

A remarkable cohort of arboreal termite (*Blattaria: Termitidae: Microcerotermes arboreus*) colonies

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ABSTRACT

In a line of 22 coconut palms, 18 each had a single active colony of *Microcerotermes arboreus* nested on the trunk. While the nests varied considerably in their height above the ground, they showed marked unity in their compass-point positions. Fifteen of the 18 were situated between west and southwest on their respective palms. This placed them on the leeward side, as the prevailing winds are from the east. A heavy rainstorm during our study period left only one of the nests wetted.

Keywords: Nest site, Trinidad & Tobago

INTRODUCTION

Arboreal termites typically build their nests on trunks and branches of trees and tree-like plants, including palms. While nest height above ground for a particular species is far from uniform, even at a given locality and habitat, it typically falls within a moderate range with a fairly distinct mode (e.g. Merritt and Starr 2010). We have little knowledge of what influences the position of the nest or even whether it is typically set when the founding pair first settles after the mating flight or if there is commonly migration of the colony as a whole at a later stage.

Our purpose here is to describe a peculiar set of nests of one particular species that may throw some light on the question of why it is better to situate the nest in one place rather than another.

METHODS

Microcerotermes arboreus is widespread in the northern Neotropics (Scheffrahn *et al.* 1994). It is abundant throughout the island of Trinidad, West Indies (Merritt and Starr 2010, Scheffrahn *et al.* 2003), where its grey-brown nests are easily distinguishable from those of all other species. Active *M. arboreus* nests, unlike old abandoned nests, have a relative smooth surface and are served by unbroken galleries on the surrounding substrate.

At Kernaham (or Kernahan) Village (10°22'N 61°02'W) on the eastern side of Trinidad we found this termite nesting on the trunks of a row of coconut palms. Most trunks leaned very slightly toward the south. What was immediately striking was that most nests appeared to be on the same side of their respective trunks. The prevailing wind is from the east, often blowing hard from the sea about 1.5 km to the east-northeast. We studied this group of colonies during July 2023 near the start of the rainy season.

We estimated the height of the trunks from the ground to the base of the first frond by comparison with our own heights. The space between each adjacent pair of palms was estimated by pacing. We measured nest height from the ground to the middle part of the nest. We used an ordinary compass to record the orientation of each nest's position on its trunk.

RESULTS

The 22 coconut palms appeared to represent a single planting. The height of the crown was around two metres, in some cases almost three metres. The palms were arrayed in approximately a straight east-west line, with close to consistent spacing within each adjacent pair at between three and four metres. None of the palms was sheltered on any side (Fig. 1). Eighteen palms each had one nest on the trunk, and none had more than one. All nests appeared to be active, to judge from their condition (Fig. 2). Average nest height (mean±SD) was 66.6±35.5 cm. None was near the crown, so that position on the trunk was not constrained at the palms' current sizes.

As seen in Fig. 3, all but three of the 18 termite nests were located between west and southwest on their respective palms, with a distinct mode at west-southwest.

During the first of our two study days there was heavy rain in the morning. The rain wetted the palm trunks on one side only, with its centre at east-southeast (Fig. 4).

DISCUSSION

Our results are consistent with the hypothesis that, when *M. arboreus* nests on a trunk that is exposed on all sides, the nest tends to be situated on the lee side of the prevailing wind, thus minimizing wetting by rain. It is our working



Fig. 1. Northeast-facing view of part of the row of coconut palms. *Microcerotermes arboreus* nests are plainly visible on the four closest palm trunks.



Fig. 2. The foreground nest from Fig. 1.

hypothesis that this positioning arises from orientation by the termites, rather than by differential survival of variously situated colonies. This is more likely if the colony is initiated in the soil by the queen and king, with the entire colony later moving to an above-ground site, as is known from some arboreal *Nasutitermes* species. What is not definitely

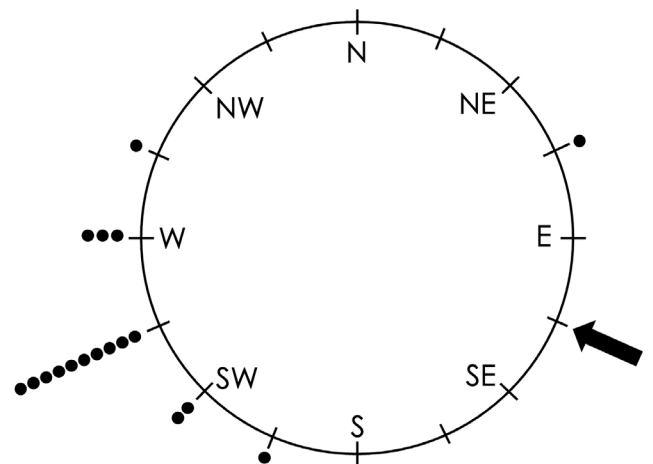


Fig. 3. Compass-point orientation of 18 *Microcerotermes arboreus* nests on a row of coconut trunks. The arrow represents the main direction of a heavy rain storm during the study period. Diagram by Nova Y. Starr.



Fig. 4. South side of one coconut trunk shortly after heavy rain to show wetting of the east-southeast side and an unaffected *Microcerotermes arboreus* nest on the west-southwest side.

known is that such wetting is damaging to the nest. It seems unlikely that even heavy, prolonged rain could significantly erode the nest's structure. However, any wetting below a surface film could promote fungal growth and/or require work to remove it. This hypothesis is open to experimental test with this or other arboreal termites.

It is not out of the question that nest site is also influenced by sunlight. Leponce et al. (1995) reported that *M. biroi* nesting on coconut in a similarly exposed situation is adversely affected by harsh midday sunlight (from the south in our study).

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