown)

Size: unknown

Finds: Archaic *impasto*

Remarks: –

Class: Arch class 1

Refs: Attema, 1993: p. 282

10866 (Norba additional transect site 11)

X 2351961; Y 4600823

Toponym: Sorgenti Sulfuree

Method: transect survey, optimal visibility; standard sample (% coverage unknown)

Size: unknown

Finds: Archaic *impasto*

Remarks: –

Class: Arch class 1

Refs: Attema, 1993: p. 282

10867 (Norba additional transect site 12)

X 2352017; Y 4600666

Toponym: Monticchio

Method: transect survey and intensive site survey, bad visibility; standard sample (% coverage unknown) and diagnostic samples

Size: unknown

Finds: possibly Orientalizing, Archaic, post Archaic, Republican and early Imperial wares: *impasto*, tile, amphora, coarse wares and fine wares including *BG* and *TS*; remains of polygonal wall in 4th polygonal/*quasi quadratum* style

Remarks: resurveyed in 2002 by De Haas

Class: Arch class 1; p-Arch class 1; Rep and eImp class 3

Refs: Attema, 1993: pp. 282–284; De Haas, 2003: site 11

10879 (Norba transect site 9)

X 2350850–2351900; Y 4603243–4603906

Toponym: Caracupa-Valvisciolo

Method: transect survey and intensive site survey, varying visibility; standard samples (from transect survey and intensive site survey), grab samples

Size: 48 ha

Finds: occasional Bronze age *impasto*: well burnished with incised decoration; Iron age, Orientalizing and Archaic wares: *impasto*, daub, bucchero and tile; post Archaic, Republican and early to mid-Imperial wares: tile, amphora (a.o. *Dressel 2–4*, late 1st century BC – mid 2nd century AD), coarse wares and fine wares including *BG*, *TS* and *ARSW* (Attema, 1993: inv nr S9.77 = Bowl type Hayes 9b); iron slag; defensive terracing in 1st polygonal style; excavated tombs and votive deposit

Remarks: well known through excavations, topographic studies and systematic surveys;

an Iron age cinerary urn was reportedly found at *La Mancinella* (an area separated from the Caracupa cemetery only by the canale Mussolini; Saggi, 1977: p. 21); many students regard Caracupa-Valvisciolo as the likely site of *Sulmo*

Class: BA class 1; IA and Orient class 3, 4 & 5; Arch class 3; pArch to mImp class 1

Refs: excavations: Mengarelli & Paribeni, 1909

surveys: Attema, 1993: pp. 276–282; Attema, 1993: pp. 157–180
 necropolis: Savignoni & Mengarelli, 1903; Angle & Gianni, 1990
 topographic research: Saggi, 1977; Quilici & Quilici-Gigli, 1987; Quilici-Gigli, 1989; Schmiedt & Castagnoli, 1957; Biffani, 1994b

10880

–
 X 2352608–2352763; Y 4600765–4600887

Toponym: Contrada Casali

Method: intensive site survey, varying visibility; grab samples and stringsquare samples

Size: 8.75 ha

Finds: Orientalizing and Archaic wares, including, tile, dolium, kitchen ware (such as jars and bowls, (cooking) stands), and spinning and weaving utensils; post Archaic and Republican wares: tile, coarse wares and fine wares including *BG* bases; terracing walls in crude polygonal masonry

Remarks: the site is located on a largely overgrown hilltop south-east of the town of Sermoneta. Survey showed that in some areas it has recently been disturbed, in others soil erosion caused the exposure of archaeological remains. As parts of the hill are overgrown, some areas may still hold undisturbed stratigraphy;

The finds can predominantly be dated to the (late) Archaic period and the early 5th cent. BC. The nearly total absence of *bucchero* is conspicuous. The later 5th cent. BC and Republican material mainly comes from a fairly isolated area in the southeast part of the site, and possibly represents small-scale post-Archaic and Republican habitation. The Archaic site, by some interpreted as *Sulmo* (see references in Attema, 1991), probably formed a small village consisting of a group of farmhouses located on the top and terraced slopes of the hill

