The role of minor centres in local economies
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Introduction

Traditionally, research on the Roman economy has emphasised the importance of towns in mediating regional and interregional trade, as places where artisanal production clusters and as constituting the primary market for rural (agricultural) production.\(^1\) However, ethnographic and historical comparative studies suggest that rural economies in complex pre-industrial societies were not necessarily dependent on interactions between rural areas and urban sites.\(^2\) Indeed, nucleated rural settlements (henceforth minor centres) may have fulfilled a variety of central-place functions, and much of the Roman countryside—especially areas located beyond daily commuting distance from urban centres—may have primarily depended on such sites for the provision of everyday goods. Furthermore, as such rural minor centres are often located favourably within regional infrastructural networks, they may have had roles within regional trade networks as well. Despite their potential importance, only few minor centres have been subjected to systematic investigation. As a consequence, our knowledge of these sites and their economic functions is rather fragmentary, especially for Roman Italy.\(^3\)

\(^1\) E.g., Morley 2002; Parkins 1997; Lo Cascio 2000.
\(^2\) Smith 1974.
\(^3\) Recent work on Minor Centres in Italy includes excavations at Vagnari in Puglia (Small 2011) and at Vignale in Tuscany (Zanini and Giorgi 2014), the work of Sara Santoro and her
This article presents a summary of the field research carried out within the Minor Centres Project, a research project of the University of Groningen (The Netherlands) that ran between 2011 and 2016. The aim of this project was to better understand the nature and functions of such minor centres in local economies during the Roman period. After a short introduction to the project and the approaches it adopted, we discuss the results of an integrated programme of non-invasive archaeological investigations on two case study sites in the lower Pontine plain (Lazio, Central Italy), *Forum Appii* and *Ad Medias*, both situated along the *Via Appia*. Also, we discuss the role of both sites in regional trade networks based on a programme of typological and petrographic research on the ceramics gathered during these investigations. To conclude, we summarise the main conclusions of the project and their implications in light of the importance of minor centres in the Roman economy.

**The Minor Centres Project: background and approaches**

The Pontine Region is situated some fifty kilometres south of Rome, and consists of a coastal plain bounded to the west by the Tyrrhenian Sea, and to the north and east by the Lepine Mountains and the Alban Hills (Fig. 1). The plain consists of a higher system of marine terraces and, further inland, a lower lying area that is generally known as the *Palude Pontine* or Pontine Marshes. The Minor Centres Project constitutes the most recent phase of the long-running Pontine Region Project, a landscape archaeological project of the Groningen Institute of Archaeology (University of Groningen) that since 1987 studied the long-term settlement history of this region through excavations, geo-archaeological research and especially archaeological field surveys. These surveys have by now covered some thirty square kilometres of terrain across the Pontine region with colleagues (Santoro 2017) and that of the British School at Rome within the Roman Towns Project (Johnson et al. 2004; Hay et al. 2010).

4 For interim publications of the project see Tol et al. 2014; de Haas et al. 2015 and in press. The project was funded by the Netherlands Organization for Scientific Research (NWO) under grant no. 360–61–030.
systematic and intensive methods.\textsuperscript{5} Most of these investigations targeted the immediate surroundings of the Latin and Roman towns in the region, both those situated in the footslopes of the Lepine Mountains (Norba, Setia, Signia) and the Alban Hills (Lanuvium), and those positioned on the coast (Antium, Satricum).

Much less attention had been paid to the development of areas further away from these major urban centres, and traditional geographic models such as Central Place Theory suggest that other sites than towns must have performed central-place functions in such areas, for example as market places, centres of craft production and possibly also for religious and administrative purposes.\textsuperscript{6} The

\textsuperscript{5} Attema 1993; Attema et al. 2010; Attema et al. 2011; de Haas 2011; Tol 2012.
\textsuperscript{6} Bekker-Nielsen 1989; Whittaker 1990. Such ‘non-urban’ nucleated centres may comprise a range of site types recorded in literary and epigraphic sources (e.g. Vici, Conciliabula, Stationes, Mansiones, Fora, cf. Ruoff-Väänen 1978, 4–10; Tarpin 1999, 4–6). The differences in juridical and administrative status between some of these settlement categories are discussed in Todisco.
Minor Centres Project intended to fill this *lacuna* by focusing on the role of non-urban or minor centres in such areas.

