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Back to Monte della Croce

Looking for new clues on the first stable Bronze Age settling in the central Emilian Apennines, starting from the “perfect” template site

Abstract

Here we present the preliminary results of a new research project which addresses the Bronze Age settlement pattern in the uplands between Reno and Panaro river valleys, an area of approximately 380 square kilometers. While keeping a diachronic approach, the chronological focus is set between the Middle Bronze Age and the last decades of the Final Bronze Age. Methodologically blended, this study also represents a further example of multidisciplinary approach to upland archaeology. Proceeding from macro-landscape analysis down to micro-intrasite study, we have crisscrossed old fashion field survey, drone orthophoto mapping and GIS data evaluation. At a micro level, the chosen template site is Monte della Croce, located on the left bank of the upper Reno valley on a mountain top (917 m.a.s.l.), which dominates and controls the surroundings. Last explored in the early fifties of the twentieth century by the archaeologist Renato Scarani, this site has represented the perfect location to understand the role played by this type of settlements within the network of coeval sites identifiable in the Late Bronze Age. While examining its environs, a new set of intriguing clues have emerged that could potentially update not just the internal structure of this settlement, but also the potential sources of its economy of subsistence. Last, this study also represents a preparatory work for a new campaign of excavation that will represent the needed “ground truthing” step to ascertain these new hypotheses.

Key words: Apennines, Bronze Age, Monte della Croce, Reno river Valley

History of the studies in a nutshell

The last 15 years saw some major steps forward for the prehistoric archaeology of the Apennines in Emilia Romagna, which drastically changed with the publication in 2006 of the *Atlante dei Beni Archeologici della Provincia di Modena*. In this book, Andrea Cardarelli presented a six points classification for the Bronze Age sites located in the uplands of Modena¹. The turning point came with the systematization of the three key parameters related to the topographical location of each site: 1) morphology/location of the site; 2) level of natural defensibility; 3) viewshed profile, which, together with other data (chronology, altitude, extension of the site), could increase our understanding of the upland settlement pattern during the Bronze Age.

For the morphology/location of each site, Cardarelli defined the recurring position of most of the analyzed evidence, thus setting a set of seven definitions. Subsequently, he established another four-level gradation for the natural defensibility of each settlement. Lastly, applying an efficient schematization of the long lasting², now omnipresent, viewshed analysis, Cardarelli devised a six-scale-grouping for the viewshed profile of each site. Using this scheme, each site could be inscribed within a grid to be related with proximity ones in a three-scale model³, which in turn would have permitted to establish potential relationships between chronologically coeval sites even located in a different topographical location.

Cardarelli was the first than to identify a hierarchy for the sites in the key moment of the LBA when the collapse of the Terramare potentially triggered substantial transformations in the distribution of the dwellings, shifting from halfway of the ridge to the tops, subordinating valley floor settlements, hypothetically for defensive reasons⁴.

It is important to notice that while a great deal of work had been done on the western part of the investigated area, the Bologna Apennine felt behind both in terms of field research and also on the cataloguing of the yet numerical important evidence of occupation for the Bronze Age. The chance to fill this gap came with the doctoral thesis of Lisa Guerra, who in 2015 produced the first attempt to give a shape to the Bronze Age settling not just in the Apennines above Bologna but also in the eastern portion of the region, Romagna⁵. New impulses came to the research in 2015 and 2019 with two publications made after the cooperation between Claudio Cavazzuti and Cristiano Putzolu, who in turn gave this area a spruce adding the new possibilities for the

¹ Cardarelli 2006, p. 48

² Fraser 1983, pp. 298-303

³ Clarke 1977, p.11-15

⁴ Cardarelli 2006, p. 62

⁵ Guerra 2015, p.11

research drawing from the advancements of GIS analysis⁶ deepening the reasoning already initiated by Cardarelli. Bolstering the many variables behind the recurring pattern within the disposition of each site they also re-proposed⁷ and expanded⁸ the “ophiolite hypothesis”, which put in correlation the topographical positioning of the main sites in comparison with some of the main serpentinite breccias obtaining some interesting results⁹, both as territorial markers (for example for prehistoric mobility), but also for the implication of the Apennines within the short-range metallurgical networks.

Why are we here?

