



The *Homo* habitat niche: using the avian fossil record to depict ecological characteristics of Palaeolithic Eurasian hominins

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ABSTRACT

Although hardly applied to human palaeoecology, bird fossils offer a unique opportunity for quantitative studies of the hominin habitat. Here we reconstruct the *Homo* habitat niche across a large area of the Palaearctic, based on a database of avian fauna for Pleistocene sites. Our results reveal a striking association between *Homo* and habitat mosaics. A mix of open savannah-type woodland, wetlands and rocky habitats emerges as the predominant combination occupied by *Homo* across a wide geographical area, from the earliest populations of the Lower Palaeolithic to the latest hunter-gatherer communities of the Upper Palaeolithic. This observation is in keeping with the view that such landscapes have had long standing selective value for hominins.

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1. Introduction

Descriptions of habitat occupation by *Homo* in prehistory abound (Carrión et al., 2003; Finlayson, 2004; Ségalen et al., 2007; Zhu et al., 2008; Joordens et al., 2009). The importance of savannah grasslands across large areas of the Afrotropical and the Palaearctic regions has been highlighted as central to the early hominin dispersals (de Menocal and Bloemendal, 1995; Dennell, 2003; Jacobs, 2004; Dennell and Roebroeks, 2005; Finlayson, 2009). Most habitat descriptions available are qualitative, however, and are based on general interpretations using plant and mammal fossils as indicators. Birds have rarely been used in such studies even though, through the specific habitat requirements of many species, they are excellent for this purpose. Exceptions are quantitative reconstructions and models that have used birds as

indicators (Sánchez-Marco, 1999; Finlayson and Giles-Pacheco, 2000; Finlayson, 2006; Louchart et al., 2010). Sites of Pleistocene *Homo* occupation with associated bird fossils are relatively abundant and geographically and temporally widespread (Sánchez-Marco, 2004a, b; Louchart, 2008), offering an opportunity for a quantitative study of the *Homo* habitat niche across the Pleistocene over a wide geographical area. Here we quantitatively reconstruct the *Homo* habitat niche across a large area of the Palaearctic, based on a database of Pleistocene sites in order to test whether there is a common habitat pattern in *Homo* across a wide geographical area and a long time range.

2. Methods

A database of 79 Palaearctic *Homo* occupation Pleistocene sites with associated bird fossils was compiled (Supplementary Data). No judgment was made regarding the nature of the bird fossil accumulations in each site, in particular if they had been the product of human activity. Instead, the presence of a bird species in a site of

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would only have been possible with the development of projectile technology, which would permit hunting away from cover, and portable tool kits that would allow long-range mobility. Such a development awaited a taxon that had been exploiting semi-open landscape mosaics, and using savannah corridors (Dennell and Roebroeks, 2005; Dennell, 2009), since the very origins of the genus and probably long before that.

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Appendix. Supplementary material

Supplementary data associated with this article can be found in on-line version at doi:10.1016/j.quascirev.2011.01.010.

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