

Filling in the gaps: half-hidden pre-Roman settlements in the northern Marche (Italy)

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The paper discusses the most recent results achieved by the University of Bologna in the northern Marche region, across the valleys of the Rivers Cesano, Nevola and Misa, within a young project of landscape archaeology mainly focused on the systematic employment of non-invasive techniques of investigation and mapping for evaluating buried archaeological assets. Started in 2009, the *Mapping the Adriatic Landscape Project* has led to the discovery of several sites, enriching the current state of knowledge concerning Iron Age's settlements and, in particular, the presence of Piceni in this sector of the region, which has so far been characterized by significant information gaps. The new activities fit into the background of the long tradition of study in Bologna of the northern Marche, aimed at achieving a better understanding of the dynamics of settlement and of the process of urbanization. In this light the present study is of a particular relevance, allowing us to enhance the framework of occupation during the Iron Age, which in the area considered remains a complex and fascinating period, characterized by a “cultural melting pot”, with the coexistence and blending of Piceni, Celts and Roman people, but which is still poorly archaeologically documented.

Introduction

Our understanding of human settlement in the northern Marche region of central Italy during the Iron Age is full of gaps, only a few of them partly filled through archaeology. This remains a very complex and poorly documented period, characterized in this area by the coexistence and blending of different cultures, initially that of the Piceni, then of the Celts and eventually of the Romans following the conquest in the 3rd century BC. In addition, there is evidence for prolonged contact with Greece, in particular through maritime trade that reached its highest development between the 6th and 4th centuries BC. Together, these factors make the ancient *Ager Gallicus* in the Iron Age a complicated and fascinating ‘cultural melting pot’ of which we know relatively little compared with the better-explored southern part of the Marche region, including the ancient *Regio V Picenum*. Most of our knowledge about this northern area is derived from necropolis sites, only a few domestic settlements having been recognised and studied up till now. This short paper aims to provide a state-of-the-art synthesis for the northern Marche where new data from recent research work by the University of Bologna is contributing to the issue by filling in some of the gaps and demonstrating that this is an ancient landscape that is far less empty than previously thought.

Previous Work

The archaeological map published by D.G. Lollini in 1976 still represents an important reference point for the Iron Age in the central Adriatic area¹. This study, from almost 30 years ago, listed for the whole of Marche a total of 75 necropoleis and only 19 domestic settlement sites, the vast majority barely touched as yet by excavation.

The last two decades, however, have seen a renewed interest in the exploration of the culture of the Piceni through important works of synthesis², as well as a significant number of new research projects promoted

¹ LOLLINI 1976: 111.

² LANDOLFI 1989 and NASO 2000.

by the Soprintendenza per i Beni Archeologici delle Marche and by several universities, actively contributing to the enrichment of the existing framework of knowledge³. New excavations have been undertaken at settlements of the Piceni at Pesaro, Montedoro, Matelica and Cingoli while several diachronic survey projects have been started, in particular in the upper part of the Metauro River Valley by the University of Macerata⁴, along the Cesano and Misa River Valleys by the University of Bologna, around Fermo by the University of Pisa⁵ and along the whole of the Potenza River by the University of Ghent⁶.

As far as the northern part of the region is concerned, in the area between the Rivers Foglia and Esino, leaving aside sporadic discoveries of isolated tombs, the only significant evidence of Iron Age settlement is limited to the remains of individual buildings and traces of ancient domestic settlement at Pesaro, Fano, Monte Giove and Montedoro di Scapezano. Equally important, despite the fact that their related domestic settlements have not yet been identified, are the large necropolis sites of Novilara and San Costanzo (Pesaro), revealing over 290 and 23 Piceni tombs respectively⁷, and the nearly-50 inhumation burials in the necropolis of Montefortino di Arcevia, representing the most important record of the Celtic presence in this area⁸. More recently, new and highly relevant data have come to hand from Cagli and Fabriano, where wide-spread sites, initially revealed by aerial photography and subsequently tested by partial excavation, have been convincingly interpreted as belonging to the culture of the Piceni. The overall character of these pre-Roman settlements, along with the related geomorphology and building forms, is only now beginning to take on some kind of established form as a result of the limited explorations recently put in hand.

At Pesaro, the excavations carried out in 1977 by the University of Urbino in collaboration with the Soprintendenza produced evidence for the remains of a group of domestic structures in the area which later saw the foundation of the Roman colony of *Pisaurum*⁹. The remains of two rectangular buildings, 6 m x 12 m across, were explored and hundreds of accompanying ceramic sherds made it possible to date the site from the end of the 6th to beginning of the 4th centuries BC. The buildings had stone foundations and socles, while the upper parts used a framework of large timbers with smaller timbers in between. The settlement originally stood close to the ancient mouth of the River Foglia (old *Pisaurus*) which was the seaport favoured by the Greek sailors and merchants who conducted trade with the emporia of Spina and Adria on the northern Adriatic coast.

At Fano, on the slopes of the Monte Giove, three inhabited areas around and immediately below the hilltop were discovered and partially investigated in 1990¹⁰. One of these excavations revealed a large artificial ditch which functioned as a boundary of the settlement, along with numerous fragments of plaster suggesting the presence of huts. Tombs of the 5th century BC detected not far away were probably connected with these settlements but the overall character of the sites remains unclear.

The village of Montedoro, located a few kilometres north of Senigallia, is the only site in the entire Marche region to provide data on spatial, functional and topographic organization of a Piceni settlement¹¹. It was founded in the 9th-8th centuries and survived until at least the 5th century BC. The village was situated on a hilltop standing approximately 100 m above sea level and was defended by natural slopes and artificial ditches with earthen ramparts that outlined an overall area of a little under 10 hectares. This strategic position guaranteed easy control over a potentially interesting maritime landing as well as over the inland traffic of the Cesano valley which functioned as a natural passage to the Apennine hinterland. The defensive ditches ran along the highest part of the western slope and stopped a short distance from its lowest point, thus creating an easily defended but readily accessible main entrance to the settlement. The site's principal funerary complex, which developed between the 8th and 5th centuries BC, was placed near the entrance. Within the occupied area there were at least two huts of similar form and dimensions (5 m x 6 m), represented by aligned postholes for the external walls and individual postholes in the interior for roof supports. Several 'industrial' features, in particular furnaces, were identified and partially excavated, their contents indicating a period of use between the 7th and 6th centuries BC. A minor settlement area, with its own small cemetery, was situated at the foot of the hill close to the river.

These recent discoveries at Cagli and Fabriano were identified in the first instance through aerial photography and provide important information about the settlements situated on the alluvial plains along the

³ The most relevant results from the recent research projects contributed in 1999-2000 to the international exhibition 'Piceni Popolo d'Europa', the catalogue of which still represents one of the most up-to-date publication on the topic (AA.VV. 2000; AA.VV. 2001). For a state of the art and on the latest discoveries concerning Piceni necropolis see DELPINO, FINOCCHI, POSTRIOTI 2016.

⁴CATANI, MONACCHI 2010.

⁵ MENCHELLI 2017; PASQUINUCCI, MENCHELLI, CIUCCARELLI 2014; PASQUINUCCI, MENCHELLI, CIUCCARELLI 2007.

⁶ VERMEULEN *et alii* 2017; VERMEULEN 2017.

⁷ On the necropolis of Novilara see BRIZIO 1895; AA.VV. 2001: 199-203; MARCHEGIANI, LUNI 1993. On San Costanzo see BALDELLI 1992: 12-13; CERQUETTI 2013.

⁸ BRIZIO 1907; BAUMGÄRTEL 1937; TRIBELLINI 2006.

⁹LUNI 1984a; LUNI 1984b; LUNI 2001; BOULLART 2003: 163.

¹⁰ BALDELLI 1992: 17-18.

¹¹ BALDELLI 1991: 21; BALDELLI 2001: 169-170.

river valleys¹². In both localities the aerial explorations conducted by the Soprintendenza documented several groups of circular cropmarks, both large individual circles and clusters of smaller ones, often with small rectangular marks in the centre. In the case of Cà Palazzetto at Cagli the traces were tested by partial excavation, giving rise to the hypothesis that the remains represented the traces of a substantial settlement involving a domestic area with an associated necropolis¹³. We will return to this later.

Results from the latest phase of work by the University of Bologna fit well into this panorama, casting new light on the pre-Roman presence at Senigallia, on the coast, as well as in the hinterland, in particular along the valleys of the Cesano and Misa rivers where there was until recently an almost complete lack of reliable data on the presence of the Piceni and on the area's Iron Age cultures in general.

