

Preliminary report on the fieldwork of the 'Minor Centres Project' 2012

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INTRODUCTION

The project '*Fora, stationes* and sanctuaries: the role of minor centres in the economy of Roman central Italy' (funded by NWO grant No. 360-61-030, 2011-2015; henceforth: Minor Centres) of the University of Groningen (the Netherlands) studies the role of so-called "minor centres" in the economy of Roman central Italy. The research focuses on three such centres, *Astura*, *Forum Appii* and *Ad Medias*, all situated in the Pontine Region. These three case studies are investigated through non-invasive research, using geophysical methods and field walking. In this report, the results of the first year of field research, 2012, are presented. In the first section, an overview of the various activities is presented, while in the second part each line of research is discussed in more detail. In the final section, we summarise the most important results and outline our plans to continue the fieldwork in 2013/2014.

1. SUMMARY OF ACTIVITIES

In accordance with the plan submitted to the *Soprintendenza per I beni archeologici del Lazio* (SBAL) with letter GIA 12.0019 (21 March 2012), three field campaigns were undertaken in 2012.

- 1) From 13 to 18 March, a preparatory campaign was done. During this campaign we established contacts with various land owners at and around the sites of *Ad Medias* and *Forum Appii*. We also proposed to the municipality of Pontinia (which covers the larger part of the research area) to compose an archaeological map of the municipality.

With regard to the site of Astura, which is situated inside a military base, we took the initial steps to obtain permission from the involved military institutions to access the site. All contacts and agreements have been formalized through official letters.

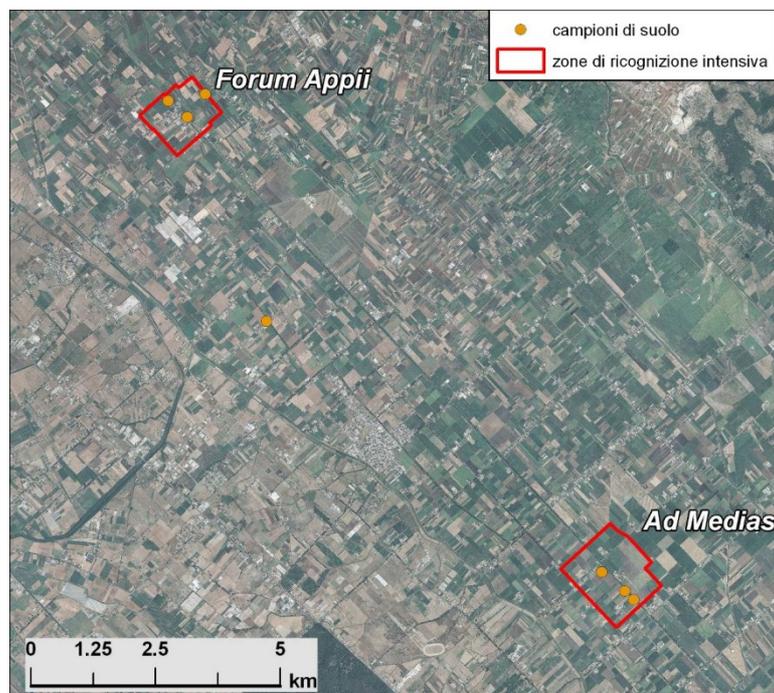


Fig. 1. Locations from which soil samples were collected in March 2012.

Field research was during this campaign limited to soil sampling in various parts of the research area (fig. 1). These soil samples were taken in order to establish the geomagnetic characteristics of the soils on and around the sites of *Forum Appii* and *Ad Medias*.

- 2) From 19 to 26 August, trial surveys using a gradiometer were executed on the sites of *Forum Appii*, *Ad Medias* and *Astura*. The preliminary results of these investigations have

been submitted to the SBAL with letter GIA 12.0045 dated 20 September 2012 (see also Armstrong 2012).

- 3) Between 24 September and 20 October, field walking surveys were undertaken. These included intensive investigations at the sites of *Forum Appi e Ad Medias*, and extensive investigations in a transect along the via Appia northwest of *Ad Medias*.

In the following, the abovementioned investigations will be discussed in more detail.

2. GEOPHYSICAL RESEARCH

2.1 AIMS AND METHODS

The geophysical trial surveys (August 2012) aimed to establish if gradiometry was a suitable method to identify archaeological remains on the sites of *Astura*, *Forum Appii* and *Ad Medias*, and if further investments in such research would therefore be useful for our project. The tests were conducted with a Bartington DualGrad 601, a magnetic gradiometer with two sensors. This instrument measures the deviations in the earth magnetic field up to a depth of ca. 1.5 m, and is particularly suited to identify structures exposed to extreme heat (kilns, hearths, brick walls), but also allows to identify ditches, pits and structures composed of igneous rocks such as basalt.

2.2 RESULTS

A full technical report of the magnetic gradiometer surveys can be found in Armstrong 2012; we here summarise the main findings of the surveys at the sites of *Astura*, *Forum Appii* and *Ad Medias*.

2.2.1 ASTURA

The area investigated at the site of *Astura* is situated within a pine forest on the *poligono militare* (military base) of Nettuno directly on the Pontine coast (fig. 2). The area consists of a relatively open area of c. 60 by 120 m. along a sand path that leads to the Roman villa and Medieval castle at Torre Astura.

The data show various anomalies.

