

Unusual occurrence of termite nests close to shoreline: neoichnological insights

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Abstract:

Termites are social insects inserted in the Blattodea order, generally characterized by their complex nests. These insects feed on cellulosic material from the interior of the nest, and they control the microclimate, mainly the local humidity and the relative heat of the nest. Insect trace fossils attributed to the activity of ants and termites occur in eolian deposits of the Pleistocene barrier-lagoon system III of the Rio Grande do Sul Coastal Plain (PCRS), Brazil. The search for modern analogues in a correlated environment (barrier-lagoon system IV, Holocene to recent) revealed the presence of a termite nest in eolian dunes that compose the backshore deposits covered by incipient vegetation. A cast of the nest allowed a comparison with the ichnogenus *Termitichnus*. The average diameter of the mound is 25 cm, with underground galleries reaching an area up to 140 cm² and 90 cm in depth. The nest was composed of a rounded convex epigeal portion and a hypogeal portion formed by interconnecting spherical to semispherical chambers. Considering that termites normally colonize more mature, vegetated soils due to the need of abundant cellulosic material, the occurrence of a termite nest in backshore dunes close to the shoreline opens a discussion about the distribution and habit of termites in medium latitudes. This may (1) result from an opportunistic behavior, due to the urban expansion in the study area or any other stressing process acting during the establishment of a new colony or (2) may represent a particular habit still unknown from these insects, or (3) even reflect a modern adaptation, in response to environmental changes. Thus, to prospect new occurrences of modern termite nests in backshore dunes is crucial to solve this puzzle and further studies will be carried on to evaluate the distribution of termite nests in the PCRS, in order to better understand the Pleistocene record.

Keywords: *Termitichnus*, Blattodea, Pelotas Basin, Rio Grande do Sul, barrier-lagoon system