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THE CONCENTRATION AND CENTRALIZATION OF LATE PREHISTORIC SETTLEMENT IN CENTRAL ITALY: THE EVIDENCE FROM THE NEPI SURVEY

by Ulla Rajala

This article discusses the evidence for the concentration and centralization of late prehistoric settlement in central Italy, using the territory of Nepi as an example of settlement aggregation in southern Etruria. This example helps to explain the regional developments leading to urbanization and state formation in Etruria from the Bronze Age to the Iron Age. The article also publishes new sites with late prehistoric ceramic material from the Neolithic or Epineolithic to the Iron Age in the territory of Nepi found during the Nepi Survey Project. This new evidence is discussed together with previously published material, and presented as further evidence that the developments leading to the occupation of naturally defended sites in the Final Bronze Age had their origins in the Middle Bronze Age. Similarly, the analysis, aided by agricultural and GIS modelling, suggests that the hiatus in the settlement and its dislocation after an apparent break between the Final Bronze Age and the Early Iron Age may have been caused by population pressure. After the settlement aggregated in one centre at Nepi, there are signs of further expansion in the Iron Age.

In questo articolo vengono discusse le evidenze della concentrazione e centralizzazione degli insediamenti tardo-preistorici dell'Italia centrale, a partire dal territorio di Nepi come esempio di centralizzazione dell'insediamento in Etruria meridionale. L'esempio aiuta a spiegare gli sviluppi regionali che condussero all'urbanizzazione e alle formazioni statali in Etruria dall'età del bronzo all'età del ferro. Vengono pubblicati anche nuovi siti nel territorio di Nepi che hanno restituito ceramica tardo-preistorica, la cui cronologia va dal Neolitico o Epineolitico all'età del ferro, rinvenuta durante il Nepi Survey Project. Questa nuova evidenza, discussa insieme con materiali precedentemente pubblicati, viene presentata come ulteriore prova per sostenere che lo sviluppo che ha condotto all'occupazione nel Bronzo Finale di siti con difese naturali ebbe origine nella media età del bronzo. Analogamente l'analisi aiutata da ricostruzioni dell'agricoltura e da modelli GIS suggerisce che lo iato nell'insediamento e la sua dislocazione dopo un apparente break *tra il Bronzo Finale e il Ferro Iniziale può essere stato causato da pressioni della popolazione. Dopo che l'insediamento si è aggregato in un unico centro a Nepi, abbiamo segni di ulteriore espansione nell'età del ferro.*

INTRODUCTION

This paper has two main aims. Firstly, it discusses the evidence for the concentration and centralization of late prehistoric settlement in central Italy, using the territory of Nepi as an example of settlement aggregation in southern

Etruria. This example and the related agricultural modelling (Rajala, 2002) help to explain the regional developments that led to urbanization and state formation in Etruria from the Bronze Age to the Iron Age. Secondly, it publishes the new concentrations of late prehistoric ceramic material, interpreted as sites, found during the Nepi Survey Project (Fig. 1).

The Early Iron Age was a moment of drastic change in the prehistoric settlement history of southern Etruria (di Gennaro, 1986; di Gennaro and Peroni, 1986; di Gennaro, 1988). Most small- and medium-sized final bronze age centres disappeared, and the population concentrated onto a few larger plateaux. Pacciarelli (1991b) dated these changes earlier; many of the naturally defended locations were already settled during the Middle Bronze Age, and the smaller open undefended sites disappeared during the later restructuring. Di Gennaro and Barbaro (2008) have shown that earlier bronze age sites were largely undefended, but some open settlements were still occupied until the earlier part of the Final Bronze Age. Only at the end of the Final Bronze Age (BF3B) were settlements located almost exclusively in defensive locations.

The trajectory of urbanization in southern Etruria during the Early Iron Age is analogous to that of Rome. Pinza (1905) proposed that Rome emerged through synoecism, the unification of small villages on different hills at Rome. Later, Müller-Karpe (1959; 1962) proposed that the town emerged from one nucleus

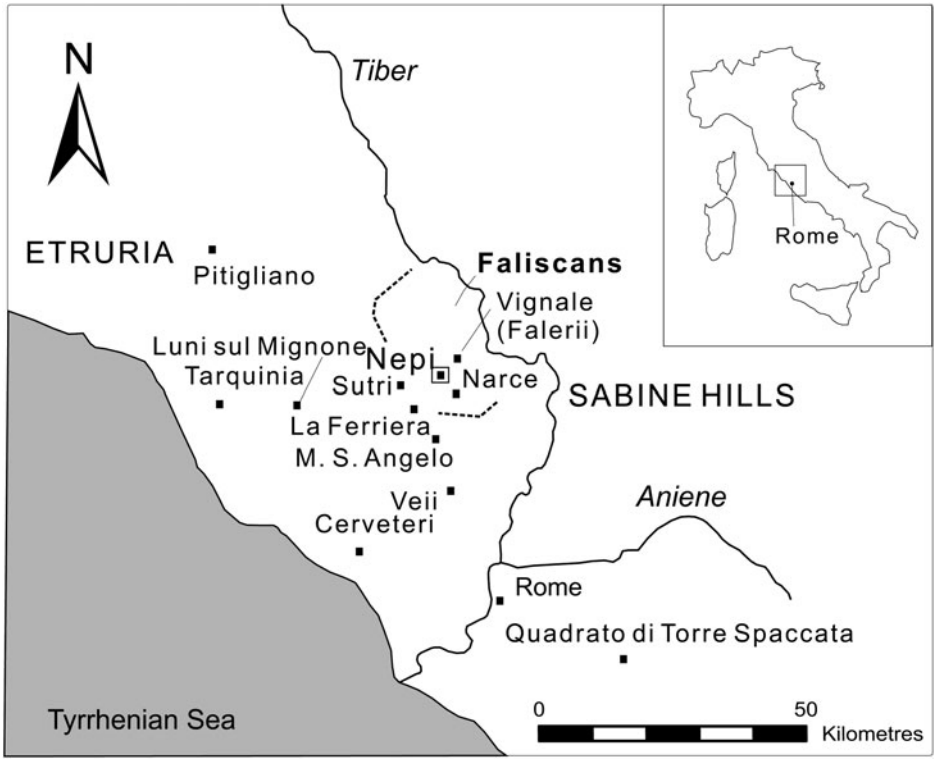

Fig. 1. Central Italy and the location of Nepi. *(Illustration: author.)*

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at the Palatine Hill and Forum. Recent archaeological work favours Pinza's theory (see, for example, Carandini, 2012).

Most scholars agreed in the late 1960s that in Etruria settlement concentrated around early iron age Villanovan centres (Peroni, 1969; Guidi, 1989). The interpretations of the evidence for their emergence have changed through time; Ward-Perkins (1961) explained the concentration with the synoecism of small villages at Veii, but later Guaitoli (1981) pointed out that the surface finds suggested that the whole plateau was settled by the Early Iron Age. Guidi (1982) extended this theory to all Etruscan centres, and further data from Vulci (Pacciarelli, 1991a) and Tarquinia (Mandolesi, 1999), as well as the restudy of the South Etruria Survey material (di Gennaro, Schiappelli and Amoroso, 2004; Patterson *et al.*, 2004), supported this theory. I have suggested elsewhere (2005; 2006a) that the early iron age settlement may have followed an open village model; this model, with 'dispersed' farmsteads inside a mutually agreed village perimeter, would explain the uneven distribution of surface finds across plateaux.

The prehistoric material from the Nepi Survey was analysed typologically as part of my Ph.D. research (Rajala, 2002), with the objective of dating settlements and offsite finds. The bronze and iron age finds from Il Pizzo have been published already (Rajala, 2007). This article presents the evidence for new sites and adds to the catalogue for three regions of Lazio (Belardelli *et al.*, 2007). Together these datasets outline the trajectory of the development from dispersed settlement pattern to concentrated settlement at Nepi itself.

The dating of the sites is based on ceramic evidence, and the lithic surface material is discussed only when it is relevant to the late prehistoric settlement phase at the sites. Even if certain diagnostic lithics, such as blades, can be placed easily within a certain evolutionary stage of lithic technology, very few surface lithics in central Italy can be dated more accurately than to the long period between the Upper Palaeolithic and the Late Neolithic/Early Bronze Age. The few published lithic assemblages (for example, Anzidei and Carboni, 1995) and stratigraphic excavations (Potter, 1976: 174–6) suggest that the use of lithics decreased during the Bronze Age, but the functional and technological make-up of the assemblages remained relatively homogeneous. Furthermore, the analysis of the geographic context of different material groups from the Nepi Survey suggested that the lithics as a group may represent different land-use/discard patterns from the prehistoric pottery and are likely to originate from different periods (Rajala, 2012: 127–9). The lithics from this survey will be discussed in depth in a future publication.

The question of the absolute dating of later prehistory in central Italy remains unresolved, although dendrochronology and new dating evidence have brought new precision. The calibrated dates push back the boundary between the Neolithic and Eneolithic to 3000 cal. BC and stretch the duration of the Early Bronze Age from 200 to 600 years (cf. Bietti Sestieri, 1996: 185–93; Pacciarelli, 1996: table 1). These new chronologies have implications for the interpretation of the duration of settlements, the pace of change and possible hiatuses in occupation. The main problems remain the lack of a universally agreed date for

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Table 1. The periods of later prehistory in central Italy. After Bietti Sestieri, 1996: 185–93; Pacciarelli, 1996; Pacciarelli, 2005.

Period	Traditional absolute dates	Calibrated ^{14}C dates
Chalcolithic (Eneolithic)	2700–1800 BC	3000–2300 cal. BC
Final Chalcolithic		2500–2300 cal. BC
Early Bronze Age	1800–1600 BC	2300–1700 cal. BC
Middle Bronze Age	1600–1300 BC	1700–1350 cal. BC
Early Middle Bronze Age	1600–1300 BC	
Apennine Middle Bronze Age	1400–1300 BC	
Recent Bronze Age	1300–1200/1150 BC	1350–1200 cal. BC
Final Bronze Age	1200/1150–900 BC	1200–1020/960 [950/925] cal. BC
Early Iron Age	900–730/720 BC	1020/960 [950/925]–780/725 [730/725] cal. BC

the end of the Bronze Age (Proto-Villanovan period in Etruria and Latial Period I in Latium Vetus; cf. Pacciarelli, 2000: 68, fig. 38; Nijboer *et al.*, 2002) (Table 1) and the absolute chronology of the Early Iron Age (cf. Bartoloni and Delpino, 2005; Bietti Sestieri and De Santis, 2007). As we are dealing with unstratified surface material, and as the latest Italian settlement research (for example: Barbaro, 2010) uses relative phasing, the most important issue for present purposes is the presence or absence of material from certain periods or phases.

Even if the discussion on the changing rates of development is postponed, it is crucial to outline the periodization of later central Italian prehistory in more detail (Table 2; Fig. 2). The chronology of the Neolithic and earlier Bronze Age is

Table 2. The different cultural phases in central Italy from the Epineolithic (Chalcolithic) to the Middle Bronze Age. After Pacciarelli, 2000: 19–30; Carboni and Anzidei, 2006; Robb, 2007: 295.