Class: Orient class 1; Arch class 2; pArch and Rep class 1

Refs: Attema, 1991; Attema, 1993a: pp. 139–155; Attema, 1993b: pp. 552–555

10952 (Norba 1995 site 1/2)

X 2351383–2351261; Y 4604100–4604147

Method: transect survey, very good visibility; diagnostic sample and stringsquare samples, grab samples

Size: unknown

Finds: post-Archaic and Republican wares: tile, dolium, amphora (a.o. *late Graeco-Italic type or Dressel 1A, 2nd – mid 1st cent. BC*), coarse wares and fine wares including *BG*; part of a loom weight; three *in situ* polygonal blocks and several more re-used in hedgerow; structure made out of very large bricks

– possibly a kiln or oven

Remarks: Norba sites 1 and 2 are remains of a single platform villa, with samples taken at both sides of the modern road. This site is the same as that visited by Attema in 1988 as site 24; this part of the villa was removed by bulldozing and represents a related activity area, possibly a kiln site (Attema, pers. comm.)

Class: p-Arch class 1; Rep class 3

Refs: King, 1995: p. 9; Attema, 1993a: pp. 332/333

10954 (Norba 1995 site 3)

X 2351206; Y 4604685

Method: transect survey, very good visibility; stringsquare samples

Size: unknown

Finds: Archaic, post-Archaic and Republican wares: tile, dolium, coarse wares and fine wares including *BG*; small worked blocks re-used in modern terrace wall; iron slag

Remarks: –

Class: Arch class 1; p-Arch class 1; Rep class 2

Refs: King, 1995: p. 9

10955 (Norba 1995 site 4)

X 2350878; Y 4604906

Method: transect survey, good visibility; stringsquare samples

Size: 5000 m²

Finds: Republican and early to mid-Imperial wares: tile, amphora, coarse wares and fine wares including *TS* (CFTS form 18.2, 10 BC – Tiberian) and *ARSW*; wall fragments in *opus reticulatum*; a few scattered worked blocks

Remarks: –

Class: Rep to mImp class 2

Refs: King, 1995: p. 9

10956 (Norba 1995 site 5)

X 2350320; Y 4605274

Method: transect survey, good visibility; grab sample

Size: 40 m²

Finds: Orientalizing wares: dolium, *tegla* and bowl fragments; loom weight; *grumi*

Remarks: large sherds, material clearly in situ

Class: Orient class 1

Refs: King, 1995: p. 10

10957 (Norba 1995 site 6)

X 2349978; Y 4605412

Method: transect survey and intensive site survey, varying visibility; stringsquare samples and diagnostic samples

