

STORIES OF DAILY LIFE FROM THE MIDDLE BRONZE AGE WATERLOGGED SITE OF OPPEANO "4D" (VERONA, NE ITALY): COMPARISON OF ANTHRACOLOGICAL, CARPOLOGICAL AND PALYNOLOGICAL DATA

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INTRODUCTION

Archaeological domestic contexts, with their hearths, ovens, pits, and waste heaps inside and outside dwellings represent an important source of information on the use of plants and of space by ancient communities. As part of the ERC-funded GEODAP project, it was possible to study many organic finds sampled inside some huts (occupation layers, hearths, ground-levelling layers, etc.) from the site of Oppeano 4D. The analysis of plant macroremains including high amounts of charcoal, seeds and fruits, and of microremains, such as pollen, made it possible to outline a first picture of the environment and plant resources in use and the probable function of the domestic areas.

THE STUDY AREA

The site of Oppeano 4D is located in North-Eastern Italy, in the higher part of the Po Valley (Fig. 1). The multi-phase settlement is ¹⁴C-dated to the Middle Bronze Age (1650 - 1350 BCE, Nicosia et al. 2022).

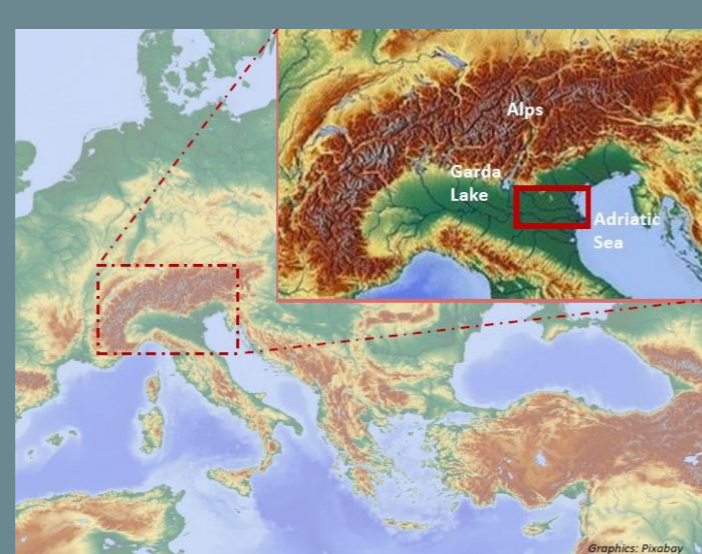


Fig. 1: Detail of the Po Valley area.

The rescue excavations of 2015 highlighted the exceptional conservation of the wooden structures of nine huts (BM I), which was allowed by waterlogging conditions soon after site abandonment. Inside, multi-layered hearths were associated to finely laminated deposits alternating ashes and unburnt organic-rich layers composed of herbivore dung (Gonzato et al., 2021; Nicosia et al. 2022). The huts were then defined as "byre-houses" (Nicosia et al. 2022). Floor levelling layers were also excavated.

DIFFERENT USES OF WOODY RESOURCES IN THE HUT F

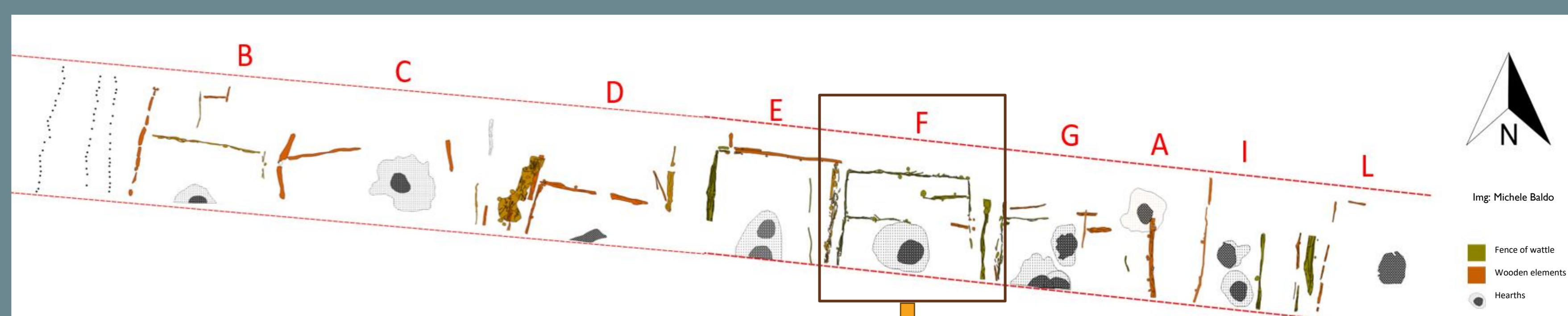


Fig. 2: Excavation plan of the site Oppeano 4D and detail of structure F.

