Neolithic Spaces

Sue Hamilton & Ruth Whitehouse

Volume 1

Social and Sensory Landscapes of the First Farmers of Italy

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Neolithic Spaces

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Contribution:
# Contents

Acknowledgements  
Preface  
INTRODUCTION  
LAYOUT AND USE OF THE VOLUMES  

**Chapter 1  Introduction**  
A NOTABLE NEOLITHIC  
A DIFFERENT TYPE OF FIELD ENGAGEMENT  
SENSORY SENSE-MAKING  
METHODOLOGICAL REFLEXIVITY  
IT’S NOT CRYSTAL-GAZING  
CAN WE EVER LEAVE THE SENSORY PRESENT?  
MAKING THE INVISIBLE VISIBLE  
THE ORGANISATION OF THE VOLUMES  
IN SUM  

**Chapter 2  Introduction to the Neolithic of Southeast Italy and the Ditched Villages of the Tavoliere**  
INTRODUCTION  
ORIGINS OF THE NEOLITHIC OF THE TAVOLIERE  
ARCHAEOLOGICAL RESEARCH ON THE NEOLITHIC OF THE TAVOLIERE  
Aerial photography  
Fieldwork  
The British contribution  
Italian scholarship  
THE NATURE OF NEOLITHIC SETTLEMENT: THE VILLAGGI TRINCERATI  
Features of the sites  
Settlement enclosure ditches  
C-ditches  
Annexe ditches  
Houses  
Other structures  
Burials  
Subsistence economy  
Material culture  
Pottery  
Stone  
Clay figurines  
Chronology  
INTERPRETATION
Additional information used in analysis 85
Site size 85
Number and arrangement of ditches 86
Additional features 86
Analysis of the Mass Survey 86
Assessment of the Mass Survey 87
PHENOMENOLOGICAL SITE CATCHMENT ANALYSIS (PCSA) 89
Introduction 89
Method 89
Assessment of PCSA 94
RECORDING AND MAPPING SENSORY EXPERIENCE 95
Introduction 95
Scales of analysis 96
Seasons and the weather 97
Experiments and ‘base sites’ 97
Vision and visibility 98
A circular view 98
Flags 99
Bodies, gesture and visual communication 101
Shape colour and reflection 103
Sound 106
Smell 109
Assessment of sensory experiments 112
Chapter 4 Appendix: Tables 113
A4.1 Tavoliere social visibility distances 115
A4.2 Sound measurements generated by in situ sensory experiments 119
A4.3 Supplementary data, common sound parameters given in contemporary texts for environmental noise 127
A4.4 Tavoliere olfactory experiments 128
A4.5 Examples of task and cross-site communication walking distances for different size classes of villaggi trincerati and how they were ascertained in situ for sites that are structurally invisible on the ground 129

Chapter 5 Addressing the Why and How of Neolithic Settlement Location through a Hybrid of Quantitative/Qualitative Use of Geographic Information Systems (GIS)
by Andrew Dufton 131
ENVIRONMENTAL CHARACTERISTICS OF THE TAVOLIERE PLAIN 131
MAPPING NEOLITHIC SETTLEMENTS 133
Additional data collection 134
BEYOND A STRICTLY QUANTITATIVE GIS TREATMENT 134
Addressing chronological uncertainty 135
A QUANTITATIVE GIS ANALYSIS OF SETTLEMENT PATTERNS 136
Elevation 138
Slope 138
Aspect 140
Horizontal distance to water 141
Soil type 141
A8.1 Sensing the public spaces from within a villaggio trincerato 278
A8.2 Sensing inside a C-ditched enclosure 280
A8.3 Sensing inside the house 282

Chapter 9  Conclusion 285
INTRODUCTION 285
METHODOLOGICAL LIAISONS 286
NEOLITHIC COMMUNITIES OF THE TAVOLIERE: SOCIAL HIERARCHY OR EXPANSIVE EGALITARIANISM? 287
ADDITIONAL RESEARCH (Chapters 10 and 11) 289
FOLLOWING THE TAVOLIERE NEO-LITHIC 290
FUTURE RESEARCH 291

