Integration of survey, excavation and historical data in Northern *Picenum*

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Abstract

In this paper it is argued that an integrated non-invasive survey approach, with a large contribution of aerial photography and remote sensing operations, is one of the best ways to achieve diachronic site characterisation and typology of Roman settlements during some of their stages, without having to fall back on large scale and expensive excavation work. Thanks to such an approach, preferably applied on partially or completely deserted sites and areas with a high potential for surface reconnaissance, we are in the position to look not only at such important matters as size and shape, but also at function and functional zoning. Interesting aspects about functional zoning that can be studied thanks to this particular intra-site approach are: discontinuity in the use of space, fluctuations in the size of the built-up area and gradual shifts in the location of the nuclei of the settlement sites. Field survey experience in the Italian landcape has demonstrated that intensive and repeated artefact survey combined with geomorphological operations, geophysical prospections, and systematically checked and monitored by aerial reconnaissance and (if available) compared with regionally or locally available stratigraphic data, is one of the best approaches to detect all three of these dimensions of change. To demonstrate the possibilities of such an integrated approach a case study from Central-Adriatic Italy is chosen. Selected results are presented of systematic archaeological survey work, carried out since 2000 in Northern *Picenum* (Le Marche) in particular around the coastal Roman town of *Potentia* and the inland cities of *Trea*, *Ricina* and *Septempeda*.

The PVS project and its survey strategy

Although the archaeological study of aspects of Roman colonisation, urbanisation and rural settlement history in Roman times on the Adriatic side of CentralItaly can lean on long standing traditions, it is only since the last two decades that this area of the Peninsula can fully contribute to the debate on systematic field survey approaches in ancient Italy. This is largely the result of recent intensive field projects, such as in the valleys of the rivers Misa and Cesano (Dall'Aglio *et al.* 1991) and Potenza in Marche (see below), where earlier approaches in southern Adriatic areas (cf. the Biferno valley in Molise: Barker 1995) were confirmed, implying that an intensive survey-approach should be fully integrated with small scale excavation work and material studies. Thanks to such an integrated topographical approach, preferably applied on valleys with a high potential for surface reconnaissance, archaeologists working in this region are now in the position to approach settlement history during the Roman era with a fairly high resolution, based on a reliable set of sample zones. Short of total excavation of most types of settlement sites encountered in this area, many are now convinced that intensive overall artefact survey, especially combined with some reliable

stratigraphic data, and if possible additional survey information, such as from geophysical prospections and aerial photography, is one of the best approaches to detect the development and detailed organisation of the previously ill-known Roman landscape.

To underline this somewhat positivist methodological statement, which does not underestimate the interpretation problems linked to survey data, we will succinctly present some results of integrated archaeological field survey work carried out since 2000 in an area of Northern *Picenum*. This research is part of the long term Potenza Valley Survey Project (PVS) of the Department of Archaeology at Ghent University (Belgium)[1]. The main aim of the PVS Project is the study of the urban and rural occupation patterns in the valley of the river Potenza, from prehistoric times into the Middle Ages, with a special focus on the period of first urbanization and romanization of the area and its further development in Roman times (ca. 300 B.C. – A.D. 500). Apart from objectives connected with wider themes such as Italian settlement history and Roman colonialism, this predominantly geo-archaeological research also pursues some methodological objectives. These include the development of interdisciplinary geo-archaeological survey methods and the refinement of integrated historical-archaeological GIS-work. The Potenza region can thus be regarded as a test-case for the development of methods for landscape research within a well-defined archaeological and chronological framework.

