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THE «TORRAZZO MOTTE» NEAR BAGGIOVARA (MODENA - ITALY) SOME REMARKS MORE THAN A CENTURY AFTER ITS DISCOVERY

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ABSTRACT

A re-examination of the «Torrazzo motte» context near Baggiovara (Modena – Italy) is presented. Discovered between the late 19th and early 20th centuries, the settlement has been recognized as one of the «earthwork and timber» castles that characterized the Po Valley countryside during the Early Middle Ages. The study offers a new survey of the area, its stratigraphic and topographic contextualization, a comparison with nearby sites, and integration into the overall historiographical debate. Finally, some insights are proposed regarding the relationship between this settlement and other known centres of power in the Modenese countryside during the same time.

KEYWORDS

Torrazzo motte; Early Middle Ages; earthwork and timber castles; Modena; Baggiovara.

SOMMARIO

Viene presentato un riesame del contesto della «motta del Torrazzo» vicino a Baggiovara (Modena - Italia). Scoperto tra la fine del XIX e l'inizio del XX secolo, l'insediamento è stato riconosciuto come uno dei castelli di «terra e legno» che caratterizzavano la campagna della Pianura Padana durante l'Alto Medioevo. Lo studio offre una nuova indagine dell'area, la sua contestualizzazione stratigrafica e topografica, un confronto con siti vicini e un'integrazione nel dibattito storiografico complessivo. Infine, vengono proposte alcune riflessioni riguardo al rapporto tra questo insediamento e altri centri di potere noti nella campagna modenese dello stesso periodo.

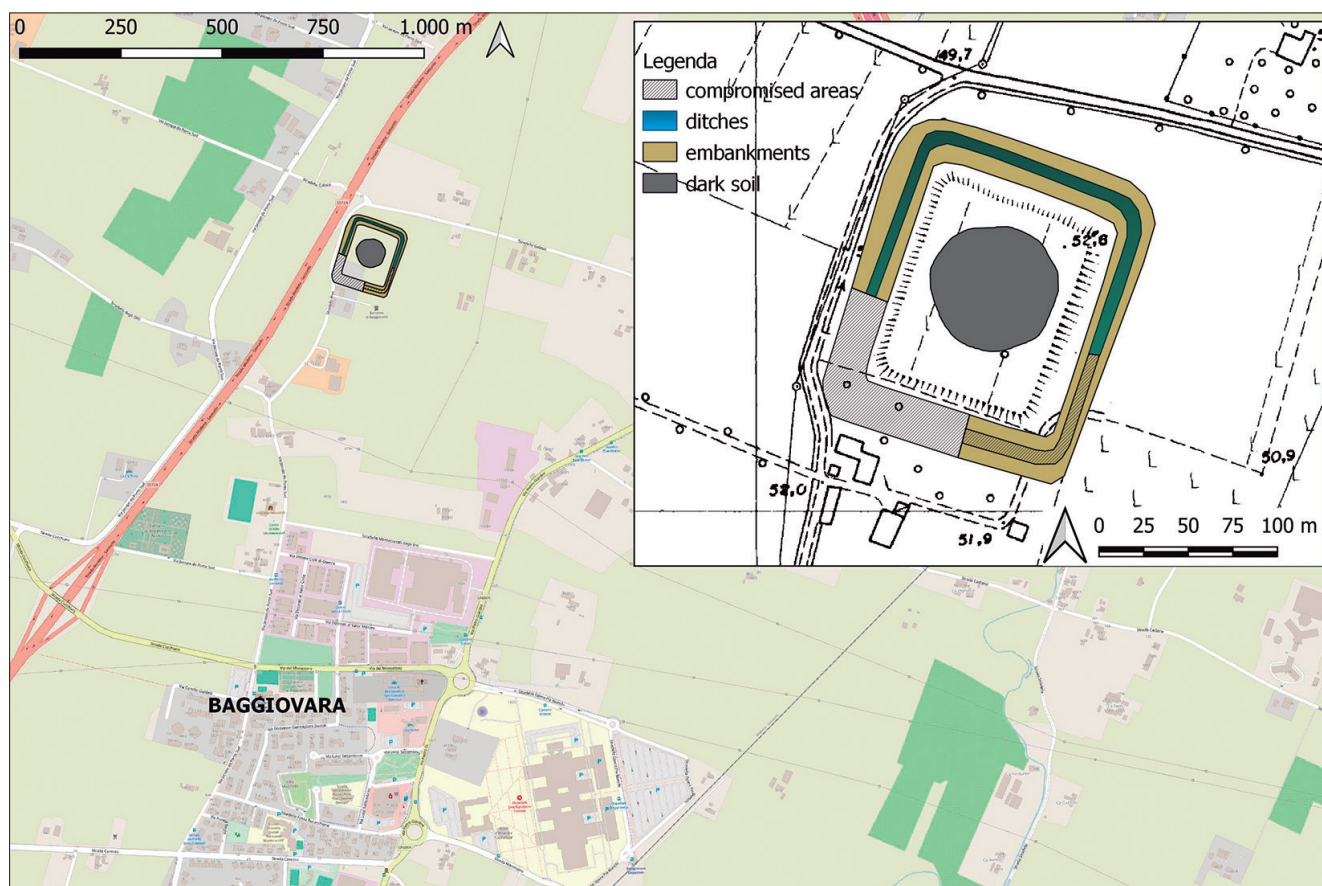
INTRODUCTION

In a short paper published in 2022, I reviewed the extensive cases of attestations related to generally medieval fortified settlements in the Province of Modena (Rucco 2022). This dataset, taken from the records in the four volumes of the *Atlante dei Beni Archeologici della Provincia di Modena*, considered the plain, the hills, and the mountains, discussing the reliability of the attestations, often derived from non-systematic archaeological investigations and, above all, the problematic issues inherent in the study of contexts made of perishable materials: the so-called «earthwork and timber» castles.

However, that work and the one presented here arise from an already very fertile context: in fact, in 2000, there was a proposal to create a GIS of the castles of Emilia-Romagna, a project that involved dozens of specialists in the analysis of archival documents, aerial and satellite photos, archaeological documentation, with the aim of cataloguing the fortified contexts attributable to the 9th-15th centuries and verifying their state of preservation. The first results of the cataloguing were published in the proceedings of a conference held in 2006 (Bonacini 2006; Foschi 2006; Gelichi, Librenti 2006; Monti 2006; Piana 2006; Siligardi 2006). Moreover, the detailed studies offered by the bibliography, though punctual, on specific contexts —such as those of Cittanova or Nonantola— as well as on historiographical themes related to the relationship between fortifications and territory in the Early Middle Ages, are by no means negligible.

In this study, we will examine an archaeological context, located just north of the Municipality of Baggiovara, in the province of Modena, generally referred to as the «Torrazzo motte» (fig. 1). First, we will revisit the information already available about the settlement —coming, as we will see, from works of the early 20th century; we will then attempt to study the current state of the context, both to assess its state of

Fig. 1. Topographic framing of the context.



preservation and to understand its specific characteristics; we will therefore provide a stratigraphic framework of the area, both archaeologically and geologically; finally, we will place the «Torrazzo motte» within the territorial framework contemporary to its creation and life, trying to define its relationship with the physical and political space of the Modenese countryside during the Middle Ages.