The driving idea for this research was to widen the perspective of the *Atlante* and to incorporate both river valleys, thus expanding the focus on a larger area which in turn encompassed both sites with predominant links to the Terramare world in their material culture, mainly located in the Apennines above Modena, and the neighboring area of the Bolognese Apennines which on the other hand showed more links to the *facies* of central Italy. This part of the Apennines has long represented a vital key transit route between the Arno valley to the south and the Po plain to the north, a role that was relevant also for the Bronze Age¹⁰. Both analyzed valleys do represent ideal pathways to cross the Apennines, either by following their main streams or those of their tributaries, for example, the Scoltenna river for the Panaro, and the Limentra valley for the Reno. Either way, their common advantage is to be linked with altimetrically low passes. Bearing these peculiarities in mind it was than possible to hypothesize control functions for the sites located higher on the ridges and of transit management for those located in the valley floor. This was already clear within the Panaro valley, where it had been previously noticed, but what about the “Reno route”, is it possible to identify relationships¹¹ and hierarchies between these sites as well?

Another point was also the cultural affiliation one, a particularly difficult to dispel, especially in the uplands located between the two river valleys, where the material culture had hinted at a multipolar environment where no clear preeminence was detectable. Therefore, with the intention to go beyond the strong frontier definition assigned to this intervallive area, it was important to identify a site where strong communications could have been technically possible, a sort of *central place*, or a *connecting place*, a *node*, linking the two river valleys, both visually and territorially.

To do so a template site was picked considering these parameters. The choice was made for Monte della Croce (sometimes referred to as Santa Maria Villiana). This site, first identified during the late 19th century by Edoardo Brizio¹² and lately repeatedly investigated during the first half of the last century¹³ up until the two very short campaigns of excavation in 1951 and 1952 by Renato Scarani, presented the perfect spot to start our research. Perfectly perched on a hillock at 917 m.a.s.l., this site presented a chronological continuity from MBA 3 to FBA 1-2¹⁴ and possibly beyond, spilling into the Iron Age, judging from the diagnostic material recovered. With regard to the morphological profile and to the intervisibility/communication potential between the two valleys, its characteristics are extremely significant (see *fig. 5*). On its top, a wide panoramic view was possible with at least four known sites visible on three out of four cardinal points (see *fig. 2*). Another advantage presented by this site was the “absence” of medieval period occupation, meaning that due to its location between two medieval strongholds¹⁵, this site had never been neither fortified nor settled after the late archaic period.

From macro to micro – a blended methodological approach

The strategy adopted for this study is a three scaled one, from macro to micro. In terms of approach, a series of pre-calculation analysis were done, in order to better organize the next fieldwork.

⁶ Putzolu, Cavazzuti 2019, p. 259

⁷ Cattani, Monti 1997, p. 289; Ghiretti 2003, pp. 111 e ss.; Cardarelli 2006, pp. 59 e ss.

⁸ Cavazzuti, Putzolu 2015, p. 57-63

⁹ Cavazzuti, Putzolu 2015, p. 60

¹⁰ L. Morabito, G. Pizziolo, L. Sarti 2018, p. 211

¹¹ Cardarelli 2006, p. 62; Christaller 1933

¹² Brizio E. 1887, pp. 387-391.

¹³ Mansuelli G.A. 1951-52a, p.157; Mansuelli G.A. 1951-52b, p. 162; Arias P.E 1951, p. 195; Scarani R. 1957, pp. 417-462; Scarani R. 1959, pp. 9-26; Scarani R. 1963, p. 391-392, 412; Kruta Poppi L. 1975, pp.137- 148.

¹⁴ For the chronology, please refer to Bernabò Brea M., Cardarelli A. 1997, pp. 295-378; Cardarelli A. 2006, pp. 78-87

¹⁵ Foschi P. 2012

MACRO – The first step taken was to vectorize the legacy data sites (both those cited in the Atlante and those in Guerra's PhD) into GIS environment. When looking at those associated to the LBA¹⁶, a peculiarly high concentration of sites seemed to coevally exist on both valleys, possibly creating connecting patterns between the two “realities”. Out of 19 sites censused, 11 appeared to have signs pointing at an occupation around the 13th century BCE. It is important to specify that the “general” indicator for LBA here used is the presence of the well-known cilindro-rette handles within the retrieved ceramics. Aside of that, other markers for the chronological attribution are used, and for those please refer to the rightmost column of *Fig. 1*. This density had already been noticed separately in both works¹⁷, but it was now interesting to connect the two areas looking at hints to try to deepen the potential links and interconnections. Another relevant point was that the different coeval sites appeared to be located at different altitudes, in morphologically different locations, prompting the possibility that they may had played different roles in the wider landscape of the Apennines.