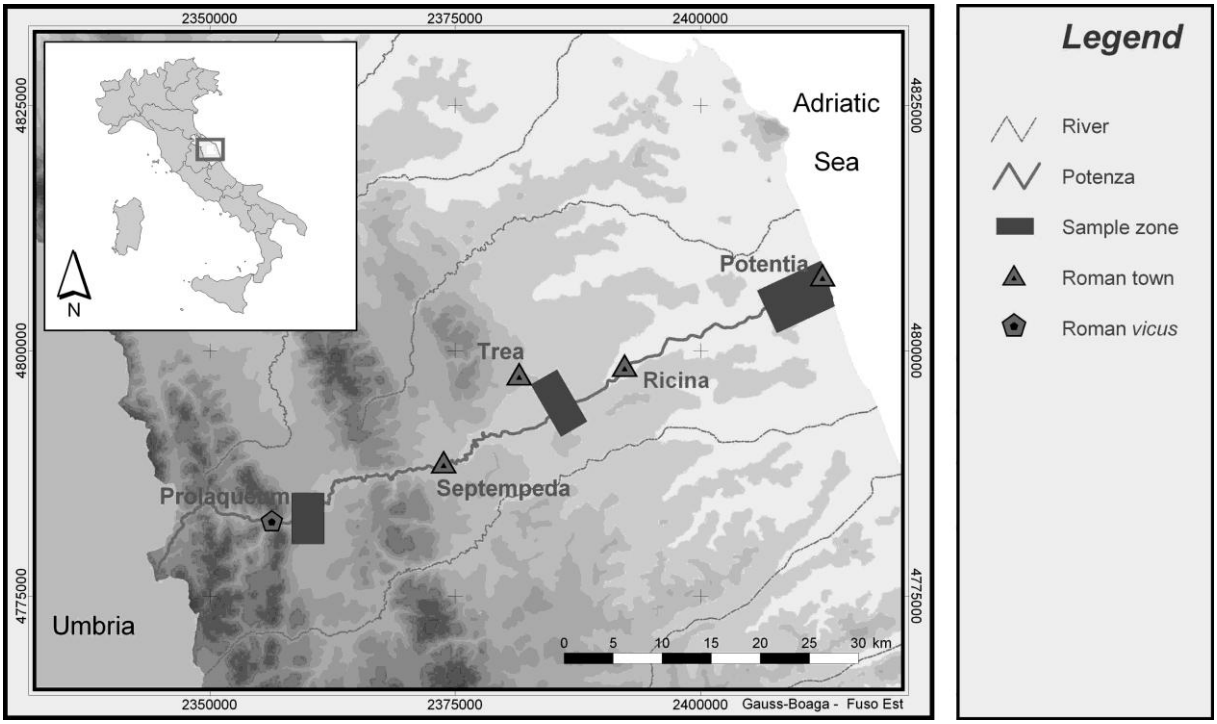

Fig. 1 General location of the intensive survey transects in the Potenza valley (ill. G. Verhoeven)

[1] This project, under the direction of the author, is mainly financed by Belgian Science Policy (IUAP-actions), Ghent University and the Fund for Scientific Research - Flanders.

The general landscape framework of ancient *Picenum*, or the central part of Adriatic Italy is characterized by a series of east-west oriented river valleys, crossing the landscape from the Apennine Mountains to the Adriatic Sea. One of these, the valley of the river Potenza offers interesting research perspectives. Firstly, the upper Potenza valley was from prehistory onwards an important Apennine corridor between Tyrrhenian and Adriatic Italy. It also crossed a N-S oriented intra-montane basin, which multiplied cultural and economic contacts, especially in protohistoric times when Umbrian and Picene elite groups dominated the rural based society from a series of hilltop sites. During Roman times, the *Flaminia ab Urbe per Picenum Anconam*, a *diverticulum* of the *via Flaminia*, connected Rome directly with Ancona, the most important central Adriatic port in Roman times. This road, also known as the *Flaminia Prolaquense*, passed *Nuceria* (Nocera Umbra), the road stations *Dubios* and *Prolaqueum* (Pioraco), the valley bottom city of *Septempeda* (San Severino Marche), deviating north towards *Trea* (Treia), passing *Auximum* (Osimo) to reach Ancona. Secondly, the Roman *municipia* of *Septempeda*, *Ricina* and *Trea* in the middle valley and the colony *Potentia* in the lower Potenza valley are only minimally covered by modern occupation, allowing intensive intra-site artefact surveys and offering good opportunities for remote sensing applications. This is also the case for most of their surrounding rural territories, which especially in the valley of the Potenza, are still today predominantly in use as arable land.

For the systematic artefact surveys[2], consisting of plots intensively surveyed with line-walking as well as extensively surveyed areas, three large sample zones were selected. These are systematically spaced at regular intervals across the ca. 80 km long Potenza valley (fig. 1). The selected areas cover the main landscape types of the region, between the mountains and the sea, generally coinciding respectively with the upper, middle and lower Potenza valley, and positioned in the vicinity of Roman towns and/or protohistoric centres. The sample area in the upper Potenza valley (extensive survey area: 17 km², intensive survey area: 3.2 km²) is positioned within the intra-montane basin of the Umbria-Marche Apennines. This fertile hilly plain around the narrow Potenza is dominated by the Bronze and Iron Age hilltop site of Monte Primo (1300 m). In Roman times, the basin was used as an important north-south connection between the Roman towns *Camerinum* (Camerino) and *Matilica* (Matelica). The middle Potenza valley is characterized by a moderately hilly landscape, formed by dorsal ridges and secondary valleys. The sample area (extensive survey area: 18.8 km²; intensive survey area: 3.7 km²) is situated east of two hill spurs, controlling the river passage. The Potenza is dominated here by the Monte Franco promontory and the Monte Pitino hilltop, both important Iron Age sites. The area north of the Potenza River probably belonged to the territory of *municipium Trea*. The latter was positioned on a dominant plateau immediately west of its successor, the medieval hilltop village Treia. Near *Ricina* (Villa Potenza), the hilly valley opens up into a large open plain, flanked by the Apennine dorsals. The third sample area is located along the coast (extensive survey area: 32.7 km², intensive survey area: 3.9 km²) and comprises the broad valley plain, delineated to the north by the Montarice hill ridge, another Bronze and Iron Age valley control site, and in the south by the hilltop on which