- To the north, there is a double curvilinear anomaly (no. 1), which probably relates to recent military activities in the area (possibly a track for heavy military vehicles).
- To the southwest, there are various anomalies (no. 2) that presumably also reflect sub-recent disturbances (such as fragments of scrap metal deriving from World War II military activities, which are very common in the coastal area between Astura and Nettuno).
- To the southeast, there are two circular anomalies (nos. 3-4), which considering the signal are probably not recent. They reflect features that have been exposed to extreme firing (possibly ancient kilns).
- Also to the southeast, several very faint linear anomalies (no. 5) that may indicate walls pertaining to an ancient building.

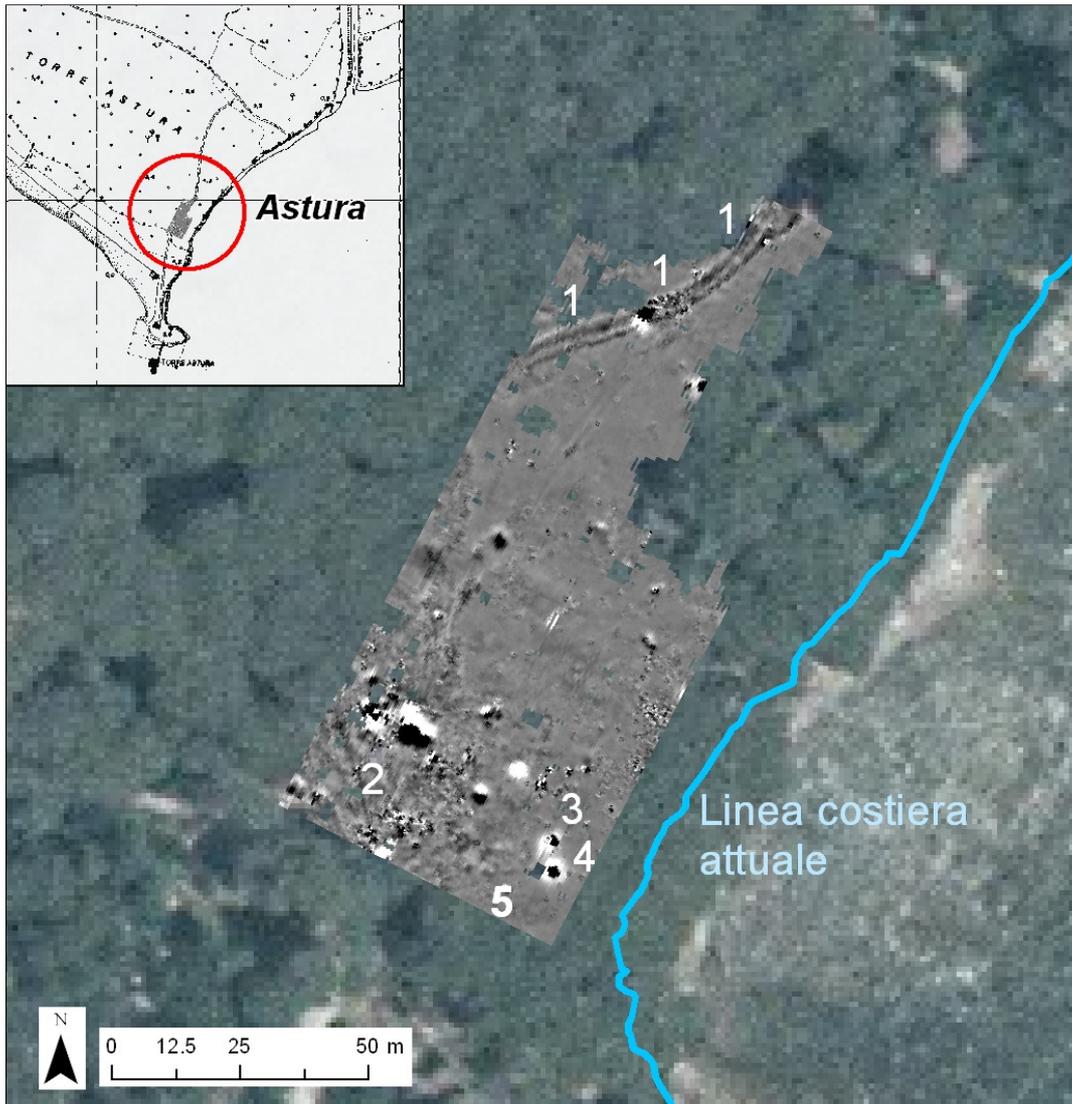


Fig. 2. Results of the geophysical surveys at *Astura* (blue line: actual coast line).

Despite the heavy (sub-) recent disturbances, the results of the test at *Astura* may be considered positive: anomalies 3 to 5 (possible kilns and walls) may relate to the ancient site of *Astura*, and suggest further research could reveal more structures related to this site. However, the absence of artefacts on the surface leaves open the possibility that we deal with post-antique structures. Furthermore, the heavy tree cover of the area limits the possibilities for additional large-scale geophysical prospections. A different strategy (using a one-sensor gradiometer to investigate dispersed small open areas) would probably be better suited to further investigate the site.

2.2.2 FORUM APPII

The area investigated at the site of *Forum Appii* is situated north of the via Appia, directly west of the Cavata river (fig. 3). This field surrounds a modern house and could not be investigated in its entirety because it was partly under cultivation.