Cultural phase	Eneo-lithic	Early Bronze Age 1	Early Bronze Age 2	Middle Bronze Age 1A	Middle Bronze Age 1B	Middle Bronze Age 2A	Middle Bronze Age 2B
Gaudo phase	×						
Conelle-Ortucchio phase	×						
Bell Beaker tradition (*Epicampaniforme*)	×	×					
Rinaldone, Luni Tre Erici–Norchia phase	×	(×)					
Rinaldone, Belvedere–Mazzano phase			×	×			
Laterza phase		×					
Grotta Nuova phase			×	×	×	×	×
Palma Campania phase			×				
Proto-apennine phase			×	×	×	×	

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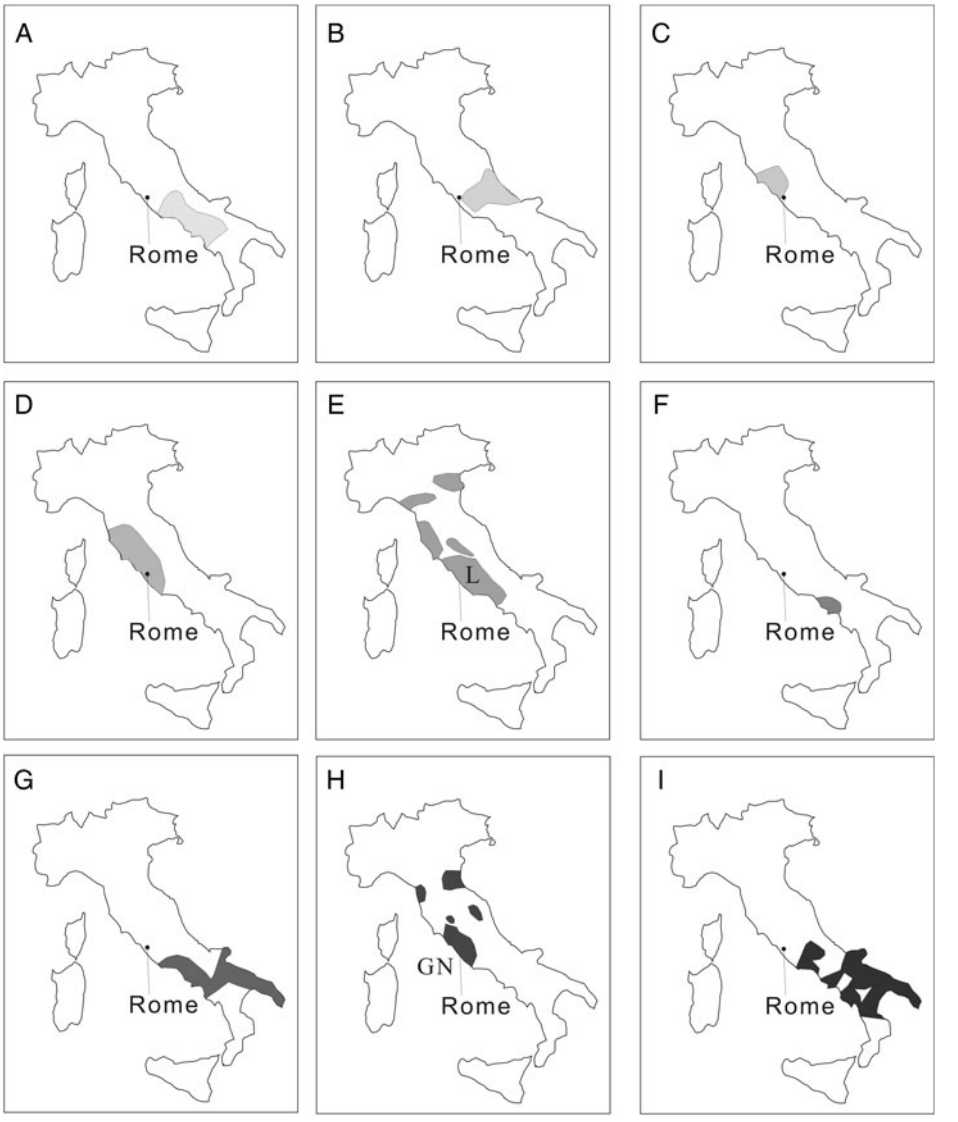

Fig. 2. The geographical spread of different cultural phases in central Italy. A. Gaudo phase *(after Carboni and Anzidei, 2006: fig. 1A)*. B. Conelle-Ortucchio phase *(after Robb, 2007: 295)*. C. Luni Tre Erici-Norchia phase *(after Pacciarelli, 2000:* 21). D. Belvedere-Mezzano phase *(after Pacciarelli, 2000: 21; Negroni Catacchio, 2006: fig. 4)*. E. Early Bronze Age in central Italy; the Latial group (L) represents the extent of the Bell Beaker tradition during EBA1 *(after Cocchi Genick, 1998: fig. 4, pp. 307–33)*. F. The core area of the Palma Campania phase *(after Albore Livadie* et al., *1996: fig. 2)*. G. Laterza phase *(after Pacciarelli, 2000: 242)*. H. Grotta Nuova phase (with the Grotta Nuova group (GN)) *(after Cocchi Genick, 1995: tavv. 3–7)*. I. Proto-apennine phase *(after Damiani, 1995: figs 8–11)*.

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characterized by overlapping chronological and geographical phases. Even if the stages of settlement generally are discussed in relation to periods or sub-periods, diagnostic pieces are often discussed in reference to different cultures or phases.[1] These regional phases and their overlap resulted in a long-lasting material culture featuring the continued presence of many basic types from the Late Neolithic to the early Middle Bronze Age (cf. Cocchi Genick *et al.*, 1995; Cocchi Genick, 1998; Cocchi Genick, 2008). This means that many diagnostic pieces have very generic dating.

I shall first present the Nepi Survey Project, then give an overview of both earlier data and the new evidence from Nepi, and finally compare the different datasets.

NEPI SURVEY

The original Nepi Survey Project was conducted under the directorship of Simon Stoddart (di Gennaro *et al.*, 2002; Rajala, 2006b), under the umbrella of the Tiber Valley Project (Patterson and Millett, 1998; Patterson, 2004; Patterson, Di Giuseppe and Witcher, 2004). The aims of the Nepi Survey Project included the collection of a coherent body of data in order to study the long-term development of the Faliscan centre of Nepi and of its territory (Edwards, Malone and Stoddart, 1995; Lim *et al.*, 1996; Harrison *et al.*, 2004; di Gennaro *et al.*, 2008), with an emphasis on exploring pre-Roman distributions (Rajala, 2007; 2012) in order to balance the bias towards the Roman period in earlier blanket surveys (cf. Rajala, Harrison and Stoddart, 1999).

The Nepi Survey Project recovered samples from all sectors of the territory, whereas earlier surveys in the Nepi area had concentrated on certain sections in the landscape, such as the areas along roads (Frederiksen and Ward-Perkins, 1957) or the Treia watershed east of Nepi (Potter, n.d.). Although Morselli (1980) covered the area of the Istituto Geografico Militare (IGM) map sheet of Sutri, immediately west of Nepi, and several less extensive studies covered selected smaller areas, mainly concentrating on pre-Roman periods and drawing upon the work of the Gruppo Archeologico Romano (GAR) or the South Etruria Survey (for example: Selmi, 1978; di Gennaro and Stoddart, 1982; Camilli *et al.*, 1995), there had not been a unified study of the territory.

Nepi (Fig. 1) is located *c.* 45 km northwest of Rome, on the boundary of the Faliscan area in southeast Etruria (Edwards, Malone and Stoddart, 1995; Francocci, 2006). Its territory comprises two contrasting landscapes: in the east, the territory alternates dramatically between canyon-like ravines and wide

[1] Italian scholars (for example: Pacciarelli, 2000) discuss longer *facies* presenting different *fasi*; I will refer to these as phases and sub-phases respectively.

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undulating plateaux between perpendicular river valleys; the western part of the landscape is gentler, with rounded river valleys and rolling plains.

The study area was defined by the hypothetical territory centred on Nepi drawn with Thiessen polygons. It was sampled by drawing transects along the cardinal directions radiating from the town along the grid of the IGM map. The choice of this sampling method and the details of the coverage of the survey are discussed by Mills and Rajala (2011: 150). In total 233 field units[2] (Fig. 3) were studied in the sample area;[3] the total area of 632 ha corresponds to nearly 32% of the area of the planned transects and 8% of the rectangular territory around Nepi. Available land was studied by field walking at intervals of 10–20 m.[4] A subjective 'grab' — that is a selection of the visible finds with no attempt at differential selection or systematic sampling[5] — was collected from any concentrations observed in these fields, assumed to be sites.[6] The 'grabs' were not generally meaningful in defining the prehistoric concentrations, except near Grotta Arnaro (M13/1 and M13/2) and at PVPB15/1; whereas the analysis of the material from all field units was essential in identifying new

[2] The field units were given a field code with an acronym according to the geographic area in which they were located, and numbered in sequence. The main areas were: M (Massa) in the east; PCF (Porciano, Cerreta and Tenuta di Felissano) in the southeast; POP (Pantane, Orsini and Pizzo), LVS (Livia, Valle Petrosa and San Marcello) and MVT (Monterosi and Valle La Terra) in the south; CFV (Cerro, Fontana Cupola and Valle dei Salici) and GMTP (Gilastro, Monte del Tufo and Pentagneto) in the west; PVPB (Piano di Vallescura, Palazzola and La Botte) in the northwest; and SP (San Paolo) and PMR (Poggio Maggiore and Rosciolo) in the north.

[3] Field and site forms were used. These sheets summarized the characteristics of the field units and defined sites, including survey conditions, topography, land use and vegetation. A summary of the core data held in the survey database is presented in Appendix 1.

[4] Material from fields at known pre-Roman sites was collected and bagged according to a modified traverse and stint method (cf. Liddle, 1985: 9), that is according to a line or a segment of a line. Different stints were coded with the field code separated with a space from a code with a letter (A/B/C/L[ine]) and a traverse (line) number (for example M8 D6). Pragmatic additional codes were allocated in the field to the bags with material from unsystematic sub-field level collections (for example GMPT42NE for eroded, slope wash fragments). These codes are used in the catalogue below.

[5] The emphasis on improving knowledge of pre-Roman periods led to a concentration on continuous distributions across the field units and on traverse and stint collection at known pre-Roman sites; this guaranteed the collection of prehistoric material but was a problem in the analysis of the Roman material (see: Mills and Rajala, 2011: n. 5).

[6] Sites were given a code according to the field(s) within which they were located. A forward slash (/) and a number after a field code signals a site. Different concentrations in the same field are distinguished by consecutive numbers (for example M13/1 and M13/2). The codes for sites crossing field-unit boundaries have all required field codes incorporated in their site codes (for example PVPB5–6/1 and GMPT14–15,17/1). These codes or their segments were used for grab sample bags in the field. Fields with larger quantities of material (spreads) that were recognized during the post-survey analysis and were not defined as sites or did not present definable boundaries are discussed with their field codes in this article.

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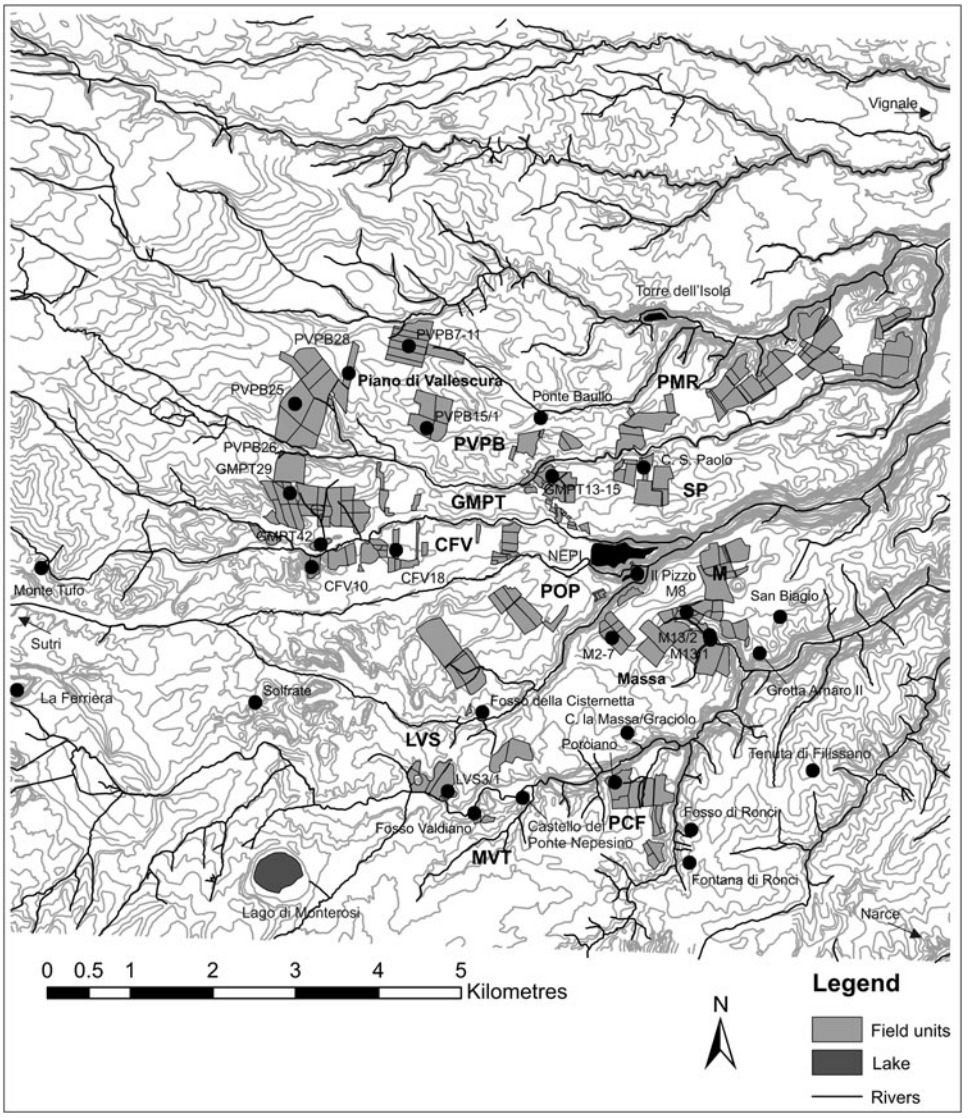

Fig. 3. Nepi Survey Project: field units and prehistoric sites. *(Illustration: author, after the Carta Tecnica Regionale.)*

sites. The problems in 'seeing' prehistoric settlements in the Mediterranean (Bintliff, Howard and Snodgrass, 1999) and the issues related to the use of unstratified surface material (for example: Patterson, 2006: 17–24) are widely acknowledged.

