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# The Long-Term Environmental Changes (LoTEC) inferred from palynology: the case study of the Terramare in the Middle Bronze Age of the Po Plain (N Italy)

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The Long-Term perspective on the human impact on the landscape for Environmental Change (LoTEC) is becoming one of the main topics of paramount interest in biological and earth sciences. The understanding of LoTEC is based on the knowledge of environments at subsequent steps and degree of human impact. Multidisciplinary bio-geo-archaeological investigations on the dynamics that govern the human-climate ecosystem are crucial to allow us to envisage possible future scenarios of biosphere responses to global warming and biodiversity loss (Mercuri and Florenzano 2019). Palynology is among the most informative tools to study high-resolution sequences formed under natural and anthropogenic (cultural) forces, and LoTEC can be studied for example by characterizing human action on tree crops and synanthropic wild plants that grew preferably in rural and urban environments. A number of studies discuss the relationships between the rise and fall of past cultures, connecting the environmental changes with potential crisis of ancient societies. This is the case of the Terramare civilization, which developed in the central-southern Po Plain of northern Italy between the Middle and the Recent Bronze Ages (XVI-XII century BC). This civilization lasted for over 500 years, suddenly collapsing at around 1150 years BC, in a period marked by a great societal upheaval throughout the whole Mediterranean area. The land transformations that occurred at the onset, duration, and end of the Terramare culture have been investigated through an interdisciplinary study of archaeological contexts (villages and necropolis). The national-funded SUCCESSO-TERRA Project (Human societies, climate-environment changes and resource exploitation/sustainability in the Po Plain at the Mid-Holocene times: the Terramara) joints geoarchaeology and palynology. The palynological research showed a transformation in flora composition and plant communities, suggesting a dynamic agricultural economy, which was mainly based on deforestation and multifunctional agriculture (Mercuri et al. in press). The overexploitation of natural resources became excessive in the late period of the Terramare trajectory, when also a climatic change occurred. The unfavorable concomitance between human overgrazing and climatic-triggered environmental pressure, amplified the on-going societal crisis, likely leading to the breakdown of the Terramare civilization in the turn of a few generations (Cremaschi et al. 2016).

References

Cremaschi M., Mercuri A.M., Torri P., Florenzano A., Pizzi C., Marchesini M., Zerboni A., 2016. Climate change versus land management in the Po Plain (Northern Italy) during the Bronze Age: new insight from the VP/VG sequence of the Terramara Santa Rosa di Poviglio. Quaternary Science Reviews 136: 153-172

Mercuri A.M., Florenzano A., 2019. The Long-Term perspective of human impact on landscape for Environmental Change (LoTEC) and Sustainability: from botany to the interdisciplinary approach. Sustainability (in press)

Mercuri A.M., Florenzano A., Burjachs F., Giardini M., Kouli K., Masi A., Picornell-Gelabert L., Revelles J., Sadori L., Servera-Vives G., Torri T., Fyfe R., 2019. From influence to impact: the multifunctional land-use in Mediterranean prehistory emerging from palynology of archaeological sites (8.0-2.8 ka BP). The Holocene (in press)