

Human-environment interactions in Sicilian inland during the Early Middle Ages (8th-11th c. AD): the case of Contrada Castro (C-W Sicily)

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Ecology

The study area is quite diverse from a bioclimatic point of view, presenting different gradients from lower mesomediterranean (upper dry) and lower supramediterranean (lower subhumid). The landforms were shaped by frequent changes in geological strata, such as the alternation of clayey or marly hills and calcareous reliefs in the Mesozoic Era (Sicana facies). This has resulted in a sequence of hills with gentle slopes that are irregularly interrupted by isolated mountains with steep, if not abrupt, slopes, which reach the considerable height of 1420 m a.s.l. (Monte Barraù). The rural landscape is heterogeneous due to its environmental variability and centuries of human activities involving natural resource exploitation. The ecological characteristics offer optimal conditions for agricultural exploitation, silvo-pastoral activities and historical human settlement. The area is an example of traditional Mediterranean farmland with a mosaic of arable land, olive groves, vineyards, mixed crops, fruit orchards and agro-forestry systems.



Different views of the relict wood of Mt. Barraù characterized by *Quercus ilex*: anthracological data have shown that most of the woody plants used as fuel in the medieval period are species belonging to the current holm oak wood.

The project "Harvesting Memories: Ecology and Archaeology of Monti Sicani landscapes" aims to analyse the long-term relationship of landscape dynamics and settlement patterns in a Mediterranean inland of Central-Western Sicily. The project combined different interdisciplinary approaches of vegetation science, landscape ecology, archaeobotany, history and archaeology in order to diachronically understand and reconstruct the human-society-environment interactions.

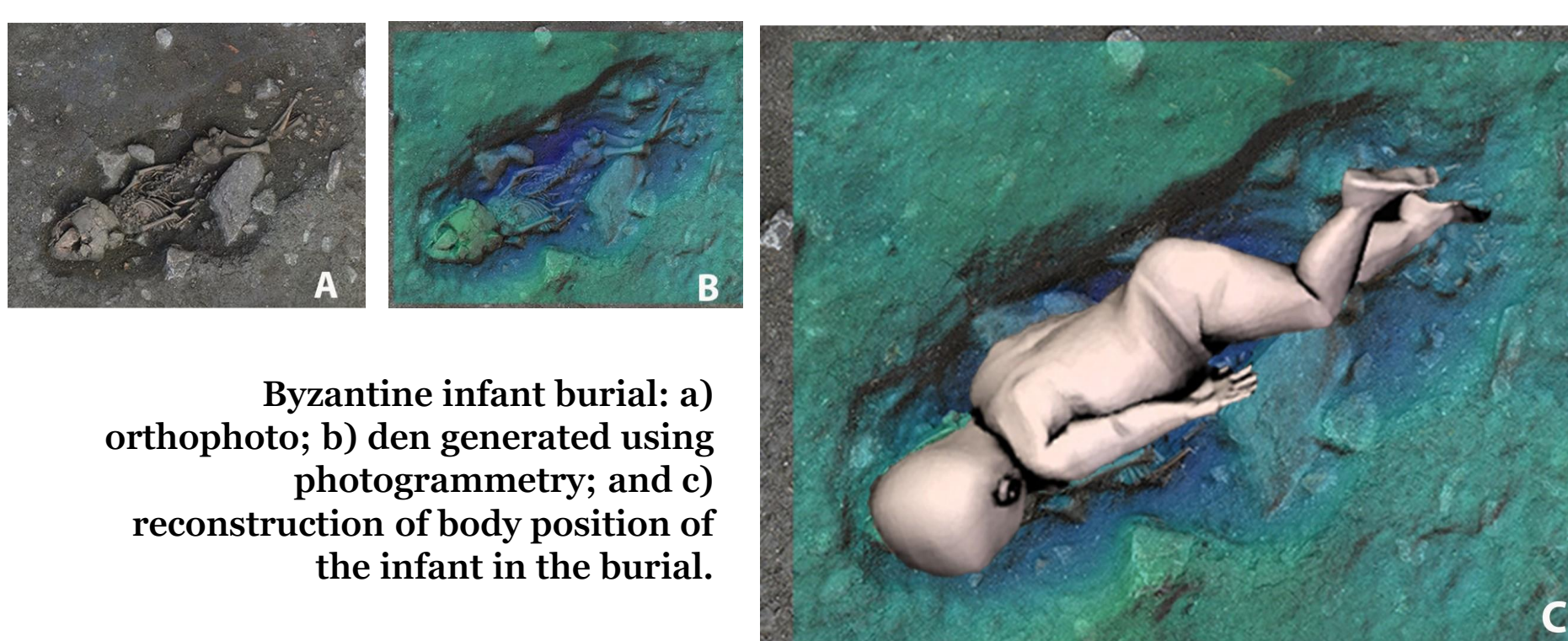
From 2017 to 2019 a new rural settlement has been investigated in Contrada Castro (Corleone, Palermo). The excavation in Contrada Castro showed a clear case of long-term occupation of a hill-top site during: 1 - Late Archaic/Classical age (6th-5th c. BC) 2 - Byzantine (late 8th-9th c. AD) 3 - Islamic period (10th-11th c. AD)

