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A historical ecology of the Ecrins (Southern French Alps): Archaeology and palaeoecology of the Mesolithic to the Medieval period

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ABSTRACT

This paper elucidates the nature of human–environment interactions in a mountainous landscape (the southern zone of the Ecrins, French Alps) from the Mesolithic through to the Post-Medieval Period. We present an integrated programme of palynology, pedo- and archaeo-anthracology, and archaeology. These data permit the development of a historical ecology that allows us to differentiate between climatic and anthropogenic influences on vegetation, and the development of anthropogenic landscapes in an Alpine region. This study is of profound relevance for the broader understanding of human–environment interactions in ecologically sensitive environments both within the Alpine arc, but also beyond this region.

We identify and explain evidence for possible human landscape management practices in a high altitude landscape. Palynology defines the broad floral context and evolution of the environment through the Holocene. Palynology also permits an assessment of human activities and practices (arable agriculture, pastoralism and haymaking). The combination of these data with anthracological and archaeological evidence permits a nuanced assessment of human interaction with the landscape. We consider phases of anthropological–ecological succession across the range of altitudes, from valley-bottom to the alpine zones in the Ecrins National Park.

Four important stages of landscape use and change have been inferred from our evidence: the Mesolithic, the Chalcolithic/Bronze Age, Iron Age and Roman, and (Post)Medieval. During the Mesolithic (c. 8000–4500 BC), a major event is the expansion of fir in the *montane* stage. At higher altitudes, people exploit the ecotone, defined by the forest edge (or tree-line): an ideal zone for hunting. The Neolithic sees low-altitude clearances, but a continuation of hunting and low levels of human impact on high-altitude vegetation. The Chalcolithic/Bronze Age (2400–1000 BC) sees complex interplay of climatic changes, and the appearance of direct human intervention in the high altitude landscape as part of a new transhumant system. Although the Roman Period is characterised by phases of climatic amelioration after the deterioration of the Iron Age, the increase in human activity that is usually seen in low-lying areas is not reflected in the sub-alpine and alpine altitudes. The Medieval Period, including the Little Ice Age, witnesses a steady increase in human use of these landscapes, with forest manipulation and clearance becoming the defining characteristics of these areas. Despite the supposed inclement nature of the Little Ice Age, human activity achieves its zenith, and the combination people and climate produces the most open and managed landscape of the Holocene.

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1. Introduction

The question of the relationship between people and environment in the Alps, especially in the area of the Parc National des Ecrins, has preoccupied ecologists for some time. Even during the nineteenth century, some were concerned with the devastating impact of deforestation of the slopes of these mountains (Surrel,

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1872). During the twentieth century, Coûteaux's pioneering work was particularly important in this area (Coûteaux, 1982, 1983). However, despite this earlier palynological research, there had never been a fully integrated archaeological and palaeoecological research programme. Since 1998, a team of archaeologists and palaeoenvironmental scientists from the UK, France and Catalonia have been collaborating on the Southern French Alps Landscapes Project. This research has radically altered our understanding of activity in the sub-alpine and alpine zones (1600–3000 m) in the Southern French Alps, and in particular, in the Ecrins National Park (administrative department of the Hautes-Alpes) (Fig. 1). This research is of profound relevance for the broader understanding of human–environment interactions in ecologically sensitive environments, both within the Alpine arc, but also beyond this region. The reconstruction of vegetation patterns in our study area would stand on its own as a contribution to our understanding of Alpine palaeoecology, but its integration with an extensive Alpine archaeology research programme enhances the impact of this research.

The aim of this project has been the investigation of the long-term (Holocene) history of human activity in mountainous environments, with a particular emphasis on the transition from

hunting and gathering to intensive agriculture and pastoralism. Whilst some initial results were published a number of years ago (de Beaulieu et al., 2003; Walsh et al., 2003; Walsh, 2005; Mocchi et al., 2006; Court-Picon et al., 2007), this publication is the first full synthesis of the palaeoecological and archaeological evidence yielded after 14 years of fieldwork.

The specific aim of this paper is to elucidate the nature of human–environment interactions in a mountain landscape from the Mesolithic through to the Post-Medieval Period by coupling palynological, anthracological, and archaeological data in the construction of detailed human ecologies, with a special attention to high mountain landscapes. Whilst some of the palaeoecological research concerns valley-bottom zones, our archaeological, palynological and anthracological research has focussed on the investigation of the high-altitude areas (the sub-alpine and alpine zones (1600–3000 m)). Consequently, our results and consequent discussions prioritise the assessment of human–environment interaction in these high altitude areas. For each chronological period, we do however present a synthesis of broader human–environmental processes at lower altitudes as part of the contextualisation of our high altitude research.

The approach outlined above allows us to identify and explain evidence for possible human landscape management practices. Whilst the palynology defines the broad floral context and development of the environment through the Holocene within a detailed chronological framework, special attention to local pollen (in particular anthropogenic indicators), linked with the anthracological and archaeological evidence, permits the development of a historical ecological framework, where we consider phases of anthropological–ecological succession across the range of vertical stages, from valley-bottom up to the sub-alpine and alpine zones in the Ecrins National Park. Historical Ecology provides an interdisciplinary framework to study interactions between landscapes and human societies and to explain environmental change at different spatial and temporal scales (Crumley, 1994; Balée, 2006; Meyer and Crumley, 2012). An underlying principal of this approach is the notion that integrated palaeoecological and archaeological approaches to the study of landscape can elucidate narratives that do not prioritise one particular category of evidence, and therefore do not consider environment as determining the nature and extent of human activity in landscapes that are in many ways harsh and difficult to manage.

2. Regional setting

The Ecrins are situated just to the west of the upper Durance River in the Provence-Alpes-Côte d'Azur region in France, in the administrative department of the Hautes-Alpes. Within the Ecrins, our study areas comprise the Champsaur in the west, and the Freissinières, Fournel and Onde Valleys to the East (Fig. 1). The Parc National des Ecrins is a complex Alpine zone centred on a series of high mountains up to 4000 m (Claudin and Mielliet, 2000). The core of this sector comprises glaciers, and a series of long, deep valleys running off in all directions from this core. Limestone, flysch, and sandstones with areas of gneiss dominate the geological formations. The underlying geology of the Faravel and Serre de l'Homme areas consists of sandstone and flysch. More specifically, the transition zone between Fangeas (one of our coring sites) and the Faravel plateau comprises a complex geological transition, with red sandstone and some dolostone. Whilst there is no autochthonous flint, there are sources of quartz and minerals, including lead, silver and copper, and even some gold; minerals that have attracted people to these areas in the past.

The Champsaur area (550 km²) in the upper Drac valley delimits the southern portion of the Ecrins massif (Figs. 1 and 2). The Lower Champsaur is within the buffer zone of the Ecrins National Park, whilst the Upper Champsaur, and the other valleys considered in



Fig. 1. Location of study areas.

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