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Human-environment relationships during the Late Glacial-Early Holocene transition: some examples from Campania, Calabria and Sicily
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Relations Homme-environnement à la transition Tardiglaciaire-Holocène en Campanie, Calabre et Sicile

Interazioni uomo-ambiente durante la transizione Tardiglaciare – Olocene: esempi dalla Campania, Calabria e Sicilia

An overview of faunistic records (i.e. of large mammals and molluscs) from some prehistoric sites of the Tyrrhenian regions of Southern Italy and Sicily (Grotta del Mezzogiorno, Grotta della Serratura, Grotta del Romito and Grotta d’Oriente) indicates an opportunistic human environmental exploitation in this region during the Late Glacial-Early Holocene transition. Patterns of faunal exploitation appear to be strongly controlled by combinations of palaeoclimatic conditions, specific orographic and geomorphological settings and sea-level fluctuations.

Central Mediterranean regions experienced consistent climatic and environmental changes during the Late Glacial and the Early Holocene (Roberts et al., 2001), evidence for which is sometimes recorded in prehistoric sites of the region (e.g. Woodward and Goldberg, 2001). SW Italy is very rich in ancient cultural evidence and offers the opportunity to investigate human responses to changes in Mediterranean landscape. In order to elucidate the temporal and spatial use of environmental resources by human groups inhabiting SW Italy at the time, this work reports an overview of faunal records from prehistoric sites of this region. We compare the frequency and the abundance of species (i.e. large mammals and molluscs) at sites in coastal and inland areas. Four prehistoric sites with exhaustive data available in the literature have been chosen as geographic examples: Grotta del Mezzogiorno, Grotta della Serratura, Grotta del Romito and Grotta d’Oriente.
1.2 - Grotta della Serratura (Salerno - 39° 59’N, 15° 23’E)

It is a coastal cave located at 2 m a.s.l. at the base of the Bulgheria Mountains, part of the Campanian-Lucanian Apennine Chain. The coastline is mainly formed by carbonate promontories ending in vertical cliffs and intersected by pocket beaches. Late Glacial human occupation spanned from 13,100 ± 120 BP to 10,000 ± 130 BP (layers 8 – 9), and Early Holocene ones from 9,870 ± 70 BP to 9,720 ± 60 BP (layers 7 – 4) (Martini, 1993; Martini, Cilli et al., 2007).

1.3 - Grotta del Romito (Cosenza - 39° 54’N, 15° 55’E)

It is a small horizontal cave and rockshelter on the western side of the limestone Monte Ciagola hill, at 275 m a.s.l., about 25 km from the Tyrrhenian coast, in the Lao Valley. This region is characterized by mountains rising to more than 2000 m, the Apennine ridge, which descend steeply towards the Tyrrenian Sea. Late Glacial human activities considered in this paper span from 12,170 ± 60 BP to 11,060 ± 100 BP (layers D – C) (Martini, Cilli et al., 2007).

1.4 - Grotta d’Oriente (Trapani - 37°55’ N; 12°20’ E)

It is a small cave located on Favignana Island, in the Egadi Archipelago, at around 40 m a.s.l. The area is composed of calcareous-dolomitic rocks and calcareous and arenaceous marine sediments. The coastal areas comprise mainly carbonate promontories ending in vertical cliffs alternating with sandy pocket beaches. Late Glacial activities are attested in layers 7 (12,132 ± 80 BP) and the Early Holocene in the layer 6 (8,608 ± 65 BP) (Lo Vetro and Martini, 2006; Martini, Lo Vetro et al., 2007).

During the Late Glacial interval human groups related to the Late Epigravettian tradition occupied the Tyrrenian regions of the Southern Italian peninsula and Sicily (Martini, Cilli et al., 2007; Martini, Lo Vetro et al., 2007). In these regions Late Epigravettian culture spanned from around 14,500 to 10,000 years BP. According to temporal technotypological tendencies in lithic assemblages, Martini, Cilli et al. (2007) proposed two distinct and contemporaneous Late Epigravettian tendencies for the Tyrrenian regions of the Southern Italian peninsula. A first one in which microlithic backed tools and geometrics (armatures-prevalent phylum) prevail and another with fewer armatures and more basic tools, such as scrapers and denticulates (substratum-prevalent phylum). In Sicily Late Epigravettian appears with peculiar convex backed points of non-microlithic size and some geometrics (Martini, Lo Vetro et al., 2007). However the above differences in lithic assemblages are not recorded in other cultural manifestations (art, burial, hard-tissue production, etc), suggesting a common Epigravettian regional tradition widespread in Tyrrenian Southern Italy and Sicily (Martini, Cilli et al., 2007).
At the onset of the Holocene the combination of Late Epigravettian tradition with external cultural influxes produced new techno-typological tendencies, which characterize the local Mesolithic. Northern Sauveterrian influxes combined with the Late Epigravettian traditions prevalent phyllum tradition produced a local Sauveterrian facies (microlithism, “Sauveterre-like” bilateral backed armatures) (Martini, 1993; 2002; Martini and Tozzi, 1996). A similar pattern occurred in Sicily (Aranguren and Revedin, 1998; Lo Vetro and Martini, in press). In the same regions another facies called “Undifferentiated Epipaleolithic” (Martini, 1993; 2002), characterized by several scrapers and denticulates usually made on irregular flakes, occurred contemporaneously with local Sauveterrian. Still in Sicily, microlithic convex backed tools and microlithic/permicrolithic geometrics are referred to a further Mesolithic phyllum related to the local Late Epigravettian tradition (Lo Vetro and Martini, in press). The Late Mesolithic is marked by lithic innovation associated with local Castelnovian-like facies, among which regular blades and bladelets made by indirect and/or pressure flaking and the trapezoid armatures occur (Martini and Tozzi, 1996; Martini, 2002).