'Mapping Adriatic Landscapes': aims and methods of the project

The University of Bologna has in the Marche region a very long and multi-faceted tradition of research starting in the last century with the studies of Nereo Alfieri on the ancient topography and historical geography of *Picenum* and the *ager Gallicus*, and later strengthened by the initiation of a number of landscape survey projects and archaeological excavations¹⁴. In addition to the long-term work in the Roman towns of *Suasa* and *Ostra*, and in the sites of Colombarone and Santa Maria in Portuno, a new phase of research has recently been initiated in Senigallia and its hinterland, and the exploration of the landscape along the Misa and Cesano valleys has been enriched by the systematic use of non-destructive survey techniques¹⁵ (Fig. 1).

The new project, under the title *Mapping Adriatic Landscapes*, is aimed at improving our general knowledge of the topography of proto-urban and urban settlements and deepening our overall understanding of the processes of early urbanization in this part of the Marche region. The research strategy adopted is based on the integrated use of a wide range of information sources, as well as a variety of non-destructive technologies and field techniques. The approach is intended to integrate the results of non-destructive survey methods such as oblique aerial photography and air photo interpretation along with geophysical prospection, geomorphological studies, detailed topographical analysis, intensive field-walking survey and the *sine qua non* of re-assessment of existing archaeological, historical and geomorphological data; trial trenching and small-scale excavation will also be used. All of these methods, of course, supplement rather than replace the long-established methods of archaeological exploration and interpretation.

Much thought has been prompted by the results of recent aerial survey work undertaken by the University on a regular basis since 2012. Over the past decade and more the aerial detection of sites and areas of potential archaeological interest has led to a growing understanding of the Marche region as a whole, not least through work coordinated by the Soprintendenza Archeologia, Belle Arti e Paesaggio delle Marche in collaboration with the Comando Carabinieri Nucleo Tutela, building on over a decade of aerial exploration by the University of Ghent in the Potenza River Valley and supplemented in recent years by the research program of the University of Bologna discussed in this article.

The University's aerial survey work has consisted of a series of regular flights over the whole of the Misa and Cesano Valleys, collecting low-level oblique photographs with the aim of detecting and subsequently mapping, studying and interpreting the observed traces. The flights are undertaken in a 180-horsepower four-seater aircraft hired from the AeroClub of Ancona, manned by an experienced pilot and one or two photographers, preferably observing the landscape from an altitude of between 150 and 350 m above ground level, the usual average being around 300 m. The photographs are captured through the use of a Canon Eos 400 digital single-lens reflex cameras equipped with EF-S 18-55 mm and EF 70-135 mm zoom lenses.

The flight pattern involves repeated traverses across and along the river valleys and surrounding hills, observing the landscape from a variety of angles and undertaking intensive circling around previously chosen target areas as well as newly identified sites. The flights are organized so as to gather information at different times of year but with a concentration in the spring and early summer, particularly in the weeks at the end of May and the first half of June that provide the key windows of opportunity for the recording of cropmark evidence.

These first five years of aerial exploration have convinced the University that oblique aerial photography constitutes an invaluable technique for the collection of archaeological information across the whole of the Misa and Cesano rivers valleys and the surrounding hills. In addition, the results achieved at the abandoned Roman towns of *Suasa* and *Ostra* and, exceptionally, also in the present-day city of Senigallia, are often highly impressive, contributing significantly to the study of their ancient urban fabric. Looking more broadly across the region the University's aerial work also provides significant insights into landscape change and settlement

¹² BALDELLI 2008.

¹³ BALDELLI, POCOBELLI 2015.

¹⁴ Within the vast bibliography produced by the University of Bologna's research in this part of the Marche region, we can point in particular to ALFIERI 2000; DALL'AGLIO, DE MARIA, MARIOTTI 1991; GIORGI, LEPORE 2010; LEPORE *et alii* 2012; SILANI 2016.

¹⁵ On the new projects see BOSCHI 2016; GIORGI 2016; LEPORE 2016.

dynamics across the centuries, especially in the geomorphological analysis of river-valley transformations, in the study on ancient roads systems and land division and in the pinpointing of rural settlements and industrial areas.

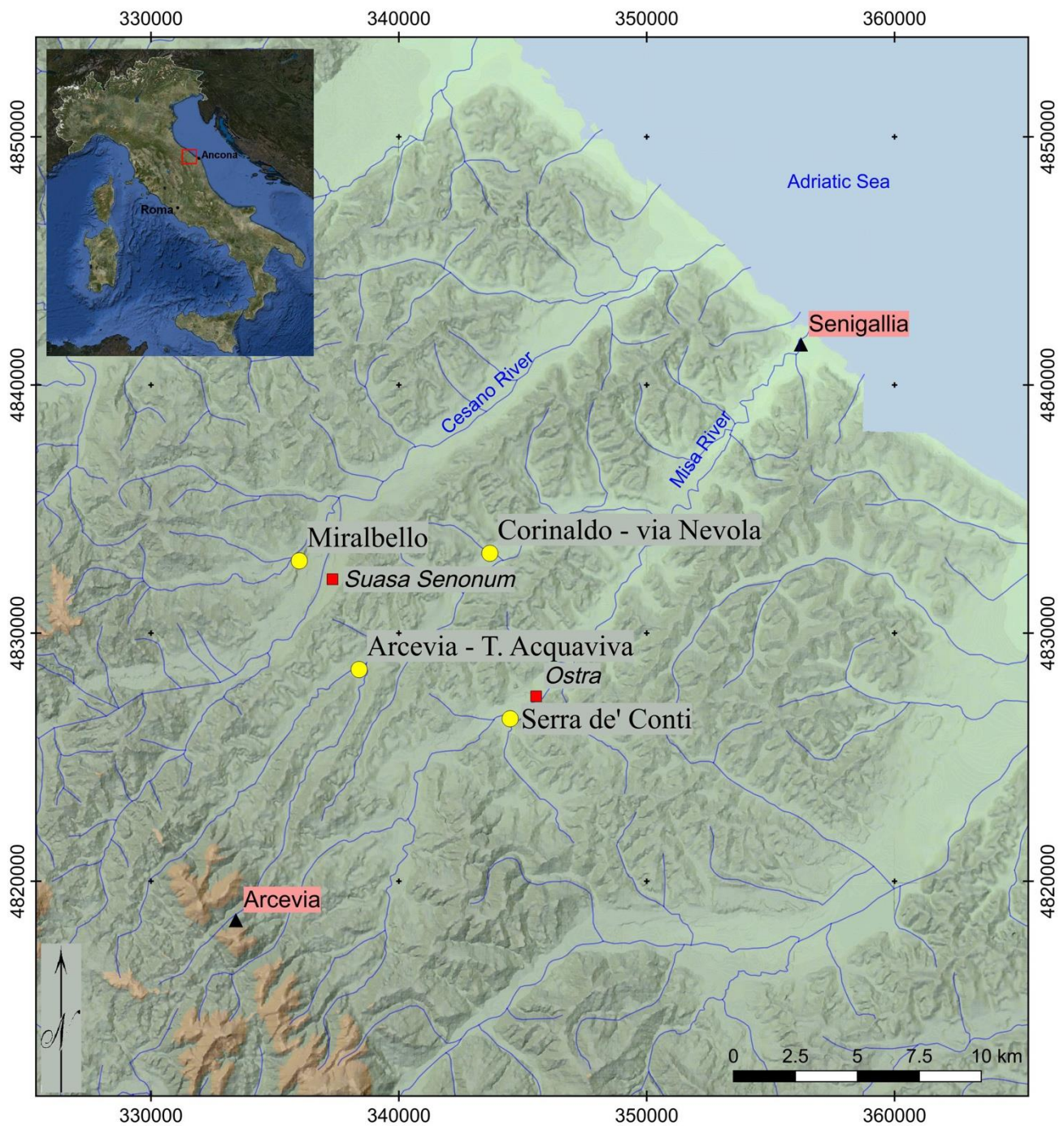


Fig. 1. Valleys of the Cesano and Misa Rivers, with localization of the discussed sites.

Identification of the initial evidence has been followed by direct observation on the ground to check potentially archaeological features identified from the air by carrying out extensive or intensive field-walking survey and geophysical prospection. We have also applied mutually integrating non-destructive techniques appropriate to the local context and to the specific research objectives in each case. Since 2009 we have tested on several sites various geophysical techniques: ground-penetrating radar, resistivity, magnetometry with Overhauser, caesium and potassium methodologies. The general strategy of measurements entails high resolution data acquisition, within grids and along parallel transects spaced 0.25 or 0.5 m apart, possibly integrating different prospecting methods in order to assess the buried record in terms of general layout and depth. Generally speaking, until now the best results were obtained with the geomagnetic techniques, in particular with caesium

and potassium systems in gradiometric configuration, and with the resistivity system employing the ARP methodology (Automatic Resistivity Profiling by Geocarta©), the best solution for extensive mapping. The GPR system has encountered some difficulties due to the clayey soils, even if anyway useful for the exploration of well levelled surfaces or well preserved pavements (as in the case of the residential complex of the *Domus dei Coiedii*, in *Suasa*)¹⁶.