| Sites | Chronology | Morphology/ Location | Natural defensibility | Viewshed profile | Altitude masl | LBA INDICATORS |
|-------------------------------|---------------------------------|-------------------------|--------------------------|---------------------|------------------|---|
| Santa Maria Villiana (BO) | MBA 3, LBA 1, LBA 2, FBA 1 | ME | DC | CE | 920 | cilindro-rette handles |
| Rocca di Roffeno (BO) | MBA 3, LBA 1, LBA 2 | MG | DD | CE | 846 | cilindro-rette handles |
| Poggio della Gaggiola (BO) | MBA 2, MBA 3, LBA1, LBA 2, FBA | MB | DA | CE | 456 | cilindro-rette handles |
| Castelluccio di Porretta (BO) | LBA | ME | DC | CF | 814 | cilindro-rette handles |
| Località la Serretta | Generic Bronze Age | MA | DA | CB | 589 | |
| Bargi | MBA, LBA | MG | DD | CE | 680 | bowl pertaining to Damiani “family” 4, type 5.1 (with <i>nastro</i> handle) |
| Castrola | Generic Bronze Age | MB | DC | CB | 391 | |
| Gaiato | MBA 2, MBA 3, LBA 1, LBA 2, FBA | MG | DD | CF | 973 | cilindro-rette handles (Cardarelli 2006, p. 135), snail horn handles (Cardarelli 2006, p.135) |
| Montese | Generic Bronze Age | MF | DD | CF | ? | |
| Rocca Val di Sasso | MBA 1, MBA 2, MBA 3, LBA 1 | MC | DD | CC | 505 | corna bovine handles (Cardarelli 2006, p. 140) |
| Sasso Coveraro | MBA 2 | MC | DB | CC | ? | |
| Monte Questiolo | MBA 3, LBA 1, LBA 2, FBA | MG | DD | CF | 809 | cilindro-rette handles (Cardarelli 2006, p.106) |
| Sestola (castello) | LBA | MG | DD | CF | 1080 | nastro sopraelevata handle (Cardarelli 2006, p.188) |
| Rocchetta Mattei | LBA | MB | DC | CB | 305 | cilindro-rette handle |
| Collina | Generic Bronze Age | MG | DD | CF | 762 | |
| Montovolo | Generic Bronze Age | ME | DC | CF | 905 | |
| Burzanella di Camugnano | EBA | MA | DB | CB | 620 | |
| Cinghione di Camugnano | EBA | MB | DB | CB | 577 | |
| Fanano | MBA (?) – LBA (?) | MA | DA | CB | 600 | sopraelevazione a corna handle (Cardarelli 2006, p. 192) |

Fig.1 Classification according to Cardarelli 2006 of the investigated sites – focus on the *viewshed profile*: **CA** = Limited (if within 2 km from the site there are higher elevation preventing view beyond 180°), **CB** = proximal valley control (if within 3 km from the site there are higher elevation preventing view beyond 180°, visual dominance on the valley does not exceed 2 km), **CC** = widespread valley control (if within 3 km from the site there are higher elevation preventing view beyond 180°, wide visual dominance on the valley which exceeds 3 km), **CD** = broad (if within 3 km from the site the view angle reaches 180°), **CE** = extensive (if within 3 km from the site the view angle goes beyond 180°), **CF** = very extensive (if within 6 km from the site it the view angle exceeds 270°)

¹⁶ see *fig 1*. rightmost column for the parameters for the attributions to LBA

¹⁷ Cardarelli 2006, p. 44; Guerra 2015, p. 190

To enhance the analysis, we reorganized the Bolognese sites into the scheme proposed by Cardarelli (see *fig. 1*). This was obtained by blending GIS viewshed analysis with field survey. At this stage the viewshed analysis was performed using a single observer point for each site, on a blended hillshade raster file generated upon 5 meters ground resolution DTM tiles retrieved on the *Geoportale* website of Emilia Romagna region. To ascertain the other two parameters, defensibility and morphology location, field surveys were performed for 16 out of the 19 sites identified in the researched area. The perused areas were those mentioned in the bibliography, and for those sites with uncertain coordinates, identification was improved by looking at specific morphological criterions, such as hillocks, or in some case locating potentially prehistoric akin pottery shards within runoffs.