Size: 2 ha

Finds: Orientalizing, Archaic, post-Archaic, Republican and

- early to mid-Imperial wares: tile, amphora, coarse wares and fine wares including *TS* and *ARSW* (Hayes form 8, 80/90 AD–2nd cent. AD); platform retaining walls in polygonal masonry, later extended in *opus reticulatum*; wall plaster and *tesserae*
- Remarks: resurveyed intensively in 2002 by De Haas
- Class: Orient and Arch class 1; post Arch class 1; Rep to mImp class 3
- Refs: King, 1995: p. 10; De Haas, 2003: site 2
- 10958 (Norba 1995 site 7)**
X 2350686; Y 4604578
- Method: transect survey and intensive site survey, varying visibility; stringsquare samples and diagnostic samples
- Size: unknown
- Finds: Archaic, post-Archaic, Republican and early to mid-Imperial wares: tile, amphora, coarse wares and fine wares including *BG*, *TS* and *ARSW* (Hayes forms 196 and 197, mid 2nd–mid 3rd cent. AD); blocks in polygonal masonry, unclear whether or not *in situ*; marble column drum and *tesserae*
- Remarks: resurveyed intensively in 2002 by De Haas; extent and orientation of platform indicated by relief
- Class: Arch class 1; p-Arch class 1; Rep to mImp class 3
- Refs: King, 1995: p. 10; De Haas, 2003: site 3
- 10959 (Norba 1995 site 8)**
X 2350867; Y 4604445
- Method: transect survey, very good visibility; stringsquare samples
- Size: unknown
- Finds: Archaic, post-Archaic and Republican wares: tile, coarse wares and fine wares including *BG*; possibly a worked block
- Remarks: two clear concentrations of material
- Class: Arch class 1; p-Arch class 1; Rep class 2
- Refs: King, 1995: p. 11
- 10960 (Norba 1995 site 9)**
X 2350979; Y 4604384
- Method: transect survey, very good visibility; stringsquare samples
- Size: 5600 m²
- Finds: Archaic, post-Archaic and Republican wares: tile, amphora, coarse wares and fine wares including *BG*; polygonal masonry blocks
- Remarks: –
- Class: Arch class 1; p-Arch class 1; Rep class 3
- Refs: King, 1995: p. 11
- 10961 (Norba 1995 site 10)**
X 2351008; Y 4604313
- Method: transect survey, good visibility; stringsquare samples
- and grab sample
- Size: 400 m²
- Finds: Archaic, post-Archaic and Republican wares: tile, amphora, coarse wares and fine wares including *BG*
- Remarks: –
- Class: Arch class 1; pArch and Rep class 1
- Refs: King, 1995: p. 11
- 10962 (Norba 1995 site 11)**
X 2351112; Y 4604230
- Method: transect survey, medium visibility; stringsquare samples
- Size: 2000 m²
- Finds: Archaic, post-Archaic and Republican wares: tile, coarse wares and fine wares including *BG*; embossed masonry blocks
- Remarks: probably related to site 10952, outbuilding?
- Class: Arch class 1; p-Arch class 1; Rep class 2
- Refs: King, 1995: p. 11
- 10963 (Norba 1995 site 12)**
X 2350020; Y 4604470
- Method: transect survey, medium visibility; stringsquare samples
- Size: unknown
- Finds: Republican wares: tile, amphora and coarse wares
- Remarks: finds from soil dug up during placement of fence
- Class: Rep class 1
- Refs: King, 1995: p. 11
- 10964** –
X 2349590; Y 4605377
- Toponym: Ninfa
- Method: underwater exploration
- Size: unknown
- Finds: worked limestone blocks; several column drums; Republican coins
- Remarks: supposed temple dedicated to the nymphs; underwater research in Lago di Ninfa yielded travertine building blocks but no direct proof for existence of a temple
- Class: Rep class 6
- Refs: Pavia, 1994; Turchetti, 1994; Pliny, *Naturalis Historia* II, 209 and 240; III, 57; Bouma, 1996: p. 65; Tomassetti, 1979: p. 459.
- 10965** –
X 2352155; Y 4604304
- Toponym: Vado La Mola, Pallanti
- Method: not surveyed
- Size: unknown
- Finds: villa with wall foundations in *opus reticulatum*; mosaic floors; olive press-bed; platform; Republican tombs

Remarks: Roman villa, excavated by local amateurs, probably corresponds to site reported by Saggi

Class: Rep class 3 & 7

Refs: Saggi, 1977: p. 63 and 73

11621 (Vittucci site 21)

X 2348976; Y 4608092

Toponym: Pozzo del Rosario

Method: topographic survey, unknown visibility; no samples

Size: unknown

Finds: post-Archaic and/or Republican wares: tile and coarse wares;
remains of a *cuniculus*

Remarks: –

Class: pArch class 1; Rep class 2

Refs: Brandizzi Vittucci, 1968: p. 109

11622 (Vittucci site 22)

X 2349235; Y 4607907

Toponym: Pozzo del Rosario

Method: topographic survey, unknown visibility; no samples

Size: unknown

Finds: substructure of a road in 2nd polygonal style

Remarks: –

Class: Roman, class 9

Refs: Brandizzi Vittucci, 1968: pp. 109–110

11633 (Vittucci site 33)

X 2347078; Y 4609662

Toponym: Casale

Method: topographic survey, unknown visibility; no samples

Size: unknown

Finds: Archaic, post-Archaic, Republican and early Imperial wares: tile and amphora;
wall in *opus caementicium*, 8 m long, 1.3 m high; drainage canal, possibly a *cappuccina*;
limestone and tuff building debris: *opus reticulatum* stones; wall plaster and remains of *cocciopesto* pavement

Remarks: revisited during Ninfa 1998 survey

Class: Arch class 1; p-Arch class 1; Rep and eImp class 3

Refs: Brandizzi Vittucci, 1968: p. 116

11634 (Vittucci site 34)

X 2347090; Y 4609553

Toponym: Costa Casale

Method: topographic survey, unknown visibility; no samples

Size: unknown

Finds: Archaic, post-Archaic and Republican wares; three terrace walls in 2nd polygonal style;
limestone millstone (diameter 1.60 m; thickness 0.55 m)

Remarks: revisited during Ninfa 1998 survey; related to site 11633?