The application side by side of a range of field methods supports the achievement of a certain ground-truthing of the aerial imagery and is also very helpful during the interpretative mapping process, fostering continuous feedback with the various collected data sets. Within our project, this integrated strategy of work is contributing widely to the methodology of landscape survey and exploration, at different scales, as well as to the interpretation and understanding of the unseen archaeological asset and of the ancient populating dynamics of sites and territories under analysis.

New pre-Roman settlements revealed by aerial photography and geophysical prospection

The explorations of the last few years have been providing important insights into the pattern of Iron Age settlement, allowing a fair number of individual sites to be identified and stimulating further in-depth analysis through the collection of complementary evidence and data-retrieval in the field. For example, beginning in the coastal zone, the aerial work has revealed interesting traces on a hilltop at an altitude of approximately 70 m on the right bank of the River Cesano, near its mouth (coordinates 43°44'20.61"N; 13°9'38.63"E), a key position providing an excellent view over the adjacent coastline and river valley. In this case a penannular cropmark outlining an area of about 10 hectares is clearly visible both on satellite imagery (Fig. 2, left) and on oblique aerial photographs (Fig. 2, right).



Fig. 2. Vertical and oblique aerial views of the cropmark-site discovered near the mouth of the River Cesano.

At some points the traces are extremely faint and are obscured by geological features attributable to intensive soil erosion, making the archaeological origin of some of the traces uncertain. Nevertheless, from their characteristics of size and colour the cropmarks appear to reveal two concentric ditches, the innermost having a maximum diameter of about 390 m. Some internal linear features are also recognizable. Subsequent field-walking survey on the hilltop produced a wide area of scattered ceramic fragments on the surface, generically dated between the Iron Age and Roman period. At present it is not possible to advance a reliable interpretation of the site but its strategic position, the geomorphological characteristics of the hill and the regularity of the detected cropmarks make this an area of high archaeological potential. Moreover, the artefactual material collected and the probable ditches represented by the enclosing cropmark make it likely that the site represents the remains of an enclosed Iron Age settlement or hill-fort, with an occupation that apparently lasted until the Roman period. Further interest is added by the site's proximity and similarity in size to the Piceni settlement of Montedoro di Scapezzano, which lies only 1500 m or so away in a comparable position alongside the river, in the middle reaches of the Cesano Valley, at San Lorenzo in Campo.

The site of Miralbello has also recently been the subject of new investigations. The archaeological importance of the area was already known from previous bibliographical sources. Over time it has provided traces of human occupation from the pre-Roman period to the Middle Ages, the earlier remains involving both Bronze and Iron

¹⁶ BOSCHI 2010; BOSCHI 2016.

Age cultures¹⁷. Critical re-examination of the existing bibliographical sources, along with new non-invasive geophysical and geomatic survey, has recently been undertaken with the aim of better understanding the accumulated archaeological record of the site and its topographic relationship with the Roman town of *Suasa* on the opposite side of the River Cesano.

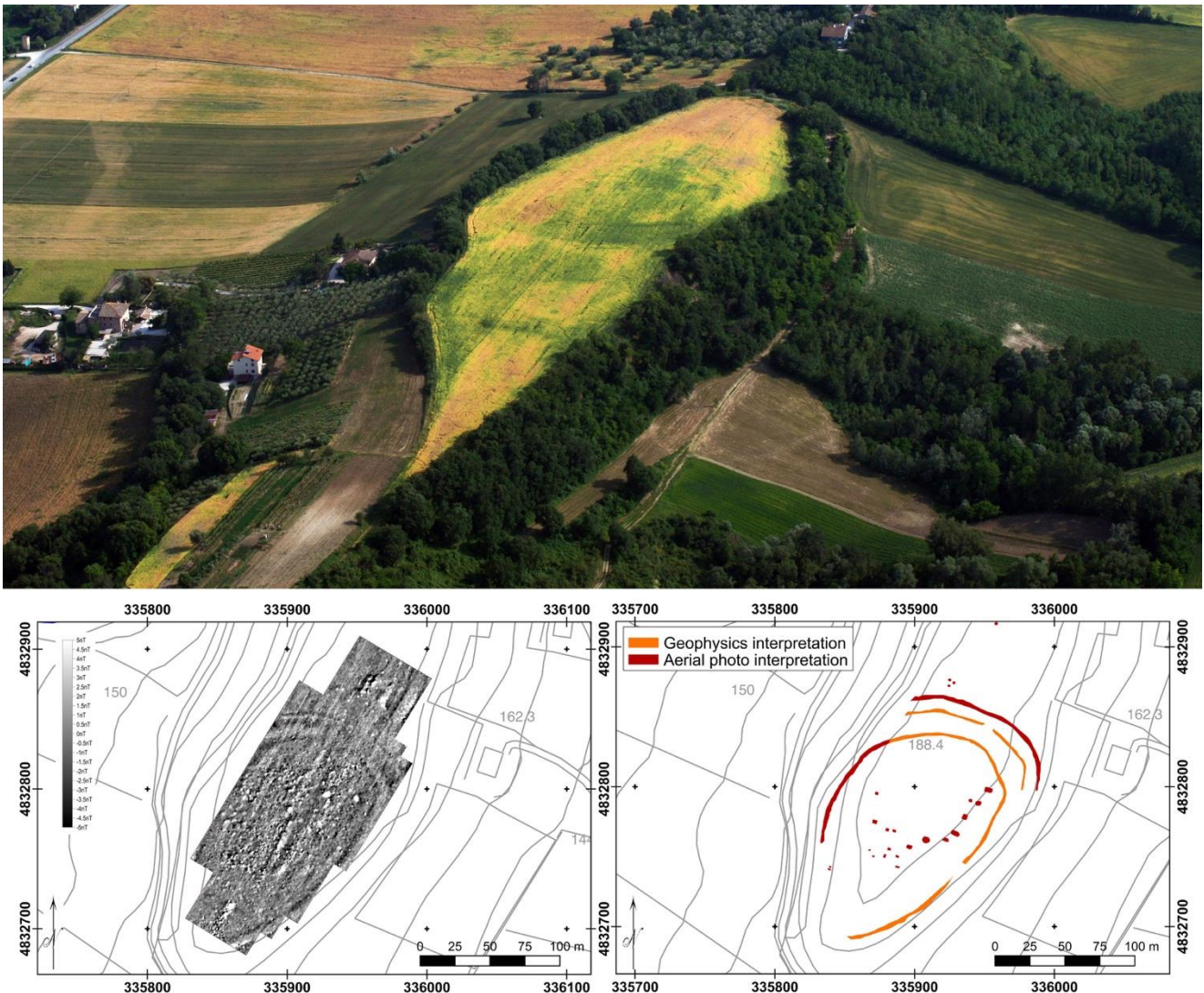


Fig. 3. The site of Miralbello, in the middle Cesano Valley. On top, aerial view of the hilltop. At the bottom, the geomagnetic survey on the plateau and data interpretation.

The settlement at Miralbello is located on a plateau at about 174 m above sea level, on the right bank of the river. In this case the aerial photographs have not proved particularly helpful, the local crops not being favourable to the formation of cropmarks. It has been possible, however, to monitor the site from the air at various times of year, giving rise to an enhanced appreciation of the characteristic ‘almond’ shape of the plateau (Fig. 3, on top). On the surface of the hilltop plentiful ceramic material collected during field-walking survey covers a date-range from the Final Bronze Age to the Roman period.

Particularly interesting data was derived from magnetic survey undertaken on the cultivated surface immediately after completion of the field-walking survey. For the most part the ground conditions were relatively unfavourable because of the irregular surface created by the remnants of the plants soon after harvesting. This irregularity introduced distracting noise into the measurements which was difficult to remove during post-processing. The selected area was surveyed using an Overhauser magnetometer (GEM System, GSM 19 GW) which has a single sensor configured to produce a measurement sampling rate of 2 Hz with the sensor maintained at a height of about 0.20 m above the ground surface. The measurements of the magnetic total field were

¹⁷ STEFANINI 1991: 107; GIORGI 2010; DE MARIA, GIORGI 2014.

collected along traverses within square grids, with a spacing of 0.50 m between successive traverses and a 0.20 m sampling interval along each line of measurement. The survey covered an area of over 3 hectares, encompassing almost the entire extension of the hilltop along with its spread of artefactual material. The magnetic survey was integrated with a kinematic GPS survey of the hilltop so as to produce a high resolution DTM of the investigated area.