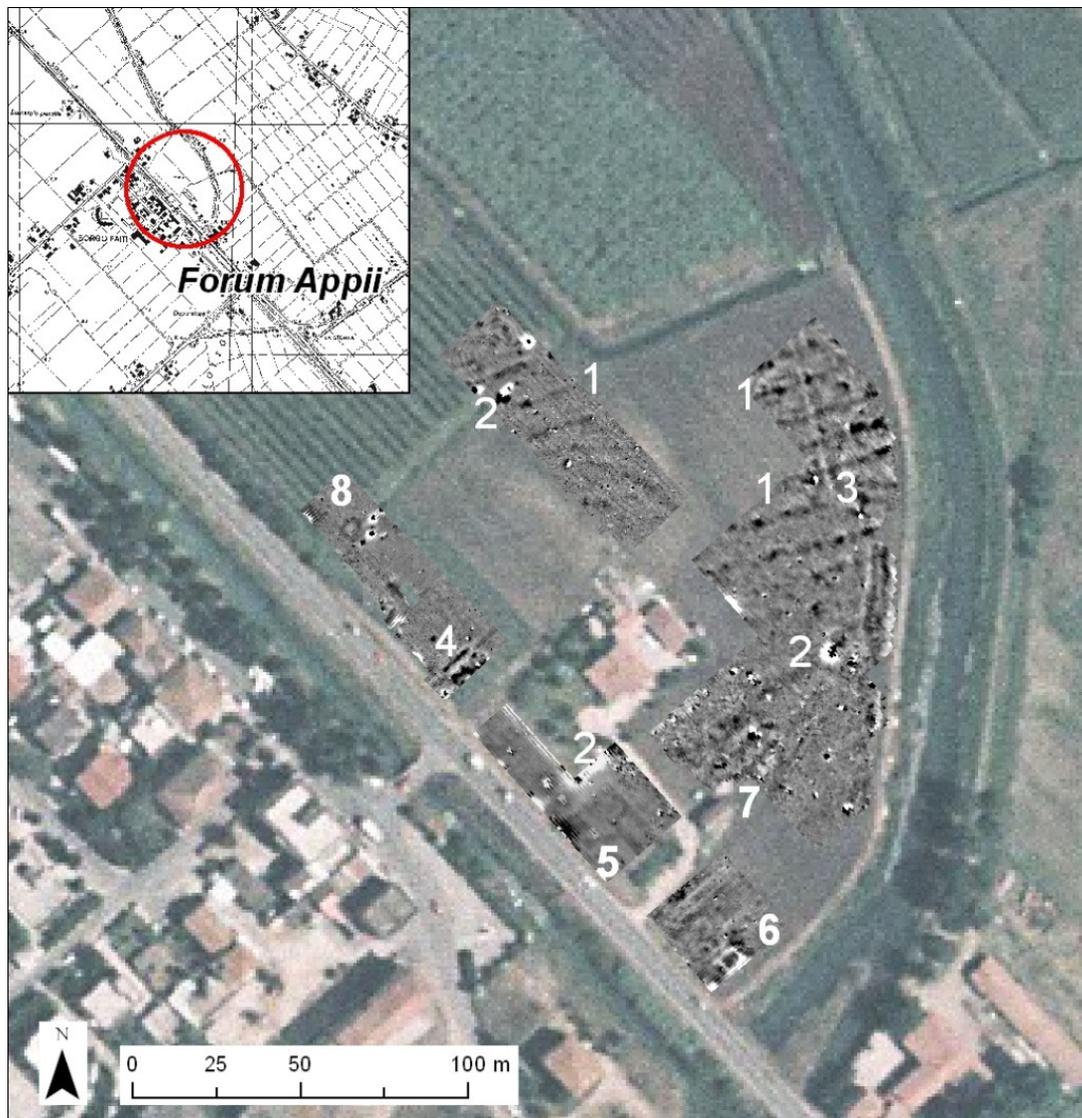


Fig. 3. Results of the geophysical surveys at *Forum Appii*.

The data show various anomalies.

- North of the house, there is a series of linear anomalies (no.1). Considering the signal, these probably represent a (modern?) drainage system.
- Also north of the house there is a linear anomaly with a different orientation and possibly of older date (no.3), perhaps also to be interpreted as part of a drainage system.
- In various parts of the investigated area there are anomalies (no. 2) that almost certainly reflect recent disturbances (probably scrap metal).

- Adjacent to the via Appia, there are various well-defined angular and/or linear anomalies (nos. 4-8). These indicate the presence of foundation walls of ancient buildings. This interpretation seems to be supported by the presence of large quantities of Roman building materials on the surface.

Also in the case of *Forum Appii*, the trial surveys can be considered successful, as they yielded useful results. The various structures identified show that the area certainly pertains to the ancient site of *Forum Appii*. However, it seems that the observed features only represent the most deeply buried foundations of buildings that have otherwise disappeared as a result of intensive and prolonged agricultural practice. To better understand the extent and degree of preservation of the archaeological remains, it would be advisable to extend the research over a wider area, including the areas to the north, to the southeast of the Cavata river and also to areas south of the via Appia.

