
Fire, human and vegetation in Corsica during Holocene

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Abstract

The Mediterranean regions represent less than 5% of the Earth's surface, but contain almost 20% of the world vascular plants species. Within the French Mediterranean area, Corsica houses the higher number of endemics species, and 32% of them are threatened. It is also the region, the most affected by forest fires. Corsica vegetation is in some way adapted to this disturbance but a change in fire frequency or intensity may lead to ecological, economical and human disasters. This paper presents the dynamic of vegetation–human–fire interactions for the past 12000 years as recorded by lake Bastani (Corsica, France). Well-dated sedimentary records of charcoals, pollen and fungal remains have been used to reconstruct past fire regime, land-cover and land-use changes. Fire is almost inexistent before 11 000 cal BP, then biomass burned strongly increases thanks to the development of the arboreal vegetation. After 6800 cal BP, the presence of *Pinus* sp. and *Erica* sp. in the canopy decrease, a mixed oakwood develops and fire signal returns low. From the Late Neolithic and Chalcolithic periods (ca 5500 cal BP) onward, fire regime changes meaningfully, according to the development of human activities: it is characterized by a high frequency and intense episodes whereas fuel is mostly herbaceous. At the end of the Iron Age (ca. 2300 cal BP), biomass burned decreases until the end of the Medieval period. A short-term increase in fire signal is recorded around 500 cal BP and then decreases for the last three centuries. Along the entire record, pollen richness increases with an acceleration from 5000 cal BP and human impact. However, we also found a negative correlation between the pollen richness and the fire signal. At the same time, the species turnover increases during periods of intense and more frequent fires.

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