The interpretation of the magnetic map allowed a variety of features to be recognised in higher detail than had been possible through the aerial photographs alone (Fig. 3, at bottom). Although the surface was not completely accessible to the survey work because of the presence of trees and brushes along the slopes, the map clearly shows two concentric ditches which closely follow the hilltop's almond-shaped profile, the innermost enclosing an area of about 200 x 100 m within which a number of regular features that can reasonably be interpreted as specific structural elements such as the remains of individual buildings. Other features clustered within the central area, mainly small magnetic dipoles, are difficult to interpret.

The characteristics of the site suggest a direct comparison with several relatively small pre-Roman hilltop settlements attested in the southern Marche, along the valley of the River Potenza, such as those at Monte Primo near Camerino, Monte Pitino near San Severino Marche, Monte Franco at Pollenza and above all Montarice at Porto Recanati¹⁸. Although located at various heights and differing in their extent and general appearance these sites have in common the choice of a defensive setting and a good location for controlling the surrounding territory.

Miralbello seems to respond to the same imperatives, located as it is close to the River Cesano with commanding views over the middle parts of the river valley (Fig. 4). Recent field-walking survey, covering the whole of the hilltop plateau and significant parts of the floodplain below, suggests a continuity of occupation down into the Middle Ages. Of course, further survey work, and if possible sample excavation, are needed to refine the chronology and to test the nature and patterning of occupation within this important hilltop site.

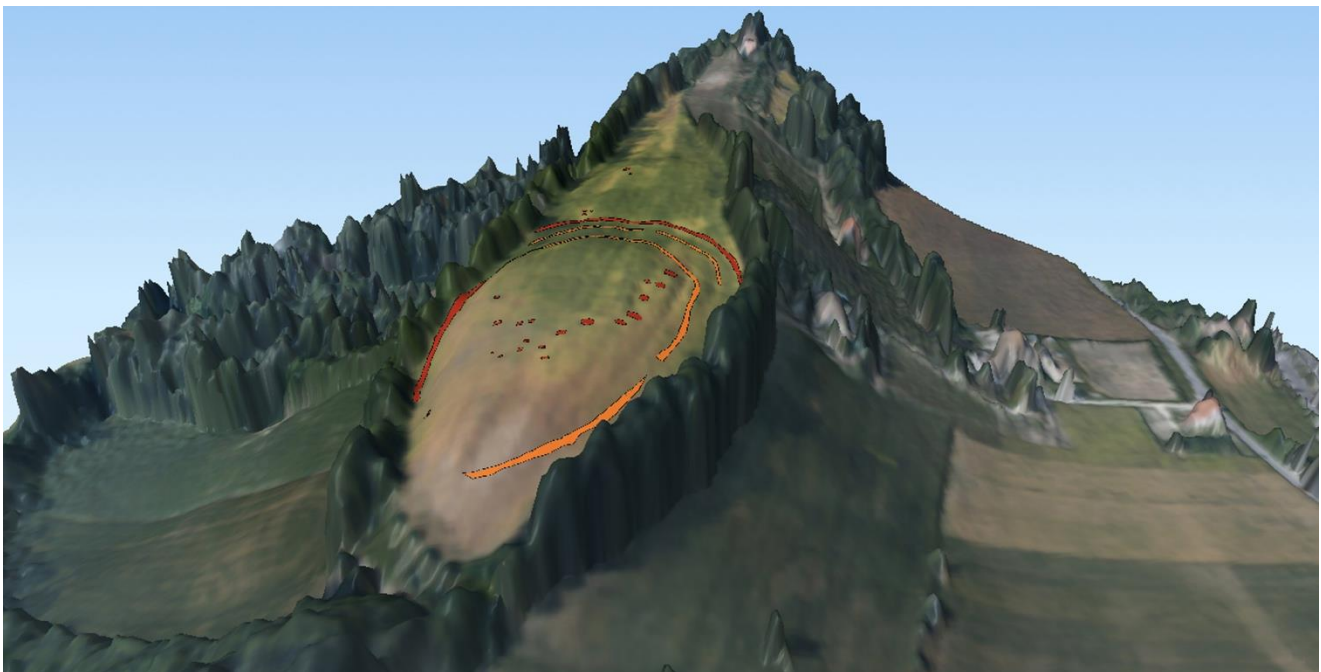


Fig. 4. The hilltop site of Miralbello. Interpretation from data integration and overlapping of the oblique aerial photo on the DTM from the DGPS survey.

The new aerial explorations, with intensive flights in dry spring seasons, have produced remarkable images, for instance at Passo Ripe (Fig. 5) where a third potentially relevant area for the study of pre-Roman settlement in the middle reaches of the Misa river valley was revealed. In this case, too, a possible system of concentric ditches

¹⁸ For all these sites see PERCOSSI, PIGNOCCHI, VERMEULEN 2006. The latest complete edition of the project is in VERMEULEN *et alii* 2017. Among these it is possible to recognize interesting analogies in particular with the site of Montarice, situated on a high plateau some 4 hectares in extent, overlooking the river mouth. Recent aerial photography and field survey have revealed the site's fundamental role of control and defence from the Middle Bronze Age up to the coming of the Romans. The identification of defensive structures, buildings and other settlement features suggests an evolution towards proto-urbanisation in the valley, possibly as a result of contacts with Greek merchants (PERCOSSI, PIGNOCCHI, VERMEULEN 2006: 121, scheda 024; VERMEULEN, MLEKUZ 2012: 209; VERMEULEN, VERHOEVEN 2004: 58-59).

was evidenced by curvilinear cropmarks on a flat hilltop at around 90 m above sea level (at UTM coordinates of 43°39'34.00"N; 13°6'29.00"E).



Fig. 5. The cropmark site discovered at Passo Ripe.



Fig. 6. Aerial views of the circular cropmark site discovered at Serra de' Conti (right) and integration with the geomorphological map.

The interpretation is again supported by the presence of dense artefact scatters from field-walking survey on all of the relevant fields, covering a wide chronological range from the Eneolithic to the Late Roman period. In

particular, the ceramics from the upland plateau included several fragments of handmade vessels from the Final Bronze and Iron Age cultures.

In addition to the hilltop settlements described above, some equally-important small sites have been identified from the air along river terraces within the fluvial valleys, this time distinguished by clearly defined circular marks in grain crops. The most impressive of these lies in the area between Serra de' Conti and Ostra Vetere, in the Misa valley about 1.5 km west of the Roman town of *Ostra* (Fig. 6). In this case two groups of cropmarks, one on either side of the river, consist of clusters of circular marks with diameters between 20 and 34 m. It seems likely that both groups form part of a single dispersed settlement covering an area about 10 hectares in overall extent. In some cases, smaller rectangular features are recognizable within the rings. Of particular importance is the information revealed by the geomorphological analysis, showing that both groups lie on a Pleistocene terrace which would have provided stable soil conditions ideal for human settlement already during the Bronze Age and Iron Age. Close to the circular cropmarks the aerial images made it possible to identify and document irregular cropmark traces attributable to paleo-channels and possible ditches that may have bounded the settlement areas.

Similar cropmarks have been detected in the higher reaches of the Misa valley, in the general area of Arcevia (Contrada Farneto), alongside the Acquaviva torrent (a tributary of the main river), on a low flat plateau at an altitude 120-130 m a short distance from the water course (UTM coordinates 43°35'29.12"N; 12°59'52.60"E). The annular traces in this case were identifiable at various points across the whole 6 hectares of the upland plateau, with varying dimensions and distances between the individual circles (Fig. 7).



Fig. 7. Circular cropmark site in Contrada Farneto, Arcevia, seen from the air.

The monitoring of the area across several seasons, along with the integration of evidence from both vertical and oblique photographs, has led to the identification and mapping of 10 mostly contiguous circles, arranged in clusters and again in some cases with smaller regular features within them. As in the site at Serra de' Conti, and also in Contrada Farneto, alongside the circular cropmarks it is possible to identify traces of paleo-channels which probably surrounded the site in ancient times. The rectangular pattern recognizable in the foreground belongs to recent but now-abandoned croptrials.

During the summer of 2016 a gradiometer survey, with a dual sensors optically pumped potassium magnetometer in gradiometric configuration, was carried out across about a hectare of the plateau that had been specifically cleaned of the large-scale crops that covered the area immediately before the geophysical prospection took place. The targeted area was selected in agreement with the Soprintendenza and the land owner, taking

account of the information already provided by air-photo analysis showing a greater concentration of circular cropmarks on the upper and central part of the hilltop. Here, the magnetic data confirmed the presence of at least 5 contiguous circular ditches, all defined by very weak magnetic readings (on average of about 3 nT/m). The ditches had overall diameters between 15 and 22 m (Fig. 8). In the magnetic data smaller dipole anomalies were again present within the most clearly marked circles, confirming the pattern already suggested by the aerial photographs.