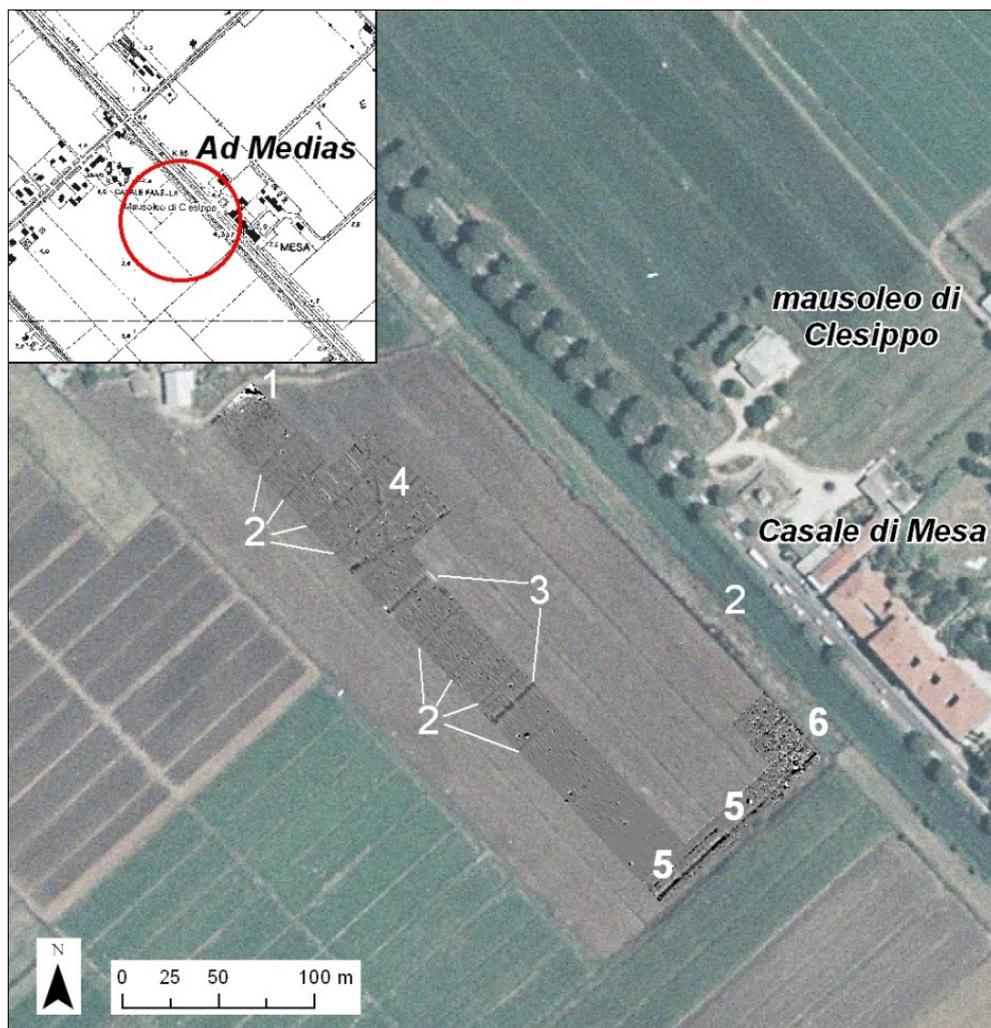


Fig. 4. Results of the geophysical surveys at *Ad Medias*.

2.2.3 AD MEDIAS

The area investigated at the site of *Ad Medias* is situated south of the via Appia and the Decennovium canal. In a large field, we investigated a 350 m long and 30 m wide transect orientated NW-SE (partly enlarged to the north), and a second transect in the SE part of the field, oriented SW-NE (fig. 4).

The data show the following anomalies.

- To the northwest, there is a linear strong anomaly (no.1). It represents a buried canal that carries water from/to the Decennovium canal. According to local people, this canal provisioned an 18th century water mill (situated amidst modern houses to the northwest) with water.
- Along the entire principal transect, there are two series of linear anomalies that represent recent drainage systems (nos. 2 -3).
- In the area where the transect was widened, there are two linear anomalies at oblique angles (no. 4). These features, one being oriented approximately N-S, could pertain to the ancient centuriation system known from aerial photographs (Cancellieri 1975, 1990).
- Along the entire secondary transect, there are two linear anomalies (no. 5) that may represent an ancient road departing from the pottery scatter at no. 6 in a SW direction.
- In the north-eastern corner of the secondary transect, there is an area of 'fuzzy' measurements, associated with a pottery scatter (no. 6). This area probably also contains several linear anomalies, but considering the fuzziness of the data these are hard to define with precision.

The geophysical research at *Ad Media* shows various ancient remains, with besides possible parcelling traces and a road a rural site that is probably largely destroyed by ploughing. Although these features are not part of the presumed centre of *Ad Medias*, the magnetic gradiometry yielded useful data and we therefore suggest to target the area north of the via Appia for further geophysical prospections.

3 ON-SITE SURVEYS AT *AD MEDIAS* AND *FORUM APPII*

3.1 AIMS AND METHODS

Aims of the on-site surveys were:

- To establish the chronology, extent and functions of these minor centres.
- To establish the range of goods that were produced and/or used and/or potentially redistributed through these minor centres.

To achieve these aims we applied an intensive field survey strategy. First, a detailed assessment of the topography of the area was made, and ploughed and accessible fields were selected for study. These fields were digitized from aerial photographs, and the created GIS-layers were subsequently divided into grid units of by default 25 x 25 m. These grids were laid out in the field using small flags marking their corners and subsequently systematically traversed by field walkers placed at a distance of 8 m from each other (i.e., 3 walkers per unit, resulting in a ground coverage of 25%). These field walkers picked up all artefacts they encountered. In units with a high artefact density, additional sampling of diagnostic artefacts took place at complete coverage.¹

3.2 RESULTS

3.2.1 *FORUM APPII*

The surveys at *Forum Appii* covered an area of c. 10 ha, comprising fields to the right (SW) and left (NE) of the via Appia, directly northwest of present-day Borgo Faiti and in an area adjacent to the road NW and SE of the Cavata River (fig. 5). So far, 159 grid units have been investigated.