The original pottery study and drawing of diagnostic pieces took place between 1999 and 2001. Since our knowledge of prehistoric pottery in central Italy has improved since the examination I presented in 2002, the pottery dates were checked during the academic year 2011–12.

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LATE PREHISTORIC SETTLEMENT AT NEPI AND IN THE NEPI AREA

Even if the previous finds from Nepi and its territory, collected mainly by the GAR, seemed to support the pattern of the aggregation of settlements in the Early Iron Age, other research, especially the Tuscania Survey, suggested that final bronze age and iron age settlement may have been more dispersed than previously thought (Barker and Rasmussen, 1998: 61–5). The Nepi Survey Project tried to find evidence for less centralized settlement patterns, but only a few hints could be found (see below, pp. 11–24). Earlier records list fourteen sites[7] with prehistoric hand-made pottery, some dated to the Late Neolithic and Bronze Age (Table 3); the final bronze age sites of Il Pizzo (di Gennaro, 1987; di Gennaro, 1995b: 58; di Gennaro *et al.*, 2002; Rajala, 2007; di Gennaro *et al.*, 2008) and Torre dell'Isola (also called Torre Stroppa) (Trump, 1957; di Gennaro *et al.*, 2002; Belardelli *et al.*, 2007: 310, no. 367); and five sites from the Early Iron Age, with one possible settlement and four cemetery areas[8] outside Nepi itself. The material collected during the South Etruria Survey (Potter, n.d.) may or may not add to these numbers, but the restudied material is to be published. The decline in the number of known sites outlined above suggests the concentration of settlement away from early bronze age undefended sites towards the later naturally defended sites, culminating with the settlement of the site of Nepi itself.

Il Pizzo is the earliest naturally defended site at Nepi: this promontory site immediately south of Nepi was settled during the Middle (di Gennaro, 1987; di

[7] Grotta Arnaro 1 (Selmi, 1978; Brunetti Nardi, 1981: 131; di Gennaro and Stoddart, 1982: no. 10; di Gennaro, 1995b: 59, no. 51; Belardelli *et al.*, 2007: 309, no. 370), Grotta Arnaro 2 (Selmi, 1978; di Gennaro, 1995b: 59–60, no. 52; Belardelli *et al.*, 2007: 309, no. 371), the Porciano area (Selmi, 1978: 58; Brunetti Nardi, 1981: 42; di Gennaro, 1995b: 29), Cerreta (Belardelli *et al.*, 2007: 338, no. 382), Solfrate (Pennacchioni, 1975; Selmi, 1978; Fugazzola Delpino, 1990: 50; Petitti, 1990: no. 15; di Gennaro, 1995b: 61, no. 55; Belardelli *et al.*, 2007: 310, no. 379), Castello del Ponte Nepesino (San Marcello) (di Gennaro and Stoddart, 1982: no. 15; di Gennaro, 1995b: 60–1, no. 54; Belardelli *et al.*, 2007: 339, no. 377), Fontana di Ronci (Pennacchioni, 1975: tav. II; Selmi, 1978: map; Brunetti Nardi, 1981: 59; di Gennaro, 1995b: 60, no. 53; Belardelli *et al.*, 2007: 342, no. 375), Fosso della Cisternetta (Brunetti Nardi, 1981: 131; di Gennaro, 1995b: 62, no. 57; Belardelli *et al.*, 2007: 342, no. 376), Fosso Valdiano (Selmi, 1978; Brunetti Nardi, 1981: 131; cf. Rellini, 1920: 113; di Gennaro, 1995b: 62–3, no. 58; Belardelli *et al.*, 2007: 338, no. 378), Fosso del Pavone (Brunetti Nardi, 1981: 131; di Gennaro, 1995b: 63, no. 59), San Biagio (Brunetti Nardi, 1981: 60; di Gennaro, 1995b: 28, no. 7; Belardelli *et al.*, 2007: 338, no. 380), Ponte Baullo (Brunetti Nardi, 1981: 132), San Paolo (Brunetti Nardi, 1981: 130), Casale la Massa/Graciolo (Selmi, 1978: map) and Il Pizzo (di Gennaro, 1987; di Gennaro, 1995b: 58; di Gennaro *et al.*, 2002; Rajala, 2007; Belardelli *et al.*, 2007: 309, no. 372; di Gennaro *et al.*, 2008).

[8] Settlement at Tenuta di Filissano (Potter, n.d.: E36a; di Gennaro, 1995b: 30, no. 10; Belardelli *et al.*, 2007: 280, no. 380) and three cemeteries in the Massa area (Potter, n.d.: F9, F18, F19; Stefani, 1910: 213–19; Iaia and Mandolesi, 1993: 30; De Lucia Brolli, 1991: 94–5) and that at Il Gilastro (Iaia and Mandolesi, 1993: 30; Belardelli *et al.*, 2007: 308–9, no. 369).

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Table 3. The neolithic and bronze age dates of previously known sites. Cf. Brunetti Nardi, 1981; Fugazzola Delpino, 1990; Petitti, 1990; di Gennaro, 1995b; Belardelli *et al.*, 2007; Rajala, 2007.

Site	Neolithic	Late Neolithic	Calcolithic (Eneolithic)	Early Bronze Age	Early Middle Bronze Age (BM1–2)	Middle Bronze Age (BM3)	Unclear
Grotta Arnaro 1			?	×	×		
Grotta Arnaro 2			?	×	×		
Porciano				×	×		
Solfrate	×				×		
Il Pizzo					×		
Castello del Ponte Nepesino (San Marcello)				?			
Casale la Massa/ Graciolo							×
Fontana di Ronci							×
Fosso della Cisternetta							×
Fosso del Pavone							×
Fosso Valdiano							×
Ponte Baullo							×
San Biagio							×
San Paolo							×

Gennaro, 1992; di Gennaro, 1995b; Rajala, 2007) and Final Bronze Age (di Gennaro, 1995b: 58; di Gennaro, 2000; di Gennaro *et al.*, 2002; Rajala, 2007). Barbaro (2010: tab. 14) dates the material from Il Pizzo, collected by di Gennaro, to the later Final Bronze Age (BF3A1, BF3A, BF3B). In addition, two jug handles (Rajala, 2007: fig. 7, nos. 15 and 16), collected during the intensive survey in 2000, may belong to the closing years of the Final Bronze Age and originate from a funerary context (D'Erme, 2001; 2003).

The restudy of the final bronze age material from the Nepi Survey (Rajala, 2007), following the new chronological framework of Barbaro (2010), allows the suggestion of a possible earlier start date for the settlement at Il Pizzo. Of the diagnostic pieces, a sherd with *a cordicella* decoration (Rajala, 2007: no. 1) has parallels only from one non-stratified settlement context (Narce fase V; Barbaro, 2010: tab. 9, M13, fig. 26), with all sub-periods present. The incised carinated bowl fragments (Rajala, 2007: no. 2) and a motif of three parallel lines are both present between BF1–2 and BF3A2 (Barbaro, 2010: tab. 9, M174, fig. 133, M21, fig. 27). The element with incised lines and a row of dots below (Rajala, 2007: no. 25) has been found in non-stratified settlement contexts (Barbaro, 2010: tab. 9, M24, fig. 27) at Pitigliano and Pontone, the former settled during all sub-periods and Pontone during BF2B only. These parallels indicate the possibility of a settlement at Il Pizzo during the BF1–2 or BF2 phase.

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There is also some further evidence for later final bronze age tombs. The rectangular metope type motif (Rajala, 2007: no. 24) does not resemble the zigzag motifs present at the settlement sites. The closest parallel comes from the cemetery of Montetosto Alto at Cerveteri (Barbaro, 2010: fig. 111, no. 106). This combination of motifs is from BF2B or later, and was found exclusively in funerary contexts both at Cerveteri and Tarquinia (see Buranelli, 1983: fig. 75).

After the Final Bronze Age, there seem to have been a hiatus in settlement until the occupation of the main plateau of Nepi in the eighth century BC (cf. Iaia and Mandolesi, 1993). However, this may be challenged in the future, since Pacciarelli (2000: 164) suggested that pottery may have been dated systematically to the Final Bronze Age, even though many pieces could be dated to the Early Iron Age as well. There are some suggestions of activity at Il Pizzo during the Early Iron Age (di Gennaro *et al.*, 2002: 36–7, 41; Rajala, 2007: 16, 23–4). The two jug handles mentioned above may have an alternative date of the Early Iron Age or Orientalizing period (Bietti Sestieri, 1992a: 333–4; Carafa, 1995: 62–4, 70; Rajala, 2007: 16); this date would suggest continued occupation of the site, even if its function may have changed.

LATE PREHISTORIC SITES FROM THE NEPI SURVEY PROJECT

This section consists of a survey report and the summary of the pottery evidence[9] (Table 4), whilst the following section outlines the late prehistory of the Nepi area.

THE MASSA AREA (Fig. 4)

M8

This field unit (Fig. 3) revealed two pottery fragments (Fig. 5A; Table 4) that most probably date to the Early Iron Age (cf. Iaia and Mandolesi, 1993: fig. 2.C1, 24;

Table 4. Material from the prehistoric sites identified.

Site	Rim	Handle	Base	Decorated sherds	Undecorated sherds	Other	Total
M8	1	–	–	1	–	–	2
M13/1	3	–	1	2	3	–	9
M13/2	1	–	–	3	2	–	6
PVPB7–11	3	5 + 1	6	6	113	1	135
PVPB15/1	–	5	–	1	42	–	48
PVPB25	1	1	1	2	48	–	53
GMPT42	–	2	1	–	3	–	6
CFV10	2	–	–	–	18	–	20

[9] The full pottery catalogue will be published in *Internet Archaeology*, http://intarch.ac.uk/, hopefully in 2013.

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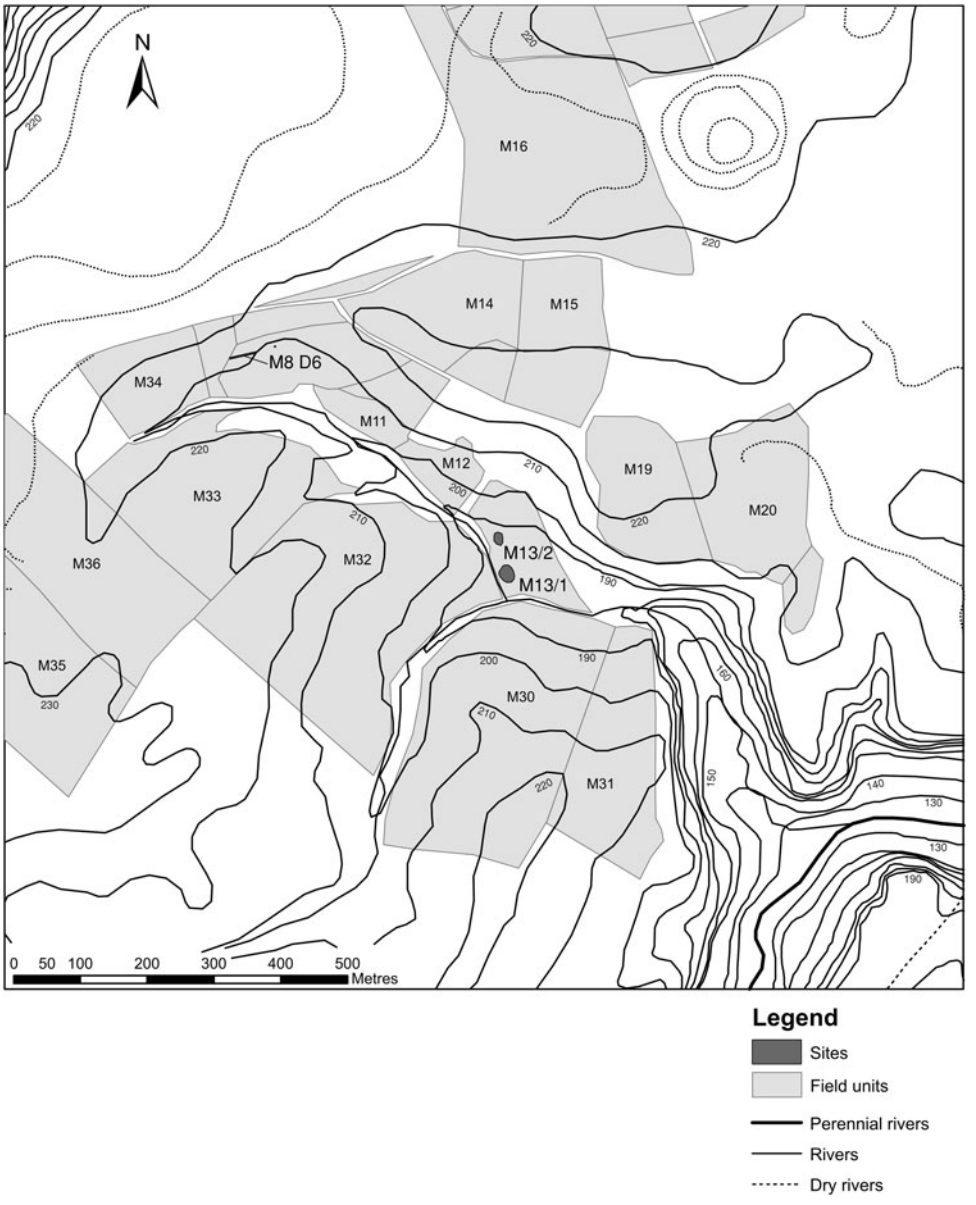