[2] See especially: Vermeulen/Boullart 2001; Vermeulen/Monsieur/Boullart 2002; Vermeulen *et al.* 2003; Vermeulen *et al.* 2005 ; Percossi/Pignocchi/Vermeulen 2006.

present day Potenza Picena (235 m) is located. The Roman town *Potentia* is situated within this sample area, which enabled us to investigate the close relationship between the colony and its immediate hinterland. With the foundation in 184 B.C. of the coastal colony for Roman citizens *Potentia* (Livy XXXIX, 44, 10) the lower Potenza valley, and with it this whole area of northern *Picenum* entered its definitive phase of romanisation and real urbanization[3].

For the general artefact surveys, conducted mainly between 2000 and 2005, a basic line-walking survey technique was chosen, in combination with on-site random walking after initial location and identification of relevant site scatters. Within the sample areas each field was considered to be one collection unit, defined by modern field boundaries and topographic breaks. Preference was given to ploughed fields surveyed at times of optimal visibility, and intervals of 5m were the standard. Much attention was given to off-site density, while regular site revisits (min. 15% of all identified sites) allowed for fine resolution interpretations. Nevertheless, some significant problems with site identification remained, if based only on the local surface evidence. Although systematic archaeological field survey using artefact pickups has proven to be the most effective tool for tracing occupation patterns, there are a number of factors hindering an optimal scan of the landscape. Firstly, processes of erosion and colluviation have significantly altered the landscape over time in some areas, covering or destroying sites, especially within the hilly segment of the Potenza landscape. Also the attested repositioning of the river Potenza during the medieval and post-medieval periods decreased visibility (Goethals et al. 2009). Modern surface use, such as for housing, roads and commercial activities, and some types of vegetation, covered and partly destroyed some archaeological sites. Finally, site identification and especially dating for the Roman period relied heavily on the building materials connected with the settlements and on the chronological characterisation of the surface artefacts. Especially for the transitional phases, such as from later Iron Age to the Republican period, or from late Antiquity to the Early Middle Ages, there still is a lack of representative dating material. As the identification of site chronology is often primarily based on the presence of fine wares, absence of such diagnostic pottery can result in major problems for fine dating. During the second and third centuries AD, for example, there is a hiatus between the end of terra sigillata and the start of massive imports of African red slip. In the northern and central Adriatic, the terra sigillata medio-adriatica subsequently replaced arretine sigillata, but was apparently not distributed in large quantities in its initial phase of production (Verreyke/Vermeulen 2009). For the late Roman period, the most commonly studied dating agents are imported wares like African red slip, Late Roman C, African and eastern amphorae. The clear drop of African red slip imports around the mid fifth century AD, especially in the hinterland, causes problems for identifying site occupation. Regional pottery productions are far less abundant and are still understudied, making it very difficult to fully solve the problem. Part of the remedy came from the PVS-team's study of some good stratigraphic contexts excavated in the recent past on Roman sites

[3] For the general historical setting of early romanization and urbanization in central Marche see e.g. Alfieri 1977; Moscatelli 1987; Paci 1991; Delplace 1993.

in the valley, and mostly from the new material evidence collected since 2007 during the new Ghent University excavations at *Potentia* (Vermeulen/De Dapper *et al*. 2009).