¹ The study of the artefacts is (in consultation with the inspector of the archaeological service, *dott.ssa* N. Cassieri) conducted in February/March 2013 and will continue in July 2013. The non-diagnostic artefacts will after study be disposed of at expense of the GIA in a way and place to be defined in consultation with the SBAL. The diagnostic artefacts will be transported (also paid for by the GIA) to the museums of Sezze (artefacts from *Forum Appii*) and Pontinia (those from *Ad Medias*). A list of materials is currently being prepared and will be provided to the SBAL when the artefact studies have been finished.

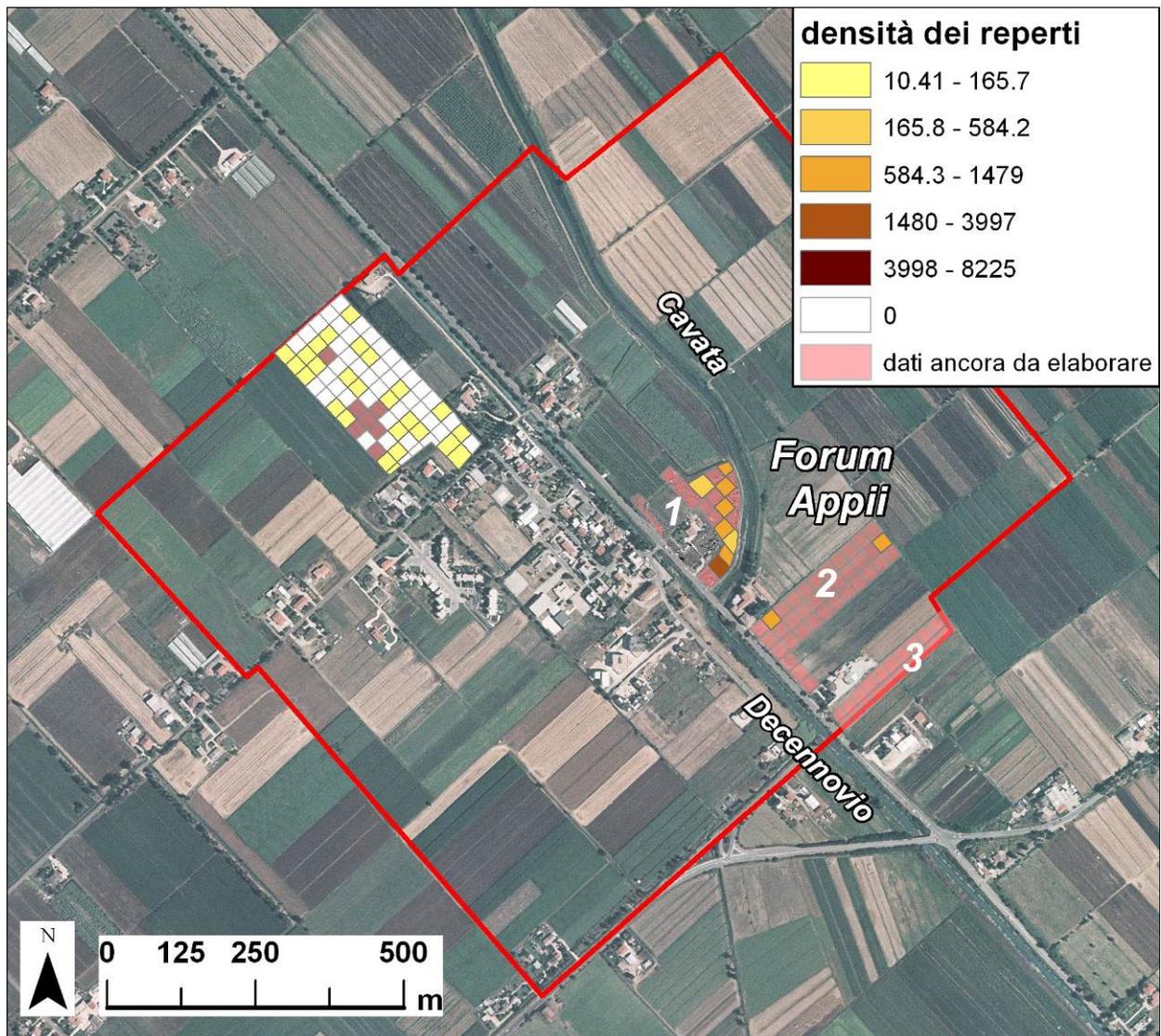


Fig. 5. On-site surveys at *Forum Appii* (darker colours indicate higher artefact densities, for red units artefact data are not yet available; white units yielded no artefacts).

Pending the artefact studies, we can at the moment only provide some preliminary and general observations (see fig. 5, with artefacts densities of part of the area). Considering the extremely low artefact densities in the field NW of Borgo Faiti, we can be sure that the ancient nucleus of *Forum Appii* did not extend in this area. However, in the three fields north of the via Appia (fig. 5, nos. 1-3), the field surveys mapped very high artefact densities (stone fragments, ceramic tile and brick, pottery of various wares and types). Field 1 in particular yielded much material of primarily the Imperial period, which may relate to the structures identified in the geophysical test surveys (see above).

Interpreting the data in terms of functional zoning certainly needs further elaboration, but it is noteworthy that along the Cavata River in field 1 we primarily observed building debris in combination with fragments of amphorae. This combination may suggest a commercial zone in

this area along the river, perhaps a place of transshipment. However, no clear *in-situ* remains have been identified in this area in the geophysical survey. Also noticeable in this field is the predominance of artefacts dating to the Imperial period: only in the central part of the field, immediately north of the modern house, have ceramics of the 3rd to 1st centuries BC been observed.

