

WHO HAS WIPED OUT THE SILVER FIR (*ABIES ALBA* MILL.)? CLUES OF PATHOGENS IN THE LIGURIAN APENNINES

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Already the palaeoenvironmental pioneering research, based on pollen analysis in the Apennines (Chiarugi, 1950, Marchetti and Tongiorgi, 1936), and then all subsequent (eg Liepelt *et al.*, 2009; Tinner and Lotter, 2006), have clearly described the Holocene history of the silver fir (*Abies alba*) and, in particular, its almost complete disappearance, in the wild, in historical times. Recent research has confirmed that in the early Holocene this species was widespread in coastal areas in Liguria and northern Tuscany, from which he retired rather early, but continuing to dominate for a long time the mountain belt (Mariotti Lippi *et al.*, 2007; Bellini *et al.*, 2009a). Actually, the pollen analysis of numerous stratigraphic sequences shows that a sudden and definitive decline must have occurred in the Iron Age, especially with the romanization (around 2500-2000 BP), while some populations has survived, on the mountains, until the Middle Ages. Currently, only a few nuclei with centuries-old specimens have survived, which may reasonably be considered a continuation of ancient populations. No certainty has yet been reached about the causes of this crisis which has changed the face of the Apennine forests: the interpretations vary between a environmental determinism (climate change, wild fires, competition with beech) to a mainly anthropogenic one (logging, fires, grazing, cultivation). The most prudent views are in favour of a combination of natural factors and human management.

However, little or nothing has been found concerning other biotic factors that have been invoked, for instance, in the case of the well known "elm fall", a middle-Holocene crisis of *Ulmus* at a European scale. Actually, also the silver fir is subject to attack by plants and animals capable, if not kill him, at least to weaken it and to render it more vulnerable to other concomitant ecological factors. During a research of environmental archaeology, carried out by L.A.S.A. with funding from the Regional Directorate for Cultural heritage and landscape of Liguria, evidences of this type (mistletoe, insects, fungi) were found on the Ligurian Apennines (De Pascale *et al.*, 2006; Menozzi *et al.*, 2009, 2010; Bellini *et al.*, 2009b). These clues of ancient parasitic attacks are illustrated in this preliminary contribution, also with references to current cases of "forest decline" in other European regions.

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