Woolly rhinoceros from the Pleniglacial of Ajoie (Jura Canton, Switzerland): anatomical description and ecological implications

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The Ajoie region (N-W Switzerland) is dotted with numerous dolines, whose Quaternary fillings have regularly yielded megafauna remains dated from the Pleniglacial. The fossil specimens have been transported by biological (predators or scavengers) or physical (solifluction, withdrawing) processes resulting in sorting, abrasion, weathering and concentration of bones and teeth. The mammalian assemblages are dominated by grazing mega- and large herbivores. Previous studies showed that their preferred biotope was open, with low grassy vegetation and tall herbs, but there were also patches with bushes, dwarf shrubs, and scattered trees. There were both fairly damp ground with well-developed soils and drier, somewhat rocky surfaces. This natural environment of wooded tundra-steppe probably developed during relatively temperate interstadials that marked the Pleniglacial (Becker et al. 2009, 2013).

Based on comparative anatomy within late Quaternary Rhinocerotidae, the referred remains are attributed to the classical woolly rhinoceros *Coelodonta antiquitatis*. A detailed ecomorphological analysis underlines a grass-dominated mixed feeder in open habitats of a robust anatomical type. Also, a selective mortality of populations, dominated by breastfed juveniles and young adult and excluding old individuals, is observed on the base of dental wear analysis (Figure 1). Within the local periglacial context in North Alpine domain, woolly rhinoceros from the Pleniglacial of Ajoie seem to be in decline resulting from interspecific competition, low ecological tolerance, probably to the seasonality, and social behaviour rather solitary or in small groups. These results observed at regional scale could illustrate the mechanism of disappearance of woolly rhinoceros occurring in all Northern Eurasia during the terminal Late Glacial (Kuzmin 2010; Stuart & Lister 2012).

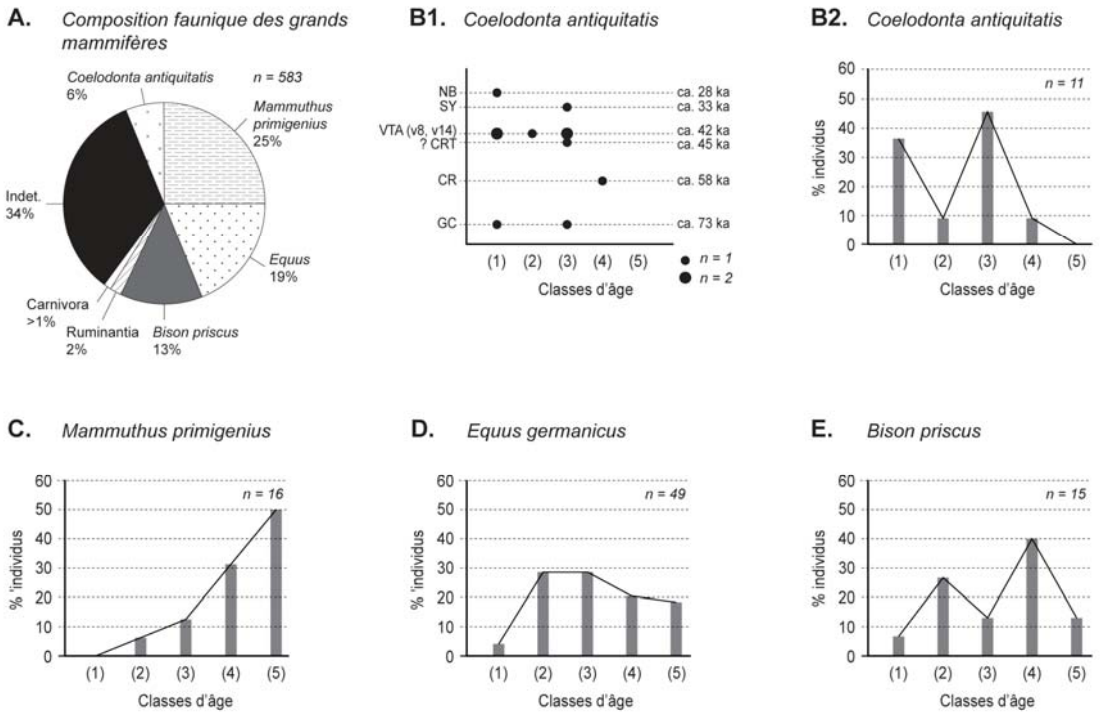

Figure 1. Faunal composition of large mammals recorded in the Ajoie (N-W Switzerland) during the Pleniglacial (**A.**). Mortality histogram of *Coelodonta antiquitatis* d'Ajoie (**B1.**) and age class *vs* remain number distribution per site (**B2.**). Mortality histogram of *Mammuthus primigenius* (**C.**), *Equus germanicus* (**D.**) and *Bison priscus* (**E.**) d'Ajoie (modified after Rothen et al. 2012 and Savoy et al. 2013).

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