Preliminary effects of a natural bait on *Coptotermes gestroi*

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INTRODUCTION

Coastal areas on Réunion Island are sensitive, limiting the use of synthetic biocides for termite control. On the west coast, century-old *Casuarina equisetifolia* (filaos) are infested by the invasive subterranean termite *Coptotermes gestroi*. We report preliminary results of a natural-bait field trial using an 8 % active polyphenolic pellet formulation converted into a paste and introduced directly into active cavities.

FIELD SURVEY & DIAGNOSIS



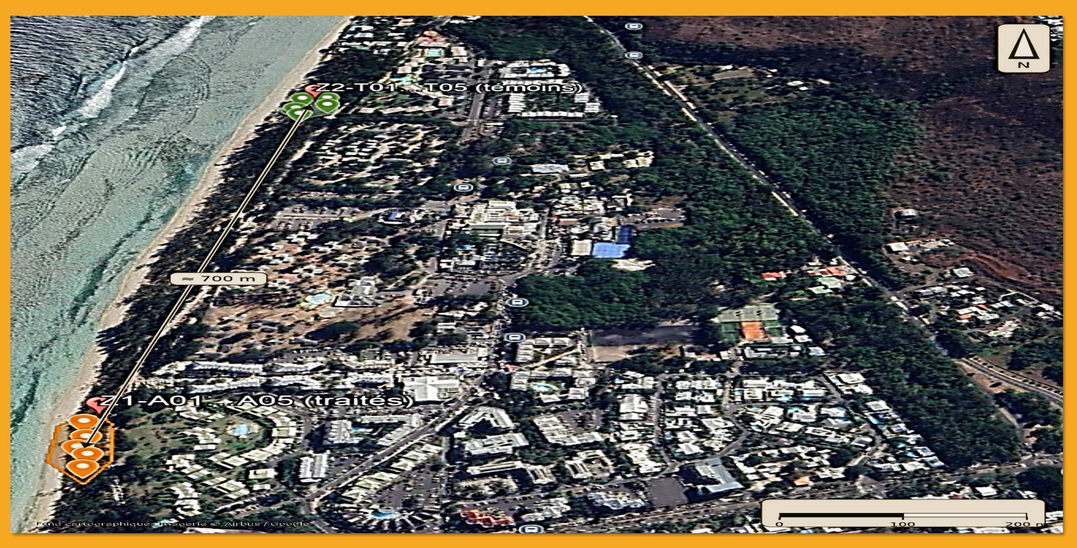
- ✓ Trigger: **severe nearby building** infestation ("Le Bénitier" restaurant) → survey
- ✓ **15 infested trees/stumps** diagnosed (convergent signs)
- ✓ Spatial pattern suggests **≤ 3 major colonies (*C.gestroi*)**
- ✓ **5 target trees treated** in Zone 1 (access + high activity)



Fig. 1 – Field survey & diagnosis: basal trunk cavity in *Casuarina equisetifolia* used to confirm termite activity before tree selection

METHODS — STUDY AREA & DESIGN

Fig. 2 – Study area and experimental design (Zone 1 (A) vs Zone 2 (T))



- ✓ **Two coastal clusters**: treated (Zone 1) vs controls (Zone 2), **≈ 700 m** apart
- ✓ Targets: **5 treated trees** (A01–A05) and **5 controls** (T01–T05)
- ✓ Monthly monitoring over the first **4 months**

8% active polyphenolic pellcts + paste

KEY MESSAGE

Natural bait paste in active tree cavities shows early operational signal

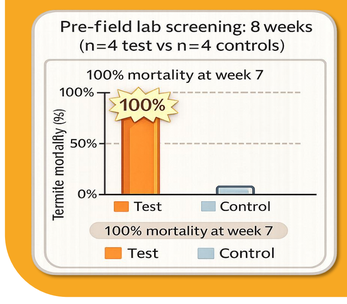
150 g / tree / visit

4 months monitoring (monthly)

BAIT DEPLOYMENT & CONTROLS

Fig. 3 – Field procedure: bait paste in active cavities and protected

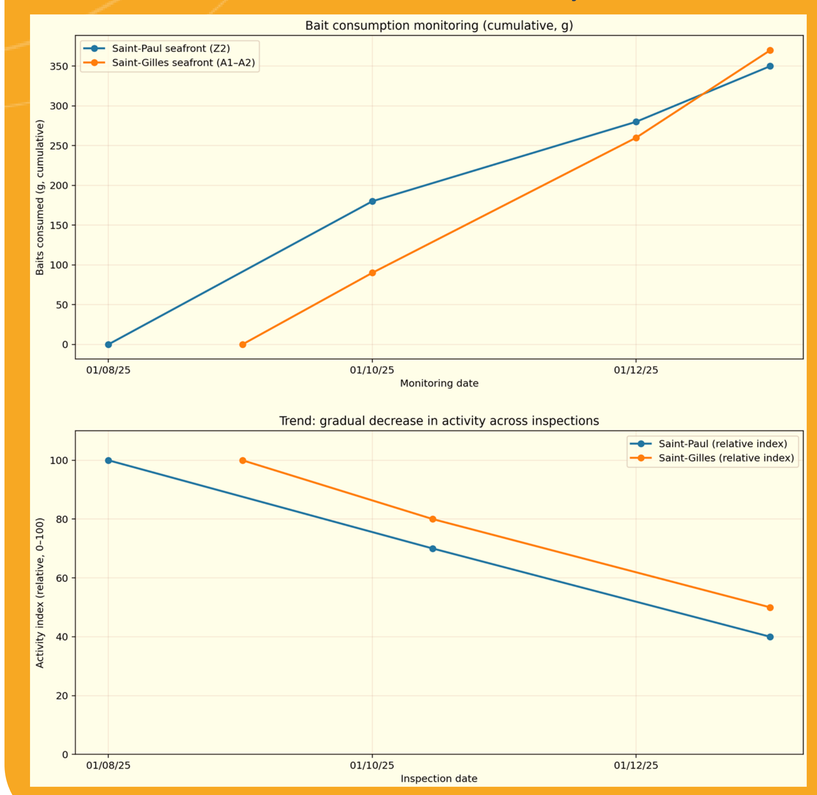




- ✓ 100 % Natural bait: **8 % active polyphenolic pellets** → paste (demineralized water)
- ✓ Dose: **150 g paste**/tree/visit; recharged as needed
- ✓ Monitoring: monthly visits over the first **4 months**
- ✓ Cavities protected with a UV-resistant adhesive roof

PRELIMINARY FIELD RESULTS

Fig. 4 – Preliminary outcomes: consistent consumption (3 reloads) and apparent activity decrease



- ✓ Across 4 inspections, **3 x 150 g recharges** were needed → **consistent consumption**
- ✓ **Apparent activity decrease** on treated trees
- ✓ **Similar trends** on some nearby non-treated trees/stumps
- ✓ **Soldiers:** less turgid, dull cuticle, altered coloration **(stress signals)**

CONCLUSION

Treated trees showed an apparent activity decrease, with similar trends on some nearby non-treated trees/stumps. At the last inspection, some soldiers from treated cavities appeared less turgid with dull cuticle and altered coloration, suggesting physiological stress. The protocol is being replicated at two additional sites (Saint-Paul sea front; Saint-Denis public garden).

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