The field surveys in the fields 2 and 3 have also yielded interesting results. In the areas directly adjacent to the Via Appia, considerable quantities of ceramic artefacts (foremost of Imperial date) and building materials (tile, brick, limestone debris) were found. Worthy of notice is also the presence of large squared limestone building blocks and two large mill stones in the western angle of field 2 (fig. 6 a/b). We may therefore conclude that this area was part of the primary built-up area of *Forum Appii*; the mill stones furthermore suggest the presence of a bakery. The land owners informed us that in the past, Roman tombs have also been discovered in the area.



Fig. 6a/b. Squared blocks and mill stones observed in the W-angle of field 2 at *Forum Appii*.

In field 3, ceramic densities are equally high along the via Appia, but decrease rapidly while moving to the north. Probably, this transition marks the edge of the settlement. In the NE part of field 3, however, we observed a separate large concentration of artefacts, which considering the presence of waster fragments of tile, *imbrex*, coarse ware and amphora included a ceramic production workshop, probably to be dated in the late 2nd or early 1st century BC. Indeed, most artefacts in the area date to the Republican and early Imperial period (so pre-dating most of the material from the other part of the field).

3.2.2 AD MEDIAS

The site of Ad Medias was the primary target during the Fall 2012 campaign. Here we investigated an area of 72 ha, divided into 1210 grid units. The investigations concentrated on the south side of the Via Appia; to the north several fields to the north and southeast of the Casale di Mesa, the presumed nucleus of the ancient site, were investigated (fig. 7).

In the fields north of the Via Appia, the artefacts occur only sparsely and in very low densities. An exception is formed by a small area to the southeast of the Casale di Mesa, in the southeasternmost angle of the surveyed area (fig.7, A). Here we observed a considerable amount of artefacts, which probably represent a modest rural site along the Via Appia.

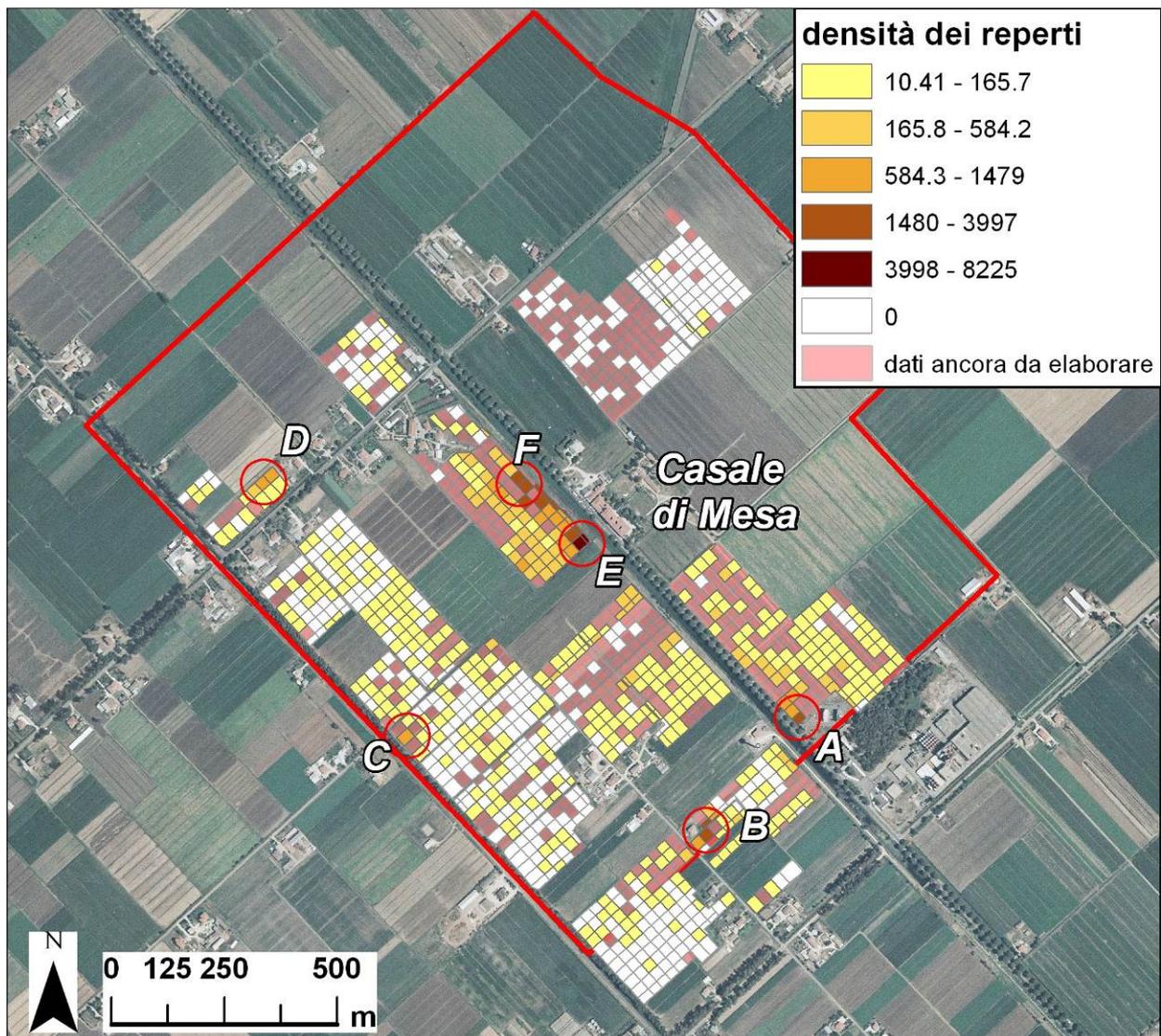


Fig. 7. The intensive surveys at Ad Medias (darker colours indicate higher artefact densities; for red units artefact data are not yet available; white units yielded no artefacts; red circles indicate artefact concentrations).