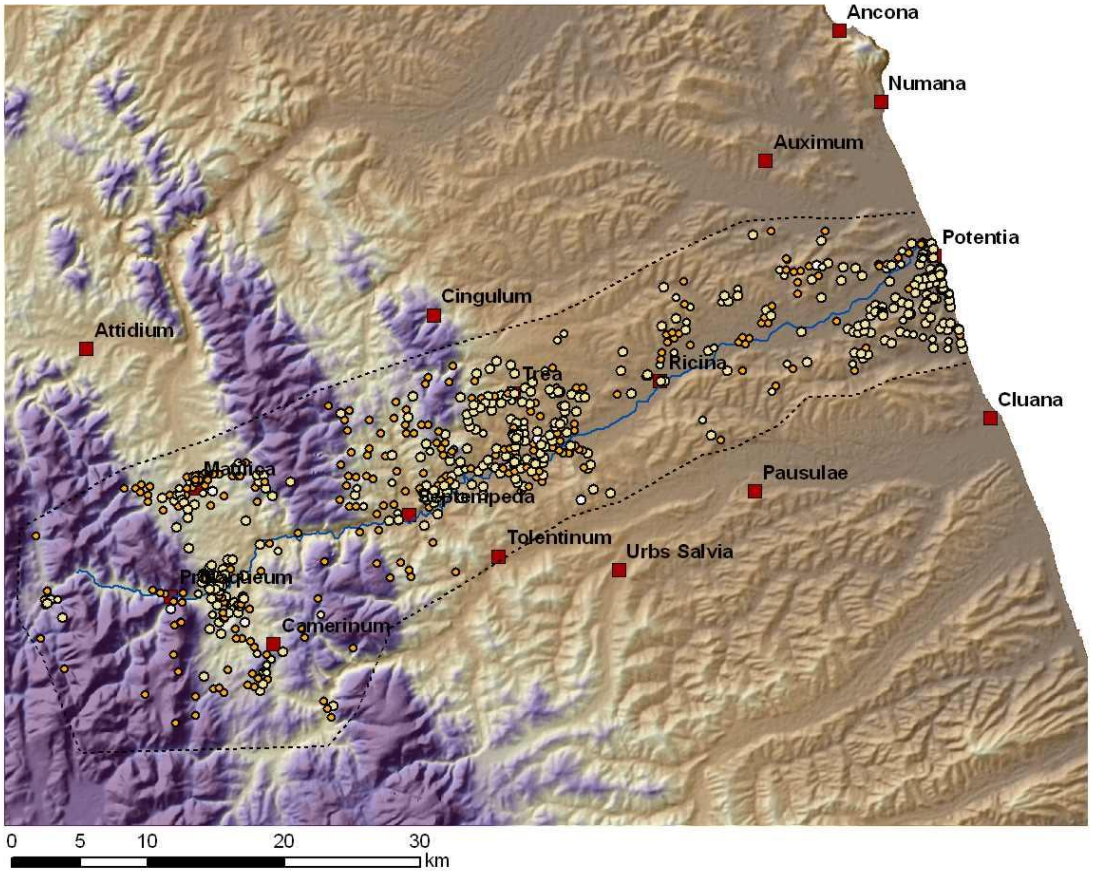

Fig. 2 Distribution of Roman sites in the Potenza valley (ill. D. Mlekuz)

Since 2002 the team undertook also short campaigns of intensive grid walking on a series of large and complex sites, such as on the Roman town sites of *Potentia*, *Trea* and *Ricina*, and on some protohistoric centres (such as Montarice) where Roman occupation was also mapped carefully (Vermeulen/Verhoeven 2004, 2006, Vermeulen 2008). Several types of grids were applied to these surveys (40x40 m, 20x20, 10x10 m blocks), while also different pick up strategies were experimented. These intensive field surveys were often carried out in close collaboration with the geomorphologic team, in order to take into account biases induced by physical processes at the sites, such as erosion and riverside sedimentation, while a close integration with data from remote sensing was pursued.

The intensive artifact surveys in the Potenza valley include systematic aerial photography in the ca. 400 sq km large valley area, as well as detailed geomorphological, geomatic (production of high resolution digital elevation models) and some geophysics field studies (Vermeulen 2009), especially in the three sample zones spread between the upper valley and the coast. It was a major aim of the PVS-project to supplement the static remote sensing material, e.g. existing vertical aerial photographs and satellite images, by new images from the air with a more direct archaeological impact. This new material was thereafter integrated with information from other approaches, such as systematic field walking and intra-site geophysical work. Therefore, the program comprised a regular series of flights above the whole region to take aerial photographs from low altitude, with as major aims the detection, mapping, study and historical interpretation of the observed traces (Vermeulen 2004 and forthcoming, Vermeulen *et al.* 2005). Most flights are executed in spring, summer or early fall, with a flying pattern consisting of continuous crossings of the valley and surrounding hills under different angles and of intensive circling over specific targets. The best results were obtained by very regular flights over the three transects chosen for intensive field walking campaigns, respectively in the upper-, middle- and lower valley. In all areas, whether only extensively or also intensively field-walked, the potential archaeological indications from the air were checked on the ground. All aerial photographs were processed in the GIS containing all other survey and topographically linked data of the project. In recent years specific monitoring of several large protohistoric (Picene) centres in the valley, as well as of the four Roman towns situated in the Potenza corridor proved to be very fruitful for our understanding of the topography and development of high scaled settlement. The results of small-scale, previous or on-going, excavation work on these cities and artefact studies of survey materials and excavation finds are being integrated in this picture, as they progressively become available. Recently efforts are also being undertaken to enhance the detection and mapping of intra-site features on such complex sites by so-called Helikite low altitude photography and by applications of infrared and ultra violet aerial photography (Verhoeven et al. 2009), integrated with the almost full coverage geophysical survey of a series of town sites (Vermeulen/Hay/Verhoeven 2006, Vermeulen *et al.* 2009).

Refining approaches for Roman site classification in *Picenum*

After confronting the new survey data, obtained in these 10 years of fieldwork, with so-called 'legacy data' from earlier observations in the valley and with the historical data pertaining to the area in ancient sources, we were confronted with the definition and classification of all sites. On a total of some 320 attested Roman settlement sites now known in the Potenza valley, some 100 were newly discovered during our transect surveys and associated aerial photography since the year 2000 (fig.2).