Class: Arch class 1; p-Arch class 1; Rep class 2

Refs: Brandizzi Vittucci, 1968: p. 116

11635 (Vittucci site 35)

X 2347709; Y 4608420

Toponym: Pezze di Ninfa

Method: topographic survey, unknown visibility; no samples

Size: unknown

Finds: terrace wall in 2nd polygonal style

Remarks: revisit during Ninfa 1998 survey recorded two parallel 80 m long low terrace walls, not following contours of slope

Class: Roman, class 9

Refs: Brandizzi Vittucci, 1968: p. 116

11648 (Vittucci site 48)

X 2347874; Y 4607168

Toponym: Pezze di Ninfa

Method: topographic survey, unknown visibility; no samples

Size: unknown

Finds: marble architectural decoration; tile; remains of a *cap-puccina* tombs

Remarks: –

Class: Rep and eImp class 7

Refs: Brandizzi Vittucci, 1968: p. 123

11649 (Vittucci site 49)

X 2348102; Y 4606981

Toponym: Pezze di Ninfa

Method: topographic survey, unknown visibility; no samples

Size: unknown

Finds: two walls in polygonal style forming substructure of a road

Remarks: part of the *via pedemontana*

Class: Roman, class 9

Refs: Brandizzi Vittucci, 1968: p. 123

11650 (Vittucci site 50)

X 2348040; Y 4606922

Toponym: Pezze di Ninfa

Method: topographic survey and intensive site survey, bad visibility; diagnostic samples

Size: unknown

Finds: Orientalizing, Archaic, post-Archaic and Republican wares: *impasto*, tile, dolium, amphora, coarse wares and fine wares including *BG*; platform (length c. 30 m) with retaining walls in 3rd polygonal style; underground cistern built in tuff blocks; remains of walls in *opus reticulatum* with floor mosaic

Remarks: resurveyed intensively by De Haas in 2002; according to the land owner, the cistern and building were destroyed in the 1960s

Class: Orient and Arch class 1; p-Arch class 1; Rep class 3

Refs: Brandizzi Vittucci, 1968: p. 123; De Haas, 2003: site 8

11651 (Vittucci site 51)

X 2348094; Y 4606873

Toponym: Pezze di Ninfa

Method: topographic survey, unknown visibility; no samples

Size: unknown

Finds: vaulted 2-room cistern in *opus caementicium*; terrace wall in polygonal style

Remarks: revisit 1998 during the Ninfa survey shows that the location as mapped by Vittucci (c. 100 m towards the north-west) is probably incorrect

Class: Rep class 2

Refs: Brandizzi Vittucci, 1968: p. 123

11652 (Vittucci site 52)

X 2348625; Y 4606441

Toponym: Sant'Angelo di Ninfa

Method: topographic survey, unknown visibility; no samples

Size: unknown

Finds: two parallel walls in 2nd polygonal style forming substructure of a road

Remarks: part of the *via pedemontana*

Class: Roman, class 9

Refs: Brandizzi Vittucci, 1968: p. 124

11653 (Vittucci site 53)

X 2349007; Y 4606538

Method: topographic survey, unknown visibility; no samples

Size: unknown

Finds: two walls in polygonal style forming substructure of a road; large limestone blocks in a *fosso* forming substructure for this same road

Remarks: part of the *via pedemontana*

Class: Roman, class 9

Refs: Brandizzi Vittucci, 1968: p. 124

11657 (Vittucci site 57)