1. GENERAL ISSUES: «EARTHWORK AND TIMBER» CONSTRUCTIONS THROUGH THE CENTURIES

Before delving into the discussion of the context under examination, it is necessary to highlight some general issues and methodological considerations.

It should first be noted that the topic of fortified, or seemingly fortified, settlements in the Po Valley must be approached with caution, as relying solely on observations from aerial photointerpretation or micromorphology could lead to significant misunderstandings. This is because, in the context of settlements in Italy referred to as «earthwork and timber» constructions, building traditions were handed down over centuries without substantial modifications, provided the environmental conditions remained constant.

This is a well-documented issue, known to underpin much of the tradition of Italian medieval archaeology (Gelichi 2013). In the Po Valley, for instance, prehistoric contexts such as the so-called «*terramare*»¹ and early medieval settlements equipped with embankments and ditches were long confused in the absence of rigorously stratigraphic approaches. One example is the site of Piazzale Gazzera in Fontanellato (PR), which Luigi Pigorini, in the mid-19th century, first attributed to the Iron Age before correctly identifying it as early medieval, based on the discovery and recognition of soapstone fragments (Gelichi 2013, pp. 20-21).

The risk of confusion, however, remains if the interpretation of such contexts is based solely and exclusively on the planimetric and formal characteristics of the settlements without framing them stratigraphically within the broader landscape context. This will be the primary strategy we rely on to provide a solid chronological framework for the context under examination.

The characteristics of «*terramare*» settlements, in fact, are fairly standardised and comparable to those of early medieval lowland settlements. Situated on gentle natural or artificial elevations near watercourses, these settlements exploited fertile lands and provided protection against flooding. Their layout was regular, often rectangular or quadrangular, with dwellings and spaces organised along planned road axes. Initially, the dwellings were constructed on stilts to protect against moisture and animals, using locally available materials such as wood, clay, and reeds. Over time, the construction of ground-level houses became preferable, while maintaining an orderly arrangement. For defence, the settlements were surrounded by wide and deep ditches, often filled with water, which served as natural barriers and tools for water management. Wooden palisades, sometimes reinforced with earthworks, completed the defensive system, ensuring security and controlled access to the settlements.

¹ The «*terramare*» represent one of the main cultural expressions of the Bronze Age in Emilia-Romagna. These settlements began to emerge during the Middle Bronze Age (MBAII) as an expression of the gradual colonisation of the plains. The structure of these villages reflects an advanced and diversified social organisation, with communities combining engineering skills and the ability to maximise the use of natural resources. The «*terramare*» flourished particularly through water management, a crucial element for sustaining intensive agriculture, and became dynamic centres of production and trade, reaching their peak during the Recent Bronze Age (RBA) (Bernabò Brea, Cardarelli, Cremaschi 2018).

As concerns the issue of earthwork and timber castles in the Po plain, the scientific literature is very rich, and several themes have attracted scholars' attention.

Aldo Settia's work (1984) provides a synthesis of all the elements related to earthwork and timber castles. In general, these contexts all correspond to a rather limited range of morphological, technological, and topographical variants.

First, it should be noted that these complexes are generally located near road junctions, important road axes, or along communication routes broadly interpreted, including rivers and artificial canals (cf. for example Farinelli 2013, 106; Rao 2013, 116; Settia 1984, 193-194).

Formally, as can be inferred from the royal diplomas of Berengar I, Hugh, Lothair, and Berengar II, each of these settlements was characterized by two fundamental elements: the ditch and the battlements (Settia 1984, 193-197). The latter, called *meruli* in written documentation, did not correspond in this initial phase of castle building to the battlements that crown the late-medieval structures. It is more likely that they corresponded to gratings, or defensive structures in perishable material, perhaps located on top of palisades (Settia 1984, 197) which often accompanied the embankment resulting from the excavation of the ditch (Noyé 2013, 15).

The ditch, on the other hand, represented a distinctive element of particular importance: so important that the founding act of settlements of this type was often sanctioned, in documentary form, through the metonymic expression *cavare castrum*, literally «dig the castrum» (Settia 1999a, 16). The ditches, then, had a rather wide range of morphological and dimensional characteristics. Profiles with a «V» shape and ditches with flat bottoms are attested, sometimes with fortified walls, as well as widths ranging from 5 to 15 meters (Cirelli, Noyé 2013; Grandi, Laudato, Masier 2013; Kelland 2013; Marasco 2013).

Regardless of all these morphological characteristics, it should be noted that they did not only respond to a planimetric typology. Common imagery associates the concept of a «*motta*» or «*tumba*» with a settlement of circular or pseudo-circular shape, surrounded by a ditch and characterized by an internal elevation, typically of a truncated conical shape, on top of which the most important structures of the settlement were located. Between the base of this elevation and the surrounding ditch, there was the so-called «bailey», that is, an area occupied by functional buildings or secondary lodgings/dwellings.

However, it should be noted that the circular plan is not the only one attested in archaeological documentation. Settlements with quadrangular, usually rectangular plans are also very common, but there are also cases where such complexes develop on irregular layouts. This latter possibility is frequent when the elevation characterizing the complex has a natural origin; in cases where the elevation is instead the result of human activity, it is more common for it to have a regular shape: circular or quadrangular.

2. SPINELLI'S ACCOUNT

The first «archaeological» attestation of the «Torrazzo motte» is found in a well-known volume by Spinelli dedicated to the motte of the Modena area (Spinelli 1906):

...the ground sinks noticeably, and for a width of about 40 metres, forms a ditch with another bank that rises to the south, presenting all the characteristics of a military fortification work.

This elevation is called the Motta by the peasants; it is square, with the sides running north-south being about 200 paces long, and those running east-west 160, the former in the direction of the Torrazzo, the latter two towards the Casa Colombo.

The depression has exposed Roman construction materials of various shapes, and pottery [...]. The square motte, corresponding to the depression, I was assured, often shows walls at its base along which tombs covered with the usual large bricks, called *lydion*, were found.

[...] There is a memory that a prominent mound rose on the square and the material removed from it was used to fertilise the fields, and what was not suitable was used to fill the ditch on the east side, levelling the motte to the surrounding countryside. This happened in the first quarter of the last century... (Spinelli 1906, 43-44).

The account is very detailed and reliable. The description starts from the north: from the road that circumscribes the motte's area on the northern side, one can indeed perceive a depression extending exactly 40 m to the south, which includes a portion of the ditch. The measurements given in paces precisely correspond to the extent of the space within the circle of ditches. The presence of an elevation in the centre of the motte could correspond to the dark patch of ground found at the centre of the complex (see below). Finally, the reference to traces of Roman period occupation has been confirmed by archaeology (see below).

3. RECOGNIZING THE CONTEXT ON THE GROUND: MATERIALS AND METHODS

The identification of the context was made possible by archaeological maps and by a series of particularly «fortunate» satellite images. The best image for observing the context dates to June 2014. From this, the outline of the ditch and its banks are extremely clear. The ditch is particularly distinct along the north side and the northern portion of the east side. In the images from March 2011, February and August 2012, and June 2021, an internal topographic feature of the context is also visible, corresponding to a dark-coloured sub-circular area, which might correspond to the stratigraphic residue of a possible central mound (fig. 2).