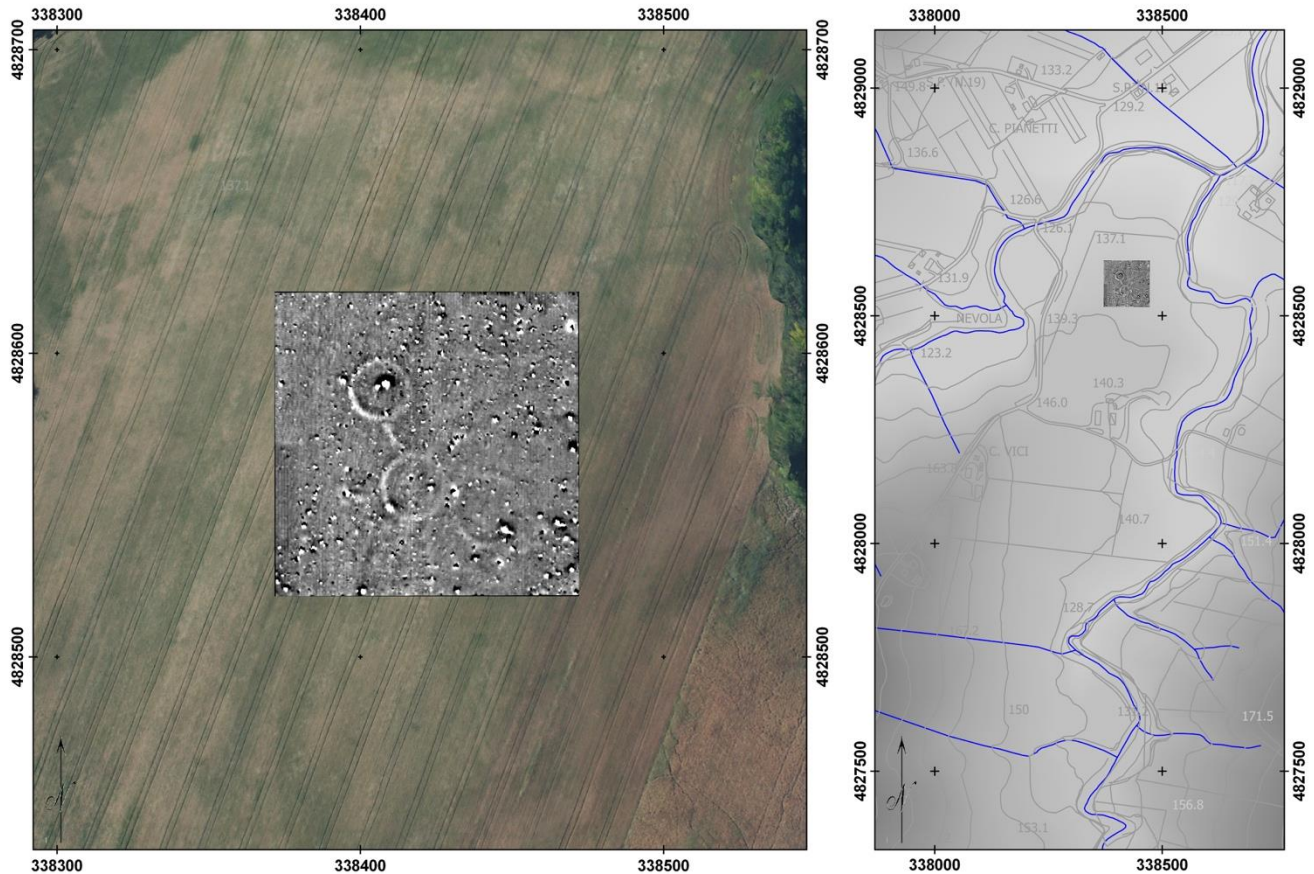


Fig. 8. Geomagnetic mapping of the Contrada Farneto-Arcevia site.

It is worth noting that, while aerial and geophysical surveys gave unequivocal information on the hidden archaeological record in the Contrada Farneto-Arcevia area, the field-walking survey returned no datable ceramics, though the presence of very large nodules of flint was noted during this phase of the investigation. The last of the newly-discovered cropmark sites is located at Corinaldo, alongside the Nevola stream, another tributary of the River Misa (UTM coordinates 43°38'7.44"N; 13°3'42.20"E).

In this case, too, aerial survey and the analysis of existing vertical photographs revealed at least two contiguous circular features, again with less clearly defined square-shaped features in their interior (Fig. 9). The possibility that the site originally extended further than indicated by the remote-sensing data seems suggested by the recovery, less than 400 m to the north-east, of a surface scatter of pre-Roman artefacts, including several fragments of flint. Geomagnetic mapping at the site in March 2017 when the ground was clear of crops and already partially ploughed, provided new data (Fig. 10) including a tight cluster composed of the two circles already detected from the air (though only one of them appeared to be entirely preserved) that can now be precisely characterized, each measuring about 30 m in overall diameter.

The geophysical survey also revealed a single concentrated dipole anomaly within each of the circular traces, comparable to those at Arcevia-Contrada Farneto but in this case precisely located at the centre of each circle.



Fig. 9. Circular cropmark in Corinaldo.

Further groups of individual dipole anomalies are clearly visible in other parts of the surveyed area, with a greater concentration between and to the east of the two circles. Further testing of the nature of the settlement and the sources of the individual anomalies will take place through a program of sample excavation in the summer of 2018 but at this stage it is worth noting the significantly greater diameter of this group of circles compared with the other two sites. This aspect, along with the smaller number of circles and their location close to one of the main roads across the Nevola Valley from as long ago as pre-Roman times, perhaps adds further potential relevance the site's recent discovery.

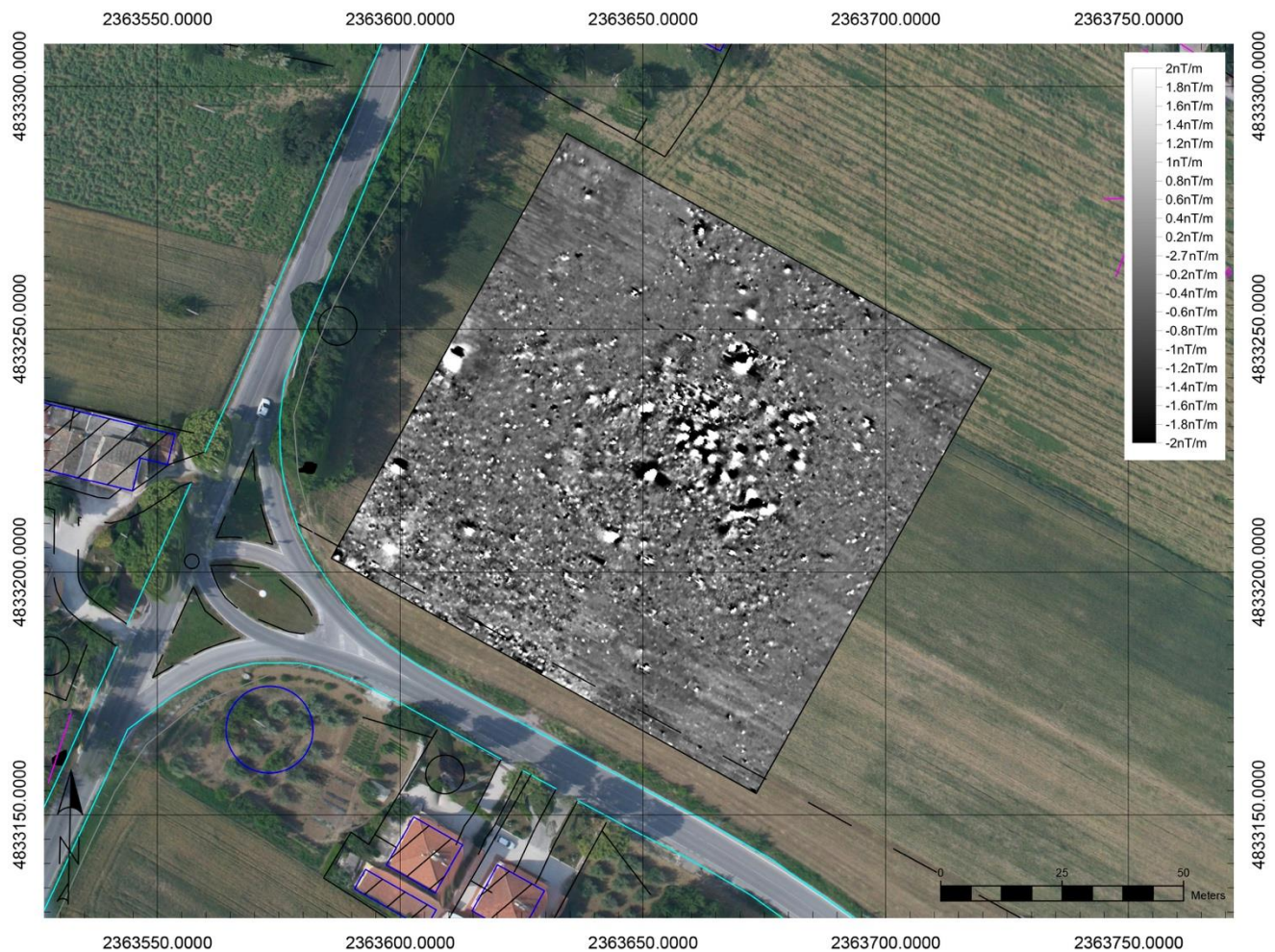


Fig. 10. Geophysical survey of the site at Corinaldo.