The huts in Oppeano were built using vertical posts and horizontal wooden elements interwaved to form a wall of wattle (s.c. "viminata" technique) (Figs. 2, 3). The presence in the same huts of wood with different degrees of carbonization and waterlogging suggests a differential use of the woody resource within the structures.



Fig. 3: Interior of the structure F with the central hearth.



Fig. 4: Detail of corner of structure F, showing walls built using the wattle and post technique.

In Hut F (Figs. 3, 4), for example, oak wood is used extensively as fuel for the hearth and we find it exclusively charred. A greater variability in the choice of wood can be seen instead in the floor levels, where unburnt tree species of the local hygrophilous woodland, such as elm (Fig. 5), alder and hazel, are attested (Fig. 6). It seems that the twigs (Fig. 5) could have been used to level or drain the floor surface inside the hut or perhaps as bedding for livestock.



Fig. 5: Elm twigs on the left and cross-section (5x) on the right.

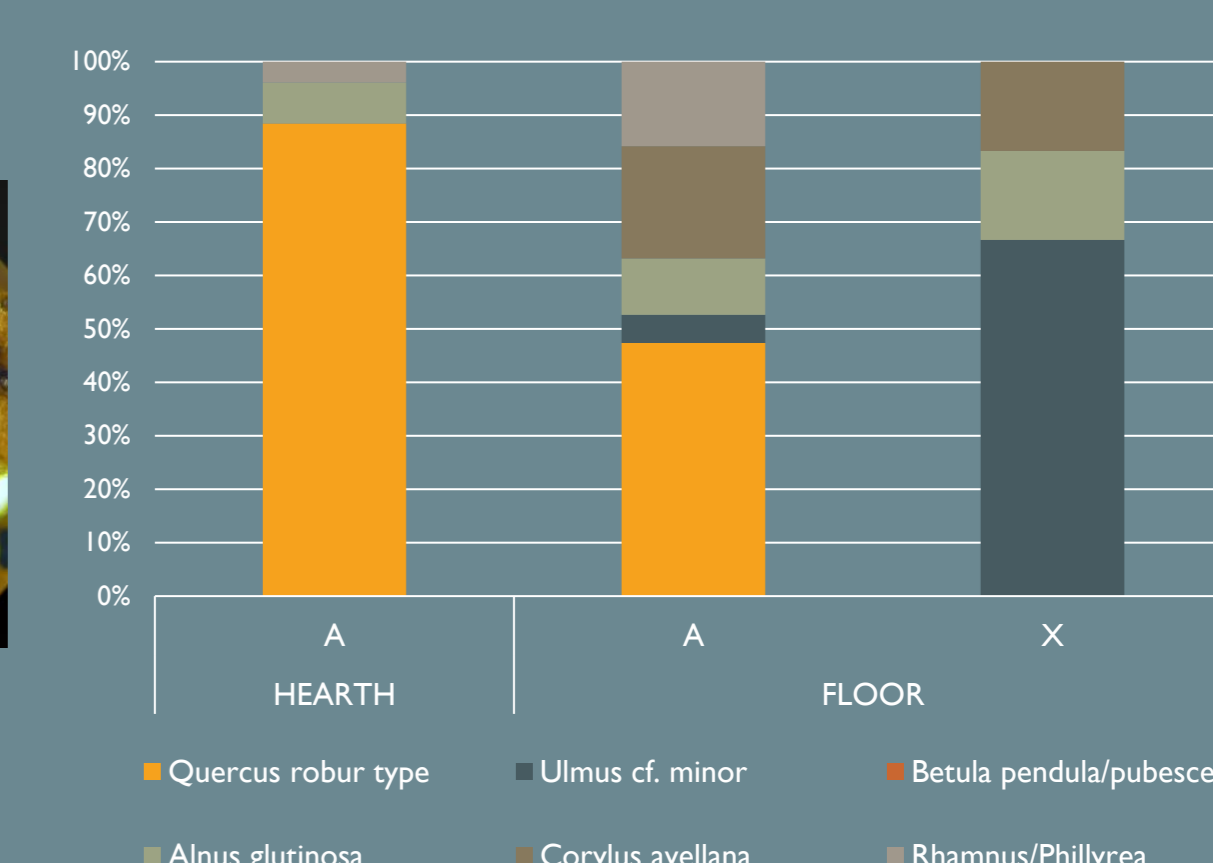


Fig. 6: Anthracological (A) and xilological (X) records from Hut F according to stratigraphic units.

WOOD USE: general anthraco and xilo results

The anthracological results from eight huts (Figs. 7, 8; tot. remains 2213, D'Aquino et al. in prep.) reveal the extensive presence of mesophyll woodland (Quercus-Carpinetum), characterised by species such as deciduous and semi-deciduous oak, hornbeam, field elm, field maple, hazelnut, and shrubs such as viburnum, blackthorn and buckthorn. Also represented are species typical of hygrophilous riparian forests, such as alder, ash and birch. The use of resources is quite homogenous among the huts (Fig. 8).

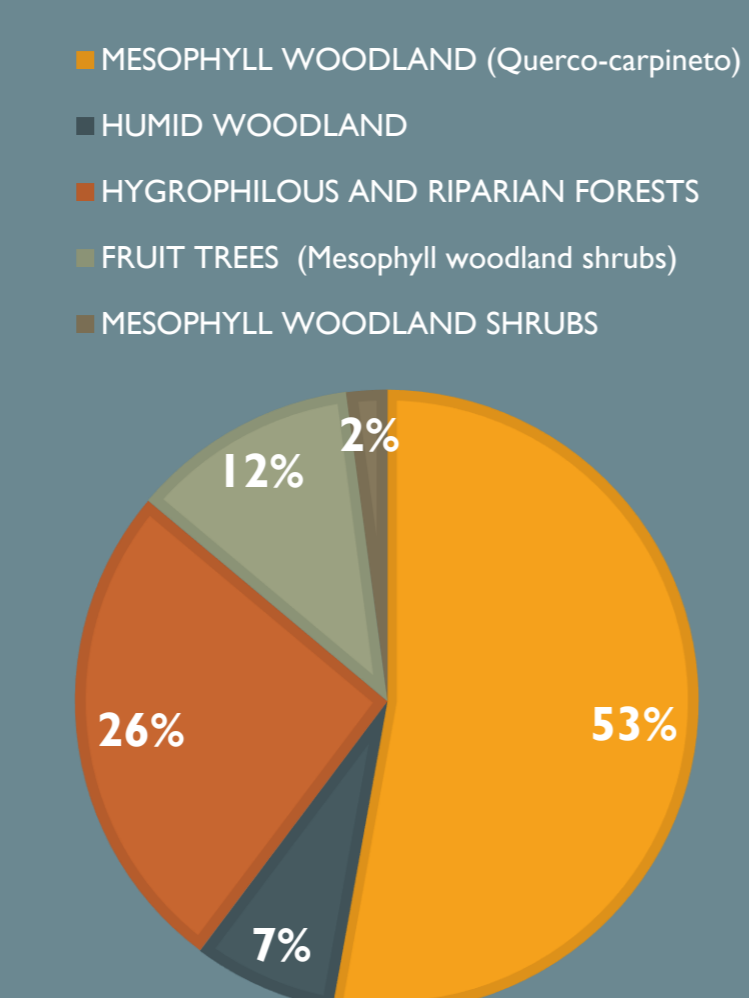


Fig. 7: Anthraco/xilo record from eight huts [tot. count 2213].

