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SHORT NOTE

Invasive Termites on the Oceanic Island of Fernando de Noronha, Brazil

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Abstract

In this paper, we present the first termite records from the oceanic main island of Fernando de Noronha, based mainly on alates collected with malaise and light traps. Five termite species were present: *Cryptotermes havilandi*, *Coptotermes gestroi*, *Nasutitermes corniger*, and two undetermined species of *Neotermes*. The first three species are invasive urban pests, while the *Neotermes* species are probably new. *Nasutitermes corniger* was also sampled from arboreal nests.

Fernando de Noronha (3.857S, 32.428W) is a group of oceanic islands of volcanic origin located ca. 360 km from the nearest shoreline. The whole archipelago is a Brazilian National Park and a popular tourist destination. Its resident human population comprises nearly 3000 people. An insect survey coordinated by JAR was conducted on the main island of the archipelago during 2019-2020. The survey included two short-term expeditions and continuous trap sampling at a few sites for nine months. Detailed information on the study site and field work has already been published by Rafael et al. (2020). It is important to note that this was a general insect survey conducted mainly in natural habitats; the field team did not include any termite expert, and the urban center was not surveyed for termites.

Termite alates were present in samples from malaise traps, light traps, and CDC/UV traps. *Nasutitermes* samples with soldiers and workers were collected manually. Collecting sites with termites: Capim-Açu (3.8755S, 32.4589W); Sancho (3.8547S, 32.4406W); Boldró (3.8498S, 32.426W); Mirante Caracas (3.8755S, 32.4251W); Sueste mangue (3.8651S, 32.4242W) (see map in Fig 1). Specimens are deposited in the Insect Collection of the National Institute for Amazonian Research (INPA), Manaus, Brazil. Some duplicates are also in the termite collection of the University of Brasília.

Five species of termites were present: one Heterotermitidae (*Coptotermes*), three Kalotermitidae (one *Cryptotermes* and two *Neotermes*), and one Termitidae (*Nasutitermes*). Three of these species are known to be invasive urban pests and are also present in several parts of continental Brazil. This is a preliminary report, and additional field work will be necessary to determine the importance of these invasive species on the island and its urban center (which was not surveyed).