Fig. 4. The location of M8 together with M13/1 and M13/2 in the Massa area. *(Illustration: author, after the Carta Tecnica Regionale.)*

Carafa, 1995: tipo 27; Bonghi Jovino, 1999: gruppo 2Ia1, 124/4, 13–14). This field unit had been deep-ploughed recently and visibility was excellent. Find density overall was high at *c.* 541 g per ha, and six small separate concentrations of Roman finds were also noted (burials; Mills and Rajala, 2011: appendix 4). Some of the finds possibly relate to cut cavities, probably tombs, in the surrounding rock-faces. A locally well-known rock-cut tomb

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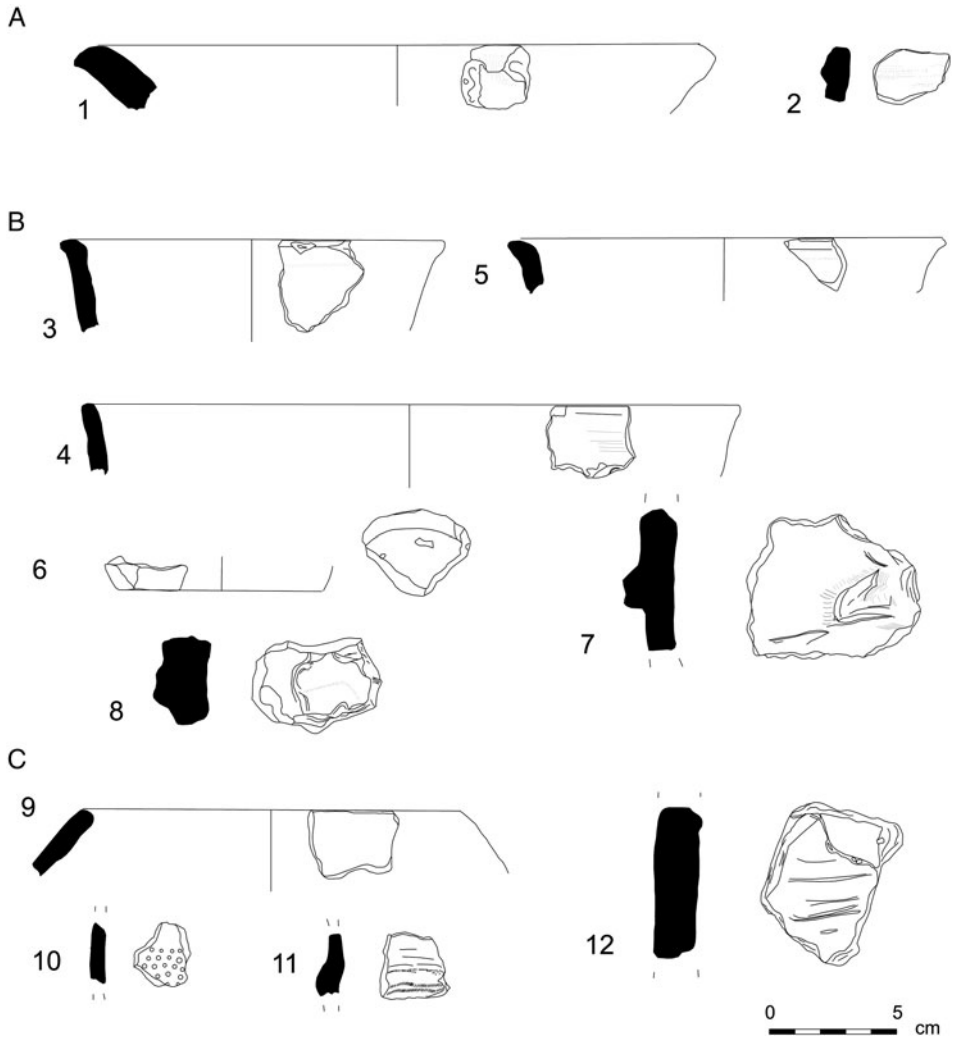

Fig. 5. Prehistoric pottery from the sites in the Massa area (scale 1:3). *(Drawing: author.)*

cemetery is along the eastern and northern sides of field units M11 and M12, *c.* 100 m south of M8.

This field had a rolling terrain with a relatively steep east–west slope in the east and a flatter area in the west between a rock-face in the west and a low perpendicular rise towards the north. The field unit was bordered by a narrow river valley in the southwest; the unit as a whole had a southwestern gradient. This particular find-spot was located in the northwestern corner of the field. The find-spot may suggest that the sherds originated from the plateau above in the west. The location of the site and the pottery suggest that these finds are not settlement finds, but may point to the existence of some *pozzo* (pit) tombs in the area, if they are not from an Orientalizing context.

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Fosso del Graciolo: Grotta Arnaro 1

These two separate concentrations ('sites') were in the same field that slopes towards the junction of the river channels in the southeast. They both are most probably part of Grotta Arnaro 1[10] (cf. Selmi, 1978; Brunetti Nardi, 1981: 131; di Gennaro and Stoddart, 1982: n. 10; di Gennaro, 1995b: 59, no. 51), a site previously placed on archaeological maps further south, in the area of unit M11 or M12 (cf. Selmi, 1978) (Fig. 4), but this survey located two concentrations of prehistoric material, with no lithics, a few hundred metres further south. Di Gennaro (1995b) suggested an early and early middle bronze age date for both Grotta Arnaro sites.

M13/1

M13/1 (Fig. 3) was a circular concentration with a relatively low density of prehistoric and later pre-Roman pottery in the lower southwestern part of the field unit nearer the river (Fig. 4; Table 4). An area of *c.* 30 × 50 m was marked by lower growth of alfalfa (*lucerne*).

The diagnostic finds (Fig. 5B) from this concentration are of an eneolithic or early bronze age date. Numbers 3–5 and 8 in Figure 5B may be connected to the Laterza phase (Gioia, Boccuccia and Minniti, 2007: fig. 1.C.11, D.1–2 and F.1). However, lug handles (Fig. 5B, nos. 7 and 8) are not present during the Early Bronze Age (cf. Cocchi Genick, 1998). The simple straight rims of the Middle Bronze Age are common in undecorated vessels and are similar to the Grotta Nuova and Adriatic types in Marche (Cocchi Genick *et al.*, 1995: fig. 6, no. 25A and fig. 131, no. 434). However, the examples from Narce and the Faliscan area normally are decorated (cf. Peroni and Fugazzola Delpino, 1969; Cazzella and Moscoloni, 1976: fig. 6; di Gennaro, 1995b: fig. 33, *strato* 3 and 4, 41–2), and this suggests an eneolithic, if not neolithic, date.

M13/2

M13/2 (Fig. 3) was a rectangular concentration of prehistoric pottery (Fig. 4; Table 4) *c.* 30 m north of concentration M13/1, in a slight depression. An area of *c.* 23 × 15 m with a low density of finds similarly was marked by the lower growth of alfalfa.

The diagnostic finds (Fig. 5C) from this concentration can be dated loosely between the Late Neolithic and Middle Bronze Age. Numbers 10 and 11 in Figure 5C may originate from the Laterza or Ortucchio phases (Anzidei and Carboni, 2007: fig. 8, nos. 12 and 15; Gioia, Boccuccia and Minniti, 2007: fig. 1.C.7 and C.10; Cocchi Genick, 1998: *motivo* 9, fig. 61, no. 231 and fig. 63, nos. 233, 237A and 238).

[10] On Selmi's (1978) map the different sites are not named. While preparing my Ph.D. thesis, I assumed that the northern site in the Grotta Arnaro area was Grotta Arnaro I. However, it is not possible to separate the sites definitively (see also: Belardelli *et al.*, 2007: 309).

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THE PIANO DI VALLESCURA AREA

PVPB7–11

A halo-like spread of archaeological material on a stubble field with high visibility was located north of the Azienda Agricoltura Rio Vicano (Fig. 6). Part of the material indicates prehistoric settlement (Tables 4 and 5). The field units nearest the modern buildings tend to slope gently towards the north, with the northernmost units sloping towards the west-northwest.

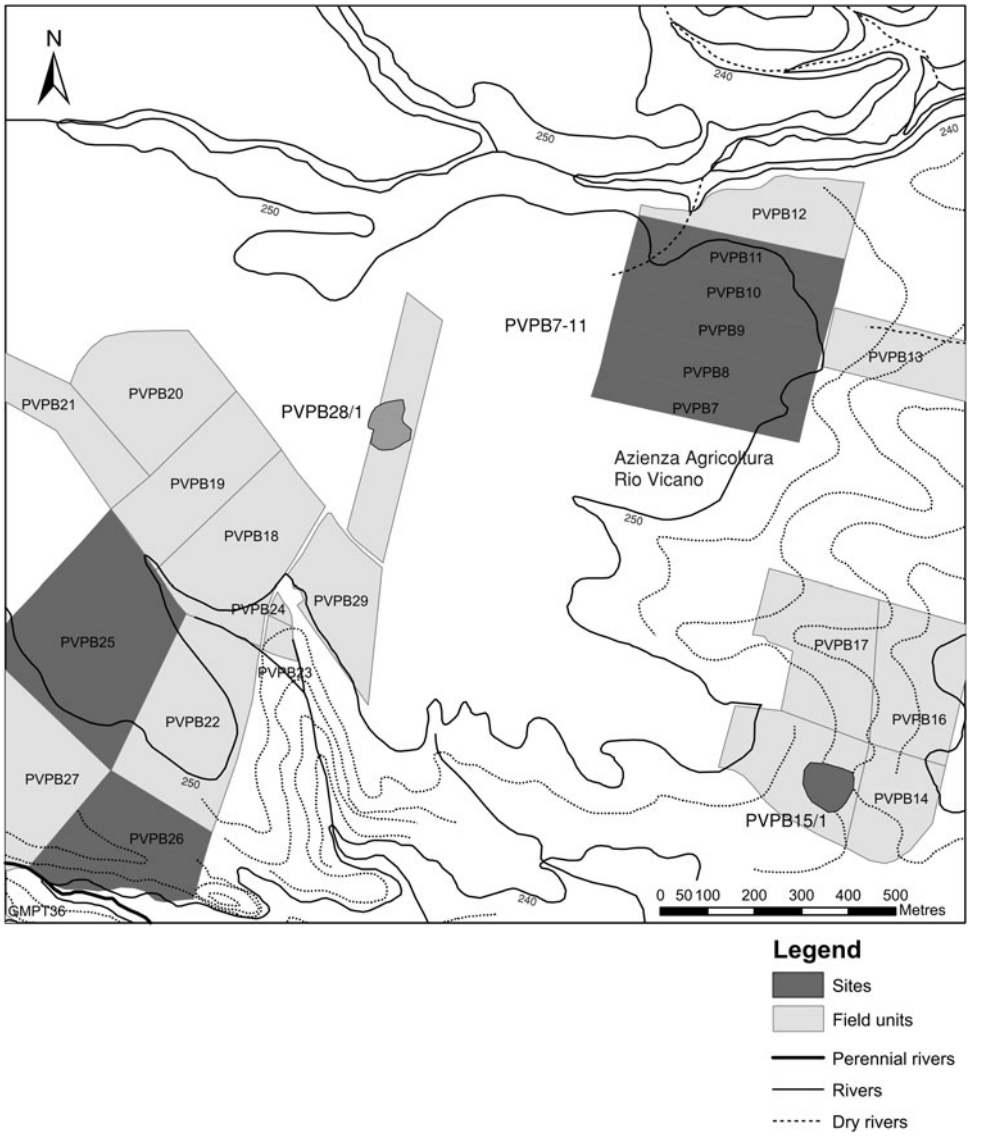

Fig. 6. Prehistoric sites and occurrences of material in the Piano di Vallescura area. *(Illustration: author, after the Carta Tecnica Regionale.)*