SEMI MICRO – At this level it was subsequently possible to identify a couple of site clusters which appeared to be located in two distinctive parts of their landscape within a 4,5 to 6 km range between them; one located within the valley floor and the other on the ridge. Again, both viewshed analysis and field survey proved intervisibility between them (see *fig.2*). The fact that those “twin sites” were coeval prompted the question on what kind of relationship there could have been between them. Analyzing at this stage historical viability it

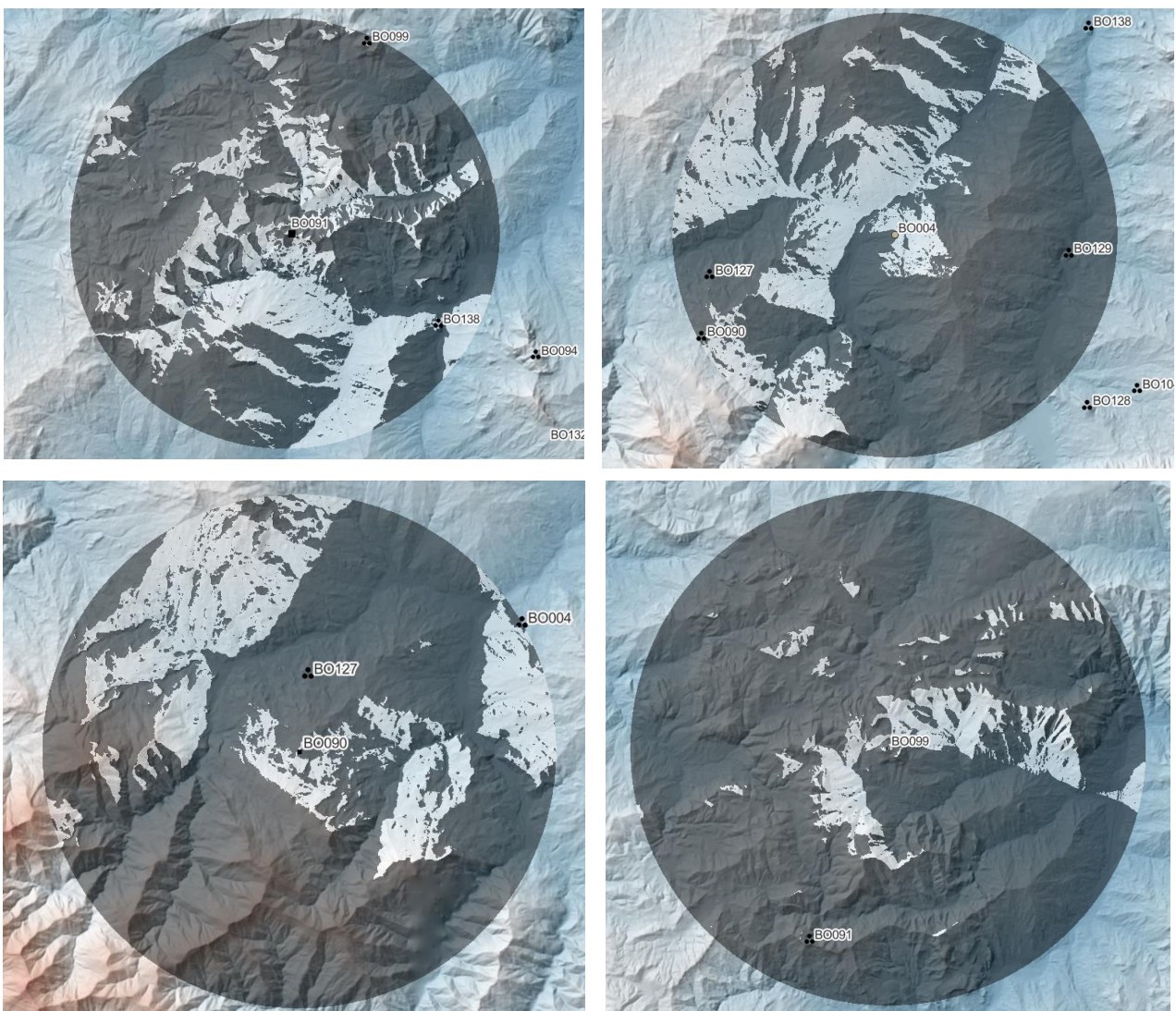


Fig. 2 - Simplified viewshed analysis examples performed on the listed sites to determine their long distance "viewshed profile"; clockwise from top left: i) Monte della Croce [BO091], ii) Poggio della Gaggiola [BO004], iii) Castelluccio di Porretta [BO090], iv) Rocca di Roffeno [BO099]. The analyzed radius is of 6 km. with binary characterization, also to determine the possible intercommunicability with proximal/non-proximal sites.