Additional Research 293

Chapter 10  Fortuitous Interventions: Geomorphological and Artefactual Investigations on Neolithic Features Exposed at Two Gravel Quarries by Mike Seager Thomas 295
METHODOLOGY 295
CAVA PETRILLI (J4) 296
The geology of the site 301
Site features 301
The main enclosure ditch 301
The small sub-circular enclosure or nucleus 306
The outer enclosure ditch 307
Other features 308
CANALE GAVITELLA (J96) 309
The geology of the site 311
Site features 313
DISCUSSION AND CONCLUSION 315
Summary 315
Understanding sites 316
Boundaries 316
Artefact and ecofact distribution 316
Chronology 317
The implications of conventional archaeology for our understanding of the social and sensory landscapes of the Apulian Neolithic 317
Future work 318

Chapter 10  Appendix 1: Soil Micromorphology at Cava Petrilli by Richard Macphail 321
Chapter 10  Appendix 2: Optically Stimulated Luminescence (OSL) at Cava Petrilli by David Sanderson 333
Chapter 10  Appendix 3: Radiocarbon Dates from Cava Petrilli by Ruth Whitehouse 343
Chapter 10  Appendix 4: Pottery from Cava Petrilli by Sue Hamilton & Ruth Whitehouse 347
Chapter 10  Appendix 5: Scientific Examination of Potsherds by Michela Spataro 355
Acknowledgements

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We are grateful to all the students and visiting scholars (listed in the Preface), who participated in the field seasons and who contributed their labour and their ideas (not always positive, but usually helpful) on both the prehistory of the Tavoliere and on our approaches to studying it.

We would also like to thank Carlo di Tullio and Leonardo Vara of the Fontana delle Rose campsite at Mattinata for their friendship and assistance during our stays.

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Sue Hamilton
Ruth Whitehouse
London
November 2020
The Obsidian Finds
Provenancing, previous work and interpretation
Keri A. Brown & Robert H. Tykot

INTRODUCTION
During the course of the Mass Survey carried out in this project, a number of pieces of obsidian were collected from the surface of several Neolithic sites (Table 6A2.1). These were analysed using a portable X-ray fluorescence spectrometer (pXRF) which measures trace elements present in the obsidian. Past research has shown that trace elements are characteristic for the four different sources of obsidian known to occur on islands in the Western Mediterranean region – Sardinia, Lipari, Palmarola and Pantelleria – and even sub-sources of obsidian on these islands. Knowing the source enables archaeologists to gain insights into trade and exchange networks in the Neolithic. In this short article we present the results of pXRF analysis as well as compiling the previous data on obsidian from the Neolithic sites of the Tavoliere (see also Brown et al. 2018).1

PXRF ANALYSIS AND OTHER METHODS: A BRIEF OUTLINE
Since the 1960s, many different methods of elemental analysis have been used successfully for obsidian sourcing in the Mediterranean. Instrumental neutron activation analysis (NAA), ICP-MS (inductively coupled plasma mass spectroscopy) and several types of X-ray analysis continue to be used, including scanning electron microscopy (SEM) which is limited to major/minor elements. The homogeneity of obsidian and the relatively modest number of sources in continental Europe and the Mediterranean islands have allowed these methods to distinguish between sources, while measuring trace elements distinguishes the sub-sources for each (Barca et al. 2007; Bellot-Gurlet et al. 2005; Bourdonnec et al. 2005; De Francesco et al. 2008; Poupeau et al. 2009; Tykot 1997; 2002; 2017a; 2019).