The context has a rectangular plan, extending 175 m north-south and 155 m east-west. The ditch area is between 18 and 25 m wide, while the ditch itself is on average 6 m wide. Overall, the fortified settlement covers an area of about 25,000 m², although its southwestern portion was obliterated by a subdivision dating back to the 1980s. The rectangular area enclosed by the ditch extends for about 10,800 m², and the sub-circular anomaly in the centre of this area has an average diameter of 65 m, covering about 4,000 m².

The articulated morphology of the complex is still very legible on the ground. To achieve the result, the photogrammetric solution was chosen, based on the principle of the so-called Structure from Motion (SfM). This encompasses various methods and algorithms that are essentially aimed at automatically reconstructing the orientation parameters and geometric characteristics of any object, starting from a sequence of images depicting it from different angles. The images were captured after the wheat harvest, ensuring relatively clean conditions in the area, using a Mavic 2 Enterprise drone.



Fig. 2. Satellite images of the area (after Google Earth).

The result is visible in fig. 3. The context appears extremely well-preserved, even in the portion that has been disturbed by recent buildings. The central mound remains very regular, both in planimetric terms—the sides are perfectly straight—and in three-dimensional terms—the ditch banks do not show anomalous morphologies but are inclined, with a substantially «V»-shaped profile. Two profiles, traced perpendicular to the longer and shorter sides (fig. 4), allow for an appreciation of the differences in elevation that still clearly indicate the presence of the context: the central area of the settlement still rises about 1.5 m above the topographic surface outside the ditch; meanwhile, the residual bottom of the ditch is about 2.5 m lower than the highest point of the enclosed area.

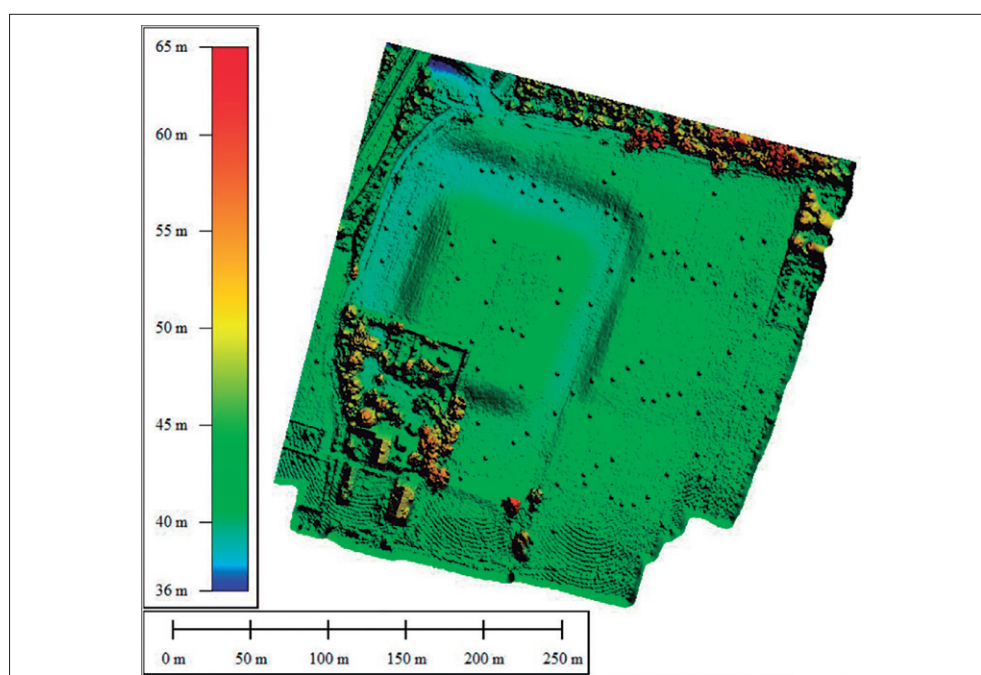


Fig. 3. Digital Surface Model obtained from UAV analysis.

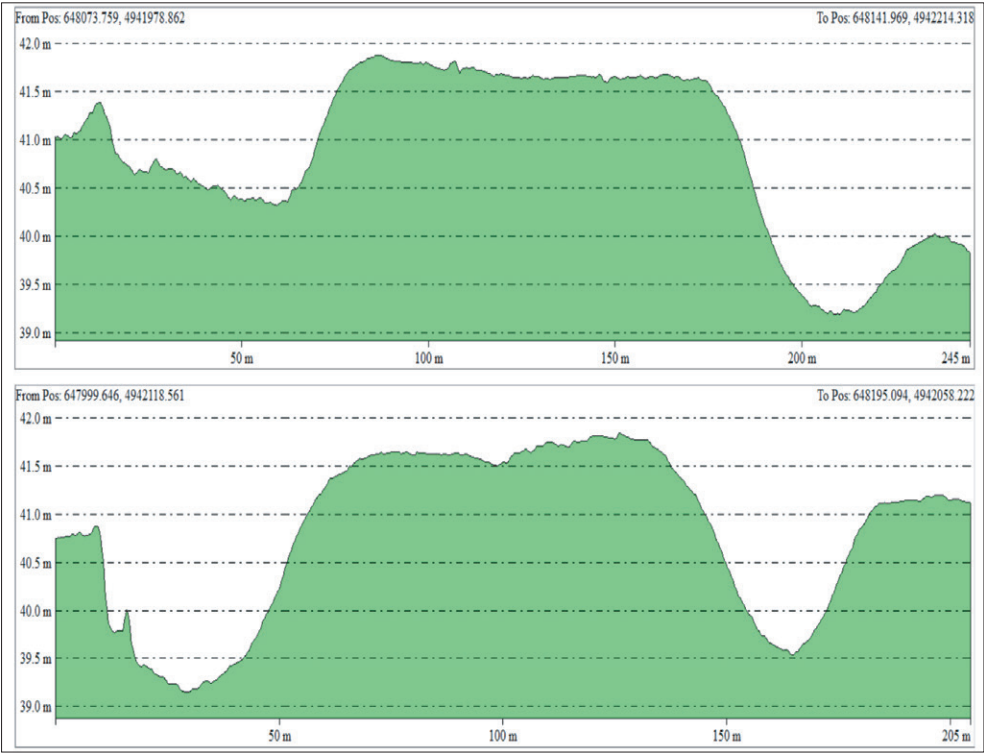


Fig. 4. South-North profile (top); West-East profile (bottom).

4. ARCHAEOLOGICAL INFORMATION

The data obtained from the archaeological map of the area remains relatively sparse, despite the numerous attestations that have been documented (fig. 5).

