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## Ecological turnover and megafaunal ghost ranges during the Pleistocene-Holocene transition in central Yukon, Canada as revealed by palaeoenvironmental DNA

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The multitude of factors alleged to have contributed to the late Quaternary mass extinction of some two-thirds of Earth's megafauna is complicated by the coarse record of buried macro-fossils. In response, micro-methods such as ancient DNA have been increasingly able to augment discontinuous palaeontological records to investigate the relative timings of vegetation turnover versus megafaunal extirpations—all in the absence of biological tissues. Here, we present sedimentary ancient DNA data retrieved using the PalaeoChip Arctic-1.0 bait-set diachronically identifying fauna and flora from permafrost cores recovered from the Klondike region of central Yukon, Canada dating between 30,000–6000 calendar years BP. We observe a substantial turnover in ecosystem composition between 13,000–10,000 BP with the rise of woody shrubs and the disappearance of mammoth-steppe vegetation. We also identify a lingering signal of *Equus* sp. (North American horse) and *Mammuthus primigenius* (woolly mammoth) from multiple samples thousands of years after their last dated macro-fossils, possibly as late as the mid-Holocene.