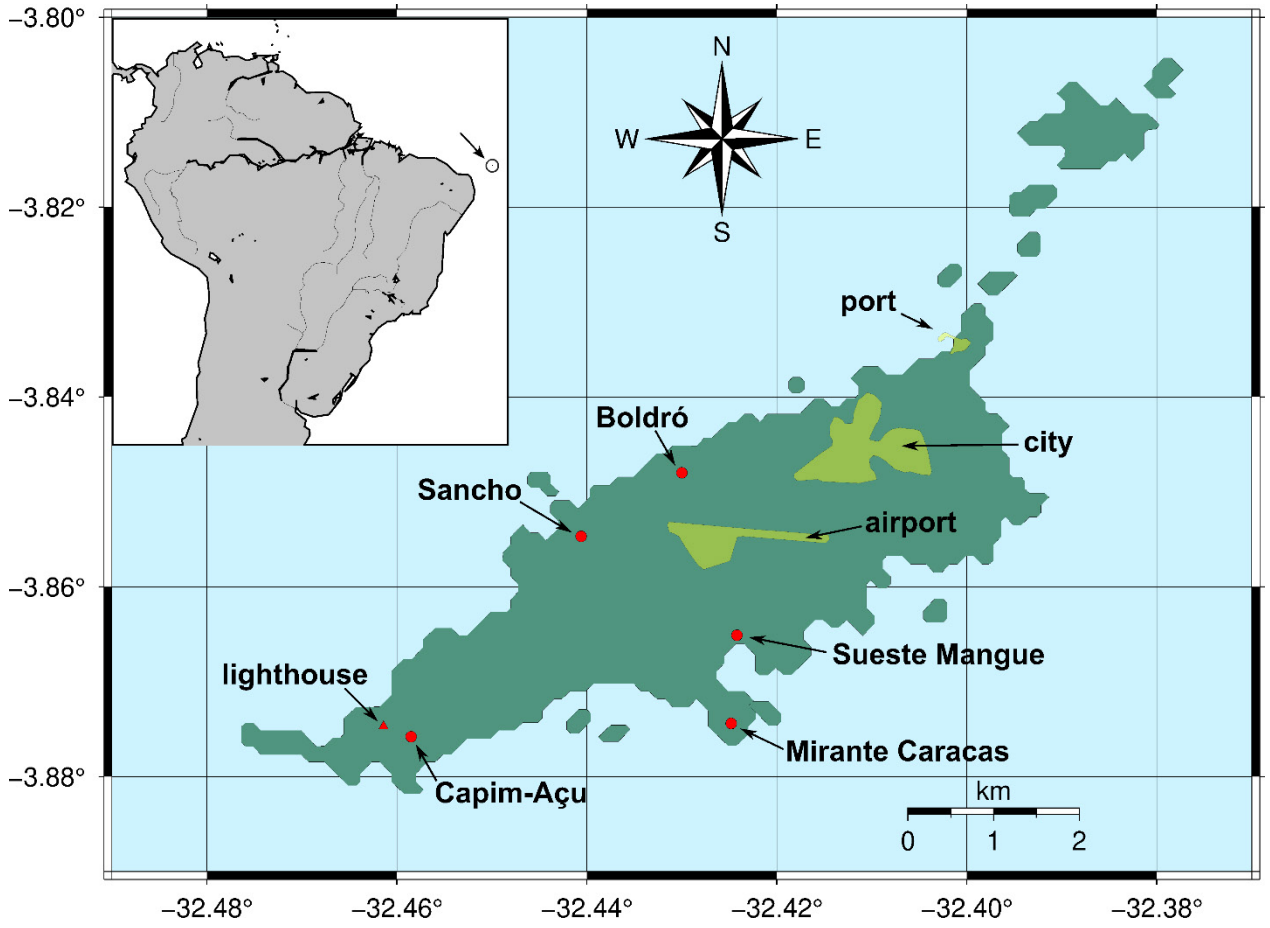

Fig 1. Map of Fernando de Noronha with indication the collection sites (red circles) and the lighthouse (red triangle). Prepared with the Generic Mapping Tools (Wessel et al., 2019).

There are 28 termite species reported to be invasive worldwide (Evans et al., 2013). Most of them are wood-feeders that attack structural wood and are able to produce secondary reproductives. Living colonies can be transported for long distances, hidden inside wood. According to Chouvenc (2025), in many such cases, termites were introduced by infested boats. In the specific case of Fernando de Noronha, large quantities of wood were transported from the continent to the main island for construction work, which possibly introduced some termite colonies.

HETEROTERMITIDAE

Coptotermes gestroi (Wasmann, 1896)

Figs. 2A-B

Specimens examined: Five lots of alates, total 24 specimens, from Capim-Açu, 07.viii.2019–27.xii.2019, malaise trap (J.A. Rafael et al.).

Remarks: All specimens come from a single trap, which was located about 300 m from the old lighthouse, each lot from a different date. According to observations during field work, there are some old ruins around the lighthouse (hidden among the vegetation and not visible in satellite images). These and the lighthouse were the probable sources. The urban center and the port are located on the opposite side of the island, too distant to be the source of alates. This species comes from Southeast Asia, is a major urban pest, and has spread to many places (Constantino, 2025). It is currently present in most coastal cities of Brazil, including Recife (Martins et al., 2010), which is one of the nearest major urban centers.

KALOTERMITIDAE

Cryptotermes havilandi (Sjöstedt, 1900)

Figs. 2C-E

Specimens examined: Nine lots of alates, total 65 specimens, from Capim-Açu, 07.viii.2019–27.xii.2019, malaise trap (J.A. Rafael et al.).

Remarks: All specimens collected in the same trap as *C. gestroi*, also close to the lighthouse. However, *Cr. havilandi* has been recorded in natural forests on the continent, and colonies may be present in nearby trees. Originally from West Africa, *Cr. havilandi* is currently present in the Antilles, South America, and some parts of Asia (Evans et al., 2013). It was first reported in Brazil by Araujo (1958) from the cities of Santos and Rio de Janeiro. Recent records (Oliveira & Constantino, 2025; Vasconcellos et al., 2025) indicate that it is widespread in northern and coastal Brazil, both in urban and natural habitats. These specimens were identified by comparison with collection samples of both soldiers and imagoes.