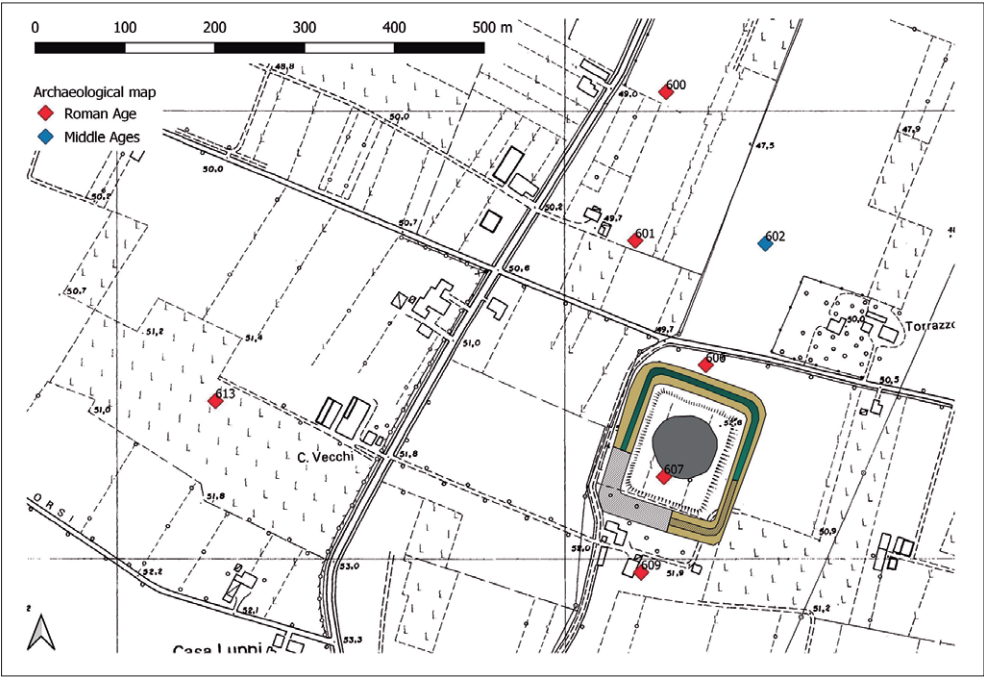


Fig. 5. Detail of the available archaeological map.

The archaeological evidence from the area reveals a complex and multi-layered history, spanning from the Roman period to the Middle Ages. Several attestations from the second volume of *Modena dalle origini all'anno Mille. Studi di archeologia e storia* provide insight into the Roman occupation of the site. For instance, site 600 indicates a concentration of building material over an area of 600 m², which, based on limited ceramic evidence, can be dated to the early Imperial period. Similarly, site 601 comprises a concentration of building materials and ceramics, suggesting use during both the Roman and medieval periods, thereby indicating potential continuity or reoccupation of the site.

Further evidence of Roman activity includes site 606, where structural remains, visible in the sections of the ditches, and burials from the same chronological horizon have been identified. These findings suggest a combination of settlement and funerary uses. Additional burials were documented in site 607, located at the base of the Torrazzo motte and along the ditches. Spinelli (1906) hypothesizes that these burials were of the «*alla cappuccina*» type, as indicated by historical references. Attestation 609, an inscribed funerary stele recovered from the Torrazzo motte area, further supports the site's use as a burial ground during the Roman period. Another remarkable find, recorded as Attestation 613, is a fragment of a limestone altar discovered fortuitously in 1954. This artefact bears an incomplete inscription and remnants of a bas-relief depicting a sacrificial scene, a detail referenced in *Modena dalle origini all'anno Mille* (p. 280).

In addition to the Roman-period evidence, the medieval period is represented by site 602. Here, two wall remnants constructed of cobbles were identified, alongside residual occupation layers containing fragments of archaic majolica. These findings suggest localized activity during the medieval period, though the precise nature and extent of this occupation remain unclear.

To sum up, the zone in the immediate vicinity of the motte has revealed various traces that point to a general Roman occupation. These findings, however, lack specificity and primarily indicate a broad presence rather than a well-defined settlement pattern or structural features. Furthermore, only a single attestation uncovered through excavation corresponds to a medieval building, which suggests that medieval activity in this area was limited or localized.

On the other hand, the evidence available thus far does not provide any clear or definitive indicators regarding the specific nature or function of the occupation within the context under review. This absence of strong contextual markers continues to present challenges for a more precise understanding of the site's historical and cultural dynamics.

It should be noted, however, that the area has never been subjected to intensive archaeological investigation, and consequently, no information is available regarding its stratigraphic sequence. The data at our disposal is therefore solely indicative and, as will be demonstrated, the only means of shedding light on the nature of the site, in the absence of a full-scale excavation, lies in its geomorphological and broadly topographical contextualisation.

5. MORPHOLOGICAL AND STRATIGRAPHICAL FRAMEWORK

Based on the analysis of satellite imagery and the examination of sub-surface levels containing Roman-era materials, it can be affirmed that the area of the motte has not experienced significant flooding events from the time of its abandonment to the present day.

Figure 6 illustrates an excerpt from the geological map detailing the plain immediately southeast of the city of Modena. The area under study lies on deposits of the Ravenna Subsystem (AES8), formed over the past 12.000 years. More specifically, the current topographic surface corresponds, in the northern portion of the study area, to a subset of AES8 —the so-called Modena Unit (AES8a)— which encompasses aggradations occurring roughly from the 4th century CE onward and whose base rests directly on the topographic surface generally attributed to the Roman period (Martelli, Amorosi, Severi 2009, 65–66). These units, like any stratified context, are situated in stratigraphic relationships of anteriority and posteriority. This data becomes crucial when analysing the characteristics of the surface record and considering the chronological frameworks of the exposed deposits. If a context is sub-surface relative to a unit formed from the 4th century CE onwards, it follows that the associated activity must have occurred after the 4th century CE.

By consulting a geological map, we can indirectly acquire initial information regarding the archaeological —particularly stratigraphic— history of the landscape under investigation. Geomorphological maps, on the other hand, provide a more detailed breakdown of depositional environments outlined in geological maps. They distinguish the various facies within each environment. In an alluvial context, for instance, geomorphological maps enable the differentiation of zones associated with fan facies, natural levees, crevasse splays, channels, and floodplains. Such information is fundamental for understanding the depositional and post-depositional processes that have affected any archaeological contexts within these areas.

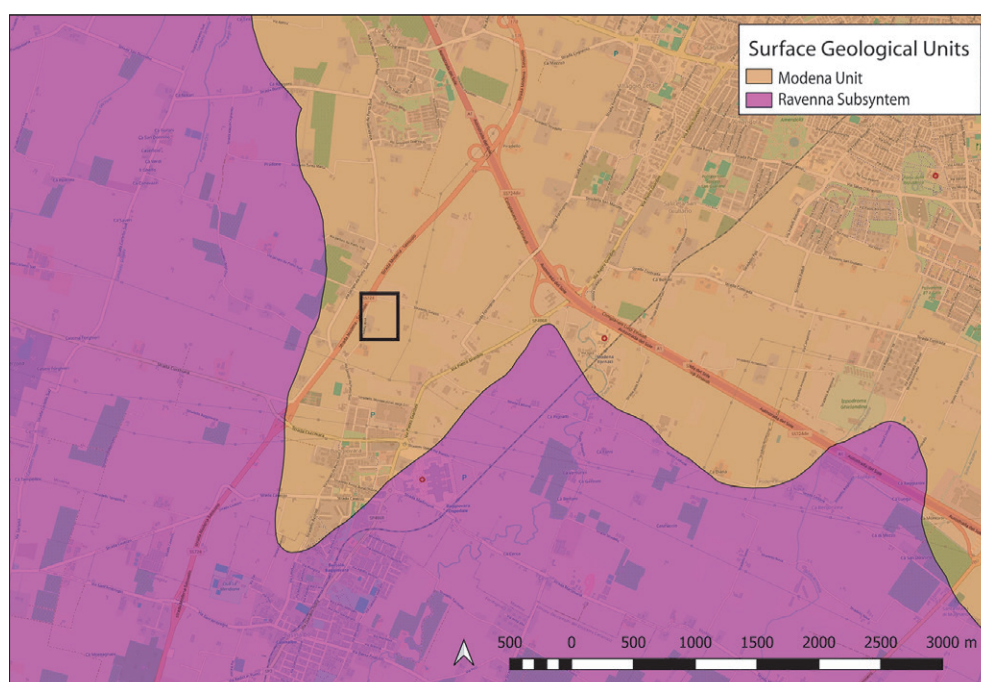


Fig. 6. Surface geological units. The black rectangle indicates the area of the motte.