The site occupies a defendable and strategic position, but at the same time, is directly connected with underlying valleys are potentially exploitable for agriculture and crossed by possible road axes in this sector of the Sicani Mountains. This plateau is occupied by the remains of interconnected enclosures with 1-m high dry

walls formed by square blocks of various sizes installed under dry conditions, which are related to transhumant herding activities. In the second half of 8th c. AD, a squared 5x5 m building has been constructed in area A. In the first phase, the building should not have been entirely covered, perhaps only a roof of tiles on some sides, and inside it only craft activities related to pottery and tiles production took place. In fact, in the south side of the building the remains of two circular kilns has been found connected to burnished layers and a good amount of productive wastes. After this phase, a radical change in the topography of the settlement is recorded, characterized by the presence of new structures in discontinuity with the previous ones, during the 10th century up to 11th century. Therefore the settlement consistency is still to be verified during the first decades of the Norman period, at least from the data available so far, merely populated, if not abandoned, and only sporadically settled.



First phase of the kiln (8th-9th c. AD)



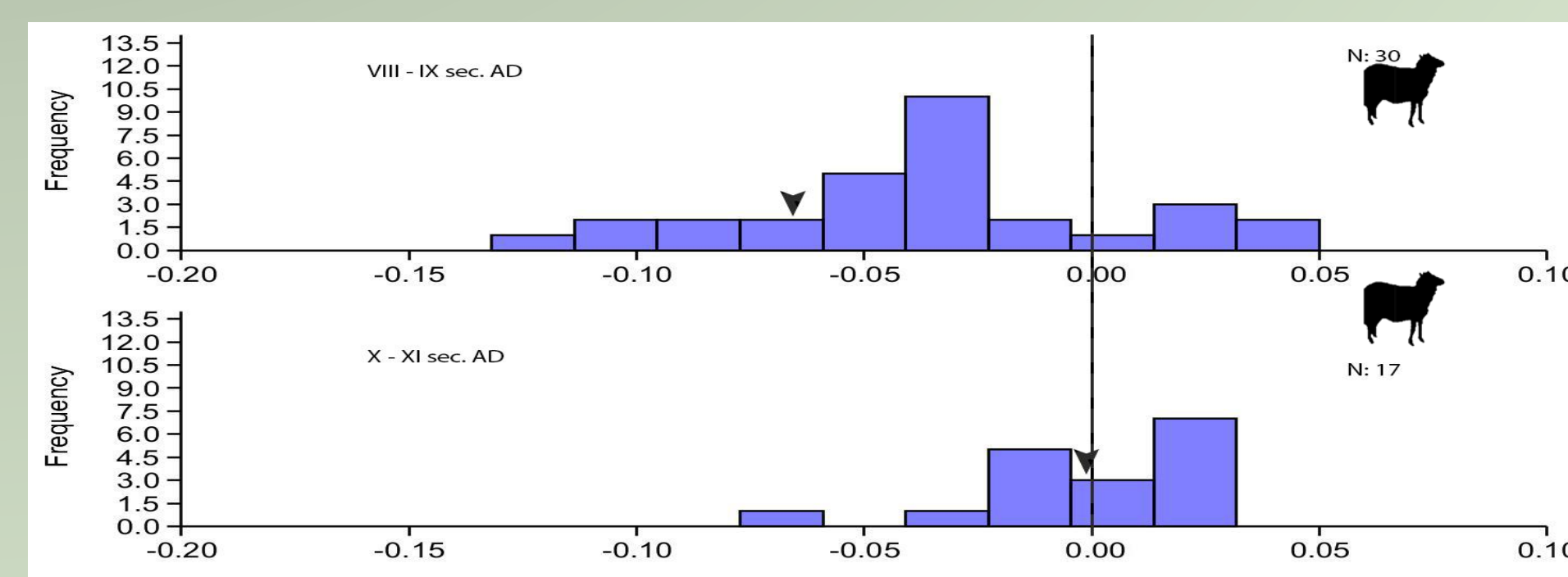
Byzantine infant burial: a) orthophoto; b) den generated using photogrammetry; and c) reconstruction of body position of the infant in the burial.