2 - Human-environment relationships during the Late Glacial-Early Holocene transition: a palaeoeconomic perspective

Qualitative and quantitative analysis of faunal remains yield important clues in understanding spatial and temporal patterns of environmental exploitation by human groups in these regions during prehistoric times, and how human groups adapted their economic systems to the availability of different resources. The aforementioned sites provide, according to their geographic setting, different subsistence activities, testified by their broad spectrum of faunal remains.

Faunal assemblages from Late Glacial layers of G. del Mezzogiorno are mostly composed of Capra ibex, followed by woodland species (Cervus elaphus, Capreolus capreolus and Sus scrofa) (Tozzi, 1975; Sala, 1983). During the Early Holocene C. ibex still prevails in faunal assemblages of this site. This record indicates that hunting activities were carried out mainly on steep slope environments, which characterize the immediate areas surrounding the cave. Woodland environments were also affected by the hunting of large mammals, but probably with less frequency.

Evidence of mollusc exploitation is also recorded in Late Glacial and Early Holocene layers of G. del Mezzogiorno (Tozzi, 1975; Colonese and Tozzi, in press). Episodes of land snail exploitation (Helix cf. ligata), together with fairly low numbers of marine molluscs, are testified in Late Glacial layers. Amongst marine species, those from intertidal rocks (e.g. Ostrea laguna and Patella spp.) were commonly most exploited. At the same time, species related to coastal lagoon ecosystems (i.e. Cerastoderma glaucum) were also gathered. From Early Holocene layers, land snail remains are progressively replaced by marine molluscs, amongst which no coastal lagoon species are recorded.

At G. della Serratura, large faunal assemblages from both Late Glacial and Early Holocene layers contain prevalently woodland species, including C. elaphus, S. scrofa and C. capreolus. C. elaphus which prevail in Late Glacial layers, followed by S. scrofa (Martini, 1993; Boscatto, 1997). During the Early Holocene, S. scrofa became the most exploited species, followed by C. capreolus and C. elaphus. Species related to open and steep slope environments (i.e. Bo. primigenius, Equus hydruntinus, C. ibex, Rupicapra sp.) are also recorded in Late Glacial layers, but their frequencies remain very low.

Fish, land snails and marine molluscs remain intensively documented in Late Glacial and Early Holocene layers of G. della Serratura (Martini, 1993; Colomese, 2005; Colomese and Wilkens, 2005; Martini, Cilli et al., 2007). Land snail exploitation (i.e. H. cf. ligata) preceded that of marine molluscs during Late Glacial. Subsequently, still during the Late Glacial period, marine mollusc gathering began with an almost exclusive exploitation of C. glaucum, later replaced by marine molluscs of intertidal rocks (e.g. O. turbinatus and Patella spp.) at the onset of the Early Holocene. This is coupled by qualitative changes in fish remains. Fish species of estuarine and coastal lagoon ecosystems are attested in Late Glacial layers, associated to C. glaucum remains. In Early Holocene layers they are replaced by marine species. This partially agrees with data from G. del Mezzogiorno, but at G. della Serratura distinct ecosystems (i.e. coastal lagoons and intertidal rocks) were exploited progressively from the Late Glacial to the Early Holocene.

At G. d’Oriente, Sicily, C. elaphus prevails in large mammal faunal remains from Late Glacial and Early Holocene layers, followed by E. hydruntinus, B. primigenius and S. scrofa (Martini, Lo Vetro et al., 2007). As postulated for coastal zones of Campanian regions (i.e. G. della Serratura), such an assemblage is associated with the presence of both forest and open environments, with hunting activities being carried out more frequently in the first one.