X 2344886; Y 4609244

Toponym: Cesapunzio

Method: topographic survey, unknown visibility; no samples

Size: unknown

Finds: two walls in *opus caementicium* forming substructure of a road

Remarks: —

Class: Roman, class 9

Refs: Brandizzi Vittucci, 1968: p. 128

11658 (Vittucci site 58)

X 2345446; Y 4609257

Toponym: Pozzo Picchioni

Method: topographic survey, unknown visibility; no samples

Size: unknown

Finds: underground rooms, cistern? one drum of fluted column, three drums of smooth column; tablets/tombstones; fragments of marble and plaster; limestone blocks with inscription, one readable (*sibi et su[is]*) and with three *incassi* on the top surface; blank limestone blocks: two cube-shaped, one with a big *incasso*, one threshold stone; building debris: tuff blocks in *opus reticulatum*

Remarks: presence of luxury architectural elements and late tombs indicates probable continuation of the site into the Imperial period

Class: Rep and elmp class 3 & 7

Refs: Brandizzi Vittucci, 1968: p. 128

11659 (Vittucci site 59)

X 2346224; Y 4608927

Toponym: Fossateglio

Method: topographic survey, unknown visibility; no samples

Size: unknown

Finds: platform (length c. 20 m) with retaining walls in 3rd polygonal style; cistern in *opus caementicium*; walls in *opus reticulatum*; fragments of limestone and *opus lateritium*; column fragments, both fluted and smooth, one with traces of plaster; limestone blocks: threshold stones; damaged limestone funeral altar with inscription, *patera* and *unceus* depicted on the sides; fragment of big *peperino* millstone; tuff block with a drain

Remarks: presence of *opus lateritium* and luxury architectural elements indicates probable continuation of the site into the Imperial period; also location of a church, of which a small apse and part of the aisles were still preserved in the 1960s. In its construction, column drums and architectural elements of the ancient building were re-used; revisited during Ninfa 1998 survey, but platform walls had by then been removed

Class: Rep and elmp class 3 & 7

Refs: Brandizzi Vittucci, 1968: pp. 128–129

11660 (Vittucci site 60)

X 2344186; Y 4608976

Toponym: Vigne Vecchie

Method: topographic survey, unknown visibility; no samples

Size: unknown

Finds: walled space; rectangular vaulted structure with traces of *opus lateritium* and *opus incertum*;

BG; tesserae
 Remarks: presence of *opus lateritium* indicates site was probably occupied into the Imperial period; dating of walls uncertain
 Class: Rep and eImp class 3
 Refs: Brandizzi Vittucci, 1968: p. 129

11662 (Vittucci site 62)

X 2344634; Y 4608431

Toponym: Quarto Grande
 Method: topographic survey, unknown visibility; no samples
 Size: unknown
 Finds: early Imperial wares, including *TS*; tiles; glass; tuff blocks; *Ex situ*: limestone and travertine blocks, one of which with a 1st cent. AD inscription mentioning *Ulubrae*; limestone millstone
 Remarks: finds at nearby Vittucci site 61, probably deriving from this location, are included here; on the basis of the find of an inscription Coarelli (1982) identifies this as the site of the Archaic Latin centre and Roman municipium of *Ulubrae*.
 Class: eImp class 3
 Refs: Brandizzi Vittucci, 1968: pp. 129–130; Coarelli 1982: p. 265

11663 (Vittucci site 63)

X 2344942; Y 4607870

Toponym: Formale/Casetta Ferretti/Quarto grande
 Method: topographic survey, unknown visibility; no samples
 Size: unknown
 Finds: fragment of marble statue base with a votive inscription (mid-Imperial); travertine column drum; travertine *basoli*; tile and coarse wares
 Remarks: –
 Class: Rep to mImp class 3 & 9, mImp class 6
 Refs: Brandizzi Vittucci, 1968: p. 130

11664 (Vittucci site 64)

X 2344714; Y 4605864

Toponym: Castellone
 Method: topographic survey, unknown visibility; no samples
 Size: unknown
 Finds: partly underground quadrangular building in *opus caementicium*; partly underground circular building in *opus caementicium*; terracotta votives (ao a hand); terracotta architectural decorations; limestone and tuff squared blocks; Republican wares including tile and *BG*
 Remarks: also present are remains of a medieval tower made of basalt lava (pavement stones provenient from the Via Setina?); area is also known as *Tivera*, *Tiberia* or *Castel Tiberia*,

some ancient manuscripts talk about a “*Tivera diruta*”. Del Lungo notes that this large estate was probably left to emperor Tiberius by Augustus. Pliny the Elder mentions its large trees.