Burials

Two peri-natal burials (death at a gestational age of 40 ± 2 weeks) (estimated according the regression formulas of Scheuer et al. 1980) were found. The first one is a simple oval burial with a northeast-southwest orientation containing a child lying partially on his right side with the upper part of the body (trunk and head) rotated in a semi-prone position. According to a radiocarbon analysis of bone samples, the individual's death dates to the 7th-early 8th c. AD (sigma 1 (65%) AD 662-AD 778; sigma 2 (95%) AD 620-AD 906). This chronology is confirmed by the discovery of a roof tile decorated with stamped striations typical of the Byzantine period in Sicily on the surface of layer where the burial is cut. Preliminary genetic data made by Laboratory of Molecular Anthropology and Paleogenetics, Department of Biology, University of Florence showed that the skeletal remains from Corleone still contain well preserved endogenous DNA. It was possible to determine that the individual was a male and that his mitochondrial DNA belonged to the rare sub-clade HV4a2b of haplogroup HV4, belonging to the macro-haplogroup HV*, which is more frequent in the Middle East.

Zooarchaeology

The faunal assemblage referring to the occupation of the site between the 8th and 9th centuries AD is characterized by the prevalent presence of domestic species. The group most represented is that of the caprovines (*Ovis aries* / *Capra hircus*) (52% of the identified fraction), followed by the pig (*Sus domesticus*) with 19% and the cattle (*Bos taurus*) with 17%. Little represented are the wild fauna which, with a distribution of between 1% and 2% of the identified group, show the presence of the deer and the wild boar. In the period between the 10-11th century AD, the distribution of the various taxa identified shows a general continuity with the situation of 8-9th c. AD, even though showing significant exceptions. Although the number of wild species remains extremely low and the high percentage of the caprovines remains (36%), in this period the settlement sees a marked increase in the presence of the cattle which reaches 32%, twice the previous period. Furthermore, a preliminary analysis aimed to explore the size-changing of the sheep during the two periods seems to highlight a general increase in size for the sheep in the Islamic period. The general framework that follows would refer to the substantial maintenance of a rural economic model, strongly characterized by the husbandry of caprovines up to the 10th century AD, when a significant increase of the economic role of the cattle is recorded.



Histograms showing the comparison of sheep bones measurements for the two periods of occupation of the site, according to the log ratio technique proposed by Simpson et al. (1960).