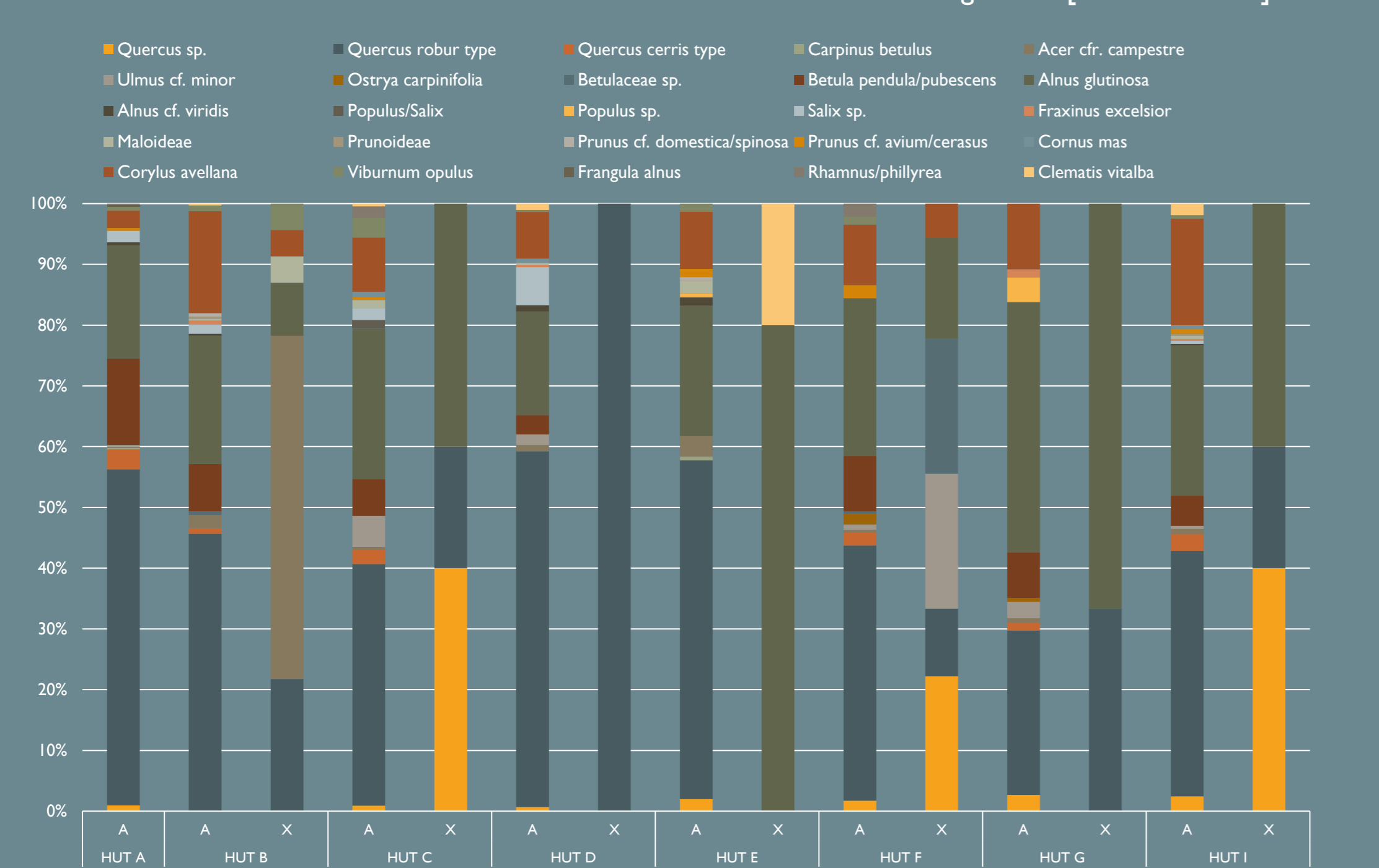


Fig. 8: Anthracological (A) and xilological (X) results from eight huts based on 2213 finds.

PALYNOLOGICAL AND CARPOLOGICAL DATA

The palynological and carpological analyses focused on the stratigraphic units inside the huts, which were characterised by the presence of herbivore dung from domestic animals. The pollen record (Fig. 9) is dominated by non-arboreal pollen, including cultivated and sinanthropic plants indicating that (I) some stages of cereal processing were carried out on-site and (II) open environments were present and widely used for foddering and pastures. Arboreal pollen is scarce and attests (III) woodland patches in the surrounding of the site, where hornbeam is the third represented tree after alder and deciduous oaks. Hazel is also well attested. (IV) Conifers are only attested in the pollen record, which suggests that they did not occur locally and likely belonged to the river catchment. (V) Cyperaceae are ubiquitous and abundant.