To do so, we adopted two approaches:

1) a top-down approach, which entailed the study of settlement patterns and infrastructure of Italy using spatial and network analysis, leading to hypotheses on the functions of minor centres

2) a bottom-up approach that comprised an integrated programme of non-invasive archaeological investigations on two case study sites, *Forum Appii* and *Ad Medias*.

Whilst in this article we focus on the second approach, we here briefly refer to the outcomes of the first approach as well.

**Top-down approach**

A distributional analysis of the location of minor centres hints at the role they may have had: they occur throughout Roman Italy, and are often situated in locations that are beyond two hours walking distance from urban sites. People in such areas would probably not have commuted to urban markets regularly, suggesting that minor centres instead serviced these rural populations. In more urbanised areas, such as Tyrrhenian Central Italy, the existence of minor centres may partly be explained by a different mechanism. With higher population densities, rural demand here had a larger volume and economic-geographic theory would suggest that this led to the rise of lower-order centres to provide goods and services, even at relatively short distances from urban centres. And indeed, minor centres in

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2011 and De Francesco 2014. A myriad of ‘neutral’ terms is used in the literature to refer to similar sites, such as ‘minor settlements’ (Santoro 2017); small towns and *agglomérations secondaires* (Brüggler 2010, 16). Since these different settlement types cannot unambiguously be identified archaeologically, we conveniently use the term ‘minor centres’ as a blanket term to indicate these sites, which as a group presumably have in common that they had a central position in local settlement systems and constituted the focus of daily life for rural communities.

7 Bintliff 2002.
Latium and Campania are situated both beyond daily commuting distance from towns (thus servicing remote areas), but also at distances between one and two hours walking from urban markets.\footnote{de Haas 2017a.}

At the same time, their often strategic location along longer-distance routes suggests that the importance of some minor centres transcended that of local service centres. For ancient Latium, for example, a preliminary network analysis demonstrates the favourable positioning of a number of road stations on major transport arteries.\footnote{de Haas et al. in press.} Also, in the Pontine Region, road stations occupy favourable positions on transport routes, both within the region and to and from Rome.\footnote{de Haas et al. 2015.} It is therefore likely that such minor centres, apart from functioning as reference points for local populations, also functioned as hubs in regional trade systems.

The bottom-up approach: integrated fieldwork at the road stations of Forum Appii and Ad Medias

Our second, bottom-up approach entailed field and desktop studies of the sites of Forum Appii and Ad Medias, both road stations along the Via Appia.\footnote{Two additional sites, the coastal settlements of Astura and Piccarreta 32 (Piccarreta 1977), were also studied as part of the project. The results of these investigations are not discussed here, as these sites could not be investigated as intensively. For the results of these investigations see Tol and Borgers 2016; Tol et al. forthcoming.} Our research aims to elucidate the function of these road stations in both their local rural settlement context and within regional trade networks, and to assess variations in size and function between these two minor centres.

Both sites were presumably established as part of Rome’s territorial expansion in the Mid-Republican period. Written sources mention the foundation of two Roman \textit{tribus} (tribes) in the area, the \textit{tribus Pomptina} in 358 BCE and the \textit{tribus Oufentina} in 318 BCE, indicating that parts of the region were incorporated into the \textit{ager Romanus}. Rome’s involvement in the region is corroborated by the
construction of the Via Appia in the late fourth century BCE, cutting straight through the lower plain and providing a direct connection between Rome and the harbour town of Tarracina. Probably at the same time the Decennovium canal was dug, starting from Forum Appii and running parallel to the Appia for nineteen miles before discharging in the Tyrrhenian Sea. Moreover, written sources mention various attempts to reclaim the Pontine Marshes, for example in the early second century BCE (undertaken by Roman consul Cornelius Cetegus), during the Early Imperial period (during the reign of Trajan) and in Late Antiquity (under Theodoric the Great). Although at present it is difficult to assess how extensive, successful and sustained such attempts at reclamation were, we can be sure that the Romans indeed reclaimed the Pontine Marsh at some point, as an extensive land division scheme system was laid out over the area.

**Methodology**

In investigating Forum Appii and Ad Medias, we applied an integrated approach that has become common in the study of urban sites: it combines a (GIS-based) desktop study of topographic and cartographic sources with geophysical prospections and systematic field walking.

Geophysical prospections were carried out using magnetic gradiometry on available fields at the two sites, aimed at the detection and recording of subsurface features. These investigations were specifically aimed at studying the layout and function(s) of Forum Appii and Ad Medias.