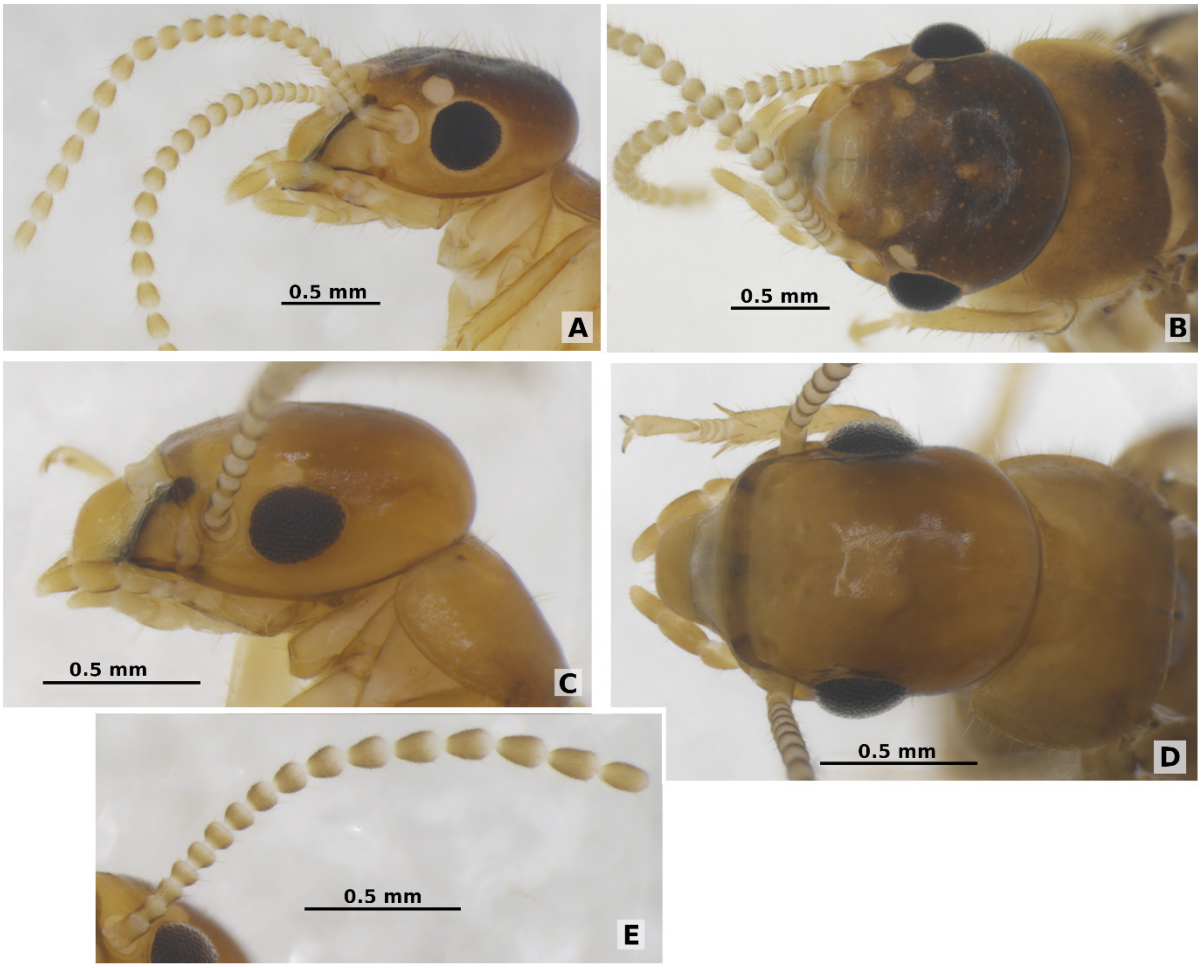

Fig 2 A-B. *Coptotermes gestroi*, imago head: (A) lateral view; (B) dorsal view; **c-e** *Cryptotermes havilandi*, imago head: (C) lateral view; (D) dorsal view; (E) antenna. Specimens from Fernando de Noronha, Capim-Açu, malaise trap.

***Neotermes* spp.**

Alates of two species of *Neotermes* were also recorded from several traps and different sites. These are apparently new species, possibly native to Fernando de Noronha. Description of these species will require additional field work to collect colony samples with soldiers, which we plan to do in the near future.

***Neotermes* sp. A**: six lots with a total of 16 specimens, malaise and CDC traps, Trilha Sancho, Capim-Açu, Sueste mangue, and Boldró, 11.xi.2019–27.ii.2020 (J.A. Rafael et al.).

***Neotermes* sp. B**: 25 lots with a total of 80 specimens, malaise, light, and CDC traps, Trilha Sancho and Capim-Açu, 09.vi.2019–27.ii.2020 (J.A. Rafael et al.).

TERMITIDAE: NASUTITERMITINAE

***Nasutitermes corniger* (Motschulsky, 1855)**

Figs. 3A-E

Specimens examined: Three lots of alates, total 17 specimens, from Capim-Açu, 24.vi.2019, 10.i.2020, 27.ii.2020, malaise traps (J.A. Rafael et al.); one alate from Sancho, 27.ii.2020, malaise trap (J.A. Rafael et al.); 5 lots with many soldiers and workers from Sancho, 09.vi.2019 and 27.ii.2020 (J.A. Rafael et al.); one lot with soldiers and workers from Capim-Açu, 19.xi.2021 (T. Mahlmann).

Remarks: *Nasutitermes corniger* occurs naturally in forests of Central and South America, from southern Mexico to Argentina, and also in several Caribbean islands. It builds arboreal carton nests, which may be found in high density in lowland humid forests. Its nests may also be subterranean (Thorne et al., 2025). It is invasive in Papua New Guinea, Florida, and the Bahamas (Scheffrahn et al., 2005) and has been intercepted by quarantine in several countries in imported orchids and other plants (Gay, 1967). Unlike most invasive termites, *N. corniger* is not a wood nester and has probably been dispersed by incipient colonies hidden inside plant vases (as indicated by the interceptions mentioned above) or by shipborne colonies (Scheffrahn et al., 2014). It is an important urban pest in some places (Constantino, 2002).

