

# EXTINCT STINGLESS BEES DISCOVERED IN DEFAUNATION RESIN AND HOLOCENE COPAL FROM AFRICA

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Specimens in fossil to Recent resins are remarkable for their fidelity of preservation. Amber is well known and studied, contrary to younger resins as Pleistocene copal (2.58-0.0117 Ma) and Holocene copal (0.0117 Ma—1760 AD), or Defaunation resin, which is resin produced after 1760 AD. The scientific relevance of these younger resins preserving arthropods that lived in pre-Anthropocene time is often underestimated. Copal and Defaunation resin can document losses of local biodiversity resulting, e.g., from deforestation. Here, we present specimens of stingless bees included in copal and Defaunation resin from Tanzania and Madagascar, ranging in age from almost 3,000 BP years to only 80 +/- 30 BP years. Stingless bees take essential ecological and economic roles. They are, e.g., pollinators and producers of honey or cerumen. In the present study, three known species and two new species have been discovered from the thirty-six studied specimens. The coastal forest in the East Africa region is now highly fragmented, so that we can expect that the new species are already extinct. The study of inclusions in copal and Defaunation resin can bring proof of this potential anthropic defaunation.