21st Annual Summit

Behavioral Adaptations and Treatment Challenges for Conehead Termite Eradication in South Florida

and

EDRR in Action: New Termite Introduction at the Port of Palm Beach

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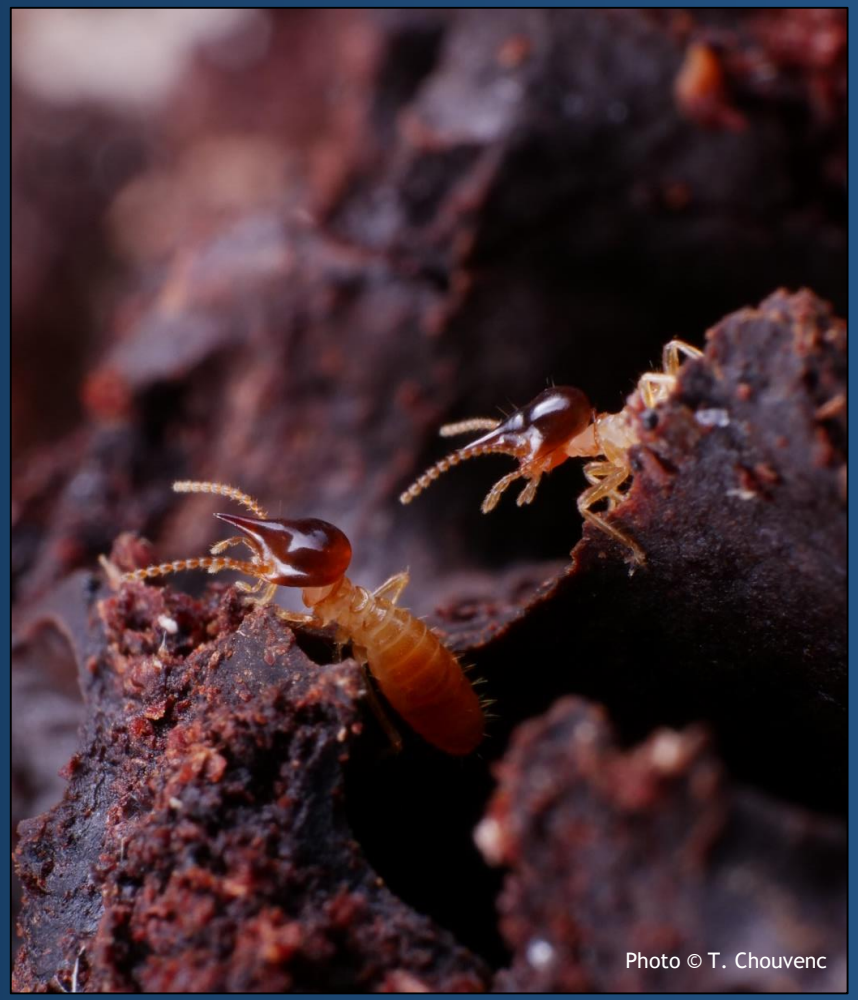


Conehead Termite 101

- *Nasutitermes corniger*
- Arboreal termite
  - Nest aboveground in trees, on the ground, in debris, etc.
- Social insect – caste system
- Very broad feeding preferences
  - Eat anything made of cellulose
  - Including: hardwood trees, palms, grasses, structural lumber, household tools, paper bags, etc.
- Native to Caribbean islands and South and Central America
- The only known population in the continental U.S. is in southeast Broward County
- ~ 10 acres of land currently infested

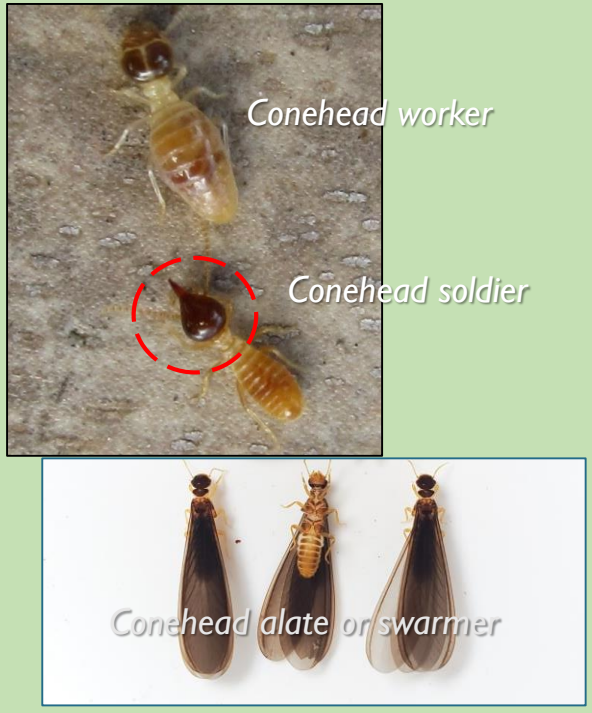
What Makes Conehead Eradication Achievable?