Contextualising the site within the cartography produced by Cardarelli *et al.* (2004) clearly reveals its position atop a fluvial ridge dating back to the Roman period (Ibid., fig. 4, no. 40), which confirms that it cannot be classified as a *terramara* but must necessarily represent a post-Roman context.



Fig. 7. Geomorphological map of the area (after Cardarelli *et al.* 2004, modified).

The chronological attribution of fluvial features to the Roman period has primarily been achieved by identifying evidence that includes buried traces from the Iron Age alongside Roman settlement remains visible on the surface. This pattern is particularly evident in mound no. 40, where two buried Iron Age sites have been identified (MOT 553 and MOT 523; see Archaeological Map of the Municipality of Modena). Among these, site 523 dates to the Celtic period (3rd century BC) and is located adjacent to another buried site from the Roman period (MOT 521; see Archaeological Map of the Municipality of Modena), which has been associated with a necropolis. In contrast, evidence from the Roman period in the remainder of the mound is exclusively found on the surface. This suggests that the formation of the mound likely occurred after the initial phases of Roman colonisation in the region, dating to the 2nd century to early 1st century BC (Cardarelli *et al.* 2004, 69).

The watercourse responsible for forming this alluvial ridge is attributed to the Fossa-Cerca River system.

From a strictly geomorphological standpoint, the primary agent responsible for shaping the plain in question is the Secchia River. Reconstructing the Roman and medieval courses of the Secchia River (earlier chronologies are omitted due to space and relevance considerations) presents a hydronymic challenge. Pliny the Elder, the earliest source on which we can rely, does not mention this river in his description of the area between the *Incia*-Enza and *Rhenus*-Reno rivers (Calzolari 1990, 70–71), that is, between present-day Reggio Emilia and Bologna.

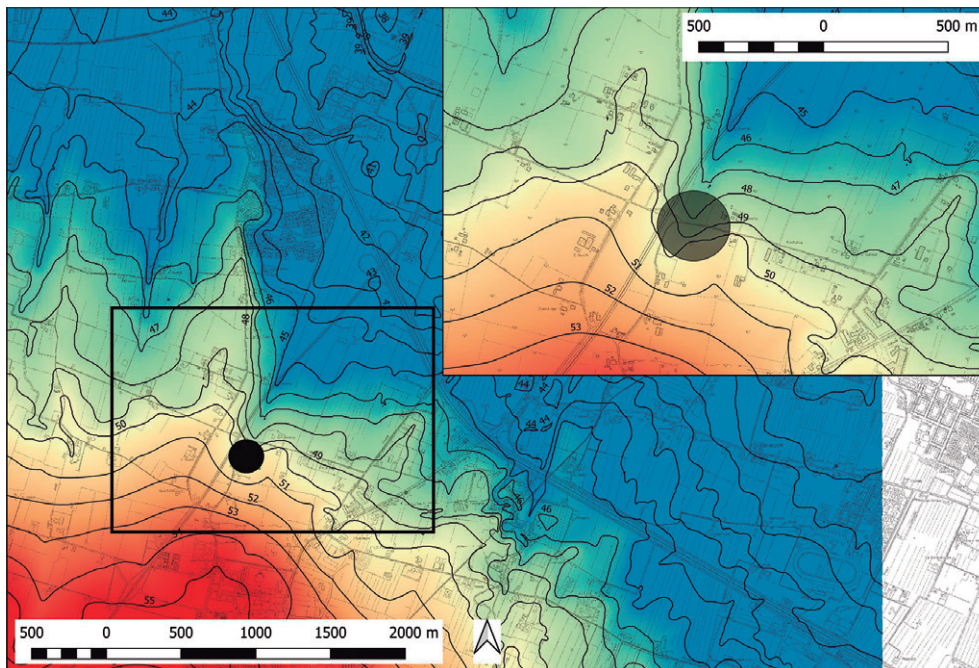


Fig. 8. Digital Terrain Model of the area, 5x5 m.

From a strictly geomorphological and topographical perspective, bypassing the Roman history of the river for relevance, the medieval and modern history of the Secchia is relatively less complex. However, even for these periods, a hydronymic issue arises due to the presence of at least three names in the documentary record: *Sicla*, *Muclena*, and *Aqualonga*. According to one widely accepted reconstruction, between the 8th and 9th centuries CE, the Secchia formed marshlands between Cittanova and Albareto before splitting into three distinct courses, corresponding to the three hydronyms (Castaldini 1989, 129; Cremaschi, Marchetti, Dall'aglio 1988, 27; Cremaschi *et al.* 1980, 77; Panizza *et al.* 2004, 32).

The current course of the Secchia in the mid-plain likely corresponds to the layout it assumed during the 13th century, following a «quasi-braided» pattern that persisted throughout the 12th century (Calzolari 1983, 115–116 and Fig. 2, 157), resulting from the coexistence or convergence of two courses (*Sicla* and *Muclena*). In the lower plain, the Secchia experienced migrations until the late 15th century (Panizza *et al.* 2004, 32–34).

Parallel to this primary axis, the study area also features morphologies linked to a secondary hydrological system involving the Fossa-Cerca (or Formigine) and Grizzaga torrents. These streams, far from being minor, have played significant roles; the Roman city of *Mutina* was founded on their alluvial fans, and several roadways still follow their ridges. For example, the current Via Jacopo da Porto traces a Roman ridge of the Fossa-Cerca River (Bottazzi 1986, 64–66) (see below).

These watercourses likely maintained relatively free-flowing regimes until at least the Early Middle Ages. Substantial regulation works commenced in the central Middle Ages. By the late 12th and 13th centuries (Calzolari 1989, 48), a major mid-plain collector, the *Canalis Mutinae* (now the Canale Naviglio), was established. Its dual purpose was to collect the waters of the Fossa di Spezzano-Cerca (which previously flowed into the Secchia), the Grizzaga, and the Tiepido (Fig. 5) [Gasperi, Pizziolo (eds.) 2009, 39; Gasperi *et al.* 1989, 397–400; Lombardini 1865, 8], and to connect Modena to the Po (Calzolari 1983, 120). During the 15th and 16th centuries, the Fossa-Cerca was diverted again into the Secchia (Gasperi *et al.* 1989, 397), while the Tiepido was diverted into the Panaro River [Gasperi, Pizziolo (eds.) 2009, 46].