From 2007, a portable XRF has also been used on central Mediterranean obsidian. Its advantage in being able to perform non-destructive analyses has resulted in this type of instrument becoming widely used in recent years, with successful studies done in several parts of the world (Cecil et al. 2007; Craig et al. 2007; Nazaroff et al. 2010; Phillips & Speakman 2009). In this study, the obsidian artefacts were analysed using a Bruker Tracer...
III-V portable XRF spectrometer. Obsidian is quite homogeneous, so other than having a clean surface, no sample preparation was necessary and the analysis was entirely non-destructive. Within the instrument a special filter of 12 mil Al, 1 mil Ti and 6 mil Cu was used to enhance the precision of measurements for trace elements Rb, Sr, Y, Zr, and Nb, which are widely used to identify source groups for obsidian and other materials. The area analysed for each sample was about 3 x 5mm in diameter, with settings of 180 seconds, 40 kV and 10 μA current. The exact same instrument and calibration software has been used on geological samples from all of the obsidian sources in the central Mediterranean, Aegean, and Central Europe, clearly distinguishing them, and assigning many obsidian artefacts to specific sub-sources (Freund & Tykot 2011; Tykot 1997; 2002; 2010; 2011; 2017a; 2017b; 2019; Tykot et al. 2006; Tykot et al. 2011). Test studies have also been done on standards and shared pieces of obsidian to allow comparison of these results with those from other analytical methods, and these data have been incorporated into calibration software. Repeated analyses show precision of 2% or less RSD (relative standard difference) and accuracy within one sigma relative to the RGM-1 and NIST SRM-278 international obsidian standards (Speakman 2012).

The advantages of using pXRF include being able to analyse large numbers of artefacts quickly, whereas other, laboratory-based, methods are more time-consuming due to the need for instrument calibration and sample preparation.

RESULTS (TABLES 6A2.1 AND 6A2.2)

Out of 174 sites visited in the Tavoliere, 21 sites produced obsidian for analysis. A further 2 sites, situated on the edge of the Gargano, Inferno East and Inferno West, are also of possible Neolithic date (Table A62.1). A total of 60 obsidian artefacts was tested, with 54 assigned to the Lipari-Gabellotto source, and just 6 to Palmarola. An additional 4 artefacts turned out not to be obsidian but were identified as high quality black flint, as shown by high Si readings. It is to be noted that this obsidian look-alike lithic was found at Neolithic sites in the northern half of the plain (J40d, J193a, J193c and J224b). One possible source for this flint might be river pebble flint, but these pieces seem to be of good quality flint. Tabular flint was mined in the Gargano in the Neolithic and is usually greyish-brown or honey brown in colour. However black tabular flint occurs near Pugnochiuso on the eastern coastline of the Gargano and this may be a possible source. It is understandable that inexperienced students would collect this in error for obsidian – however even experienced experts on obsidian also have sometimes collected black flint.

Two other pieces of non-obsidian come from J168 and J72a; these have low Si readings and may not in fact be flint at all. This material has not been identified.

DISCUSSION

The new obsidian finds make a significant contribution to our knowledge of obsidian distribution in the Neolithic of the Tavoliere and this set of analytical data, together with previously published data, forms the largest body of information on obsidian provenance for a region of southern Italy. Table 6A2.2 shows the previously published data, and a grand total of 34 Neolithic sites (including the cult cave site of Grotta Scaloria) have now produced obsidian artefacts (N.B. Some sites appear in both tables but are counted once; J168 did not produce any obsidian). Approximately one-sixth of the obsidian for which the source is known came from Palmarola, an island source off the western coast of Italy. The vast majority of the obsidian came from Lipari, off the northern coast of Sicily and the Gabellotto sub-source in particular. Much of the obsidian in the previous publications (Table 6A2.2) is unprovenanced, unfortunately. At Masseria Candelaro where a total of 92 pieces were found, only 31 were sourced, and 25 came from Lipari while 6 came from Palmarola (Acquafredda & Muntoni 2004), a quarter of the total analysed. Palmarola obsidian seems
to have a more northerly distribution in the Tavoliere, being found at sites located north of
the Cervaro river. Only one site in the southern half of the Tavoliere has produced a piece of
Palmarola obsidian and that is the large site of Masseria Bongo (J71), a Class III site in Jones’
typology (Fig. 6.A2.1). This apparent bias in distribution could well change in the future with
more provenanced obsidian finds from the southern half of the Tavoliere. Compared to the
northern half, less archaeological fieldwork seems to have been carried out in this part of the
plain. No obsidian from Palmarola has been found south of the Ofanto river, the southern
boundary of the Tavoliere.