Interpretation and discussion

Attempts at analysis of these groups of circular anomalies must of course remain tentative in advance of further field-walking survey, geophysical prospection and sample excavation targeted at these and other aspects of their character and interpretation. For the moment, however, we can at least advance a typological comparison with other pre-Roman sites of this type discovered in the Marche region. Convincing analogies can be perceived with the settlements identified by aerial survey at Cagli and Fabriano, in the northern Marche, as well as with those attested at Passo Treia in the Potenza Valley further to the south¹⁹. These have for the most part been interpreted as Piceni burial sites.

Regarding the nature of the newly-discovered sites, comparison with similar sites within the region where direct investigation has already been undertaken, suggests an interpretation as necropolis sites. There is, indeed, a quite close similarity to some of the most famous and well-explored Piceni necropolis sites, most of all with the elite burials of Matelica where the Soprintendenza has identified groupings of former tumuli, surrounded by circular ditches and dated to the 8th-7th centuries BC. Close analogies in terms of size, spatial organization and topographical setting can also be recognized in the 7th-5th century BC necropolis at Sirolo-Numana and in the Archaic necropolis of Val Fondillo at Opi²⁰.

On the other hand, interpretation of at least some of the newly discovered sites as elements within more complex and functionally differentiated pre-Roman settlements cannot be entirely excluded. Indeed, as already mentioned earlier in the discussion, the most recent of the excavations by the Soprintendenza at Cagli, focused on the largest of the circular cropmarks within the various clusters recorded from the air across a wider area have revealed in its interior the remains of domestic structures dating from the 7th to 5th centuries BC, leading to the entirely credible hypothesis of an extensive settlement involving both domestic areas for the living and funerary areas for the dead.

The table in Figure 11 provides a summary comparison between the newly discovered cropmark sites in the Cesano and Misa river valleys and the best-known and well-documented comparative sites in the Marche region regarding size, topographical setting and height above sea level, along with the essential nature of the settlement where this has already been established by targeted archaeological excavation.

As regards their topographic location, all of the new and previously-known sites discussed here, apart from the two hilltop sites, are located on river terraces, in almost all cases at or close to the confluence of two water courses. These alluvial terraces consist of Quaternary deposits dating to the Middle/Late Pleistocene, comprising gravels, clays, sands and silts, highly suitable for human occupation and just the kind of substrata that favour the development of cropmarks at appropriate times of year. Furthermore, at least some of the settlements are, or appear to be, surrounded by ditches, perhaps serving both defensive and drainage functions.

In terms of size the circles can be divided into two types depending on their overall diameter: the small/medium type ranging from about 10 m to 20 m across, as seen in most of the well-documented Piceni necropolis sites, while the larger type reach as much as 40-50 m in diameter, as seen in the exceptional cases of Numana-Sirolo and Cagli. Leaving aside these 'oversized' circular ditches we can make the general observation that all the newly discovered sites along the Cesano and Misa valleys display overall dimensions which exceed the average for documented circles within securely identified Piceni settlements, where they rarely exceed 20 m in diameter.

In the best-documented Piceni sites, explored through excavation, it has been shown that the circular features represent the remains of burial mounds surrounded by ditches. Ancient and modern ploughing have partially or completely destroyed the original tumuli, leaving at the present surface only the deeper circular ditches and sometimes one or more funerary pits. The only exception, at Cagli, proves that circular ditches might on occasions have defined areas occupied by domestic structures, though this applies only to the three much larger circles within a vast settlement, significantly isolated from the more numerous clusters of smaller circles conventionally interpreted as tombs (despite not yet having produced traces of proven burials or obvious grave-goods).

Broadening the view to incorporate the whole of the landscape between the Cesano and Misa river valleys and to focus on the topographical characteristics of the sites discussed above, it is possible to identify two main kinds of human occupation: hilltop sites and settlements on river terraces. These same two categories have been attested along the Potenza River Valley, where they have been linked, in interpretative terms, to

¹⁹ On the settlements at Cagli and Fabriano see BALDELLI 2008. On the site at Passo Treia see PERCOSSI, PIGNOCCHI, VERMEULEN 2006; BOULLART 2003.

²⁰ The necropolis known as 'I Pini' at Sirolo-Numana consists of a funerary area over 40 m in diameter, surrounded by a circular V-sectioned ditch 4 m wide 1.8 m deep. This represents the largest circular elite tomb so far uncovered within the necropolis at Numana; at its centre there lay the celebrated interment known as 'Tomba della Regina di Numana-Sirolo' (LANDOLFI 2001: 350-351). The hilltop necropolis at Montalbano, also in Numana, contained seven annular ditches enclosing groups of inhumation burials dating from the mid-6th to mid-5th centuries BC (BALDELLI 2001: 83-85). The circular ditches, with a near-consistent diameter of 12-13 m, were regularly disposed within an expansion area of the community cemetery of Numana.

differing aspects of social dynamics, chronology of land occupation/ownership²¹. The latest research, for instance, shows that the earliest settlements are to be found on the river terraces where flint assemblages indicate their exploitation from at least the late Neolithic, in at least some cases with subsequent continuity of occupation until the Roman conquest. By contrast the hilltop sites probably came into existence during the Final Bronze Age and the following Iron Age, when an elevated location was preferred in the face of new defensive exigencies as well as in response to subsistence activity based on a short-range transhumance, exploiting the higher pasture for grazing and non-migratory farming.

CROPMARK-SITES	Corinaldo – via Nevola Middle valley Misa river	Serra de' Conti – site 1 Middle valley Misa river	Serra de' Conti – site 2 Middle valley Misa river	Arcevia – cont. Farneto Middle/high valley Misa river
Planimetry				
Diameter circular traces	30 m	20-30 m	20-34 m	15-25 m
Topographical location	River terrace	River terrace	River terrace	River terrace
Height (above sea level)	81 m	80 m	87 m	139 m

SITES IN MARCHE REGION WITH SIMILAR TRACES VERIFIED BY ARCHAEOLOGICAL DIGS	Matelica loc. Crocefisso and loc. Cavalieri High valley Esino river	Matelica loc. Pian dell'Incrocca High valley Esino river	Numana – Sirolo loc. Montalbano and loc. I Pini Lower valley Musone river	Fabriano loc. Santa Maria in Campo High valley Esino river	Cagli loc. Palazzetto High valley Metauro river
Diameter circular traces	10-20 m	10-20 m	12-13 m 10-20 m 40 m (only in 1 case)	5-16 m	13.50-32.20 m 48-51 m (only in 3 cases)
Topographical location	River terrace	River terrace	River terrace	River terrace	River terrace
Height (above sea level)	365 m	290 m	80 m	291 m	334 m
Evidence documented by excavations	Necropolis and housing structures (VIII-VII BC)	Necropolis and housing structures (VIII-VII BC)	Necropolis (VII-V BC)	Necropolis and housing structures (?) (VII-VI BC)	Necropolis and housing structures (?) (VIII-VI BC)

Fig. 11. Summary comparison between the newly discovered cropmark sites in the Cesano and Misa river valleys and the most well-documented comparative Piceni sites in the Marche region.

But is this really the case here? Despite the fragmentary nature of the available data, a similar dynamic seems to be conceivable in the Cesano river valley. During the early Bronze Age, the settlements were located along the low river terraces but later tended to occupy the flanking hillslopes during the middle and later parts of the Bronze Age, as exemplified for the middle reaches of the valley at the Church of Santa Maria in Portuno. Here, a settlement with traces of huts attributable to the earliest Bronze Age period was established on the valley floor area, while the remains of a second settlement dating to the middle Bronze Age was located on rising hillslopes on the other side of the valley. In the same part of the Cesano area faint traces of Iron Age occupation have been found along the adjacent upland ridges, with the notable exception of a single Piceni tomb recently identified within one of the early Bronze Age settlements on the floor of the valley.