Defining the Roman urban settlements (*Septempeda, Trea, Ricina, Potentia)* is not problematic, as they were all generally located and defined via earlier archaeological, historical and epigraphical research. Nevertheless, the new intensive surveys informs us now much better about their size and walled surface, the density of occupation, some functional zoning in the urban and suburban areas (pottery production areas, cemeteries, roads, bridges, connected centuriation grids…), their main public and private buildings, their detailed street grid and other infrastructures, such as sewers and aqueducts. Much more delicate are however a series of still standing problems of urban site definition, such as:

- how to locate and define pre-urban phases of the three inner valley *municipia*,
- how to specify when these seemingly organically grown settlements became full fledged cities
- how 'rural' were some functional areas within the town walls, especially during early phases after town wall erection in the 1st half of the 1st century BC and during the later depopulation and pre-abandonment phases of the 5th/6th centuries (fig. 4).

Defining the many rural Roman settlements in the valley is a completely different task. Some 110 probable and certain Roman rural settlement sites, all lying in the three transect zones, where studied on the surface in the PVS project. Only some 10 % of these were already located via earlier research and discoveries, but practically none of them had produced stratigraphic evidence in the past. The basic site classification of all non-urban sites encountered in these transects was based on our systematic fieldwalking and further refined by a set of approaches. After a detailed analysis of the survey artefacts, the settlements were classified according to a site typology. This system, with sites ranging from the smallest house unit to the farm, *villa* and village or *vicus* is based on various criteria such as the size of the artefact scatter, the quantity and quality of the surface finds (e.g., type of building materials, pottery groups, presence of fine objects, etc.) and several additional data (e.g. topographic position, presence of structures, chronology, etc.)[4]. It is commonly accepted that most of these criteria, if well integrated and seen within their regional context, inform us about the nature of the activities and the quality of life of the inhabitants (Trément 1993). Let us consider them more in detail, remembering that the parameters can never be used alone[5].

[4] The framework of the site typology of the PVS-project was published in: Verdonck/Vermeulen 2004 and further refined in Verreyke/Vermeulen 2009.

[5] For a more in depth discussion of rural site classification and typology (in Italian surveys) we refer especially to the paper by Witcher elsewhere in this volume and the bibliographical references assembled there.

Firstly, the size of the surface scatter is a valuable descriptor for the classification of sites and helps recover settlement networks. This parameter, however, has to be applied with caution. The nature of waste disposal during site occupation, as well as a number of post-depositional processes such as erosion activity, influence the spatial distribution of the finds. This can be partly solved by geomorphological observations (e.g. augering) and visibility surveys with aerial photography monitoring, as has been amply applied in the PVS project. Moreover, one must also take into account the diachronic character of many sites. It is crucial to disentangle phenomena of site displacement, gradual abandonment and shrinking. Detailed survey can sometimes identify "chronozones", which can point to spatial relocation of occupation through time. In the Potenza valley especially spatially more limited Late Roman occupation of some rural sites has been noted and carefully mapped in this way. Re-survey of a number of problematic sites and intensive grid survey of a selection of large or multi-period sites is indicated here.

Secondly, the quality of the surface finds is indicative of the nature of the settlement and of the activities which have taken place there. The type of construction materials provides excellent evidence for the material character of the buildings and the complexity of the structures on the surface. This more qualitative parameter can help to correct distortions in the use of the first parameter: we can see if large sites are indeed representing more complex and important buildings. But also many other types of artefacts are indicative. When a certain zone displays almost exclusively amphorae and dolia, for example, a storage function can be suspected. Other rural activities may be indicated by certain small finds, such as instruments or quernstones. More industrial or specialized artisanal functions may be suggested by material from workshops, kilns, large presses, cellars and related artefacts or refuse. Diachronic use is, however, very difficult to identify in such cases. Finally, the quality of life and social status of the inhabitants (proprietors or exploitation personnel) may be indicated by the nature of the small finds (e.g., fine pottery, glass, coins, all kinds of special finds as art objects, inscriptions, sculpture, etc.). This system provides a good framework for interpreting the broad historical picture of the rural settlements during the Roman occupation of this valley, if one takes good care of chronology, quantity and regional diversity.