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The location is typical for the vast central Italian open sites dating between the Late Neolithic and Early Middle Bronze Age (for example: Fugazzola Delpino *et al.*, 2003). The diagnostic material (Fig. 7) does not give a more specific dating (for example, no. 14: Biddittu and Segre Naldini, 1981: fig. 3.12; Manfredini and Muntoni, 2007: fig. 2.1; no. 17: Anzidei and Carboni, 1995; Cocchi Genick *et al.*, 1995: 265–350; Cocchi Genick, 1998: 200–27; no. 19: Aranguren *et al.*, 2008: fig. 3, no. 6, 582). Rinaldone type arrowheads, such as the one found in unit PVPB9 (Fig. 7, no. 13; cf., for example: Dolfini, 2006: fig. 2, *tomba* 2, no. 15 and fig. 4, *tomba* 4, no. 64), have been found from settlement sites (Biddittu and Segre Naldini, 1981), but equally the cemeteries of the Rinaldone type seem to have been near vast long-term settlement sites around Rome, possibly suggesting the contemporeanity of the Rinaldone and Laterza phases (Anzidei and Zarattini, 2007). The shoulder fragment (Fig. 7, no. 23) could be from the Final Bronze Age (Wendt and

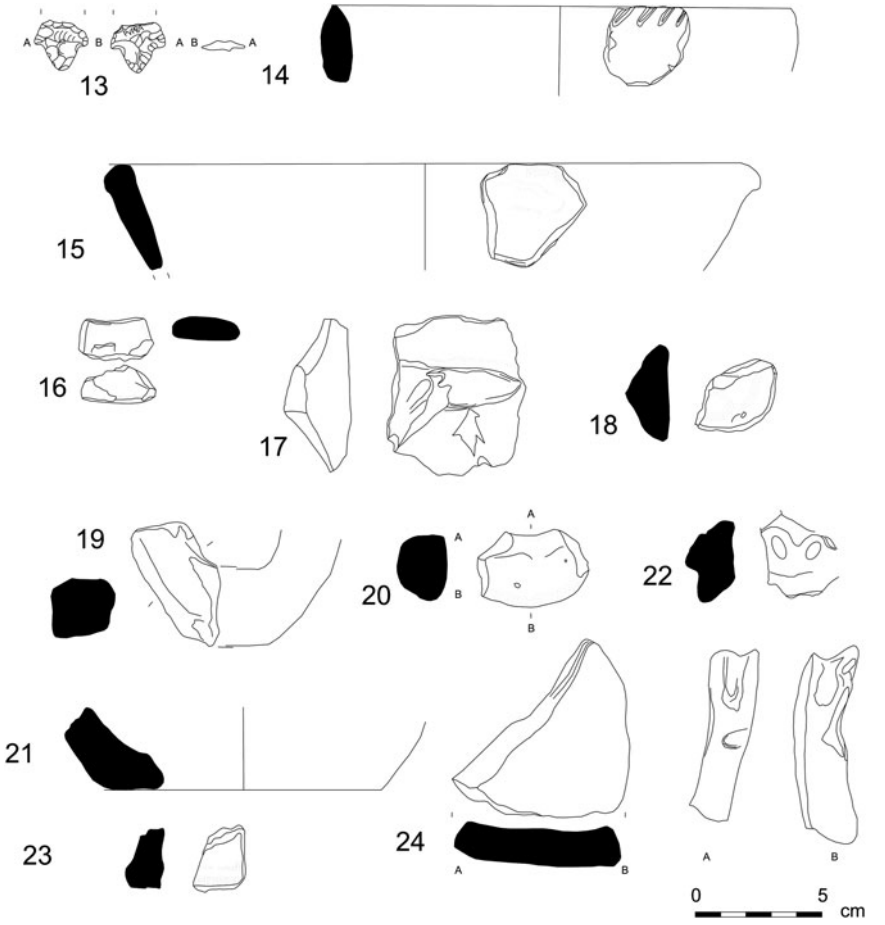

Fig. 7. The Rinaldone arrowhead and a selection of diagnostic prehistoric pottery from spread PVPB7–11 (scale 1:3). *(Drawing: author.)*

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Table 5. The lithics found from the field units discussed. The additional lithics from the building-work sections at Casale Galeotti, not included in the surface find counts, are shown in parentheses.

Site	Flakes	Blades	Splinters	Cores	Retouched flakes	Tools
PVPB7–11	13	1	3	–	1	1
PVPB15/1	16	–	1	2	1	2
CFV10	1	–	–	–	–	–
M2–7	9	1	2	1	3	1
GMPT13–15	2 (6)	–	(3)	(2)	1	1 (2)
PVPB25	1	1	–	–	–	–
LVS3	5	–	1	–	–	–
SP3–6	8	–	–	–	–	4
CFV18	1	–	–	–	–	1

Lundgren, 1994: pl. 28.4; Murray Threipland, 1963: fig. 8.10), although an eneolithic dating (cf. Anzidei and Carboni, 1995: fig. 63, no. 10) is much more likely; an undefended final bronze age site would be the first in this area.

PVPB15/1

Prehistoric material (Fig. 8; Tables 4 and 5) was found inside a large, 135 × 110 m, concentration of Roman material in a depression on a relatively flat plateau (Fig. 6). The finds also included pre-Roman pottery from the Orientalizing and Archaic periods. The east-southeastern end had a higher find density, with a

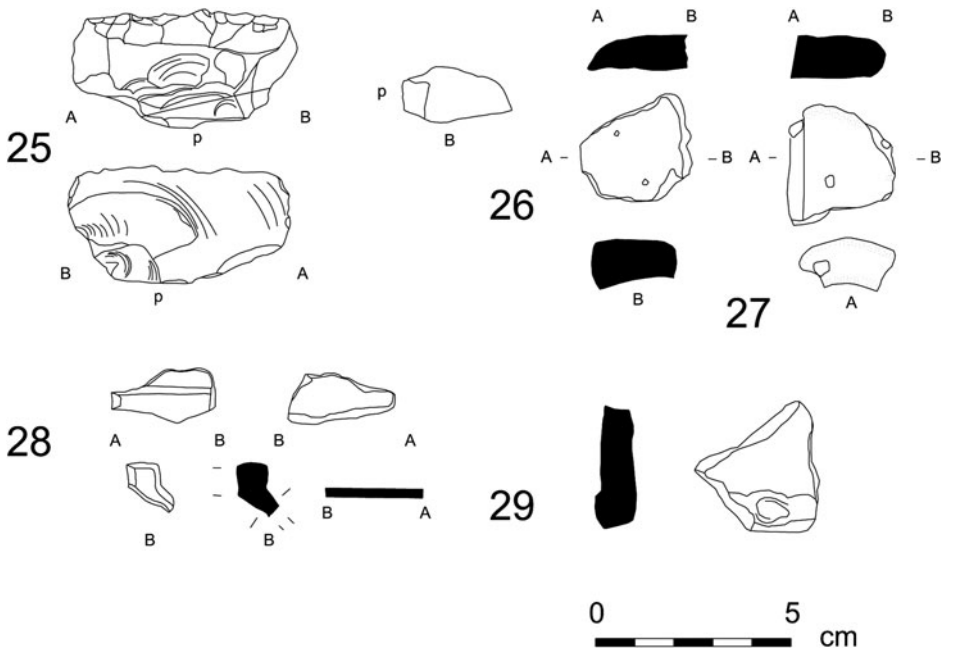

Fig. 8. A flint scraper and prehistoric pottery from site PVPB15/1 (scale 1:3). *(Drawing: author.)*

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higher occurrence of prehistoric pottery; soil was darker at the east-southeast end, and this suggests that ploughing had cut prehistoric layers.

The finds included a flint scraper (Fig. 8, no. 25) that is similar to the short scrapers and other retouched neolithic tools at Quadrato di Torre Spaccata in Rome (Anzidei and Carboni, 1995: 103, fig. 25). The tool type can be placed also within late neolithic lithic types in other areas (for example: Rajala, 1995: appendix 31). The diagnostic pottery finds (Fig. 8) give a likely date between the Late Neolithic and the Middle Bronze Age (cf. Filippi and Pacciarelli, 1991: fig. 35; Anzidei and Carboni, 1995; Cocchi Genick *et al.*, 1995: 265–350; Cocchi Genick, 1998: 200–27).

PVPB25

This field unit (Fig. 6) presented a number of distinctively prehistoric pottery fragments (Table 4), but hardly any lithics (Table 5). The visibility on this stubble field was low and the density sparse, but the finds were spread relatively evenly. The field had a rolling terrain facing south-southeast. A gas line crosses the field, and it is clear that the prehistoric pottery finds were lifted onto the surface by the associated digging.

The rim and the base (Fig. 9A, nos. 30 and 31) are probably from the same bowl, which is an early bronze age type (Cocchi Genick, 1998: *tipo* 29, fig. 13) with a wide distribution from Tuscany to the Aeolian islands and Malta. The Palma Campania phase in Campania has a wider range of vessels with rims that expand both inwards and outwards (Albore Livadie *et al.*, 1996: fig. 4, 128), and a range of types has been defined in Tuscany (Cocchi Genick, 1998: 101–11). Similar bowls have been found also north of the Tiber (Barbaro and di Gennaro, 2007: fig. 2C), and a similar type continues to the Middle Bronze Age (Cocchi Genick *et al.*, 1995: fig. 9, no. 34).

The handle fragment no. 31 has a good middle bronze age parallel from Luni del Mignone in south Etruria (Cocchi Genick *et al.*, 1995: fig. 144, *tipo* 472, u2 and u4), as does the handle fragment with a boss (no. 33; Östenberg, 1967: fig. 24:1). This latter type is from the Grotta Nuova phase on the Tyrrhenian coast (Cocchi Genick *et al.*, 1995: fig. 205).

The finds date this site either to the Early Bronze Age or early Middle Bronze Age (BM1–2).

PVPB26

This is a wide field unit (Fig. 6) with a low hillock ploughed down to tuff. Many sherds of prehistoric pottery were found on the flatter stretch by the river, but the five sherds specifically bagged from this area were non-diagnostic body sherds. This unit also revealed much Orientalizing and Archaic material; it is clear that at least part of this material had been washed down the slope, but it is unclear if any was brought by the river during winter and spring flooding.

The diagnostic pieces (Fig. 9B) are relatively generic. The rim (no. 34) belongs to a simple, long-lived type (cf. Cocchi Genick *et al.*, 1995: *tipo* 23, fig. 5; Cocchi

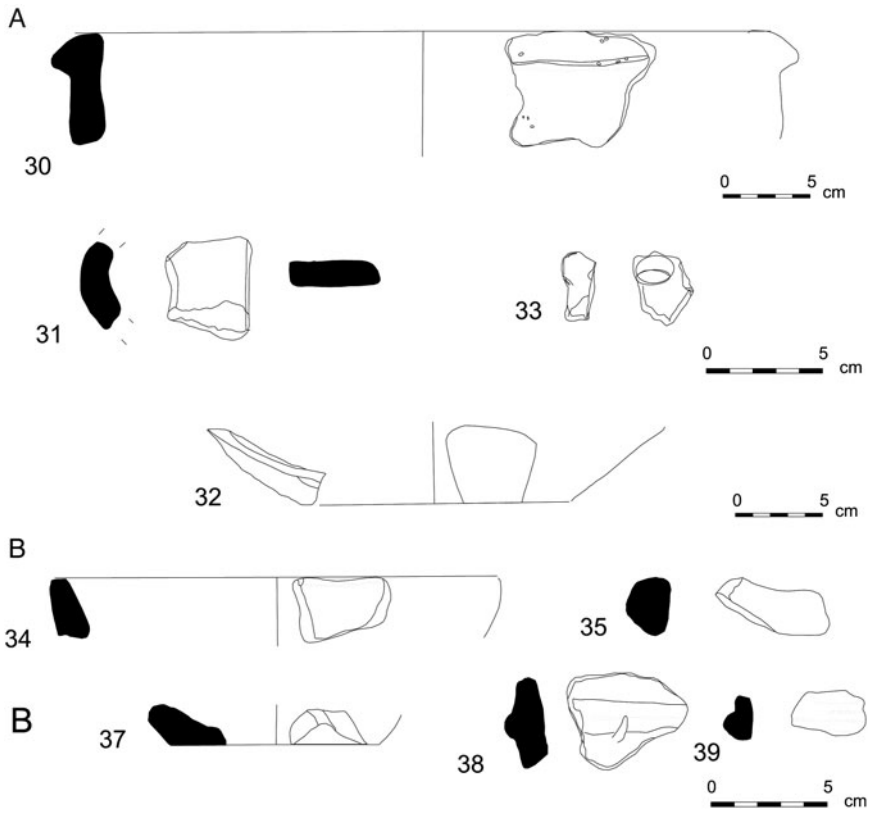

Fig. 9. Prehistoric pottery from field units PVPB25 and PVPB26 (scale 1:3, except nos. 30 and 32 scale 1:4). *(Drawing: author.)*

Genick, 1998: *tipo* 5A, fig. 6; Cocchi Genick, 2008: *tipo* 345, fig. 45). This suggests the existence of a settlement at some point between the Late Neolithic and the Middle Bronze Age.