Class: Rep and eImp class 3 & 6

Refs: Brandizzi Vittucci, 1968: p. 131; Del Lungo, 2001: p. 18; Pliny, *NH* XII,1,5.**11665 (Vittucci site 65)**

X 2345821; Y 4605982

Toponym: Castellone
 Method: topographic survey, unknown visibility; no samples
 Size: unknown
 Finds: squared blocks of limestone; tuff doric capital; sculptured head of a youth
 Remarks: presence of luxury architectural elements indicates probable continuation of this site into the Imperial period
 Class: Rep and eImp class 3
 Refs: Brandizzi Vittucci, 1968: p. 131

11666 (Vittucci site 66)

X 2346406; Y 4606088

Toponym: Castellone
 Method: topographic survey, unknown visibility; no samples
 Size: unknown
 Finds: re-used *basolo* / pavement block; Republican wares: *BG*
 Remarks: –
 Class: Rep class 1 & 9?
 Refs: Brandizzi Vittucci, 1968: p. 131

11667 (Vittucci site 67)

X 2346931; Y 4605922

Toponym: Doganella
 Method: topographic survey, unknown visibility; no samples
 Size: unknown
 Finds: Republican and early Imperial wares: tile, coarse wares and fine wares including *TS*; basalt *basolo*/pavement block
 Remarks: –
 Class: Rep and eImp class 1 & 9?
 Refs: Brandizzi Vittucci, 1968: p. 131

13470 (APS 470 + APS 509)

X 2344310; Y 4601950

Method: transect survey, unknown visibility; diagnostic samples
 Size: unknown
 Finds: possibly Neolithic pottery, certainly early Iron Age pottery; large numbers of Archaic, Republican and Imperial pottery sherds
 Remarks: largest site mapped by the APS project; its proximity to the Via Appia suggests it should be identified with the roadside settlement of *Tres Tabernae*;

although no post-Archaic finds were reported, the continuity of the site in this period seems likely

Class: IA class 5; Orient and Arch class 1; pArch class 1; Rep and elmp class 4
Refs: Holstrom *et al.*, 2004

13471 (APS 471)

X 2345182; Y 4602637

Method: transect survey, unknown visibility; diagnostic samples
Size: 2500 m²
Finds: large number of Archaic pottery sherds
Remarks: –
Class: Arch class 1
Refs: Holstrom *et al.*, 2004

13474 (APS 474)

X 2347428; Y 4605226

Method: transect survey, unknown visibility; diagnostic samples
Size: unknown
Finds: Archaic, Republican, and possibly Imperial pottery
Remarks: core of site was probably already dug away for tuff quarry; a post-Archaic phase was probably also present
Class: Arch class 1; Rep class 1
Refs: Holstrom *et al.*, 2004

13477 (APS 477)

X 2347624; Y 4605459

Method: transect survey, unknown visibility; diagnostic samples
Size: unknown
Finds: Republican, possibly Imperial pottery and tile; possibly late Iron Age pottery present
Remarks: collected from several sloping fields; site core probably located at top of slope
Class: Rep class 1
Refs: Holstrom *et al.*, 2004

13478 (APS 478)

X 2346476; Y 4604228

Method: transect survey, unknown visibility; diagnostic samples
Size: unknown
Finds: Republican, possible Imperial pottery; Roman tile
Remarks: –
Class: Rep class 1
Refs: Holstrom *et al.*, 2004

13587 (APS 587)

X 2345883; Y 4603551

Method: transect survey, unknown visibility; diagnostic samples
Size: unknown
Finds: Iron Age, Archaic, Republican and possibly Imperial pottery; tiles
Remarks: finds spread over two ridges, hence probably more than one site; a post-Archaic phase was probably also present
Class: IA and Arch class 1; Rep class 1
Refs: Holstrom *et al.*, 2004