Early work on obsidian seemed to show that this lithic material occurred rarely at
Tavoliere Neolithic sites, with only one or a few pieces being found. However, these were
mainly surface, unstratified finds. Where sites have been subject to large-scale excavation,
such as Passo di Corvo (Mello 1983) and Masseria Candelaro (Cassano & Manfredini,
2004), obsidian finds have been more plentiful. At Masseria Candelaro some obsidian
pieces were recovered from the surface but most were from the excavation of ditches and
sub-surface features. The difference between excavation and surface collection must be
borne in mind when considering obsidian frequency. It is probable that all Neolithic sites
had access to obsidian – possibly the larger (Jones’ Class III and IV) sites had greater access
than the smaller (Jones’ Class I and II) sites, so reflecting a settlement hierarchy based
on size. Maybe the amount of obsidian reflects settlement population numbers in some
way if they can be considered as personal possessions. As Robb (2007: 204) puts it “We
have to imagine a constant sparingly-used, low-level trickle of obsidian sleeting horizontally
through Neolithic societies, rather than curated heirlooms descending through time”. The
vast majority of obsidian found at Tavoliere sites consists of small bladelets and flakes. The
only obsidian cores found on the Tavoliere both come from major (Class III) sites. A core

<table>
<thead>
<tr>
<th>SITE NAME</th>
<th>Cat. No.</th>
<th>Site Class</th>
<th>Lipari</th>
<th>Palmarola</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cava Petrilli</td>
<td>J4</td>
<td>1</td>
<td>4</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Masseria Palmori</td>
<td>J20</td>
<td>IV</td>
<td>2</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>Masseria San Marcello</td>
<td>J40</td>
<td>1</td>
<td>3</td>
<td>1</td>
<td>+1 black flint</td>
</tr>
<tr>
<td>Santa Caterina-Tortorella</td>
<td>J42</td>
<td>III</td>
<td>2</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>Santa Cecilia</td>
<td>J49</td>
<td>1</td>
<td>2</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>Posta Torrebianca</td>
<td>J56</td>
<td>1</td>
<td>1</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>Masseria Bongo</td>
<td>J71</td>
<td>III</td>
<td>0</td>
<td>1</td>
<td>obsidian core</td>
</tr>
<tr>
<td>Masseria La Quercia</td>
<td>J72</td>
<td>II</td>
<td>6</td>
<td>0</td>
<td>1 unknown</td>
</tr>
<tr>
<td>Masseria La Lamia</td>
<td>J73</td>
<td>?</td>
<td>12</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>Tressanti</td>
<td>J160</td>
<td>1</td>
<td>1</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>Masseria Santini II</td>
<td>J168</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>1 unknown</td>
</tr>
<tr>
<td>Castiglione III</td>
<td>J172</td>
<td>III</td>
<td>2</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>Stazione di Amendola I</td>
<td>J184</td>
<td>1</td>
<td>1</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>Masseria Santa Tecchia</td>
<td>J190</td>
<td>1</td>
<td>1</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>Posta D’Inanzi</td>
<td>J193</td>
<td>II</td>
<td>2</td>
<td>0</td>
<td>+2 black flint</td>
</tr>
<tr>
<td>Monte Aquilone</td>
<td>J207</td>
<td>1</td>
<td>5</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>Motta Del Lupo</td>
<td>J216</td>
<td>III-IV</td>
<td>2</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>Masseria San Giusta</td>
<td>J218</td>
<td>1</td>
<td>0</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Masseria Scoppa</td>
<td>J224</td>
<td>1</td>
<td>1</td>
<td>0</td>
<td>+1 black flint</td>
</tr>
<tr>
<td>Madonna del Oliveto</td>
<td>J235</td>
<td>III-IV</td>
<td>1</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Fornovecchio</td>
<td>A207</td>
<td>I</td>
<td>2</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Inferno East</td>
<td></td>
<td></td>
<td>1</td>
<td>0</td>
<td>Gargano</td>
</tr>
<tr>
<td>Inferno West</td>
<td></td>
<td></td>
<td>4</td>
<td>0</td>
<td>Gargano</td>
</tr>
</tbody>
</table>