THE FOSSO DEL CERRO AREA

GMPT42

This naturally defended site on a small tuff outcrop in the Fosso del Cerro river valley is defined geographically by perpendicular cliffs and accessed by climbing a less steep slope to the west (Fig. 10). The flattish top is eroded and ploughed down to tuff. Diagnostic prehistoric pottery (Fig. 11A) eroded down to the northeastern edge shows that this site, in parallel with Torre dell'Isola and Il Pizzo, was settled at some point during the Middle Bronze Age (Cocchi Genick *et al.*, 1995: type 457A, fig. 137, pp. 265–350). The find density was sparse (Table 4). The extreme erosion and geographic location, typical of the later Middle and Final Bronze Ages, would tentatively suggest a middle bronze age site (BM3).

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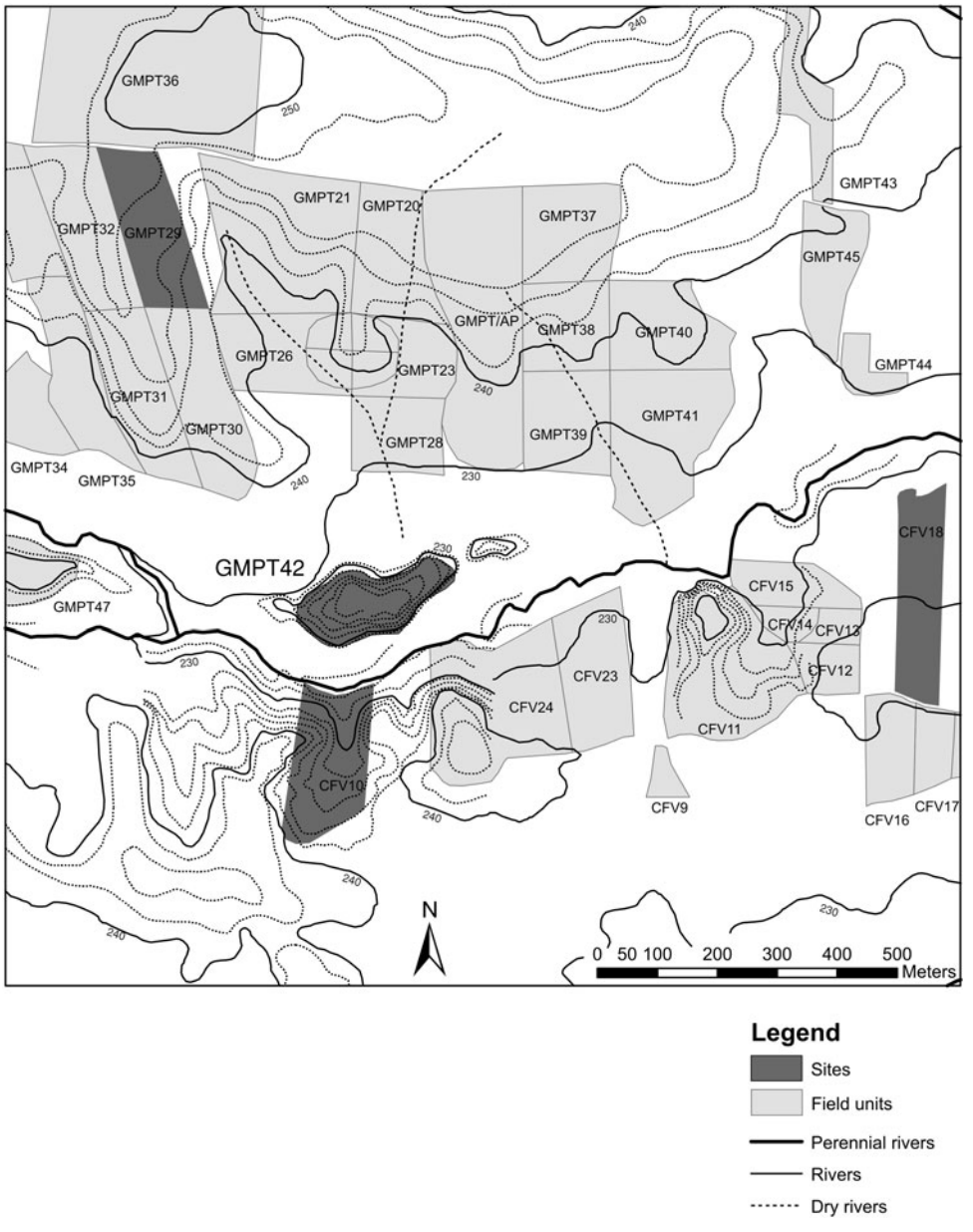

Fig. 10. The middle bronze age site of GMPT42 and field unit CFV10. *(Illustration: author, after the Carta Tecnica Regionale.)*

CFV10

This field unit (Fig. 10) presented a spread with prehistoric material (Tables 4 and 5) scattered among other material at the foot of the hillocks south from the river valley.

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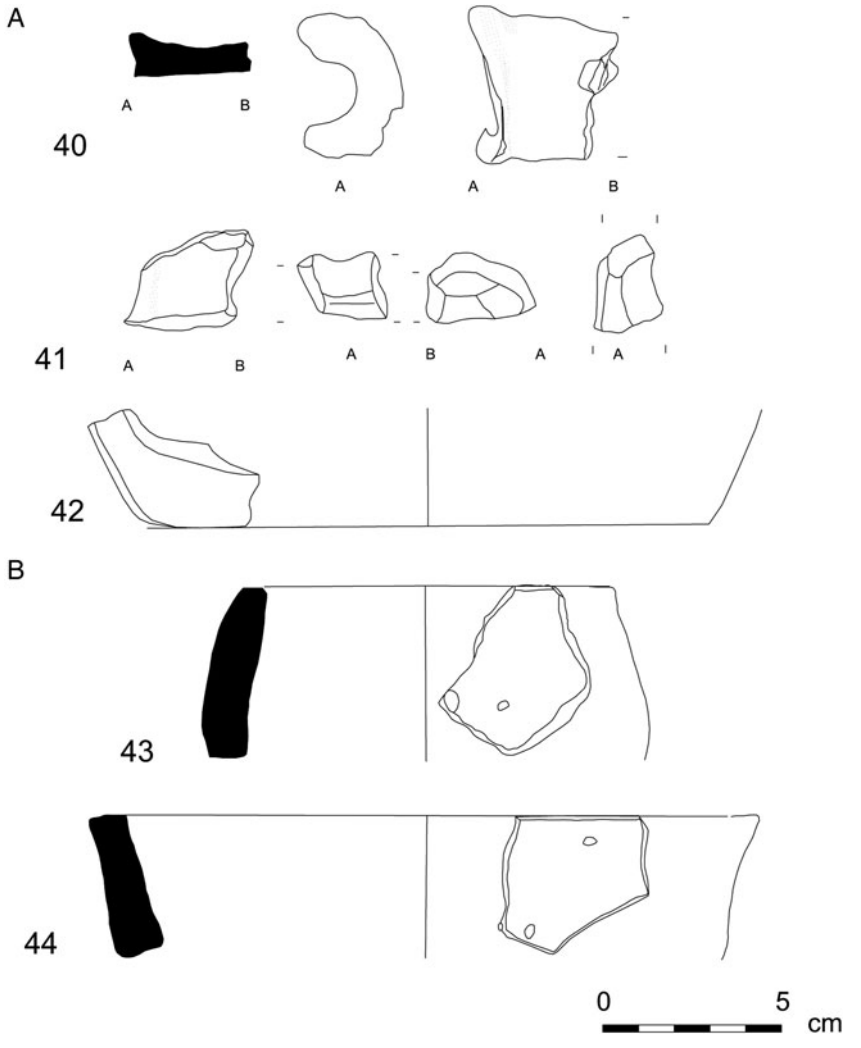

Fig. 11. Prehistoric pottery from GMPT42 and CFV10 (scale 1:3). *(Drawing: author.)*

Like the rims at PVPB7–11, simple straight rims (Fig. 11B) find parallels over a long period of time (for example: Malone and Stoddart, 1992). No. 44 is of a non-decorated middle bronze age variety (Cocchi Genick *et al.*, 1995: fig. 6, no. 25A), more common in the Grotta Nuova and Adriatic areas. No. 43 is similar to *boccali* at Lago di Mezzano and Lago Albano, with the same rim diameter (Cocchi Genick, 1998: *tipo* 88, fig. 35, 88A, 88B, 88v). A similar rim is among the material from the eneolithic site of Civitella Cesi (di Gennaro, 1995c: 228). Since only one of the undecorated sherds was burnished, a general dating between the Neolithic and the early Middle Bronze Age seems most appropriate.

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EVIDENCE FOR FURTHER LATER PREHISTORIC SITES

M2–7

This flat field area is part of a halo-type scatter around the site of a Roman ritual structure (M2/1; see: Mills and Rajala, 2011: 204). Flint finds in the Massa area have been plentiful in the past (Rellini, 1920) and these field units provided nineteen flint artifacts (Table 5), including the mid-section of a blade, mainly from the southern side of the sampled area. Pottery finds, including a lug handle fragment (cf. Gioia, Boccuccia and Minniti, 2007: fig. 1.C.12) and a few body sherds (Table 6), suggest a late neolithic–early bronze age site.

Casale San Paolo (SP3–6)

There are previous prehistoric finds (Brunetti Nardi, 1981: 130) from this large field area that slopes towards the south. Only one possibly prehistoric sherd was decorated with a finger-pressed cordon (Filippi and Pacciarelli, 1991: *cordone tipo* 3); other prehistoric sherds are undecorated (Table 6). These finds, together with some of the lithics (Table 5), may testify to activity during the earlier part of the Bronze Age.

PVPB28

The line collection at this villa site, found by Frederiksen and Ward-Perkins (1957: 181, 781825; see Fig. 6), produced two undecorated prehistoric sherds (Table 6). The *podium* of the villa is still recognizable from contours next to a deserted recent building, but generally this field unit was flat, and at the time of the collection covered with grass, with moderate visibility and medium find density. However, a fragment from the top part of a cooking stand (Scheffer, 1981: type ID) raises the possibility of iron age activities in the Piano di Vallescura area.

Since this cooking stand type continued into the Orientalizing period, it is likely that this fragment is related to the few *impasto bruno* and *bucchero* finds in the PVPB7–11 spread, to be discussed in a future article on the Orientalizing and Archaic finds from the Nepi Survey. All these finds may relate to a promontory in the north, on the other side of the river valley inside a fenced antenna site. In general terms the find may be analogous to those from M8.

Table 6. The ceramic material from possible sites.

Site	Rim	Handle	Base	Decorated sherds	Undecorated sherds	Cooking stands	Total
M2–7	–	1	–	–	11	–	12
SP3–6	–	–	–	1	4	–	5
PVPB28	–	–	–	–	2	1	3
GMPT13–15	–	–	–	1	7	1	9
GMPT29	–	1	–	1	5	–	7
CFV18	–	–	1	1	21	–	23
LVS3/1	1	–	–	1	4	–	6

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Casale Galeotti (GMPT13–15)

This area, prepared for a development at some point before the Nepi Survey, produced a number of lithics (Table 5), all but four from the sections of bulldozed trenches. Some sherds of prehistoric pottery (Table 6) were found, most notably a fragment of a cooking stand from concentration GMPT13/2 and a decorated sherd from section GMPT15F (Fig. 12B, nos. 47 and 48 respectively). GMPT13 slopes gently towards the northwest, whereas the other areas north of the hillock of Casale Galeotti slope towards the northeast. The decorated sherd may be from the Early or Middle Bronze Age, but the decoration is most likely Apennine (cf. Cocchi Genick, 1998: *motivo* 204, 231, fig. 61; Cazzella *et al.*, 2007: fig. 3, no. 10). A convex side scraper (Fig. 12B, no. 46), with a possible date ranging from the Upper Palaeolithic to the Bronze Age, was found from the same, 40 m long, section.