6. SETTLEMENT AND SPACE

Although material evidence of centuriation is limited to no more than fifteen contexts (Bottazzi, Labate 2008, 188; Labate 2010, 84 and table 1, 91) corresponding to *cardines*, *decumani*, and *limites intercisivi*, the topographical study of the territory's persisting features has allowed for the reconstruction of the fundamental characteristics of the *limitatio* of the *ager mutinensis*. In line with the chronologies relating to the earliest Roman settlements in the area, it is hypothesized that the Modena block was established starting from the second decade of the 2nd century BC (Bottazzi, Labate 2008, 181; Garbesi, Mazzini 1994, 93; Montevecchi, Negrelli 2009, 20). The entire territory was subjected to the *agrimensores'* action (Calzolari *et al.* 2003, 41-42), who used the *Via Aemilia* as the main *decumanus* and laid out a centuriation *secundum naturam loci* (Pasquinucci 1983, 37). However, it has been observed that the operation was not conducted according to a single reference system: this is evidenced by the so-called «Redù step» a slight but perceptible misalignment between the block on the right bank of the Panaro and the rest of the grid towards the west (Ibid., 38; Bottazzi 2010a, 51; Bottazzi, Labate 2008, 180-181). Following this data, it has been hypothesized that: 1) the block between Nonantola and the westernmost edges of the territory of S. Giovanni in Persiceto corresponds to a first phase of centuriation: the orientation of the *pertica* would, in fact, conform to that of the adjacent *ager bononiensis*; and that: 2) the area, originally autonomous on an administrative level, was annexed to the *ager mutinensis* only during the early Imperial period (Bottazzi, Pancaldi, Tampellini 1991, 113-114).

Considering the average side length of the preserved squares, which corresponds to 707-708 meters (Bottazzi, Labate 2008, 91; Calzolari *et al.* 2003, 41-42; 710 meters, instead, in Montevecchi, Negrelli 2009, 20), it is supposed that the block would have consisted, in the 1st century AD, of 1600-1700 *centuriae*, depending on whether or not the more depressed areas near the Po were included in the *agrimensores'* plan (Bottazzi 2010a, 53; Bottazzi, Labate 2008, 182).

In the portion of the plain considered in this study, the traces of centuriation are still well identifiable in terms of both *cardines* and *decumani* (fig. 9). This is well explainable based on the geomorphological stability of the area from the Roman period to the present day; moreover, the reorganization of the parcel system is attributed to reasons unrelated to environmental factors. If we reconstruct the original grid, we can see that the Torrazzo context is located exactly at the southwest corner of the *centuria* immediately north of that in which, ideally, the new Baggiovara hospital is located (fig. 9). The fact that the western ditch overlaps with the course of a *cardo* does not in itself constitute sufficient cause to suppose that at the time of the settlement's establishment the centurial grid of the adjacent areas had already been abandoned in favor of a new parcel system. On the contrary, it is precisely the general orientation of the layout —perfectly corresponding to that of the Modena *limitatio*— that testifies to how, generally, the latter was still vital during the Middle Ages. It is plausible, then, that the cardinal axis simply ran a little further west of the ditches.

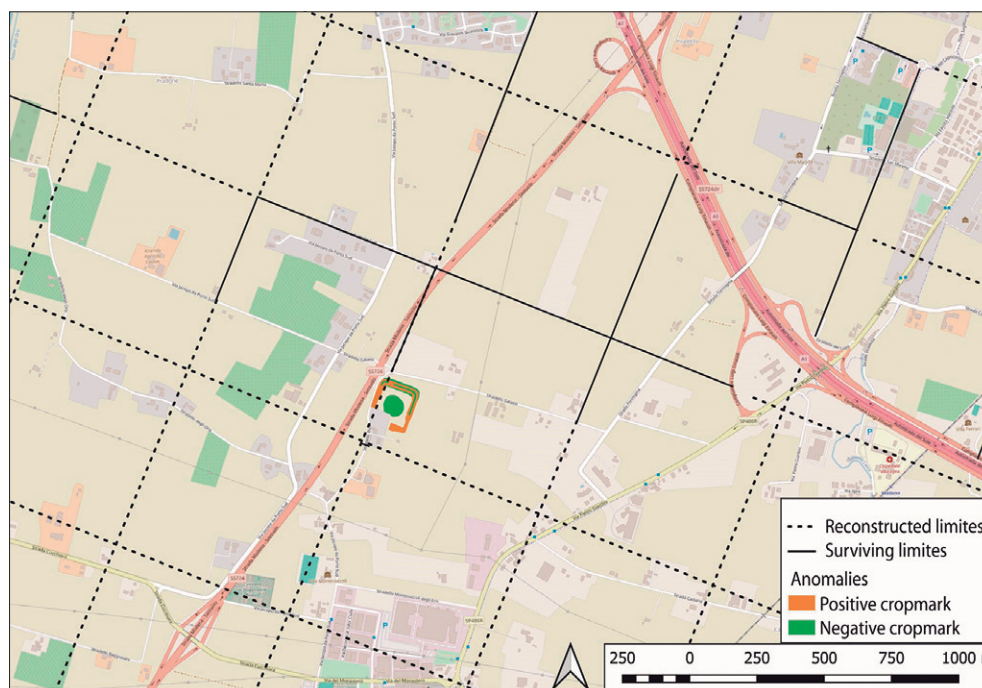
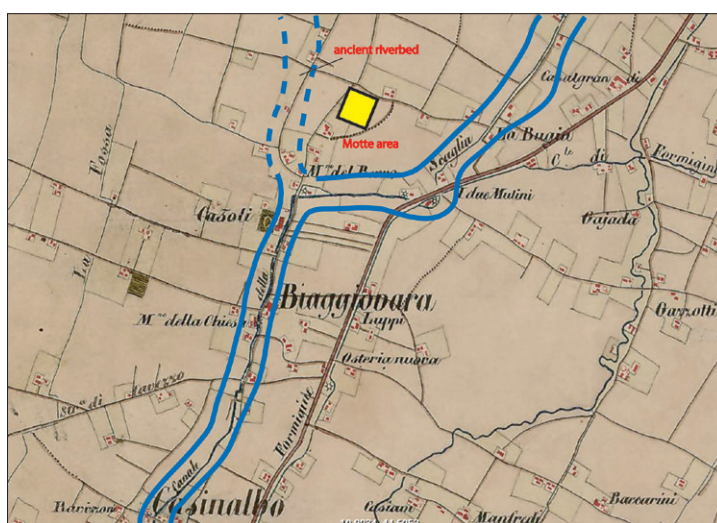


Fig. 9. The Torrazzo motte and the surrounding *limites*.

It should also be noted that this relationship with centuriation —as the backbone of part of the road system— links the Torrazzo motte to several other contexts in the Po Valley, identifiable even in the countryside around Modena. This is the case, for example, of the castra of Panzano and Limidi, located southwest and east of Carpi, respectively.

The paleohydrology of the area, particularly in relation to the ditches of the Torrazzo settlement, also deserves attention. The study of satellite images does not allow for the identification of paleohydrological traces that are certainly contemporary with the settlement. However, the study of historical cartography provides potentially very interesting information. An early 19th-century map² shows that, at this chronological point, the original relief of the motte was no longer perceived as a characteristic element of the landscape, but it also depicts the course of a waterway —Canale della Scaglia— which has a natural course up to a few dozen meters south of the settlement and then appears clearly diverted eastward (fig. 10). If we overlay this trace onto the geomorphological map, we notice that the natural course corresponds exactly to the path the Fossa River would have followed to form the fluvial ridge on which the settlement itself stands. Moreover, as already said, if we consider the course of the current Via Jacopo da Porto Sud, which runs a few hundred meters west of the motte, we cannot fail to recognize a paleohydrological persistence of that same canal. It is therefore possible to hypothesize that this was the watercourse supporting the settlement.