Thirdly, and specific for the approach in this project, is that we also define site typology on the basis of two other, somewhat topographic parameters: the complexity of the plan or visible structures and the position in the landscape, often in connection with other landscape features, such as roads, land divisions, systems of water management, etc.. These elements are often deduced from the aerial photography database of the project or from geomorphological observations during fieldwork. Systematic flying over all detected rural sites, during different seasons, resulted in the observation of anomalies in almost 80 % of the fields where these sites are located. Very often only discolorations in the ploughed soil can be seen, probably the result of a combination of ploughed up occupation layers, zones with locally more organic substance in the upper layers and humidity traces caused by differential drying of the soil in some archaeological zones. In a few examples, however, at present on less than 10 % of these sites, our aerial photography spotted also clear crop marks of building structures such as houses (fig. 5) and secondary structures, some of which are in clear conjunction with contemporary structures, such as Roman roads and land divisions, as seen from the air. In

several cases this systematic follow up by repeated aerial survey over all sites has also lead to a re-grouping of several findspots and concentrations.

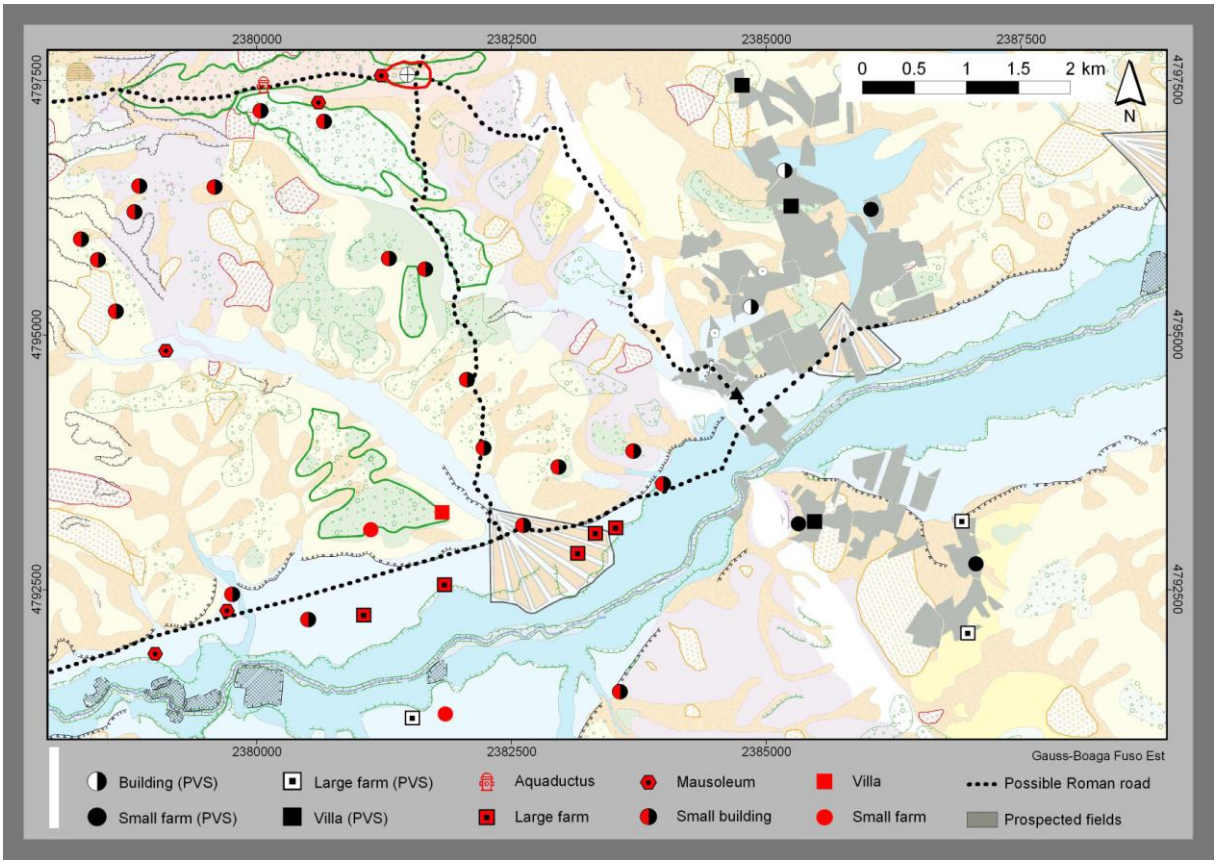

Fig. 3 Distribution of Roman rural sites south of the urban centre of Trea based on survey data from Moscatelli 1988 and the PVS survey; background geomorphological map (ill. F. Vermeulen/T. Goethals/G.Verhoeven)

Fig. 4 Grid survey data (distribution black gloss ware) from the city centre of Potentia (ill. F. Vermeulen/ G. Verhoeven/P. Monsieur)

Finally, more context information could be obtained thanks to the confrontation with survey results from other projects in the wider region of Le Marche (Verdonck/Vermeulen 2004) (table 1) and confrontation and control with some excavated data outside our valley. Hard data from excavations, especially on rural sites, remain quite limited in this part of Adriatic Italy. The rescue excavations of the farm sites of Cone di Arcevia, Castelfidardo, Potenza Picena and San Benedetto del Tronto, exhaustively published in 1979 (Mercando 1979), have since then only been joined by the recent publications of Monte Torto near *Auximum* (fig. 6) (Pignocchi 2001) and Colombarone (Dall'Aglio/Vergari 2001) near *Pisaurum*. Thanks to still unpublished recent rescue excavations in the middle Potenza valley, in Passo di Treia, it was however also possible to directly check the validity of the presence and character of two rural Roman sites indicated by our aerial and field surveys (Vermeulen *et al.* 2009).