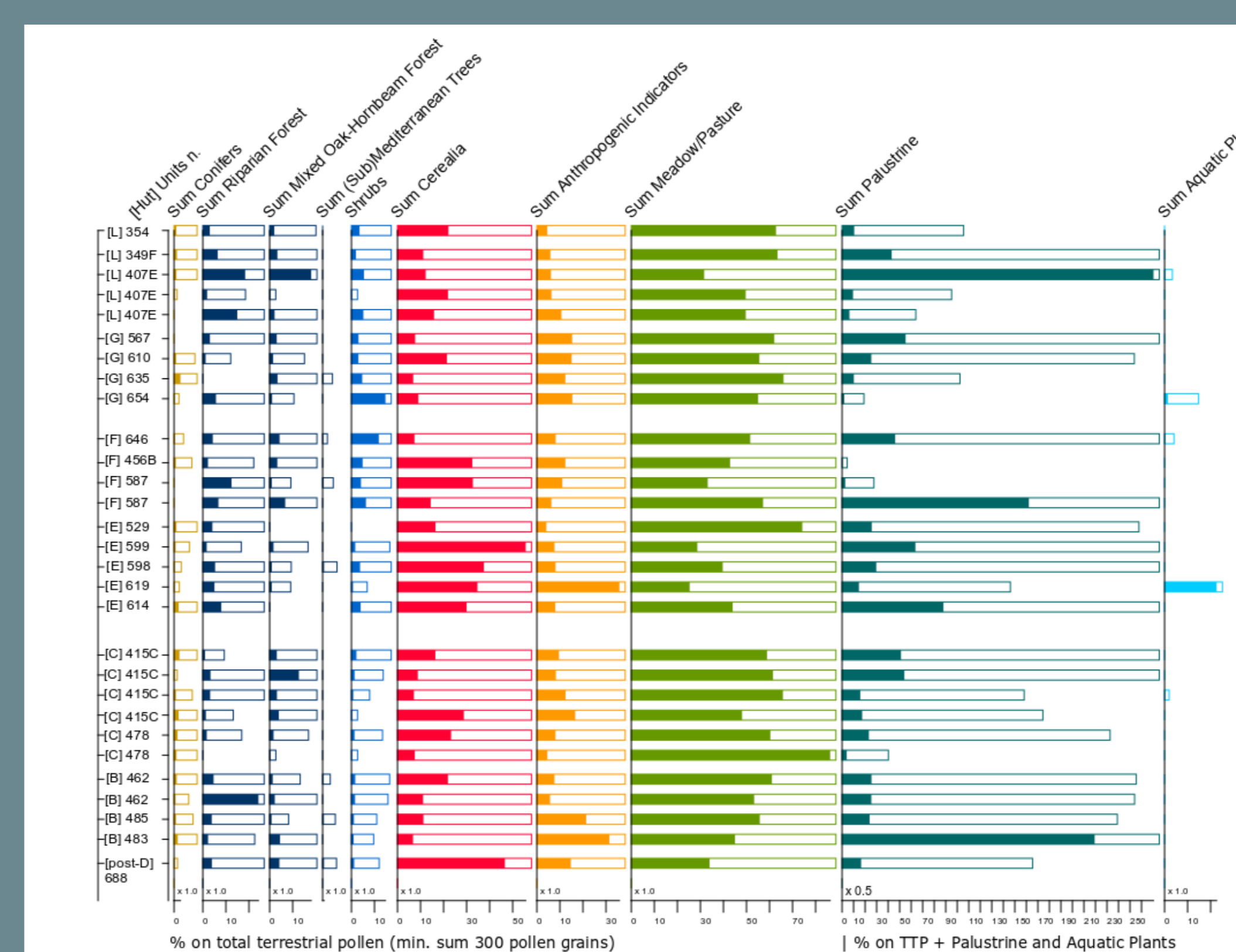


Fig. 9: Summarised pollen diagram with plant groups (analysis by Marta Dal Corso).

The carpological record (Fig. 10) also shows a large presence of sinanthropic plants and cereal remains. The grains and other plant parts are always found charred and demonstrate their processing on site likely linked also to the use of the hearths by people. However, numerous weed remains are not burned. This material could also be linked to the presence of dung deriving from the stationing of herbivores (sheep and goats, cattle and pigs, Manfrin & Gillis in prep.) inside the huts. The aquatic/wetlands vegetation is represented almost exclusively by Cyperaceae. In Oppeano the harvest of wild fruits is well attested, such as hazelnuts, dogwood, acorns, blackberries and wild vines, important for both human and animal nutrition.