Fig. 10. The Torrazzo motte in the context of ancient hydrography (Carta Storica del Ducato di Modena del 1821 - <https://maps.arcantum.com/en/map/europe-19century-secondsurvey/?bbox=1204919.8724932529%2C5558860.587906198%2C1221076.7493470318%2C5564536.037256372&layer=s=158%2C164>).



² Carta Storica del Ducato di Modena del 1821 - <https://maps.arcantum.com/en/map/europe-19century-secondsurvey/?bbox=1204919.8724932529%2C5558860.587906198%2C1221076.7493470318%2C5564536.037256372&layer=s=158%2C164> (2/01/2025).

However, it must be specified that there are no elements to support the hypothesis of water presence in the perimeter ditches of the motte —a circumstance not taken for granted: in the immediate vicinity of the settlement, there are no anomalies that can be attributed to channels or canals connecting the context to the hydrographic network.

7. DISCUSSION

7.1. Methodological issues

The recognition and study of medieval earthwork and timber fortifications, particularly prevalent during the 10th and 11th centuries, present significant challenges for archaeologists. These materials, while essential for early defensive structures, are highly susceptible to environmental and anthropogenic factors, making it difficult to identify and analyse such contexts.

A central issue lies in the limited preservation of archaeological evidence. Structures made from earth and timber, being inherently perishable, have been severely affected by agricultural practices, particularly in the plains, where archaeological layers have been extensively altered. The intensification of deep ploughing in recent centuries has destroyed many original deposits, erasing critical traces of enclosures or dwellings that once characterised these settlements. This phenomenon has been highlighted in numerous studies, notably by Librenti, who emphasises that surface archaeology is often constrained by the dispersal of materials caused by intensive cultivation cycles (Librenti 2000).

Another obstacle is the difficulty in dating these sites. Wooden structures, such as posts or palisades, rarely leave visible traces unless preserved in specific environments, such as waterlogged or peat-rich soils, which favour the conservation of organic material. For instance, at Nonantola, in the Prato dell'Ospitale area, an oak palisade was exceptionally discovered, having been preserved by peat —a relatively rare environmental condition (Rucco 2022). However, such cases remain exceptional. Generally, perishable materials are entirely obliterated, leaving an interpretative void that hinders the association of sites with precise chronological frameworks.

The identification of earthworks, such as mounds and ramparts, is equally problematic. While some of these features may still be visible in the landscape, many have been levelled by agricultural or urban developments. Their identification often relies on indirect evidence, such as toponyms or geomorphological anomalies detectable through aerial photography. Nevertheless, the absence of diagnostic materials often precludes definitive hypotheses regarding the function and chronology of these structures.

Interpretative challenges are further compounded by the imprecision of written sources. The term *castrum*, used in medieval documents to denote fortified settlements, does not necessarily correspond to what is encountered in the field. Indeed, written sources tend to describe structures that, in archaeological reality, are often fragmentary or entirely obliterated (Settia 1984).

Despite these limitations, surface archaeology and stratigraphic analysis offer promising prospects. For instance, the combined use of extensive surveys and the analysis of residual deposits could help reconstruct the original layout of earth and timber structures. However, as Sauro Gelichi emphasises, archaeological excavation

remains the only method capable of providing reliable information on the stratigraphy and spatial organisation of these settlements (Gelichi 1991).

7.2. Possible comparisons

Based on what has been said so far, we can therefore argue that the Torrazzo context corresponds to a medieval settlement – although the exact chronology is difficult to establish – of dimensions far from modest,³ founded in a raised area corresponding to an alluvial ridge created during the Roman Era by the Fossa-Cerca River, likely still alive along this axis during the Middle Ages.⁴ We also know that the settlement partly coincides with a previous Roman site, perhaps a rural context, and that it respected the orientation of the centuriation: it is located, in fact, in the southwest corner of a *centuria*, thus being served by two roads along the western and southern sides. It is likely that numerous Roman burials documented in the area are associated with this ancient road layout inherited from antiquity.

A first comparison is found about 2.5 km southeast of Castelfranco Emilia (MO), in a high plain context. This is a settlement of almost identical dimensions to the Torrazzo motte, enclosed by a rather wide ditch —the soilmark has an average width of 20 m— and characterized by a circular anomaly exactly in the center of the area, about 70 m in diameter. Moreover, especially in a satellite image from May 2011, it seems possible to recognize an additional ditch around the central anomaly (fig. 11).



Fig. 11. The Castelfranco Emilia (MO) motte (after Google Earth).

3 Based on these measurements, the Torrazzo context can be classified as medium-sized (considering only the inner rectangle) or large (including the ditches) according to the categories proposed by Aldo Settia for 10th-11th century castles with known dimensions; The Author specifies, however, that it is rather difficult to determine from the sources whether the indicated dimensions or those reconstructed based on textual evidence refer to the entire complex or only to the area within the ditches (Settia 1984, 207-208).

4 Indeed, we know that the Fossa River, which flowed to the southwest of Modena, was diverted into the Secchia River upstream of the Torrazzo settlement between the 15th and 16th centuries (Cremaschi, Gasperi 1988).

A second comparison comes from the province of Bologna, more precisely from the countryside immediately south of the center of Maddalena di Cazzano. Here, a settlement enclosed by a ditch is identified, with a quadrangular plan and smaller dimensions compared to those just described (about 60x70 m): the site is closely related to a centurial persistence along its eastern border; to the west, instead, it is flanked by a wide paleochannel, likely corresponding to the course of the Idice “0”⁵ River (fig. 12).



Fig. 12. The Maddalena di Cazzano (BO) motte (after Google Earth).

8. THE RELATIONSHIP WITH CONTEMPORARY SETTLEMENTS IN THE LANDSCAPE OF THE MODENESE COUNTRYSIDE

8.1. General issues

The medieval fortifications of the Province of Modena provide an insightful perspective on the transformations of the region between the 10th and 15th centuries. The sites located in the lowlands stand out for their close association with both residential and religious settlements, as well as their distinctive structural characteristics, often constructed using earth and timber.

The identification of these sites has been achieved through a combination of methods, drawing on historical, archaeological, and geomorphological evidence. Documentary sources, such as medieval records, have proven instrumental in locating many of the fortifications, often referred to as *castra*, *motte*, or *castellum*. Toponyms have further supported these findings, offering linguistic traces that align with the presence of fortifications. However, the limitations of written sources, particularly when they lack precise correlations to surviving material evidence, have required supplementary approaches.

Surface reconnaissance has played a significant role in identifying these fortifications. Initiated in the 1980s, extensive surveys have revealed numerous sites through the recovery of ceramic fragments, bricks, and other construction materials. Yet, the intensive agricultural activity in the plains has heavily impacted the preservation of these sites, often obliterating archaeological layers due to deep

⁵ This is the watercourse responsible for the construction of the S. Donato ridge, on which, among other things, the settlement itself is located (Rucco 2020, 19-20, with bibliography).

ploughing and soil disturbance. Aerial photography has been an invaluable tool in this regard, allowing researchers to detect features such as ditches, ramparts, and terraced mounds that are not immediately visible on the ground. An exemplary case is the site at Campogalliano, where aerial imagery revealed the outline of a defensive ditch with a pseudo-quadrangular plan.