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14 Vermeulen et al. 2012; Campana 2009.
15 Both a two-sensor Bartington DualGrad 601 and two single-sensor FM256 Gradiometers (sometimes in dual density mode) were applied to cover small plots, using 30 x 30 metre grids systematically traversed in 0.5 metre intervals. A larger area at Ad Medias was investigated by Eastern Atlas Geophysical Prospection using a DGPS-located ten-sensor cart system. Gradiometry is particularly suited to detect structures that have been subjected to intense heat (brick-built structures and kilns with a remnant magnetisation) as well as stone walls, pavements and ditches with a lower, but measurable contrast in magnetisation. Furthermore, it allows a quick coverage, and is well-suited to detect Roman period archaeology (cf. Vermeulen et al. 2006).
Additionally, systematic field walking was carried out both on both sites and in their immediate surroundings, using a highly intensive methodology. At both minor centres grid units of twenty-five by twenty-five metres were walked at twenty-five per cent coverage, and each walker was instructed to collect all artefacts encountered in his/her respective lane. Subsequently, each grid unit was walked a second time at one hundred per cent coverage with the aim of gathering supplementary diagnostic materials. This highly intensive collection strategy yielded large amounts of material, but was deemed necessary to answer questions regarding infra-site functional zoning and chronological development.16 Also, these large samples provide a solid basis to assess the position of the two sites within regional trade networks.17 The grid size adopted allowed a direct confrontation between the fieldwalking and the geophysical prospection data, providing information on the chronological development of these sites and on the function and chronology of mapped structural remains.18

Additionally, surveys were carried out in the immediate surroundings of the two minor centres. These rural surveys were intended to map the chronology and distribution of rural settlement and elucidate the ties (both spatially and in terms of material culture) between rural sites and both central settlements. We adopted a site-oriented approach: sites were studied using grid units of ten by ten metres, which again were studied by means of a two-tier strategy to maximise chances of collecting materials to pinpoint the chronology and function of individual sites. After initially walking each grid unit at forty per cent coverage (three walkers), a second (total or diagnostic) sample was collected at one hundred per cent coverage.19

16  Tol 2012, chapters 3 and 5.
17  Tol et al. 2014, table 1; Tol 2017.
18  Although we acknowledge that the relation between the surface archaeological record and buried structures is complex and still poorly understood, we are positive that in geologically stable areas such as the Pontine Plain, relevant information concerning the presence of specific functional areas and the development of a site through time can be gleaned based on evidence from surface surveys (de Haas 2011; Tol 2012).
19  The decision to collect a total or diagnostic sample at this stage was based on the density of surface materials encountered.
Forum Appii

The site of Forum Appii is situated at the forty-third mile of the Appia at the point where the Cavata river drains into the Decennovium canal; both were navigable in antiquity. The status of the site as a forum suggests that it functioned as a local market and administrative centre. In cartographic sources, the site is indicated as a mutatio, and it therefore served as a stop-over in the cursus publicus, the state-run courier service of the Roman Empire. A previous topographic study mapped standing remains at the site, and the presence of a sanctuary can be inferred from a number of inscriptions and votive pottery.

Field walking at Forum Appii was conducted in five areas and yielded large quantities of material (Fig. 2). These materials indicate that the site was occupied between the late fourth/early third century BCE and the beginning of the sixth century CE.

In the northernmost area (area 1) high densities of pottery and building materials were collected that cover the entire chronology of the site. The building remains recorded here include many elements of luxury architecture such as painted plaster, marble elements, (decorated) window glass and stone and glass tesserae, suggesting the presence of public buildings or up-scale residences. In the southern part of areas 2 and 3, along the Via Appia, artefact densities were equally high but declined rapidly away from the road. The ceramics consist mainly of Imperial period pottery and building debris. Moreover, along the edges of area 2 we observed a number of large square limestone blocks pertaining to a substantial building or perhaps a pavement, and two large millstones, suggesting that a bakery was situated in this area. In area 3 the assemblage contained relatively few...
building materials, and mostly consisted of Republican to Early Imperial period ceramics. The relatively low ratio of fragments of building materials compared to pottery fragments might indicate that this part of the site fell outside its main built-up area and already was abandoned after the Early Imperial period. The presence of tombs in this area (as surmised in previous studies) is confirmed by finds of human bone on the surface. In the northern part of area 3 a separate area with a high density of surface materials was noted. It contained many wasters of tile and cover tile, as well as several clearly misfired fragments of utilitarian pottery and transport amphorae, suggesting the presence of a ceramic workshop.
that, based on the diagnostic pieces collected (handles of Dressel 1 amphorae), must have operated during the later second or first century BCE. Area 4 was almost void of surface pottery, indicating that it lay outside the site. A small area on the opposite side of the Appia (area 5), directly along the Decennovium canal again yielded large amounts of pottery, mainly of Early- and Mid-Imperial date. In a restricted area in the southern part of this field many slags were found, a clear testimony of on-site metal production.