Table 6A2.1  New obsidian surface finds in the Tavoliere and their associated sources
<table>
<thead>
<tr>
<th>SITE NAME</th>
<th>Cat. No.</th>
<th>Class</th>
<th>Li</th>
<th>Pal</th>
<th>Reference</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>La Panetteria (Lucera, Foggia)</td>
<td>J1</td>
<td>II</td>
<td>1</td>
<td>0</td>
<td>Hallam et al. 1976</td>
<td>NAA and OES</td>
</tr>
<tr>
<td>Il Casone (San Severo, Foggia)</td>
<td>J221</td>
<td>?</td>
<td>0</td>
<td>2</td>
<td>HHallam et al. 1976</td>
<td>NAA and OES unstratified</td>
</tr>
<tr>
<td>Lucera Castle (Foggia)</td>
<td>J10</td>
<td>?</td>
<td>2</td>
<td>1</td>
<td>Hallam et al. 1976</td>
<td>NAA and OES unstratified</td>
</tr>
<tr>
<td>Passo di Corvo (Foggia)</td>
<td>J198</td>
<td>IV</td>
<td>10</td>
<td>2*</td>
<td>Mello 1983</td>
<td>Mossbauer spectroscopy and EPR *= probably</td>
</tr>
<tr>
<td>Monte Aquilone (Manfredonia, Foggia)</td>
<td>J207</td>
<td>I</td>
<td>3</td>
<td>0</td>
<td>Arias-Radi et al. 1972</td>
<td>Fission-track</td>
</tr>
<tr>
<td>Grotta Scaloria (Manfredonia, Foggia)</td>
<td>J204</td>
<td>I</td>
<td>25</td>
<td>6</td>
<td>Acquafredda &amp; Muntoni 2004</td>
<td>EDS, SEM and BSD analysed 31 of 92 pieces</td>
</tr>
<tr>
<td>Masseria Candelaro</td>
<td>J204</td>
<td>II</td>
<td>1</td>
<td>0</td>
<td>Cassano &amp; Manfredini 1983</td>
<td>3 unprovenanced unstratified</td>
</tr>
<tr>
<td>Masseria Capo di Lupo</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Cassano &amp; Manfredini 1983</td>
<td>3 unprovenanced unstratified</td>
</tr>
<tr>
<td>Masseria Mischitelli</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Cassano &amp; Manfredini 1983</td>
<td>1 unprovenanced unstratified</td>
</tr>
<tr>
<td>Masseria San Chirico</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Cassano &amp; Manfredini 1983</td>
<td>1 unprovenanced unstratified</td>
</tr>
<tr>
<td>Posta D’Innanzi</td>
<td>J193</td>
<td>II</td>
<td></td>
<td></td>
<td>Cassano &amp; Manfredini 1983</td>
<td>4 unprovenanced unstratified</td>
</tr>
<tr>
<td>Masseria Santa Tecchia</td>
<td>J190</td>
<td>I</td>
<td></td>
<td></td>
<td>Cassano &amp; Manfredini 1983</td>
<td>4 unprovenanced unstratified; 1 unprovenanced taglio S</td>
</tr>
<tr>
<td>Masseria Belvedere II</td>
<td>J188</td>
<td>I</td>
<td></td>
<td></td>
<td>Cassano &amp; Manfredini 1983</td>
<td>1 unprovenanced unstratified</td>
</tr>
<tr>
<td>Masseria Centonze (=Stazione di Amendola I)</td>
<td>J184</td>
<td>I</td>
<td></td>
<td></td>
<td>Cassano &amp; Manfredini 1983</td>
<td>1 unprovenanced unstratified</td>
</tr>
<tr>
<td>Masseria Pedone</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Cassano &amp; Manfredini 1983</td>
<td>1 unprovenanced unstratified</td>
</tr>
</tbody>
</table>