Pictures from the excavation 2017-2018



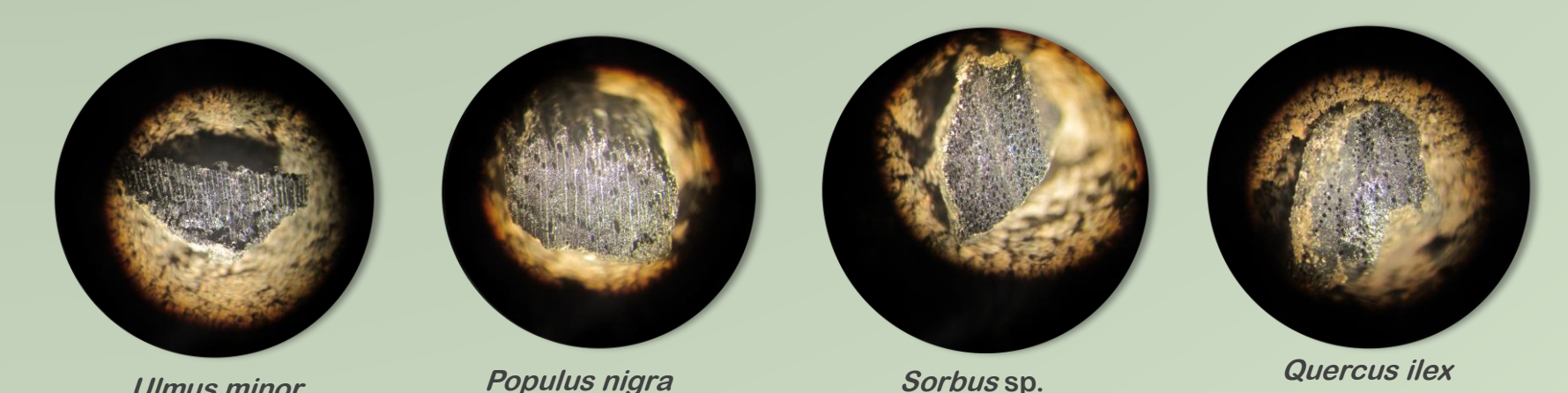
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Archaeobotany