Magnetic prospections at the site targeted four of the five areas covered during the surveys and an additional strip of land parallel to the Decennovium (Fig. 3).

Figure 3: Overview of the results of the geophysical prospections at Forum Appii (T. de Haas).
Area 1 yielded rather noisy data, which may be explained by the high density of fired ceramics in the topsoil. Still, structural remains are mapped, including a battery of four kilns flanked by a small structure and a possible fifth kiln to the north. As the area was not covered during field walking we at present do not know what was manufactured in these kilns. Moreover, a number of slight linear anomalies along the Via Appia may reflect the remaining traces of foundations of buildings that have otherwise been erased by intensive agriculture. A date in the Imperial period for these structures is likely based on the associated ceramics found during field walking.

Area 3 yielded some scant structural evidence along the Appia where the density of surface materials was also highest. Additional anomalies were mapped in and around the aforementioned workshop area: these comprise many small pits that might represent rubbish deposits that account for the production evidence encountered on the surface, as well as a larger area tentatively interpreted as clay extraction pits. At short distance from these pits strong circular anomalies indicate the presence of two or three kilns. In the area to its southeast (area 4) anomalies indicative of (recent) ditches and pits were recorded.

The two areas investigated south of the Via Appia both yielded clear anomalies. In area 6 a linear anomaly that runs parallel to the canal was exposed, possibly to be interpreted as a road containment or quay wall. In area 5, several anomalies were identified close to and aligned along the canal. One of these measures circa forty by five metres and it may be flanked by a second, similar feature. Approximately twenty metres to the southeast there is another large anomaly of circa twenty-five by twenty metres. For both structures that, based on associated surface ceramics, date in the Early- and Mid-Imperial period, parallels may be found in the geophysical data from Portus, where they are interpreted as warehouses. These may relate to a river harbour that is also mentioned in the ancient sources.\textsuperscript{25} To the southeast, the presence of a small

\textsuperscript{25} Horace, \textit{Satires} 1.5.
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The industrial zone is evidenced by irregular anomalies with a strong magnetic signal. This corroborates the evidence from field walking, which suggested metalworking at this location.

Figure 4: Distribution of rural sites around Forum Appii (T. de Haas).

The rural surveys around Forum Appii identified a dense pattern of rural sites (Fig. 4). Most of the sites were founded in the late fourth/early third century BCE, but have long life-spans, extending well into the Imperial period, when some of them obtained elaborate architectural features.
Ad Medias

The second site, *Ad Medias*, is situated between the fifty-first and fifty-second mile of the *Via Appia* in the lowest part of the Pontine plain. While it is not known from written sources, it is mentioned in a late antique itinerary as a *mutatio*.²⁶ Reportedly, the eighteenth century Casale di Mesa was founded on the remains of the site, and the building preserves several inscriptions from the surrounding area. The only surviving monumental structure, a large mausoleum known as

²⁶ Cuntz 1929.

Figure 5: Distribution of surface finds at *Ad Medias* (T. de Haas).
Field walking at Ad Medias revealed three discrete scatters, all with a clear productive connotation (Fig. 5). Areas 1 and 2, situated south of the Appia, both produced slags that hint at metal production. The second scatter also yielded numerous fragments of perforated plaques possibly belonging to a kiln. High densities of surface materials were also recorded north of the Appia around the mausoleum, mainly of Mid- and Late-Republican date. Slightly to the northeast, a small cluster of waster fragments of tile, utilitarian pottery and transport amphorae, as well as kiln debris suggest the nearby presence of a ceramic workshop. The site appears to be much smaller than Forum Appii as besides these three scatters only low densities of off-site material were recorded.