Also to the south of the Via Appia, large areas contained only very few archaeological artefacts (units indicated in white in fig. 7 yielded no artefacts). Points B, C, and D represent small concentrations of artefacts, probably to be interpreted as small rural sites, all dating to the Republican period. Only in the field SW of the Casale di Mesa, artefact concentrations occur over slightly larger areas. The two main concentrations (fig. 7 E/F) have both yielded evidence for artisanal production: concentration E (dating to the Republican and early Imperial period) contains metals slag, perhaps to be connected to a smithy. Concentration F, dating to the Republican period, contains many so-called strainer fragment, which probably relate to dairy processing (cheese-making) (fig. 8 a/b).



Fig. 8. Metal slags (a) and strainer fragments (b) from concentrations E and F.

4. THE EXTENSIVE SURVEYS AROUND *AD MEDIAS*

4.1 AIMS AND METHODS

Aims of the extensive surveys around *Ad Medias* were:

- To map the distribution, nature and chronology of the archaeological sites around *Ad Medias*.
- To define the economic relations between the centre of *Ad Medias* and the surrounding sites.

For this strand of research we adopted a less intensive method than for the on-site surveys discussed above. Ploughed fields were systematically traversed by walkers spaced at a distance of 5 m between them. During the initial phase of survey, artefacts are not collected, but points or areas with relevant archaeological remains are recorded. In a second phase, these areas and points are investigated in more detail: if the observed remains only consist of single/isolated finds, these are recorded (and collected) as such; if there are archaeological materials over a larger area, a grid of 10 x 10 m units is laid out. From the units, a systematic sample was first collected by walkers spaced at 5 m distance (40% coverage). Next (and depending on the nature and density of the observed scatter) either a diagnostic or a total sample taken at 100% coverage. This procedure allowed us to cover larger areas but at the same time allows us to map sites at a high level of detail.

4.2 RESULTS

The extensive survey in fall 2012 concentrated on a transect of c. 4 by 1 km that runs parallel to the via Appia between *Ad Medias* and present-day Pontinia (fig. 9). 37 fields with a total surface of 101 ha were investigated.²

As in the intensive survey around *Ad Medias*, the extensively surveyed areas generally contain few archaeological remains. While some off-site artefacts were recorded and a few isolated finds were recorded, in 11 locations archaeological remains were found that are interpreted as sites (red dots in fig. 9). They presumably are the remains of small rural structures and, in one case, an isolated burial (fig. 9, no. 5).

² It should be noted that three fields were surveyed southeast of *Ad Medias*. The surface area covered is still limited, because this campaign primarily focused on the on-site surveys; one team spent 10 working days surveying extensively, covering some 10 ha per day.