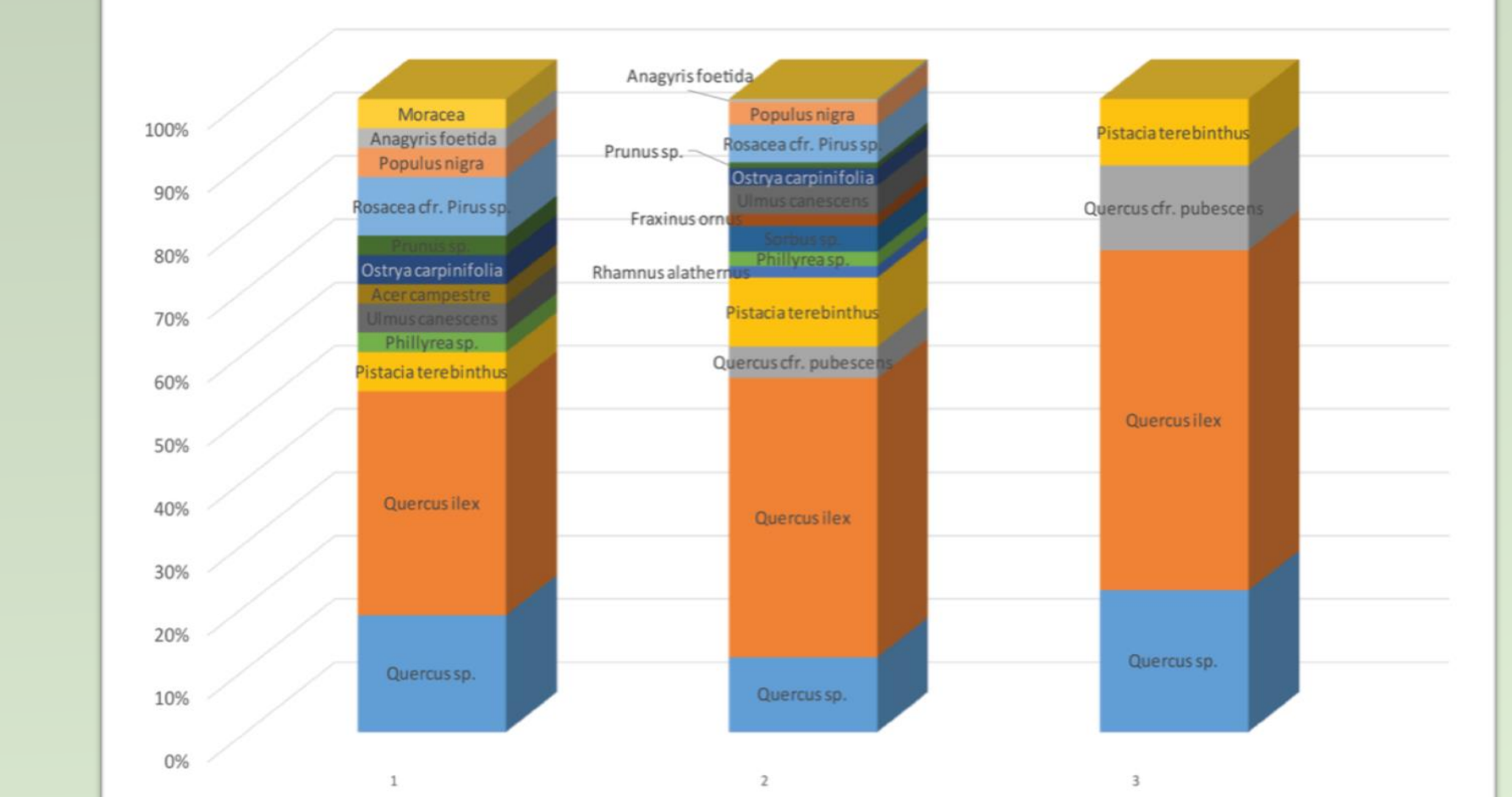
The woody vegetation is represented by a *Quercus ilex* community, which also includes *Fraxinus ornus*, *Pistacia terebinthus*, *Acer campestre*, *Sorbus torminalis* and *Quercus virgiliana*, in catenal contact with hygrophilous communities of *Populus nigra* and *Ulmus minor*. Within the kiln, most of the species represented are *Quercus ilex* and *Pistacia terebinthus*, with a very low percentage of the other species. Comparing it with the higher variability of the other stratigraphic units, it is possible to hypothesize a selection of these two species functional for combustion.

The species found in the archaeobotanical record indicate a co-presence in the exploitation of different environments, from the thermophilic forest to the riparian contexts; this variability reflects the current heterogeneity of the context, both in terms of present vegetation than ecological and geomorphological features.

The holm oak is by far the most exploited species for all the chronological phases. The massive use on the site of wood species referable to different stages of the holm oak series clearly indicate an exploitation of the range of this series for silviculture. Agricultural exploitation is also documented by the discovery of charred seeds - still under analysis - referable, especially for the first medieval phase, to several varieties of cereals and legumes, connected to the cultivation of the surrounding area.



Ulmus minor, Populus nigra, Sorbus sp., Quercus ilex



Wood species identified by archaeobotanical analyses on charcoals of different periods: 1) 10th-11th c. AD; 2) late 8th-9th c. AD; 3) 6th-5th c. BC.

HIGHLIGHTS

The project "Harvesting Memories: Ecology and Archaeology of Monti Sicani landscapes" aims to analyze the long-term relationship of landscape dynamics and settlement patterns in a Mediterranean inland of Central-Western Sicily

Hill-top site occupied during: 1 - Late Archaic/Classical age (6th-5th c. BC) 2 - Byzantine (late 8th-9th c. AD) 3 - Islamic period (10th-11th c. AD)

Cross-disciplinary approach (archaeology, landscape ecology, zooarchaeology, archaeobotany, anthropology, history, vegetation science)