This apparent pattern, within which we see the oldest settlements on the low river terraces and those from the middle of the Bronze Age and from the whole of the Iron Age located at higher elevations would seem to be confirmed by the newly discovered hilltop sites described in this article as well as by the case of Miralbello, for which we have more secure data²². For all the other sites distinguished by circular cropmarks the most

²¹ VERMEULEN *et alii* 2017; VERMEULEN, MLEKUZ 2012.

²² DE MARIA, GIORGI 2014.

convincing interpretation at this stage would be to see them as funerary areas consisting, in their original form, of raised mounds (tumuli) each surrounded by a circular ditch.

For all of these interpretations we of course have to reserve final judgement until we have in our hands new and hopefully decisive information from fieldwork and sample excavations programmed for the summer of 2018.

Closing remarks

In an attempt to provide a landscape perspective that integrates all of the collected information for the sites discussed above we can perhaps make the following points, all of them illustrated in Figure 12.

- We are dealing in all of these cases with evidence of settlement that begins in prehistory/protohistory and in some cases lasts as long as the early part of the Roman period; naturally, there are many open questions about the genesis and cultural associations of this phase of settlement even though we feel confident that we are dealing with a chronological period which includes the final part of the Bronze Age as well as the Iron Age, with a credible attribution to the early phases of the Piceni culture.
- Whatever their true nature, whether as domestic settlements or – as seems likely in the majority of cases examined so far – more probably as the ‘homes of the dead’, all of these sites initially come into existence on low ground at the centre of valley systems, in close association with the main river or with one or other of its tributary streams, with easy access to water-borne transport and close to fords across the rivers, as shown by the examples of Mirabello and perhaps of Serra de' Conti.
- The settlements under discussion here are located along the road systems which from their first inception in the protohistoric period must have crossed the countryside, providing access by means of valley roads between the Apennine zone and the coast, as well as from one valley to the next.
- The newly discovered sites complement and bear a direct spatial relationship with the other protohistoric sites already known and mapped on the archaeological cartography, filling in some of the previous gaps and presenting a picture of pre-Roman settlement that is becoming progressively less fragmentary and more closely related to the physical geography of the area.

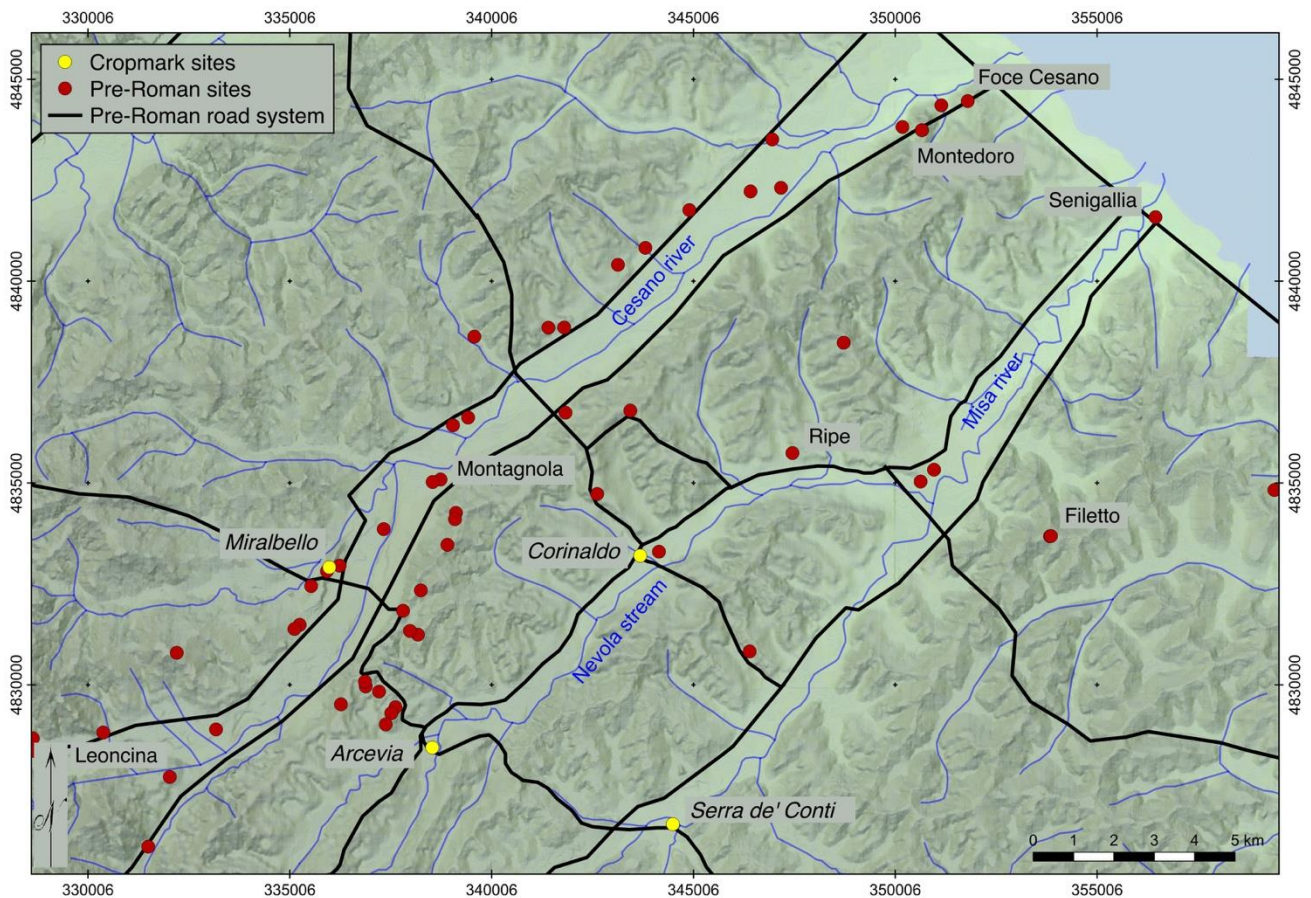


Fig. 12. Contextualization of the newly discovered sites within the probable protohistoric road system and mapping of the main protohistoric sites already known on the archaeological cartography.

In addition to providing preliminary information about the new discoveries we hope that the description of this research project, albeit still in its early stages, will in time lead to a deeper understanding of the process of urban development in the Cesano and Misa river valleys, hopefully broadening our opportunity to understand the settlement of the area in the pre-Roman period and in particular during the Late Bronze Age and the Iron Age, a period that is notoriously complex and still only partially documented within the Marche region, especially in the northern parts.

This is a field of research that undoubtedly needs to be supplemented through new and directly relevant archaeological discoveries. In this context remote sensing and traditional field observation can make important contributions, especially in defining the form, extent, spatial organisation and inter-relationship between the physical landscape and the traces of ancient settlement, not just in their initial discovery but also in their subsequently monitoring and conservation for the benefit of future generations.

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Bibliography

- AA.VV. 2000, *Piceni Popolo d'Europa*. Guida alla mostra di Ascoli Piceno, Roma 2000.
- AA.VV. 2001, *Eroi e Regine. Piceni Popolo d'Europa*. Catalogo della Mostra (Roma 1999), Roma 2001.
- ALFIERI N. 2000, *Scritti di topografia antica sulle Marche*, a cura di G. Paci, Roma 2000.
- BALDELLI G. 1991, *L'insediamento di Montedoro di Scapezano e l'età del ferro nel Senigalliese*, in DALL'AGLIO P.L., DE MARIA S., MARIOTTI A. (a.c.) 1991: 73-75.
- BALDELLI G., *Insediamenti preromano*, in F. Milesi (a c.), *Fano Romana*, Fano 1992: 13-22.
- BALDELLI G. 2001, *L'insediamento di Montedoro di Scapezano*, in AA.VV. 2001: 169-170.
- BALDELLI G. 2008, *A nord di Sentinum prima e dopo la battaglia*, in M. Medri (a.c.), *Sentinum 295 a. C. Sassoferato 2006. 2300 anni dopo la battaglia. Una città romana tra storia e archeologia*, Roma 2008.
- BALDELLI G, POCOBELLI G. 2015, *I fossati circolari di Acquaviva di cagli (PU)*, in *Archeologia Aerea* 9: 44-56.
- BALDELLI G. et alii 1995, *Archeologia e ambiente nell'entroterra pesarese: il Museo Archeologico di Novilara*, in Amendolea B., Cazzella R., Indrio L. (a.c.), *I siti archeologici: un problema di musealizzazione all'aperto*, Roma, Complesso Monumentale di San Michele a Ripa 25/27 febbraio 1988, Atti primo seminario di studi, Roma 1995: 196-202.
- BAUMGÄRTEL E. 1937, The gaulish necropolis of Filotrano in the Ancona Museum, in *Journal of the Royal Anthropological Institute of Great Britain and Ireland* LXVII (1937): 231-286.