No evidence of land snail exploitation is recorded at G. d’Oriente. At this site marine mollusc exploitation as food occurred mainly during the Early Holocene. This could be explained by the relatively long distance between the coast and the cave during the Late Glacial. Marine resources were probably more accessible to the cave inhabitants from the Early Holocene, when Favignana became isolated from Sicily by sea level rise (Agnesi et al., 1993). Late Glacial and Early Holocene layers provided exclusively eroded and fragmented marine “microshells” (Colomese, in press; Martini, Lo Vetro et al., 2007). Microshells are sometimes attested in prehistoric coastal sites in the Mediterranean basin (de Lumley et al., 1969; Shackleton, 1989, Stiner, 1999; Colomese and Wilkens, 2005). Their association with cultural evidence (fireplaces, faunal and lithic assemblages) seems to suggest their anthropogenic deposition, associated to the transport of sponges (Stiner, 1999) or marine vegetation (i.e. Posidonia oceanica and Zostera sp.) into dwelling places (de Lumley et al., 1969; Martini, Cilli et al., 2007; Martini, Lo Vetro et al., 2007), even though natural causes (wind) can not be excluded (Shackleton, 1989). At G. d’Oriente marine mollusc exploitation for food during the Early Holocene was focused exclusively on species of intertidal rock (O. turbinatus and Patella spp.).
G. del Romito provides data relative to environmental exploitations of inland areas (Martini, Cilli et al., 2007). The faunal remains of basal Late Glacial layers considered here are mostly represented by S. scrofa, followed by C. ibex, C. elaphus, R. rupicapra and C. capreolus. Progressively, towards the top of the Late Glacial succession, a relatively higher frequency of C. ibex and C. elaphus is recorded, although S. scrofa is generally prevalent. In this stratigraphic succession B. primigenius and Equus ferus are scarcely present. This faunal assemblage is suggestive of a preferential exploitation of the woodland environment in the older layers. In more recent Late Glacial layers hunting activity involves both woodland and steep slope environments with fairly similar proportions. Evidence of land snail exploitation is absent at G. del Romito. Contacts with the coast are provided by marine shells used as ornaments and lithic raw materials (Cilli et al., 2006).

Conclusions

*C. elaphus*, a forest species, prevails in faunal assemblages of coastal caves inhabited by Late Epigravettian groups. This is clearly evident in G. della Serratura, as at other coastal sites of the Campanian region (e.g. Grotta della Cala and Grotta di S. Maria) (Sala, 1983; Boscato, 1997). Nevertheless, the presence of open environment and steep slope species (i.e. B. primigenius, E. hydruntinus, C. ibex, Rupicapra sp.) provides evidence on how hunting activities were not exclusively carried out in woodland environments, but also occurred in other ecosystems, perhaps due to different availability of resources that could have been biased by different processes, including changes in climatic conditions. For instance, in agreement with regional palaeoenvironmental records (i.e. Huntley et al., 1999; Sadori and Narcisi, 2001; Russo Ermolli and di Pasquale, 2002), the increase of *S. scrofa* at the onset of the Early Holocene at many coastal sites, replacing *C. elaphus* as the main faunal resource, is interpreted as a sign of the expansion of closed woodland due to the increase of atmospheric moisture (Sala, 1983). On the other hand *C. ibex* was probably the most available species around G. del Mezzogiorno during both the Late Glacial and Early Holocene periods, although at other sites located in the Sorrentine Peninsula (i.e. Grotta Erica), exploitation of woodland species (i.e. *S. Scrofa*) is attested with a fairly similar frequency to that of steep slope environments (Bonuccelli, 1971; Sala, 1983). Data from Sicilian sites indicate *C. elaphus* as the most widely exploited species during both the Late Glacial and Early Holocene, accompanied by a substantial increase of *S. scrofa* during the Early Holocene (i.e. Tagliacozzo, 1993; Martini, Lo Vetro et al., 2007). A matter that requires further attention is that concerning the absence of *E. hydruntinus* in Sicilian records from the Late Glacial-Early Holocene transition.

Quite different from Late Glacial coastal exploitation are the records from the inland site G. del Romito, where *S. scrofa* is the most frequent species, followed by other woodland, open and steep slope species (Martini, Cilli et al., 2007).

Marine resources were intensively exploited in these regions during the Late Glacial and Early Holocene (i.e. Martini, Cilli et al., 2007; Martini, Lo Vetro et al., 2007). Extensive physiographic changes in coastal areas, due to Late Pleistocene-Holocene sea-level rise (i.e. Agnesi et al., 1993; Antonioli et al., 2002), probably induced rapid human adaptation to changes in the availability of resources. Indeed marine molluscs and fish remains often provide evidence of diachronic (i.e. G. della Serratura) and synchronous (i.e. G. del Mezzogiorno) exploitation of different coastal ecosystems during the Late Glacial-Early Holocene transition, sometimes preceded by supposed land snail exploitation.

According to the data presented above, qualitative faunal exploitation during the Late Glacial-Early Holocene transition in the Tyrrenian regions of the Southern Italian peninsula and Sicily appear modelled by the availability of species according to the setting of each site and the environmental evolution of the landscape. This is compatible with an opportunistic exploitation pattern, which was probably controlled by the combination of palaeoclimatic conditions, specific orographic and geomorphological settings (e.g. Sala, 1983; Bon and Boscato, 1996) and sea-level changes (e.g. Colonese and Wilkens, 2005).

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