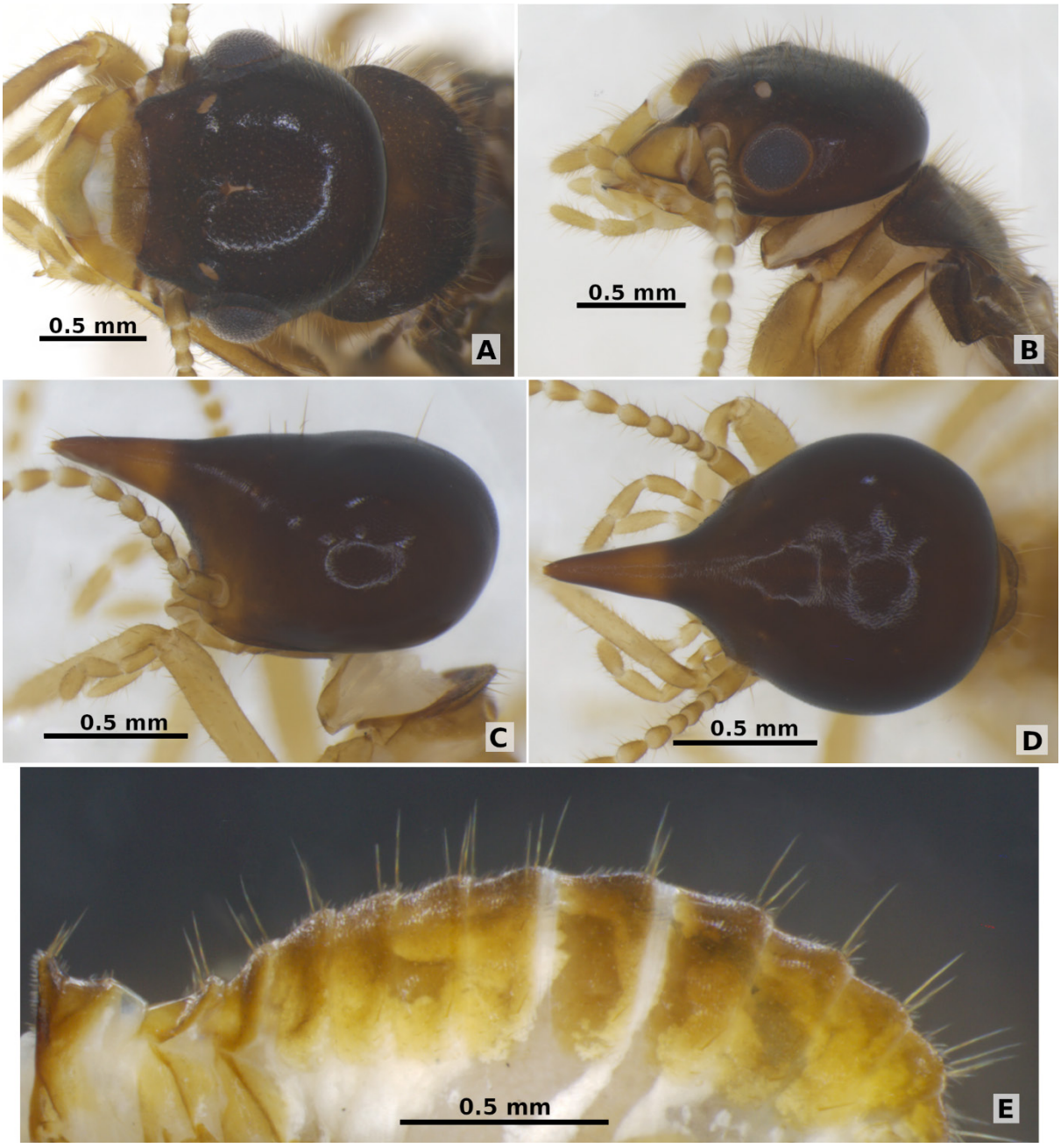

Fig 3 A-E. *Nasutitermes corniger*: (A) imago head in lateral view; (B) imago head in dorsal view; (C) soldier head in lateral view; (D) soldier head in dorsal view; (E) soldier abdomen in lateral view. Imago from Fernando de Noronha, Capim-Açu, malaise trap; soldier from Fernando de Noronha, Sancho, collected manually.

Authors' Contribution

J.A.R: Conceptualization, investigation, supervision, and funding acquisition, writing-review & editing
F.L.O.: Investigation, Writing - Review & Editing
R.C.: taxonomic work, illustrations, Writing - original draft, Writing - Review & Editing

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