- BOSCHI F. 2010, *Dal cielo al sottosuolo: nuovi dati per la conoscenza della città*, in E. Giorgi, G. Lepore (eds.), *Archeologia nella valle del Cesano da Suasa a Santa Maria in Portuno. Atti del Convegno per i venti anni di ricerche dell'università di Bologna (Castelleone di Suasa, Corinaldo, San Lorenzo in Campo 18-19 dicembre 2008)*, Bologna 2010: 145-155.
- BOSCHI F. 2016, *Reading ancient cities. The contribution of the non-invasive techniques*, in F. Boschi (ed.), *Looking to the Future, Caring for the Past. Preventive Archaeology in Theory and Practice*, Bologna, Bononia University Press, 2016: 85-100.
- BOSCHI F., SILANI M. 2013, *Archeologia del paesaggio nella Valle del Misa (Marche, Italia). Nuovi dati sulla città romana di Ostra dalle ricognizioni aeree e dall'analisi aerotopografica*, in *Archeologia Aerea* 7 (2013): 33-43.
- BOULLART C. 2003, *Piceni Settlements: Untraceable or Neglected?*, in *Picus* 23 (2003): 155-188.
- BRIZIO E. 1895, *La Necropoli di Novilara*, in *Monumenti Antichi* 5 (1895): 85-464.
- BRIZIO E. 1907, *Il sepolcreto gallico di Montefortino presso Arcevia*, in *Atti della R. Accademia dei Lincei. Memorie della Classe di Scienze morali, storiche e filologiche* IX (1907).
- CATANI E., MONACCHI W. 2010, *Tifernum Mataurense II. Il territorio*, Urbino 2010.
- CERQUETTI G.M. 2013, *Nuove sepolture picene dal cimitero di San Costanzo*, in *Rimarcando* 8 (2013): 40-47.
- DALL'AGLIO P.L., DE MARIA S., MARIOTTI A. 1991 (a.c.), *Archeologia delle Valli marchigiane Misa, Nevola e Cesano*, Perugia 1991.
- DALL'AGLIO P.L., SILANI M., NESCI O., SAVELLI D. 2014, *Archeologia dei paesaggi nella valle del Misa (Marche, Italia): nuovi dati dalla lettura integrata del territorio*, *Actas de el XVIII Congreso Internacional de Arqueología Clásica, Centro y periferia en el mundo clásico/Centre y periphery in the ancient world*, 13-17 Mayo 2013, Merida (España), Merida 2014: 193-197.
- DE MARIA S., GIORGI E. 2014, *Urbanistica e assetti monumentali di Suasa. Novità dalle recenti ricerche*, in AA.VV., *Epigrafia e Archeologia romana nel territorio marchigiano. In memoria di Lidio Gasperini (Atti del Convegno, Macerata 22-23 aprile 2013)*, Tivoli 2014, pp. 163-226.
- DELPINO C., FINOCCHI S., POSTRIOTI G. 2016, *Necropoli del Piceno. Dati acquisiti e prospettive di ricerca*, in G. Baldini, P. Giroladini (a.c.), *Dalla Valdesa al Conero. Ricerche di archeologia e topografia storica in ricordo di Giuliano de Marinis. Atti del Convegno Internazionale di Studi (Colle di Val d'Elsa – San Gimignano – Poggibonsi, 27-29 novembre 2015)*, Firenze 2016: 287-304.
- GIORGI E. 2001-2002, *La carta archeologica della media valle del fiume Cesano nelle Marche*, in *Ocnus* 9-10, 2001-2002: 259-261.
- GIORGI E. 2010, *La città e il territorio: riflessioni sull'origine dell'abitato*, in Giorgi E., Lepore G. 2010 (a.c.): 55-61.
- GIORGI E. 2016, *City Archaeology in the Adriatic area: the cases of Burnum in Dalmatia and of Suasa and Ascoli in the Marche region*, in F. Boschi (ed.), *Looking to the Future, Caring for the Past. Preventive Archaeology in Theory and Practice*, Bologna 2016: 101-124.
- GIORGI E., LEPORE G. 2010 (a.c.), *Archeologia nella valle del Cesano da Suasa a Santa Maria in Portuno* (Atti del Convegno, Castelleone di Suasa, Corinaldo, S. Lorenzo in Campo 18-19 dicembre 2008), Bologna 2010.
- GIORGI E., BOSCHI F., SILANI S. 2012, *Aerotopografia e indagini geofisiche per lo studio della città romana di Suasa (Ancona)*, in *Archeologia Aerea* 6 (2012): 67-78.
- LANDOLFI M. 2001, *La tomba della Regina nella necropoli picena "I Pini" di Sirolo-Numana*, in AA.VV. 2001: 350-354; 357.
- LEPORE G. 2016, *An urban archaeology project in Senigallia*, in F. Boschi (ed.), *Looking to the Future, Caring for*

the Past. Preventive Archaeology in Theory and Practice, Bologna 2016: 125-133.

LEPORE G., SILANI M., GALAZZI F. 2013, *Nuovi dati sulla romanizzazione dell'ager senogalliensis: un pagus a Madonna del Piano di Corinaldo?*, in *Ocnus* 21, 2013: 101-125.

LOLLINI D. 1976, *La civiltà Picena*, Roma 1976.

LUNI M. 1984a, *Topografia storica di Pisaurum e del territorio*, in AAVV., *Pesaro nell'antichità. Storia e monumenti*, I, Venezia 1984: 85-139.

LUNI M. 1984b, *La ceramica attica dell'abitato preromano di Pesaro*, in *Picus* IV (1984): 137-144.

LUNI M. 2001, *L'abitato di Pesaro*, in AA.VV. 2001: 167-169.

MARCHEGIANI P., LUNI M. 1993, *Novilara*, in *Bibliografia Topografica della Colonizzazione Greca in Italia*, XII (1993): 417-433.

MENCHELLI S. 2017, *Firmum Picenum e il suo territorio. Dinamiche insediative ed attività economiche*, in S. Santoro (a.c.), *Emptor et mercator. Spazi e rappresentazioni del commercio romano*, Bari 2017: 467-476.

MORELLI C. 2001, *La necropoli arcaica di Val Fondillo a Opi*, in AA.VV. 2001: 326-331.

PASQUINUCCI M., MENCHELLI S., CIUCCARELLI M.R. 2007, *Il territorio fermano dalla romanizzazione al III sec. d.C., in Il Piceno romano dal III sec. a.C. al III sec. d.C.*, Atti del XLI Convegno di Studi Maceratesi (Tolentino 2005), Macerata 2007: 513-546.

PASQUINUCCI M., MENCHELLI S., CIUCCARELLI M.R. 2014, *The Pisa South Picenum Survey Project. Riflessioni a margine*, in G. Paci (a.c.), *Ichnia 13. Epigrafia e Archeologia romana nel territorio marchigiano. In memoria di Lidio Gasperini*. Atti dell'Incontro di Studi (Macerata 2013), Tivoli 2014: 391-432.

PERCOSSI E., PIGNOCCHI G., VERMEULEN F. 2006, *I siti archeologici della vallata del Potenza*, Ancona 2006.

SILANI M. 2016, *Città e territorio: la formazione della città romana dell'Ager Gallicus*, Bononia University Press, Bologna 2016.

SILANI M., DE DONATIS M., SAVELLI D., BOSCHI F., LEPORE G., SUSINI S. 2016, *Geo-archaeology of the Roman palaeosurface of Sena Gallica (Senigallia, Italy)*, in *Journal of Maps* 12 (2016): 1206-1211.

STEFANINI S. 1991, *Carta archeologica della città e del suburbio*, in Dall'Aglio P.L., De Maria S., Mariotti A. 1991 (a.c.): 101-108.

TRIBELLINI L. 2006, *Montefortino d'Arcevia. Ricostruzione di una straordinaria scoperta archeologica*, Ancona 2006.

VERMEULEN F., VERHOEVEN G. 2004, *The contribution of Aerial Photography and Field Survey to the Study of Urbanization in the Potenza Valley (Picenum)*, in *Journal of Roman Archaeology* 17: 57-82.

VERMEULEN F., MLEKUZ D. 2012, *Surveying an Adriatic valley: a wide area view on early urbanization processes in Northern Picenum*, in Burges G.-J., Vermeulen F., Corsi C. (eds.), *Urban Landscape survey in Italy and the Mediterranean*, Oxford 2012: 207-222.

VERMEULEN F., VAN LIMBERGEN D., MONSIEUR P., TAELEMAN D. 2017, *The Potenza Valley Survey (Marche, Italy): settlement dynamics and changing material culture in an Adriatic valley between Iron Age and Late Antiquity*, Rome 2017.