The magnetic survey at Ad Medias targeted areas on either side of the Via Appia, revealing scant structural evidence (Fig. 6). To the north a rectangular anomaly was recorded west of the still standing remains of the mausoleum, possibly representing a second, much smaller burial monument, whereas to the north of the mausoleum a two-room structure was revealed. On the south side of the Via Appia, two noisy areas correspond to the two scatters that were recorded during field walking; one of these contains a single clear large kiln. Furthermore, to the south an enigmatic anomaly with a diameter of more than sixty metres was recorded, consisting of at least ten concentric circles surrounded by a number of straight lines. Successive coring revealed that it represents a succession of banks and ditches, that were filled with a well-levigated clay of local origin. Due to the almost complete absence of surface materials in association with

27  Cancellieri 1975; Coarelli 1998.
28  Solin 1999; Coarelli 2005.
29  Similar perforated plaques are known from a number of pottery production sites (e.g. Desbat 2006; Vaccaro et al. 2017). Their precise use remains unclear: they may have been used as shelves for stacking or as elements in chimneys to allow air to improve ventilation or might represent test plaques. The absence of traces of soothing on the retrieved fragments renders it unlikely that they were part of an actual muffle.
this structure its date and function can only be clarified by means of excavation. Finally, the geophysical prospections mapped a number of large north-south and east-west oriented linear anomalies, the largest of which are some 6.5 metres wide. Successive coring shows that these represent ancient canals, discharging in the Decennovium. These features are part of a much larger system of canals and ditches that pertain to the aforementioned ancient land division (or centuriation) scheme. The system consists of blocks measuring ten by ten Roman actus (circa 355 x 355 metres) and covers an area of more than one hundred square
kilometres.\textsuperscript{30} A date for this system contemporaneous with the \textit{Via Appia} is likely, as the main canals drain into the \textit{Decennovium} canal — that was in all likelihood excavated contemporaneous with the \textit{Via Appia}.\textsuperscript{31}

![Image of map showing rural sites around Ad Medias](image)

Figure 7: Distribution of rural sites around Ad Medias (T. de Haas).

The rural surveys around \textit{Ad Medias} reveal a landscape dotted with small sites (Fig. 7) with highly standardised assemblages, comprising tile, transport amphorae, utilitarian pottery, black gloss table wares and loom weights. Based on the collected materials there is no evidence for activity pre-dating the fourth

\begin{footnotesize}
\begin{tabular}{ll}
\textsuperscript{30} & Cancellieri 1985, 1990; de Haas 2011, 210–13; de Haas 2017b. \\
\textsuperscript{31} & The data regarding the evidence for Roman period colonisation of the Pontine Plain will be the subject of a separate article. 
\end{tabular}
\end{footnotesize}
century BCE and the occurrence of black gloss stamps of the third and fourth phase of the Central Italian petites estampilles tradition on most of them, indicates that they were occupied in the early and mid-third century BCE. Only a third of these sites endures into the second and first centuries BCE, and only a handful of sites north of Ad Medias shows continuity into the Early Imperial period. By this time the wider area may have become unsuitable for habitation, perhaps because of deteriorating drainage conditions.

Minor centres and local trade and exchange: the ceramic evidence

The chronological development of rural sites broadly mirrors the fate of the two minor centres, which suggests that strong ties existed between central settlements and their surroundings. As a more formal way to study the role of Forum Appii and Ad Medias as centres of local production and exchange, we developed an extensive program of ceramic studies, using both typological and petrographic approaches. Due to their profusion ceramics arguably constitute the most tangible (if not the only) source for the systematic investigation of local economic relations, and recording their distribution may serve as a proxy for the circulation of other types of everyday goods for which evidence is much more scarce and discontinuous due to their lower survival rates in the archaeological record (bone, wood, metal etc.).

To elucidate the role of the minor centres in trade systems we first used the quantities and variability in imported ceramics as a proxy for the relative access to imports. This approach was especially productive for the site of Forum Appii. The large amounts of—and wide variety in—amphorae and other imported goods that were documented during field walking at the site, and the occurrence of the smaller quantities of the same shapes on rural sites in its direct hinterland, are clear testimony of the important role of the site as a hub in regional trade networks.