GMPT29

This pasture growing alfalfa slopes gently towards the southeast. This unit (Fig. 10) had a large gully running downslope. Finds were generally scarce, but among them were a lug handle and a boss (Fig. 12C) that suggest a date between the Late Neolithic and Middle Bronze Age (cf. Gioia, Boccuccia and Minniti, 2007: fig. 1.C.11 and C.12; Filippi and Pacciarelli, 1991: *bugna tipo* 3).

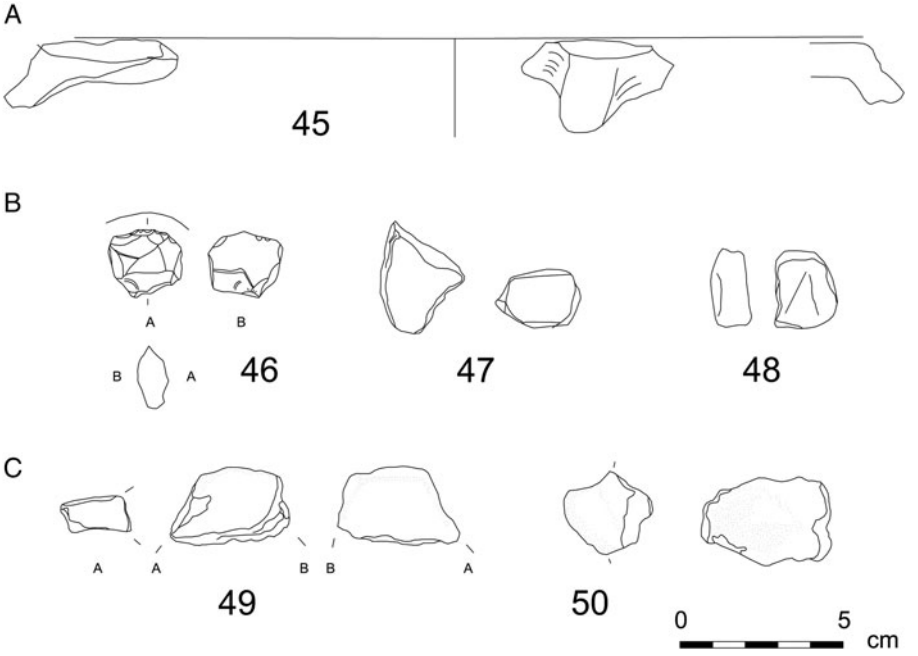

Fig. 12. Further evidence for later prehistoric sites from PVPB28, GMPT13–15 and GMPT29 (scale 1:3). *(Drawing: author.)*

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CFV18

This field unit (Fig. 10), sloping gently towards the north, had an even low-density spread of material of all periods, including a few flints (Table 5). In addition to undecorated sherds, there was a boss and a flat base (Table 6), neither of which can be dated with great precision (cf. Filippi and Pacciarelli, 1991: fig. 37.D4). The pottery density suggests an early bronze age–early middle bronze age site.

LVS3/1

A few flakes and some prehistoric pottery (Tables 5 and 6) were found in a large, 160 × 130 m, scatter on both sides of a strip of pavement slabs of a Roman road in a ploughed field north of the river and south of the gas line. The location in the river valley below tuff cliffs suggests an early bronze age or early middle bronze age date for a rim fragment from a carinated bowl and a flat base (cf. Cocchi Genick *et al.*, 1995: fig. 103, *tipo* 108, u2; Cocchi Genick, 1998: 150–1, 128–36).

DISCUSSION

FROM THE LATE NEOLITHIC TO THE EARLY BRONZE AGE

Solfrate has a definite Neolithic phase (cf. Fugazzola Delpino, 1990: 50; Petitti, 1990: no. 15), and it is the oldest certain ceramic settlement site in the territory. One of the two concentrations at M13 (M13/1) seems to be Eneolithic. The spread at PVPB7–11 contains similarly eneolithic material, including a fragment of a Rinaldone arrowhead. The existence of larger sites dated to the Late Neolithic or Eneolithic fits the pattern known from central Lazio, where the settlements also show connections with Rinaldone cemeteries (Anzidei and Zarattini, 2007: 79).

The sites with pottery dated between the Late Neolithic and Early Bronze Age (or early Middle Bronze Age), which show considerable continuity in material culture, include M13/2, PVPB7–11, PVPB15/1, PVPB26 and CFV10, and possibly PVPB25, M2–7, SP3–6, CFV18, GMPT13–15, GMPT 29 and LVS3/1. Together with the fourteen previously known sites (including the early middle bronze age Il Pizzo) we have 26 find-spots with potential late prehistoric settlement remains. They were not all occupied at the same time (Table 7), but this dense pattern shows that the landscape was visited regularly. The hypothetical maximum density is presented in Figure 13.

The rectangular concentration at M13/2 and the circular one at M13/1 may relate to late neolithic and eneolithic houses. The visible crop-marks at these concentrations suggest structures below the surface and allow this comparison. For example, three sub-rectangular and rectangular houses were excavated at Quadrato di Torre Spaccata in Rome (Anzidei and Carboni, 2003), whereas circular houses are known from the site of Osteria Curato — Via Cinquefrondi (Anzidei and Zarattini, 2007: 86, fig. 5). Four oval and one sub-circular early

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Table 7. The date ranges of the finds from the Nepi Survey Project between the Late Neolithic and Middle Bronze Age.

Site	Late Neolithic	Calcolithic (Eneolithic)	Early Bronze Age	Early Middle Bronze Age (BM1–2)	Middle Bronze Age (BM3)
M8					
M13/1		×			
M13/2		×	×	×	
PVPB7–11	×	×	×		
PVPB15/1	×	×	×		
PVPB25			×	×	
PVPB26	×	×	×	×	
GMPT42				×	×
CFV10		×	×	×	
M2–7	×	×	×	×	
SP3–6	×	×	×	×	
PVPB28					
GMPT13–15	?	?	?	?	×
GMPT29	×	×	×	×	
CFV18	×	×	×	×	
LVS3/1			×	×	

eneolithic houses were found at Le Cerquete — Fianello (Fugazzola Delpino *et al.*, 2003: 102). The areas of houses at Quadrato di Torre Spaccata were smaller (6 × 9 m and 6.5 × 8 m; Anzidei and Carboni, 2003: 798) than the concentration at M13/2, but a sub-rectangular hut at Scarceta di Manciano, dated to the Middle Bronze Age and the Grotta Nuova phase (Grifoni Cremonesi, 2007: 287), is in the same range (being 10 × 4.4 m).

MIDDLE BRONZE AGE

Of the concentrations defined by the Nepi Survey Project, CFV10 has clear evidence of the early Middle Bronze Age, and the two handle fragments from PVPB25 have good parallels from south Etruria from the same sub-period. The possibly Apennine sherd from GMPT13–15 relates to a potential undefended site on the fringes of a hillock overlooking a river valley.

Of the previously known sites, Il Pizzo was settled over the entire span of the Middle Bronze Age. Unfortunately, it is impossible to say if GMPT42 was settled during all phases. However, Il Pizzo and GMPT42 share a similar location on a naturally defended tuff outcrop with the nearest undoubtedly middle bronze age sites at Monte Tufo (di Gennaro, 1990: 216–17; di Gennaro, 1992: 710; Belardelli *et al.*, 2007: 312, no. 388) between Nepi and Sutri, and at Vignale (Belardelli *et al.*, 2007: 284, no. 271), which was settled only during the Apennine phase (Middle Bronze Age 3). Similarly, La Ferriera, on a naturally defended site south of Sutri near Lake Monterosi, also may have a middle bronze age phase (Belardelli *et al.*, 2007: 312, no. 386). In general terms, these

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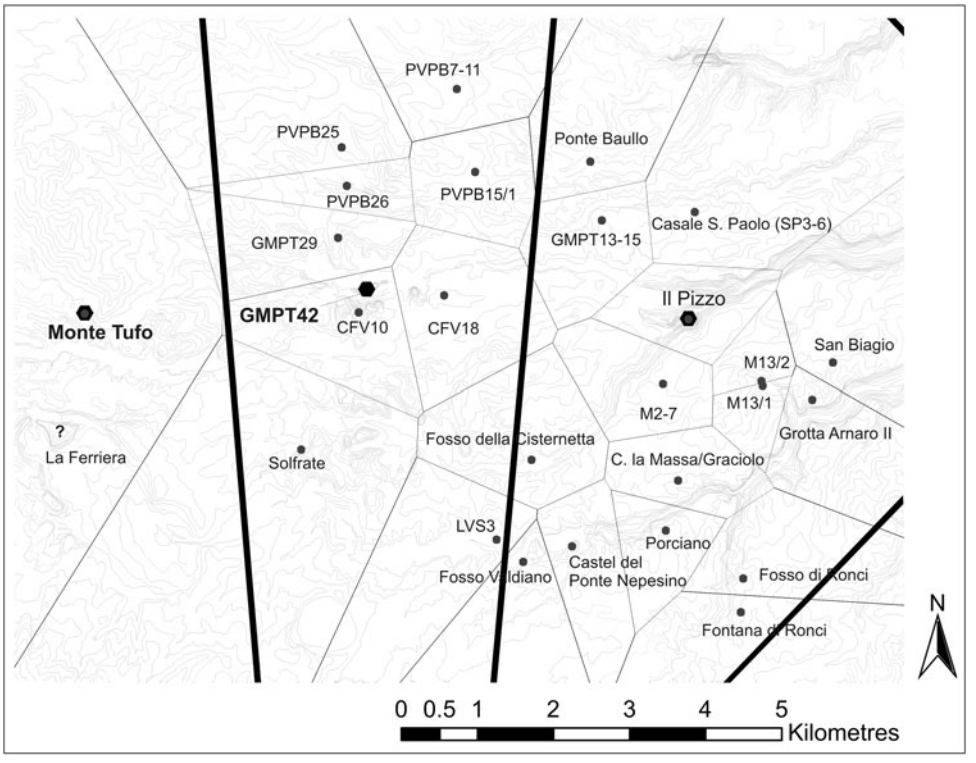

Fig. 13. The hypothetical shift in settlement patterns from the late neolithic–early middle bronze age open sites to the larger, less dense, naturally defended middle bronze age sites in the Nepi area. *(Illustration: author, after the Carta Tecnica Regionale.)*

sites conform to the pattern of settlement slowly concentrating in well defined easily defendable locations at medium intervals (*c.* 5–20 km) (cf. Fig. 13).

RECENT AND FINAL BRONZE AGE

The nearest recent bronze age sites were located at La Ferriera (di Gennaro, 1995a; Belardelli *et al.*, 2007: 312, no. 386) and Narce (Peroni and Fugazzola, 1969; Potter, 1976; Belardelli *et al.*, 2007: 312, no. 386). Il Pizzo (Nepi area) may have been uninhabited between the Middle Bronze Age 3 and the Final Bronze Age.

Even if one shoulder fragment from the Piano di Vallescura area can be related to final bronze age parallels, most prehistoric pottery from PVPB7–11 can be dated loosely between the Late Neolithic and Middle Bronze Age. However, Orientalizing finds from this area, together with a cooking-stand fragment from PVPB28, show that Piano di Vallescura was an important area for long-term settlement.

Il Pizzo and Torre dell'Isola/Torre Stroppa were the main final bronze age sites in the area, both dated to the end of the Final Bronze Age without any diagnostic

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pieces dated securely to the earlier sub-phases. However, re-examination of the diagnostic material from the intensive survey of Il Pizzo allows me to suggest an early final bronze age phase.

The other sites in the region are Narce (Peroni and Fugazzola, 1969; Potter, 1976; Belardelli *et al.*, 2007: 312, no. 386), Vignale (Belardelli *et al.*, 2007: 312, no. 386) and Sutri (Belardelli *et al.*, 2007: 313, no. 385). These are all in similar naturally defended locations (Fig. 14). This pattern suggests that settlement aggregated on naturally defended smaller tuff outcrops or plateaux, *c.* 5–10 kilometres apart.