	Total dated sites	***Late Republic***	***1st century***	***2nd century***	***3rd century***	***4th century***	***5th century***
Total	*398*	*189*	*295*	*178*	*141*	*118*	*82*
Vici/villages	*14*	*12*	*11*	*9*	*8*	*6*	*5*
villas	*88*	*44*	*75*	*61*	*48*	*41*	*26*
small farms	*296*	*133*	*209*	*108*	*85*	*71*	*51*

Table 1: General evolution of Roman rural settlement in Marche based on recent survey projects (after Verdonck/Vermeulen 2004)

The integrated application of all of these parameters and information sources has allowed the defining of the following types of "rural" settlement in the Potenza valley, which should be also significant for large parts of the rest of *Picenum* (fig. 3):

Type 1: small house unit (some only seasonal/temporary): small concentration (200 – 1,200 m2), simple building materials (e.g. roof tiles, uncut stones), very small quantities of pottery (almost no fine wares)

Type 2: farm: medium concentration (1,200 – 2,500 m2); one compact area; more, but mostly simple building materials (e.g. roof tiles, cut or uncut stones sometimes brick), larger variety of pottery (fine and common wares), if structures: compact rectangular building

Type 3: large farm or simple villa: large concentration(s) (most 2,500 – 4,000 m2); several functional units ; more diverse building materials (e.g. roof tiles, cut or uncut stones, brick, concrete); large variety of pottery (fine and common wares); if structures: one main building and one or more outhouses and activity zones

Type 4: villa: large concentration(s) (most 3,000 – 6,000 m2); several functional units; great diversity of building materials (see 3), some signs of luxury (*crustae*, *tesserae*, fragments of columns, *tubuli*…); greater variety of pottery (more fine and/or imported products); if structures: one main building and one or more outhouses and activity zones (dominant position)

Type 5: roadside settlement: large concentration (3,000 – 6,000 m2); great diversity of building materials (see 3); good variety of pottery (higher number of table wares, amphorae and lamps); structures: longitudinal building aligned with Roman road or bridge

Type 6: small *vicus* or village: very large area with several concentrations (circa 12,000 m2); great diversity of building materials (see 3); greater variety of pottery (more fine and/or imported products) ; structures connected with Roman road.

Fig. 5 Aerial photograph of crop marks of a Roman farm in the upper Potenza valley (ill. F. Vermeulen)

Fig. 6 Oil producing unit excavated at Monte Torto near Osimo (after Verdonck/Vermeulen 2004).

Some concluding observations about Roman settlement history

The systematic survey in the Potenza valley, combined with field-checks of crop and soil marks traced through aerial photography, and information from artefact studies, from previous finds and studies in the area and from geomorphological mapping, allowed some 76 sites to be very well-defined as datable non-problematic Roman "settlement sites". This chronological refinement of the survey material and other data allowed us also to evaluate the changing occupation patterns, an activity which was still very hazardous if based only on a re-evaluation of legacy data.

In general terms, the location of Roman settlements over the Potenza landscape does not differ much from the later Iron Age (5th to early 3rd centuries BC). The clusters of rural sites found in the neighbourhood of Picene elite centres, often located on or near hilltops, are seemingly replaced by now much denser clusters of Roman settlement sites in the same favourable areas or "Siedlungskammer", evenly spread along the valley corridor. However, the very centres of these clusters are now the newly located Roman towns, which came into existence during the long transition period (later 3rd-1st centuries BC) of gradual urbanisation of Picene society. Their location is dramatically different, as three of them lie in the valley floor, near the river, and only *Trea* has a somewhat higher topographic location, clearly bound to the success of the new road to Ancona.

In their respective territories, there is a concentration of rural sites near contact zones of different landscape types, such as the border zones between the valley bottom and the hill slopes, where the advantages of the natural environment can be used. For example, in the upper Potenza valley sample area, the large Roman settlements were mainly situated around the ca. 375 m-405 m contours, where inhabitants profited from the abundant natural springs. Within the lower Potenza valley sample area, where we could investigate the immediate rural hinterland of the town of *Potentia*, there is a dense pattern of rich rural settlements along the adjacent hill ridges. The favourable location near the coast clearly translates into a dense

settlement pattern during the whole period considered. We must surely stress the apparent importance of the road network for the success of a longer site occupation in all sample areas.