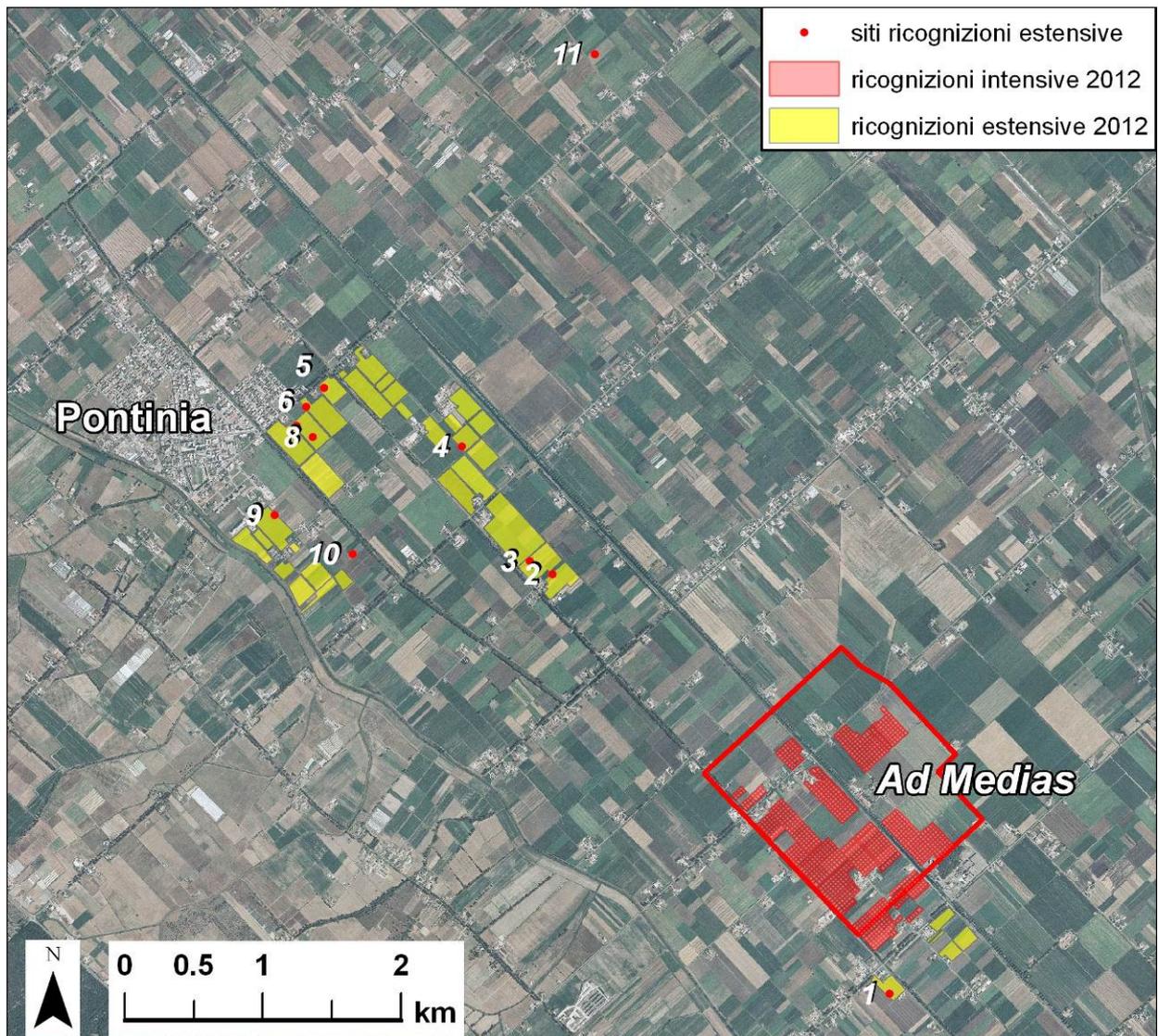


Fig. 9. Areas investigated during the extensive surveys between *Ad Medias* and Pontinia.

One location contained glazed pottery and a clay tobacco pipe that date to the 17th or 18th century AD (fig. 9, n.8). All other concentrations are characterised by ceramic scatters of modest dimensions, including tile, coarse wares and in most cases amphora fragments and black gloss pottery. Some sites also yielded dolium sherds, loom weights and an occasional coin. These materials almost exclusively date to the Republican period, between the 4th and 2nd century BC. Similar sites were already identified during previous field surveys by the GIA in an area some 5 km further north (De Haas 2011). The (functional) composition of these assemblages presumably indicates a residential function; the sites may therefore be interpreted as small farms that operated during a period of some two or three centuries. Only site no. 10 shows evidence for continued use in the Imperial period.

5 CONCLUSIONS

Considering the aims of the 'Minor Centers' project, a preliminary review of the data collected with different non-invasive techniques during the field campaigns of 2012 furnishes new and important insights. These insights not only concern the layout, functions and chronology of the three minor centres *Astura*, *Ad Medias* and *Forum Appii* themselves, but also (in the case of *Ad Medias*) and their relations with surrounding rural sites. They also further our understanding of the colonization and economy of the Pontine plain. Continuation and extension of the field research in the following years (2013-2015) is therefore surely warranted.

5.1 THE RESULTS OF THE FIELD RESEARCH OF 2012

The geophysical test surveys show that magnetic gradiometry is a method that produces good data in the potentially difficult (because wet and clayey) soil conditions in the lower Pontine plain. Despite major alterations during the past century (Mussolini's *Bonifica integrale*, intensive agricultural use and on-going urbanization), the subsoil still preserves significant ancient remains.

The on-site surveys have provided important information on the complexity, size, chronology and functions of the minor centres under study. In the case of *Forum Appii*, we can already hypothesize that the site covered an area of at least 5 ha. Besides a settlement, it also included productive establishments, as suggested by the presence of tile waster and mill stones. It is very likely that (as suggested by its status of *forum*) *Forum Appii* also was a trade center. The large quantities of amphora fragments observed along the Cavata River may indicate a storage area and/or a transit zone for goods. A previous publication in addition suggested that *Forum Appii* also housed a cult place (Bruckner 1995). Its main *floruit* seems to have been the Imperial period, but its origins certainly go back to the mid Republican period.

Whilst for *Ad Medias* we have equally significant information regarding productive activities (metal working, dairy processing), we have to await a further elaboration of the data and additional field surveys before coming to a reconstruction of its chronology, function and layout. As concerns its relations with surrounding rural sites, we may already note in date that both seem to comply, as almost no artefacts of Imperial date have been recovered during on/site and extensive surveys. Also considering the presumed presence of a sanctuary at *Ad Medias* (Solin 1999), the site may well have served central place functions for such sites. In our view, defining the relations between the site of *Ad Medias* and the centuriation system (the remains of which occur in *Ad Medias*' direct surroundings) will be a particularly important issue, considering the late 4th century BC date that has been proposed for this system (Cancellieri 1990; for a discussion, see De Haas 2010 and 2011).

5.2 CONTINUATION OF FIELD RESEARCH IN 2013/2014

Considering the above described results, and in line with the *piano operativo pluriennale* (submitted to the SBAL with letter GIA 12.0014, 29-2-2012), we propose to extend the field research in the years 2013/2014 with the following activities:

- For *Ad Medias*, we propose to investigate the fields around the *Casale di Mesa* through systematic geophysical research; to complement the on-site surveys by investigating the not yet explored fields to the north and north-west of the *casale*; to extend the extensive surveys through complementary work in the transect west of Ad Medias, and through a second transect running from Ad Medias in north-eastern direction.
- For *Forum Appii*, we propose to extend the on-site surveys and geophysical prospections in the fields adjacent to those surveyed in 2012, with a particular focus on the fields north of the via Appia and southeast of the Cavata river; to initiate extensive surveys around the site within transects running northwest-southeast (parallel to the via Appia) and southwest-northeast (perpendicular to the via Appia).
- Considering the more complex morphology of the site of *Astura* (which is largely covered by forests and dunes), we propose to extend the geophysical prospections where this is possible; and to continue the topographic mapping of the area.

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