was clear to see that those located closer to the river could have easily represented managing sites, directly interacting with the transiting people on their route heading toward the Po plain or vice versa. Displaying limited visual control on the valley, those sites could have needed parallelly existing sites to perform the visual control for them. That is when the better positioned sites, located on strategically higher ground, on the ridges, would have played their part. This duality can be defined as *management*, for the valley floor sites, and *control* for those on the ridge above. The identified “twin sites” are in those case those of Poggio della Gaggiola on the Reno River, with its paired site of Castelluccio di Porretta, and the valley site of Rocchetta Mattei, still on the Reno and Monte della Croce perched on the overlooking crest.

MICRO – Closing down on the site of Monte della Croce, the idea was to try improving the knowledge not just of the aforementioned relationship with its kin site located on the valley floor, but also to attempt a preliminary definition of the internal morphology of this longstanding hilltop sites, which remains at present very difficult to ascertain due to the limited number of scientific dig campaigns for this part of the Apennines. Here too both GIS analysis and field reckon were performed various times and during different periods of the year. First, cumulative viewshed analysis proved once more both the intervisibility between this site and eight coeval sites located within a range of 15 km, including the twin site of Rocchetta Mattei (see *fig. 3*).

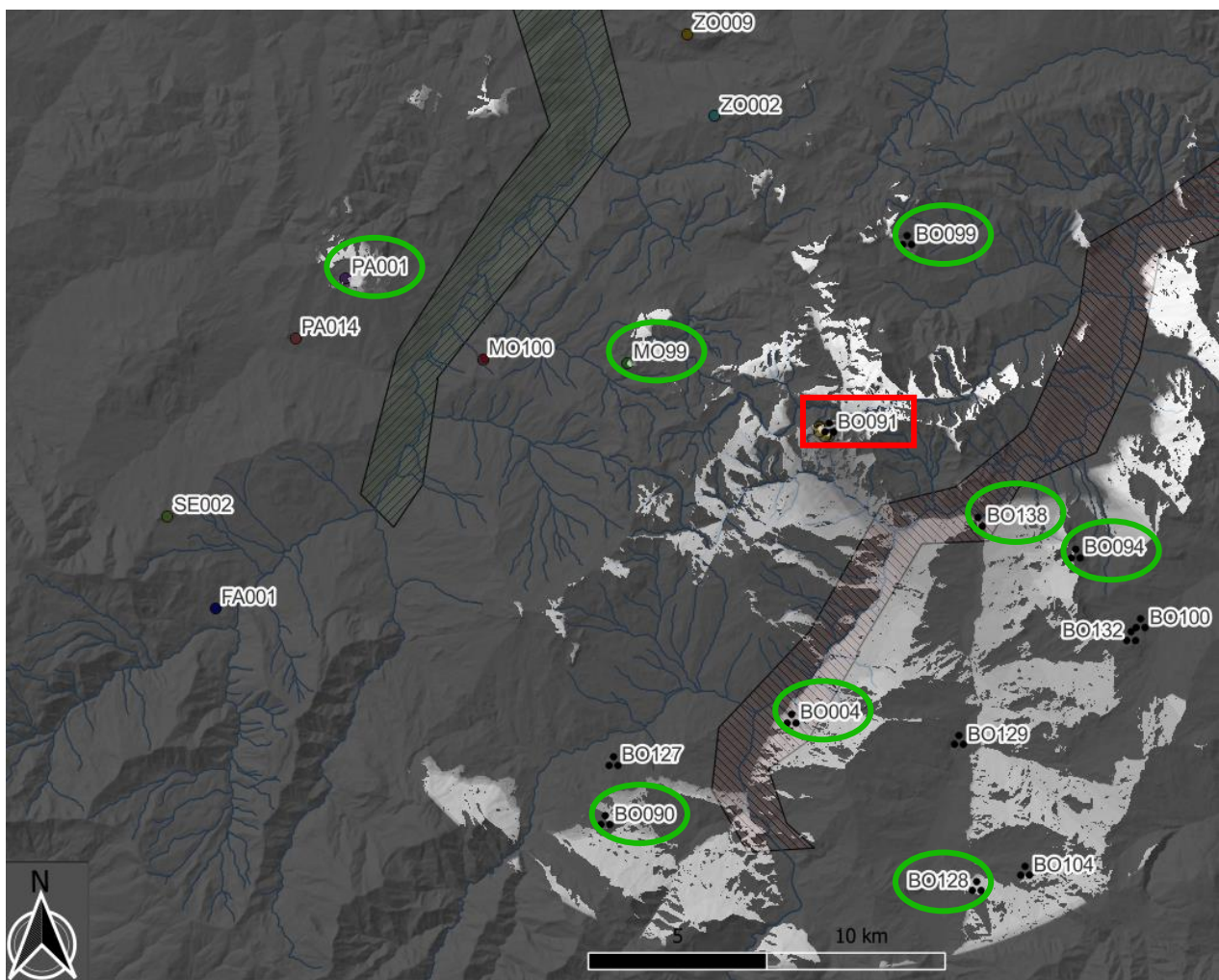


Fig. 3 - Cumulative viewshed analysis using seven different cluster areas within the site of Monte della Croce, corresponding to equally hypothetical locations for the dwelling based on the pottery shard finding and the earthworks identified. The considered maximum distance is 15 km. and circled in green are the sites within range for visual communication.

During every field survey drone photography was performed, both to obtain orthophotos for lab study in order to identify potential visible markers of morphological anthropized transformation if visible, and at the same time elaborating raw quality 3D models. The fortuitous cleansing operation of the undergrowth on the summit of the station, was the lucky event that unlocked some new hints at the internal organization of these sites.