This phenomenon is most clear in the middle valley transect (fig. 3), near the small city of *Trea*, where our fresh line walking data can be well integrated in an important set of legacy data from surveys during the 1980's (Moscatelli 1988). Here the *Flaminia Prolaquense* turned north towards the *municipium Trea*, immediately west of our sample area. Another road probably continued along the northern side of the river Potenza, connecting *Septempeda* with *Potentia* via the town of *Ricina*. Along this road, a series of roadside settlements could be identified, and good aerial photography data, backed by rescue digs in summer 2007, contributed to the identification of a possible *vicus* along the Roman west-east road near Passo di Treia. This identification as a kind of road village is supported by soil and crop marks visible on aerial photographs; these also suggest the presence of a bifurcation of the *Septempeda-Ricina* road towards the north, in the direction of the Roman city of *Trea*. South of the Potenza, on the eastern slopes of the Monte Franco, dominating the corridor between two hill spurs, we identified a large *villa*. It is clear that this entire area - Monte Franco, Potenza corridor, Roman *vicus*, *Trea* - was an important strategic north-south passage-way. This is also illustrated by the fact that important protohistoric settlements were located along this line. It is probably not a coincidence that these same sites were also occupied during late Roman times.

	Total	*Late Republic*	*1st c.*	*2nd. c.*	*3rd c.*	*4th c.*	*5th c.*	*6th c.*
Total	***68***	***32***	***67***	***36***	***11***	***24***	***20***	***3***
Small building	***16***	***1***	***16***	***6***	***1***	***1***	***3***	***0***
Farm	***22***	***10***	***21***	***13***	***1***	***5***	***5***	***0***
Large farm	***19***	***12***	***19***	***10***	***5***	***11***	***6***	***0***
Villa	***11***	***9***	***11***	***7***	***4***	***7***	***6***	***3***

Table 2: Evolution of well-dated single rural settlement in the Potenza valley

	Late Republic	1st c. AD	2nd. C. AD	3rd c. AD	4th c. AD	5th c. AD	6th c. AD
Survey by Moscatelli in 1980's	**7**	**18**	**4**	**1**	**1**	**0**	**0**
PVS survey in 2001	**6**	**14**	**6**	**1**	**3**	**2**	**0**

Table 3: Comparison in the evolution of 'legacy data' and data from PVS surveys on well-dated single rural settlement in two areas of the middle-Potenza valley, near the city of Trea, shows that some legacy data can be well integrated.

Full understanding about site dispersion in Roman times is therefore only possible when inserting the chronological dimension (tables 2, 3). In the Potenza valley the Roman dispersed settlement pattern started to develop fully in the second century BC, altering existing Picene schemes. Especially in the lower valley the installation of the colony *Potentia* gave rise to a dense network of Roman farms, small villas and larger *villae rusticae*, typically located on well positioned hill ridges and slopes near the edge of the valley plain, where at least from the later 2nd century BC onwards important investment in wine cultivation (and associated amphora production) can be proven (Monsieur 2010). Some site clustering in this area can also be observed near the new "centuriated" field systems, taking in some of the fertile slopes (Corsi/Vermeulen forthcoming). The maximum occupation density throughout the Potenza valley occurred in the first century AD, with a full rural typology ranging from small house units to larger *villae*, road-side settlements and *vici*. Subsequently, a noticeable decline in occupation throughout the valley is observed from the later second century AD onwards, followed by an all-time low during the third century AD. A decline in the number of small sites, such as isolated house units and simple farms seems to be typical for that era. When we look at the occupation history of the late Roman sites, we can see that all sites occupied during late Antiquity were already occupied in the Early Imperial period, but, for example in the upper Potenza valley, only one third of the sites were continuously occupied up to the late Roman period. These figures could indicate that after massive site abandonment in the second and third centuries AD, caused by the well-established economic crisis in Italy[6], favourably located sites were re-occupied when the economic climate revived. This seemingly massive decline in site occupation, however, is probably somewhat biased due to problems with the identification of second and third century pottery as noted above. It is plausible that some sites contracted rather than that they were completely abandoned, leaving only small numbers

[6] Barker 1995: 225, Christie 2004: 11, Wickham 2005: 520, Verreyke/Vermeulen 2009: 107.

of non-distinctive pottery, not visible within the large group of Early Imperial material. Moreover, the rural coastal sites seem to have been more resilient during and after the third century crisis, as some 50% of the Imperial sites were (still) occupied in the late Roman period. It is striking that mainly the larger sites, such as the large farms and villas, were occupied in the fourth and fifth century AD, while the small house units and smaller farms were apparently definitively abandoned. In any case, our research seems to suggest that after occupation reached its top around the first century AD, no new sites were founded, which points to a lack of investment in the countryside. After the fourth century AD revival, there was a rapid decline during the second half of the fifth century AD, when it seems that many settlements were permanently abandoned.

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