EARLY IRON AGE

The surface collection only gave the rarest hints of the early iron age land use in the Nepi area. Only two locations in the territory had possible early iron age finds. M8 in the Massa area relates to the funerary areas in the immediate surroundings of Nepi, whereas the cooking-stand fragment from the Piano di Vallescura area

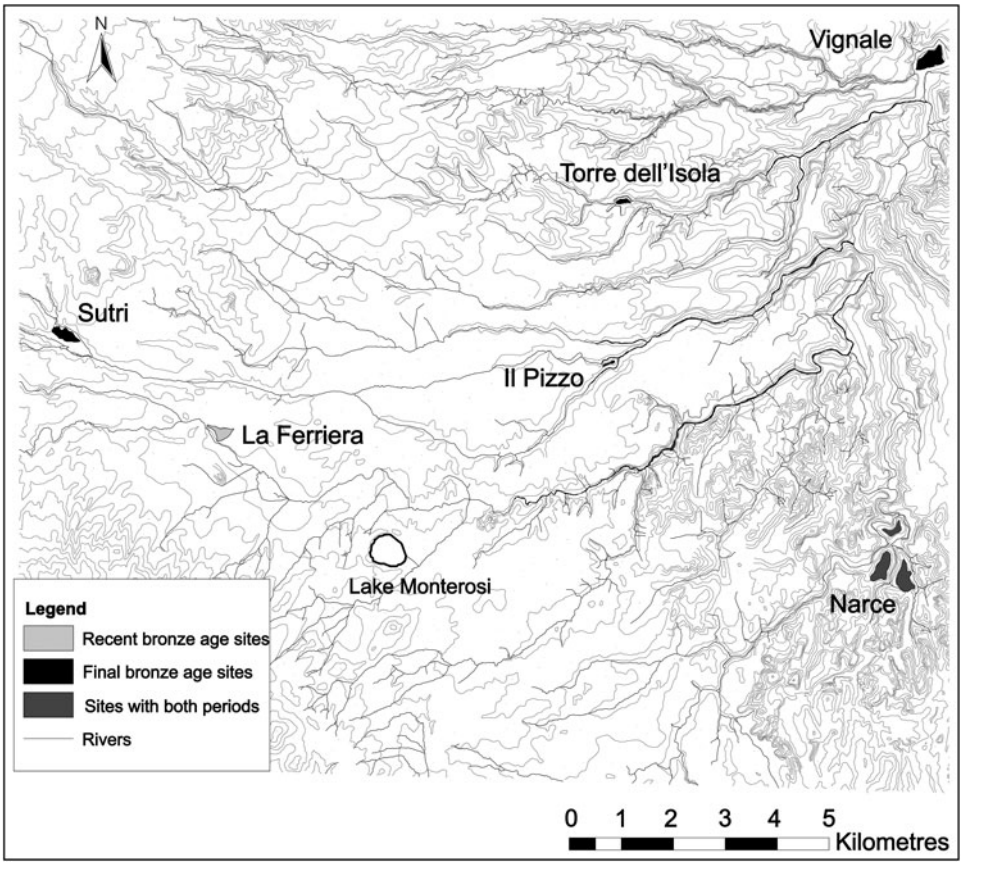

Fig. 14. Recent and final bronze age sites in the Nepi area. *(With the Istituto Geografico Militare elevation data, reproduction authorization no. 4706.)*

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may relate to the more numerous Orientalizing finds at PVPB7–11. Nevertheless, these meagre finds point to the wider occupation of the territory — if not during the Early Iron Age, then probably during the Orientalizing expansion.

The relocation of settlement from Il Pizzo to Nepi can be considered in the light of the general move towards larger naturally defended sites during the Early Iron Age. Although the recent finds give hints that the use of Il Pizzo continued, its function changed from residential to ritual (Rajala, 2007: 23–5; di Gennaro *et al.*, 2008). A settlement hiatus between the Final Bronze Age and the eight century BC similarly has been recorded at Vignale (Falerii Veteres) and La Ferriera, with Sutri apparently becoming unoccupied after the Final Bronze Age (Belardelli *et al.*, 2007). This latter shift seems anomalous, but may relate to power shifts either locally between Veii and smaller centres or regionally between different larger centres. The continuous occupation of Monte Sant'Angelo (Belardelli *et al.*, 2007: 24, no. 222), west of the Baccano crater, from the Final Bronze Age to the Early Iron Age may suggest more complex developments at the frontier between the Etruscan and Faliscan areas, as I have suggested elsewhere (Rajala, 2005; 2012).

The possible continuity at Il Pizzo from the Final Bronze Age into the Iron Age raises the prospect that the reason for the dislocation of settlement was organic, due to expanding population. Population estimates and calculations of agricultural production (Rajala, 2004) can be used to support this argument. Since the building density at this site is not known, this information has to be inferred from the evidence from excavations elsewhere in central Italy.

The excavations at Calvario, Tarquinia (Linington, Delpino and Pallottino, 1978) revealed larger oval and smaller rectangular buildings that can be interpreted as dwellings (the final bronze age houses at Sorgenti della Nova, see: Negroni Catacchio, 1995) and auxiliary buildings (for the Fidene and Cures 'huts', see: Bietti Sestieri and De Santis, 2000; Guidi, 2003) respectively, creating an analogous household unit to that at the early iron age Palatine Hill (Carandini, 1998). The building density at Calvario seems to have been ten houses per hectare, if they were all contemporary. With at least three large oval houses per hectare, it is likely that there were *c.* 3.3 households per hectare. Using the traditional family size of five (Bintliff, 2002: 158), the population density during the Final Bronze Age could have been as low as 16.5 persons per hectare. Using an average size of the simulated prehistoric families (Gregg, 1988), utilized in agricultural modelling, the population density could have been 18.7 persons per hectare. Il Pizzo (*c.* 0.8 ha) could have had potentially three or four households with a population of 20 or 22. If this building density is projected to Nepi (*c.* 13.62 ha), the iron age population, at the point when the whole site was evenly occupied, could have been 255 people in 45 households. This figure is in line with the estimates presented by Bietti Sestieri (1992b: 236).

These figures are very low in comparison with recent population density estimates (Guidi, 2003), but when they are used to calculate the agricultural land needed to support the population during the two periods (Rajala, 2002),

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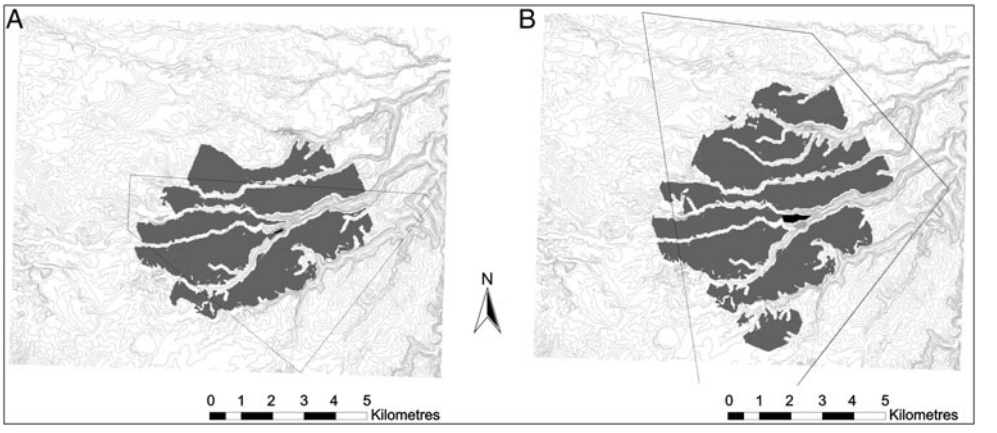

Fig. 15. A. The total modelled area needed for agricultural production for final bronze age Il Pizzo. B. The total modelled area needed for agricultural production at iron age Nepi. In both cases the use of forest pasture rather than grass pasture for the domestic animals is assumed. *(After Rajala, 2002: figs 7.13 and 7.15.)*

representing the before and after stages of the dislocation of settlement at Nepi, a surprising result emerges. If one assumes that domestic animals were grazing forest pasture, the area required to support the final bronze age population at Il Pizzo (*c.* 66.81 ha; Fig. 15A) reached the boundaries of the hypothetical territory, drawn with Thiessen polygons. Settling Nepi could have solved any tensions between the final bronze age communities in the area; the land requirements of the early iron age population at Nepi were met inside its hypothetical territory (Fig. 15B). If this case is projected across the relatively densely populated final bronze age southern Etruria, demographic pressure seems a likely reason for the well-documented change in the settlement pattern, and can be used to explain the concentration and centralization of settlement onto the sites of the future Etruscan city-states. The new finds from the Nepi Survey, presented above, support the hypothesis that the early stages of this development had started already during the Middle Bronze Age.

CONCLUSIONS

The new observations from the Nepi Survey Project include a possible eneolithic house site in the Massa area (M13/1), a large eneolithic site with a Rinaldone arrowhead in the Piano di Vallescura area (PVPB7–11), a series of open undefended settlement sites mainly in the western side of the territory in the less dissected area, and a new naturally defended middle bronze age site (GMPT42). The two possible early iron age find-spots, in the Massa and Piano di Vallescura areas, show the importance of these two sectors in the territory.

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The prehistoric ceramic finds from the Nepi Survey Project consist mainly of abraded body sherds and more diagnostic simple, long-lived pottery types (Tables 3 and 4). The local settlement history conforms to the general trajectory in South Etruria. The number of open undefended settlements potentially at short distances from each other diminished over time, with settlement concentrating in fewer larger sites from the Middle Bronze Age onwards. By the Final Bronze Age local communities had settled a few medium-sized naturally defended sites that apparently disappeared at the beginning of the Early Iron Age.

Although the major discontinuity and dislocation between the Final Bronze Age and the Early Iron Age cannot be dismissed, the vague indications of continuity at Il Pizzo from the Final Bronze Age into the Iron Age (Rajala, 2007: 23–4), together with the population calculations and agricultural modelling presented above (pp. 28–9), may suggest that this change was not a break but an organic shift related to the expansion of local communities in several neighbouring areas. The possible systematic dating bias between the Final Bronze Age and Early Iron Age, referred to above (p. 11), was not explored by Barbaro (2010). The transition from one period to another will need re-examination in order to clear any doubt over settlement hiatus or continuity. If future fieldwork can find more ninth-century BC finds or any evidence of the Iron Age and Orientalizing period at Sutri, the settlement history of southeastern Etruria and the Faliscan area could prove to be more complicated, with a network of smaller peer polities north of Veii during the Iron Age (cf. Rajala, 2005).

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APPENDIX 1.

The field observations of the characteristics of the site and concentration areas.
Key:
Land use codes refer to the USGS hierarchical land use categories. 200 = Agriculture
Visibility percentage refers to the proportion of the field surface visible
Find density refers to the general find density of a field unit
Aspect refers to the cardinal direction to which a field unit faces
Slope categories classify the average observed gradient angle of a field unit. In degrees: 0–1 = level; 2–3 = gentle; 4–7 = sloping; 8–11 = very sloping; 12–15 = moderately steep; 16–25 = steep; 26–35 = very steep; 36 + =precipitous. Rolling means that the unit contains variable slopes in different parts.

Site	Interpretation	Topography	Land use	Use note	Visibility (%)	Find density	Aspect	Slope
M8	Burial?	Slope	200	Ploughed	90	High	SW	Rolling
M13/1	Settlement	Hillock	200	Alfalfa	20	Medium	SW	Gentle
M13/2	Settlement	Slope	200	Alfalfa	20	Medium	SE	Sloping
PVPB7–11	Settlement	Slope	200	Stubble	90	Low–medium	WNW–N	Gentle–sloping
PVPB15/1	Settlement	Depression	200	Ploughed	100	Medium	S	Gentle
PVPB25	Settlement	Slope	200	Stubble	30	Scarce	SSE	Rolling
PVPB26	Settlement	Slope	200	Stubble	30	Scarce	S	Rolling
GMPT42	Settlement	Hilltop	200	Ploughed	5	Low	S	Very sloping
CFV10	Settlement	Slope	200	Pasture	60	Scarce	N	Rolling
M2–7	Settlement?	Slope	200	Ploughed	95–100	Low	NW	Gentle
SP3–6	Settlement	Plateau	200	Ploughed	60–100	Scarce–medium	None	Flat
PVPB28	Settlement?	Plateau	200	Grass	40	Medium	None	Flat
GMPT13–15	Settlement	Slope	200	Shrub	10–30	Low–medium	NW–NE	Gentle
GMPT29	Settlement	Slope	200	Pasture	50	Scarce	SE	Gentle
CFV18	Settlement	Slope	200	Stubble	30	Low	N	Gentle
LVS3/1	Settlement	Slope	200	Ploughed	100	Medium	SW	Gentle