32 For the chronology of black gloss in general and the atelier des petits estampilles specifically see Morel (1969, 1981), and more recently Stanco 2009; Ferrandes 2006, 2016.
33 Tol et al. 2014, 122, table 1.
In addition, we also wanted to investigate the distribution of locally produced ceramics. To this end, the productions attested at *Ad Medias* and *Forum Appii* were characterised petrographically, using waster material from the production areas and investigating the procurement of raw materials by sourcing clay beds in the immediate surroundings of the two sites. By confronting the composition of these wasters with materials from rural consumption sites we aimed to establish the scale and geographical extent of the circulation of these products. Although we were able to identify a clear compositional fingerprint for the attested productions, tracing their distribution to surrounding areas was much more challenging than expected, as the studied wasters generally contain few distinguishable features and are not easily compared to non-waster fragments. Despite these limitations, the secure identification of building materials produced at *Forum Appii* and *Ad Medias* was possible.

![Figure 8: Distribution of local fabrics. Squares indicate their production location, circles sites where they were consumed (T. de Haas).](image-url)
Medias on a number of rural consumption sites indicates that these productions were—at least partly—intended for the local market (Fig. 8).³⁴

To provide further insight into the distribution of locally produced ceramics we also studied the distribution of two Late Republican pottery shapes (and their respective fabric) of presumed local production, based on the identification of overfired (or second rate) examples in the study area (Fig. 9). Although we are unsure of the exact place of manufacture of these shapes, it is assumed that fragments exhibiting clear production defects, and hence having a lower value, were only marketed over very short distances and as such were produced nearby. Furthermore, it is generally thought that the distribution of pottery displays a clear fall-off pattern with highest densities located near the place of manufacture.³⁵ Fragments of both shapes cluster at the site of Ad Medias, suggesting production on or in the vicinity of this site. Individual examples are recorded in the lower Pontine plain, but are conspicuously absent from other parts of the Pontine Region, again suggesting a primarily local distribution of both types.³⁶

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³⁴  Tol and Borgers 2016; Borgers et al. in press.
³⁵  Hodder 1974.

Figure 9: The two shapes of locally produced cookware (G. Tol).
Discussion

Both at *Forum Appii* and *Ad Medias* large parts of the ancient settlement were investigated by means of an integrated non-invasive methodology, revealing the presence of various central place functions for both sites. On the other hand, the investigations reveal clear differences in the character, extent and longevity of both sites and the development of rural settlement in their respective surroundings (Fig. 10a and b).

*Forum Appii* was established in the late fourth or early third century BCE, contemporaneous with the construction of the *Via Appia*, and continued to be inhabited over the following eight centuries. In its earliest phase it already extended over a large area, and by the Late Republican period may have covered as much as twelve hectares. It had a variety of central place functions: we can be sure that in the Republican period the site already housed a sanctuary and was equipped with a large workshop for the production of pottery and building materials. In addition, the site had a bakery and metalworking also took place, although these functions are difficult to pinpoint chronologically. The availability of these services, together with the market and administrative functions that the site as a *forum* had and its role in the *cursus publicus*, rendered the site a central place for the surrounding rural population and an important stop along the *Via Appia*.

Besides such functions that may be considered of primarily local importance, the presence of warehouses along the canal confirms the existence of a river harbour, suggesting that the settlement of *Forum Appii*, at least by the Early Imperial period, transcended local importance. The site’s favourable position in infrastructural networks, being situated at the junction of several roads and riverine routes, would support its importance for transhipment, and therefore as a hub in regional trade networks.

The evidence from *Ad Medias* suggests that the site was inhabited over a shorter period than *Forum Appii*, between the late fourth/early third century BCE and the
Figures 10a (above) and 10b (below): Reconstruction of the sites of *Forum Appii* and *Ad Medias* based on the available archaeological evidence (Evelien Witmer, Groningen Institute of Archaeology).
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Early Imperial period. It was also much smaller, occupying not more than a few hectares. Nonetheless, it also had several place functions: it housed a sanctuary, and our fieldwork revealed evidence for metalworking and pottery production.

On a more general level, we note that the results of our field research clearly show the economic importance of minor centres, and this clearly confirms the expectations we had on the basis of the top-down analysis of settlement patterns and infrastructural networks. Not only did they provide day-to-day goods and services for the local population, but when situated along major roads, they could benefit from the demand for goods and services created by travellers. Combined, this demand attracted a variety of artisanal and other activities, thereby contributing to the rise of an important non-agricultural component in the rural economy. Further considering the fact that minor centres, especially road stations, were located on favourable positions in infrastructural networks, they could become important nodes in regional trade networks.
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