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Natural graveyard of the Dodo (*Raphus Cucullatus*): Youngest (4 ka BP) prehuman Concentration-Lagerstätten on an oceanic Island (Mauritius).

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While history of human colonization and impact on Mauritius is well recorded, virtually no records of the pre-human native ecosystem exist, making it difficult to assess the magnitude of the changes brought about by human settlement. Here, we describe a 4000 year old fossil bed at Mare aux Songes (MAS) in south-eastern Mauritius that contains both macro fossils (vertebrate fauna, gastropods, insects and flora) and micro fossils (diatoms, pollen, spores, phytoliths) representing a large proportion of the pre-human ecosystem of Mauritius. With > 250 bone fragments / m² comprising 50% of all known extinct vertebrate species (ns = 44) of Mauritius, MAS constitutes the first Holocene Concentration-Lagerstätten identified on an oceanic volcanic island. The paleovertebrate community was dominated by extinct giant tortoises *Cylindraspis* spp. (63%), passerines (~10%), small bats (7.8%) and Dodo *Raphus cucullatus* (7.1%). Twelve radiocarbon dates from bones and other fossils suggest accumulation of fossil material over three centuries, rather than as a result of a single catastrophic event. An

exceptional combination of abiotic conditions led to preservation of bones, bone collagen, plant tissue and microfossils. Although dodo bone collagen is well preserved, DNA extraction has failed. From ca. 4000 years ago (ka BP), rising sea levels created a freshwater lake at MAS, generating an oasis in an otherwise dry setting, which attracted a diverse vertebrate fauna. Subsequent aridification in the south-west Indian Ocean region may have increased carcass accumulation during droughts, contributing to the exceptionally high fossil concentration.

The concentration of floral and faunal remains in the dodo-Lagerstätten offers a unique opportunity to document an entire extinct community, and to reconstruct a natural, pre-human volcanic island ecosystem, providing a key foundation for assessing the vulnerability of island ecosystems to human impact.