Located respectively at 5 and 10 meters from the top plateau, northwest of the previously excavated area, with a simple dispelling of the first layer of humus, it was still possible to identify traces of what resembled terraced earthworks (see *fig. 4*). The abundant quantity of sherds within the premises of these “structures”, apparently partially circuiting the upper plateau for at least 15 meters, seemed to point out at a way more complex organization and ideally role, played by this site. The apparent unicity of these attestations for this part of the territory could potentially be a mere illusion, given the multiple coevally existing evidence of similar structures in the neighboring Rocca di Roffeno¹⁸, Groppo Predellara di Varsi¹⁹ near Parma, the *castellari* of Liguria²⁰ and the slightly older terraced structures identified at Colombare di Negrar²¹ in Veneto region. It is possible to cautiously infer that this “rareness” is simply ascribable to the lack of deeper research in this sector of the Apennines above Bologna, a gap that this project proposes to fill by kickstarting a new season of research.

Preliminary results

Although at a very embryonic stage, this short presentation aims at reviving the interest into this part of the Apennines, a key area which deserves more studies and that even by scratching its surface appears to have a lot more to tell for what concerns the central phases of the Bronze Age. From a methodological point of view, it shows how combining well directed GIS analysis, even at a very basic level, it is possible to drive more efficiently the field work. The hope is that with the upcoming excavation of Monte della Croce new resources will come available to expand the methodological and instrumental inventory, including Lidar drone data to further understand the potential morphological pattern of these upland sites²².



Fig. 4 “Terraced” earthworks identified as potential terraced platforms on Monte della Croce

¹⁸ Kruta Poppi L. 1974, p. 443

¹⁹ Giretti A. 2000, p. 138

²⁰ Delfino, Del Lucchese (2020), pp.143-144

²¹ Recent news released by *La Statale News* (Università degli Studi di Milano) on February 14 2023; field director: Prof. Umberto Tecchiati. Link: <https://lastatalenews.unimi.it/sito-colombare-negrar-valpolicella-rivela-terrazzamenti-dellea-bronzo>

²² As an example of the potential of these Lidar based wide range analysis, please see Fontana G. 2022, pp. 245-261



Fig. 5 Intervisibility between Monte della Croce and numerous sites on the Modenese side – in the foreground Montese (LBA?), secondarily behind Gaiato (MBA 3 onward) and on the background Monte S. Andrea (LBA 2) and Monte Santa Giulia

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