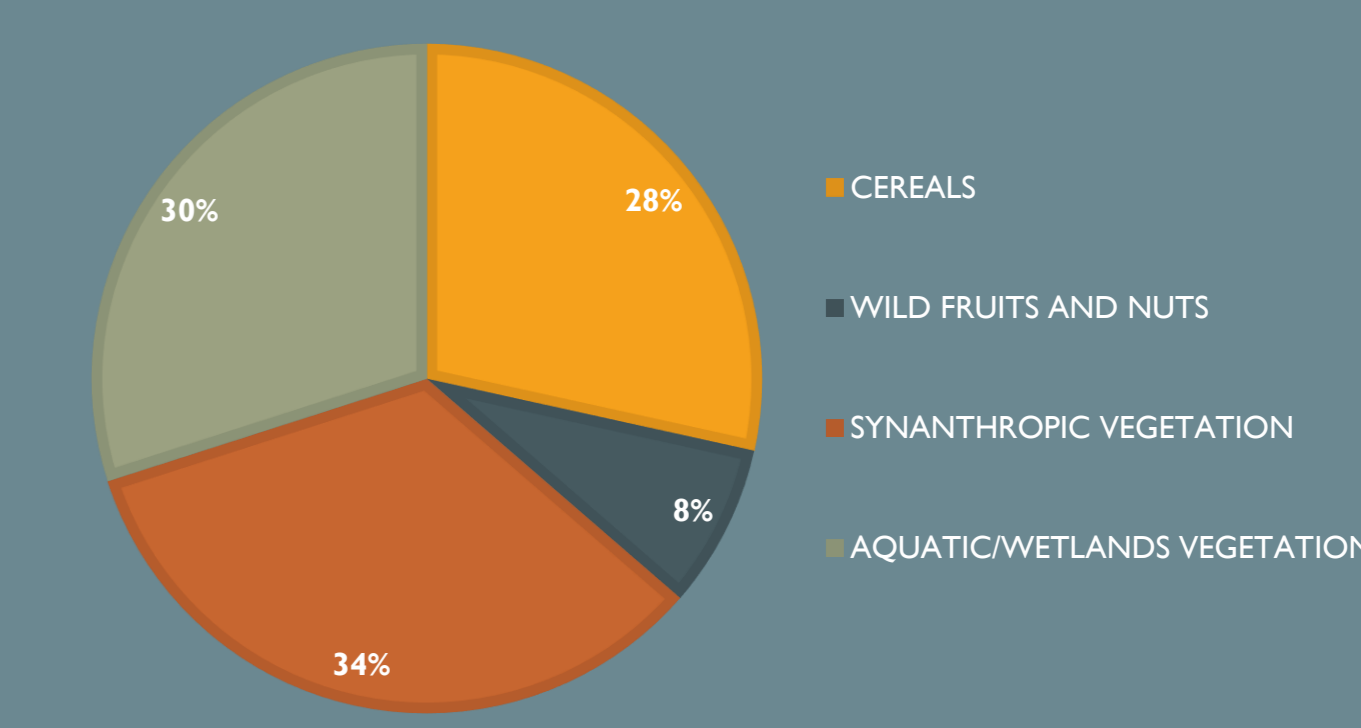


Fig. 10: Carpological record based on 3596 charred and uncharred finds.

CONCLUSIONS

The comparison between different types of archaeobotanical analyses is key for the environment reconstruction and for understanding the daily life in the Bronze Age site of Oppeano. The results of the palynological analysis are quite consistent with those obtained with the anthracological and carpological analyses. The landscape was characterized by the oak-hornbeam forest (with hornbeam being likely used for fodder or bedding instead of fuel) and by species typical of the riparian forest, today almost completely disappeared in that area. Open environments with arable land and pastures were attested too. The subsistence economy was based on the cultivation of different cereal species and the gathering of fruits and herbs. Cereal processing likely involved fire for roasting or parching. Sedges were an important local resource that suggests the possible use of the wetlands for daily pastures and/or the collection of sedges for e.g. thatching.

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