Table 6A2.2  Previous obsidian finds in the Tavoliere

Fig. 6A2.1  Obsidian core from the Palmarola source from Masseria Bongo (J71)
of Lipari obsidian was found as a surface piece at Masseria Candelaro (Acquafredda & Muntoni, 2004), while a core of Palmarola obsidian was similarly a surface find at Masseria Bongo (Fig.6A2.1). The latter core seems to have had only a few bladelets struck from it before being abandoned. This may be due to a fault in the core, a large phenocryst running down its length, which may have only become apparent after the removal of the outer bladelets. Obsidian cores are extremely rare finds in the Apulian Neolithic in general because they can be worked until no more bladelets can be struck, then smashed to produce flakes (see Robb 2007: 192–204). Obsidian finds also depend on the recent ploughing of the site – for example Masseria La Quercia (J72) had been visited several times during the Tavoliere-Gargano Project, but it was only on the final visit, when a transect survey was carried out, that 7 obsidian pieces were found (see this chapter, Appendix 3).

Exactly what obsidian was used for in the Neolithic is still an unanswered question; we can however look at the few facts we have. In his book Robb (2007: 192–204) discusses the possible role(s) that obsidian may have played in Neolithic society. He notes the sharpness of freshly flaked obsidian and that its best use was in cutting soft materials, like a knife. When we look at the frequency of occurrence of obsidian at Neolithic sites in the Tavoliere, the excavated site of Masseria Candelaro has produced the greatest number of obsidian pieces and only a small percentage of the total site was excavated in fact. We can assume that the true numbers of obsidian artefacts in the Tavoliere Neolithic were much higher than that suggested by surface finds. We can also see that all classes of site had access or could acquire this lithic from Tables 1 and 2. Tykot (2011) points out that if obsidian represents a very low percentage of the total lithic assemblage of a site then it is unlikely to be an important component of daily life. However it could be an important component of other aspects of Neolithic life. Obsidian from the Tavoliere seems to have few signs of use-wear compared to flint. This would suggest that obsidian was not used in daily activities but on a few occasions only, before being discarded. Obsidian is an exotic lithic, but does not seem to have been treated as such by the Neolithic people of the Tavoliere – it was not curated, not placed with human burials, and not placed in other ritual contexts. It is found in ditches and on the surfaces of settlement sites, as though after its limited use it was then discarded. However the numbers of obsidian pieces that could be present at these sites (if Masseria Candelaro is a guide) implies that a steady supply of obsidian was needed. This fact may mean that instead of a simple down-the line model of obsidian movement there may have been a more organised supply route from the sources to the Tavoliere.

So what could obsidian be used for? We suggest that special rituals involving rites de passage, such as the cutting of the umbilical cord of newborns and/or the circumcision of boys would require the extremely sharp edge of a freshly knapped obsidian blade or flake. These rituals would occur continually in Neolithic communities of all sizes and necessitate the need for a steady supply of obsidian. There is plenty of ethnographic evidence for obsidian being used this way in communities that have access to obsidian.

Our analysis of the Tavoliere obsidian suggests that although an exotic lithic, everybody in the Neolithic who wanted obsidian had access to it. It may have been exotica but was not treated as such. Present day archaeologists perceive that obsidian is special, the ‘black gold’ of the Neolithic, when maybe this is not how Neolithic people saw it. Our modern perceptions of obsidian may have coloured previous interpretations of this lithic and its role in Neolithic society.

NOTES

1 This report was written before the publication of Brown et al. 2018. This and other recent references have been added to the report and included in the Bibliography.

2 Acquafredda et al. 2017 includes analyses from a larger number of sites in Apulia.
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