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# Spatiotemporal hominin mobility patterns in relation to carnivore presence in southern Belgium during the Late Pleistocene

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## Résumé

The karstic valleys of southern Belgium were highly occupied during the Late Pleistocene by both hominins and large carnivores (hyaenas, bears, lions, wolves). Indeed, each relevant archaeological assemblage shows evidence of their presence and activity, suggesting a high level of competition for shelters in this region. Unfortunately, most of these faunal collections were gathered during the 19th century, therefore spatial and geoarchaeological data are missing. As a consequence, from a zooarchaeological and taphonomical point of view, it appears as if Palaeolithic artefacts and faunal remains displaying anthropogenic and carnivore marks (digested teeth and bones, shaft cylinders...) are intermixed. After having set up an adapted methodology in order to detangle the origins of all faunal remains (which agent did what?), we explored the mobility patterns of hunters-gatherers in light of their non-human competitors' strategies (specifically hyaenas) in order to understand the palaeoecological implications of such mixed assemblages. Our study focused on the analysis of one new site, Tiène des Maulins, and the revision of two old museum collections, Trou Magrite and Caverne Marie-Jeanne, all dating from the end of the Middle Palaeolithic and the beginning of the upper Palaeolithic. By employing cementochronological analysis in collaboration with the CemeNTAA project, we explored the seasonal aspect of the presence and activity of humans and hyaenas. Our study largely confirms high human mobility patterns and suggests that contrary to the hyaenas who stayed all year round in this region, hunter-gatherers seem to have preferred cold-season incursions in southern Belgium, despite increased ecological pressures during these times (higher competition for prey and shelter with other large carnivores). Based on raw-material management data we describe a model of land use on a regional scale, exploring a possible strategic complementarity with northern Belgium.

**Mots-Clés:** Belgium, Late Pleistocene, mobility patterns, seasonality, taphonomy

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