In some cases, archaeological excavations have provided more substantial insights into these fortifications. The castle of San Felice sul Panaro serves as a paradigmatic example. Documented from 927 to the 15th century, its fortifications were initially constructed using earth and timber during the 10th and 11th centuries. Excavations in the late 20th century revealed a substructure of wooden posts driven into alluvial clay deposits, which formed the foundation of its defensive walls.

Despite these advancements, challenges remain. Several sites, such as Castel Crescente at Ravarino and the *castellum vetus* of Solara di Bomporto, are considered uncertain due to the absence of definitive material evidence. Their identification rests largely on surface finds and tentative associations with historical references. Furthermore, the distribution of lowland fortifications does not suggest the presence of systematic defensive networks, unlike the fortifications found in hilly or mountainous regions. Instead, the evidence points to a more sporadic pattern of settlement, potentially shaped by localised needs rather than overarching strategic designs.

The study of lowland fortifications is further complicated by the scarcity of well-preserved structures within these sites. The frequent absence of material remains sufficient to define functional buildings or internal arrangements poses a significant challenge to researchers. This contrasts with the fortifications in upland areas, where structures are often better preserved due to reduced agricultural impact and different patterns of land use.

The integration of interdisciplinary methods offers promising avenues for advancing the study of these medieval sites. Systematic excavations, combined with refined analyses of material culture and enhanced applications of aerial and geophysical survey techniques, could provide a deeper understanding of these fortifications. Such approaches are particularly critical for addressing the current gaps in knowledge, ensuring that the remnants of Modena's medieval heritage are not only identified but also meaningfully interpreted within the broader context of medieval settlement and defence strategies (Rucco 2022).

8.2. Early Middle Ages patterns

As confirmed by surface research conducted in the Nonantola area (MO) [Librenti, Ciansiosi (eds.) 2011, 87], it is from the 7th century AD onwards that the territory saw the emergence of directional centers of large rural properties, the original chronology of which, however, has not yet been conclusively determined.⁶ In conjunction with the settlement of the border between the Lombards and Byzantines, various *curtes* appear in the Modena area: the Wilzacara *curtis* (near S. Cesario), the Secco *curtis* (near Crevalcore), the Camurana *curtis* (near Medolla), the Migliarina *curtis*⁷ (around Carpi), and the Zena *curtis*, directly connected to the Abbey of S. Silvestro di Nonantola. According to Bruno Andreolli, they were also associated with the management of the

⁶ Iconic in this regard is the case of Nonantola (see, for example, Gelichi 2007, 34).

⁷ First mentioned in 772 AD when it was ceded to the monastery of St. Julia in Brescia (Andreolli 1984, 167-168).

entire water network connected to the Panaro, along with related service infrastructures (Andreolli 1988, 91-92).

These nuclei were paralleled, from the hills to the lowlands, by the *fines*, or large portions of territory managed by rural communities under a regime of substantial autonomy from royal power⁸ (Andreolli 1990, p. 165; Bonacini 1990, 26). These entities began to appear in written records from the 9th century AD onwards, in relation to disputes that often pitted them, often without much success, against expanding large properties (Bonacini 1990; Golinelli, Tabacco 1990, 141-144; Serrazanetti 1997, 64-65).

In the context of the territorial organization of the Early Middle Ages, the case of *Civitas Geminiana/Nova* deserves special mention. Mentioned in sources from the early 9th century AD onwards, the center was supposedly chosen by Liutprand as the site of a royal court (Bonacini 1988, 595), which, during the Carolingian period, remained autonomous from the diocese of Modena (Gelichi 1988a, 577), extending its influence over the neighboring fines to include the areas of present-day Marzaglia, Cognento, and Formigine⁹ (Carboni 1989, 5-6). The case is particularly interesting due to the debated —and still debatable— identification of *Civitas Geminiana/Nova* with the present-day center of Cittanova, located on the Via Emilia, just west of Modena.¹⁰ Whatever conclusion is reached regarding this matter, the connection/non-connection of this settlement with the city of Modena remains significant: it was the seat of a mostly rural and autonomous political power until the late 9th century, a period that also saw the establishment of the county of Modena (Cremonini 2014; Golinelli, Tabacco 1990, 141). It was then part, among others, of the Modenese county between the late 9th and 10th centuries, coinciding with the definitive assertion of ecclesiastical power over civil power, also through the fortification of the center by the Modenese bishop Gotefredo (Gelichi 1989, 173-174; Rinaldi 1988, 601).

Lastly, the picture regarding parish churches and fortified sites in the final centuries of the Early Middle Ages, and the role played by these centers in shaping settlement patterns, remains rather hazy due to a lack of excavation data. Often associated with such structures, written sources also mention the existence of religious buildings, but once again, the available archaeological documentation is too scarce to discern any clear trends (Gelichi, Librenti 2008b, 217). The problem remains difficult to solve, also on a general level. Several parish churches are known through archival sources,¹¹ but very few have been investigated through excavation:¹² among the «virtuous» examples, we can mention the church of S. Michele Arcangelo in Nonantola (Gelichi 1990a; Id. 1990b, 111).

8 The Solarienses, Flexiciani, Salectini, and Feronianenses fines are frequently mentioned in the bibliography; for further details, please refer to the sources cited throughout the paragraph.

9 The peak of *Civitas Nova*'s trajectory is reached under the rule of the Frankish count Autramno (Gelichi 1989, 174; Rinaldi 1988, 599-600).

10 This identification is debatable because it is constructed, besides being based on toponymy, on the discovery of a mutilated inscription near the Church of S. Pietro (at Cittanova, precisely). However, the inscription, although mentioning King Liutprando, makes no reference to *Civitas Geminiana* or its foundation; for details on the discovery, refer to Labate 1988; for a discussion of the matter, see Gelichi 1988b, 601.

11 For example, consider the churches of S. Tommaso in Ganaceto, SS. Giovanni and Sofia in Baggiovara, S. Maria in Carpi, and S. Michele in Nonantola...

12 And not always, it seems, with due diligence (Gelichi, Librenti 2008, 218).

9. FINAL REMARKS

The information presented so far is the only one available for the Modena area during the Early Middle Ages. However, beyond suggestions derived from the formal analysis of the Torrazzo context, there is currently no element that allows us to precisely date the site's foundation or to understand its development over time. Therefore, it is impossible to formulate any further hypotheses regarding its relationship with other settlements in the area, both from a topographic-functional and political standpoint. This, on the other hand, is the fate of all these contexts —known but not archaeologically investigated— that continue to float in an indistinct limbo.

It should, however, be noted that certain seemingly generic issues, such as the dating of contexts for which there is insufficient stratigraphic information —whether due to a lack of investigations or poor preservation conditions— can be addressed through stratigraphic analyses at the landscape scale. The context of the Motta del Torrazzo serves as a good example: significantly altered by agricultural extraction activities up to the late 19th century; partially compromised by the construction of contemporary structures; not systematically investigated; entirely nondescript in terms of material culture; and easily confusable with contexts possessing similar characteristics but dating to the Bronze Age. Yet, it is readily contextualisable from a stratigraphic perspective and can thus be placed in a precise position within an ideal Harris matrix of the landscape: definitively constructed in the post-Roman period, as it is situated atop a fluvial ridge of Roman origin, as confirmed by archaeological findings from the surrounding areas. Certainly not a definitive endpoint, but an excellent starting point for further investigations into medieval rural settlement in this sector of the Po Valley.

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CONFLICT OF INTEREST

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