Characteristics of this termite species that help us reach our goals:

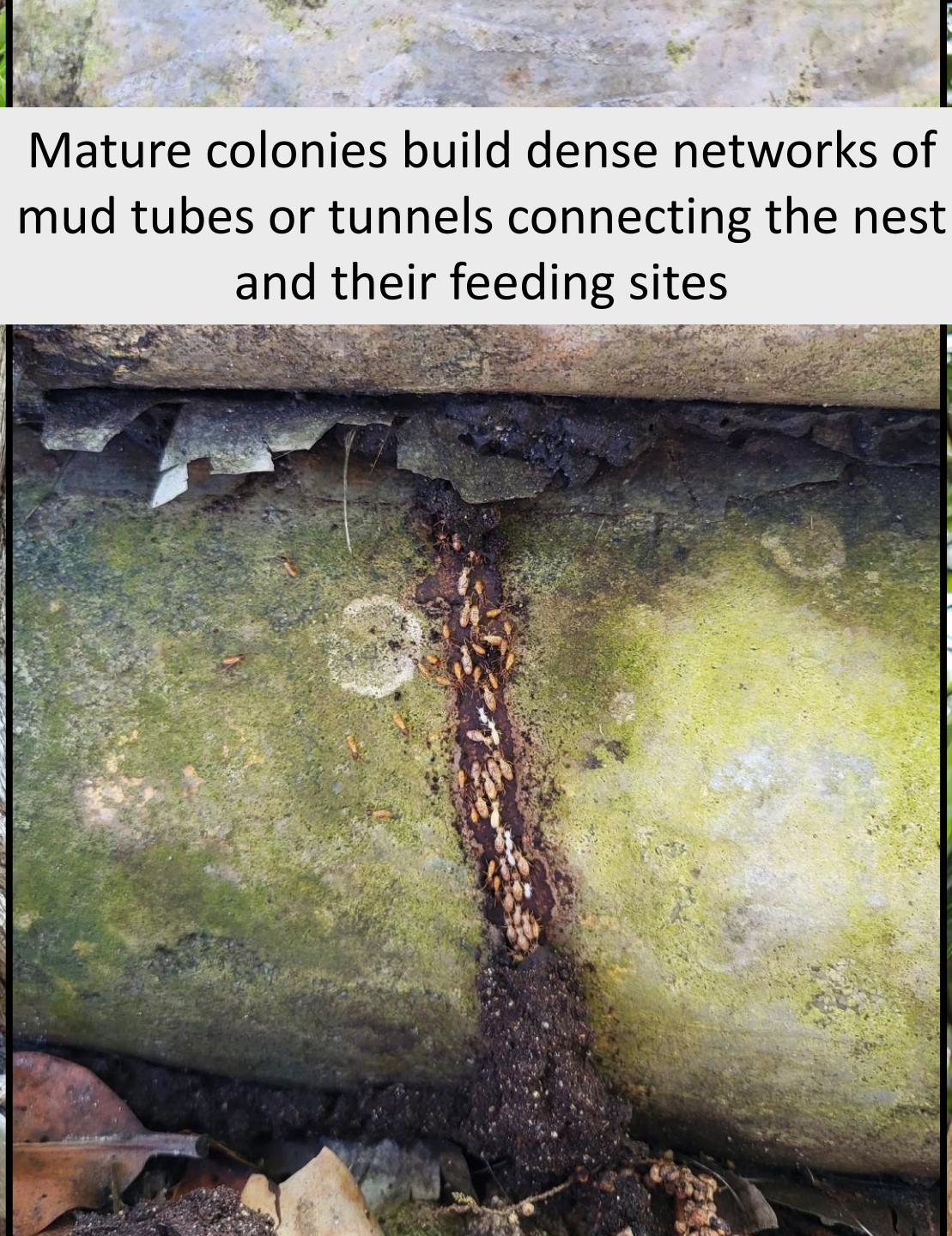
Aboveground colonies and nests

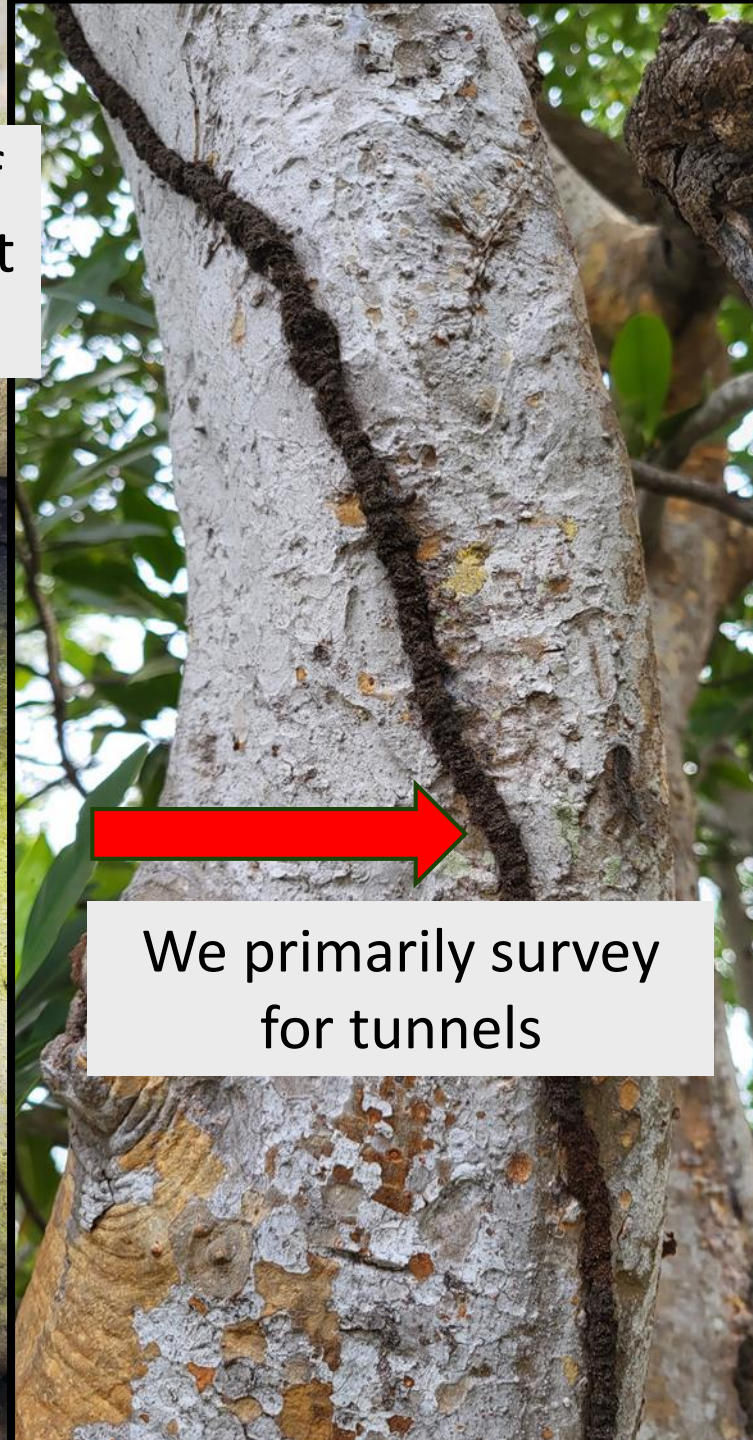
Visible tunnel networks or “highways”

Charismatic soldiers and swarmers ease identification



Mature colonies build dense networks of mud tubes or tunnels connecting the nest and their feeding sites





We primarily survey for tunnels

Ongoing “Standard” Conehead Eradication Challenges

Eradication Challenges: Aboveground Nests

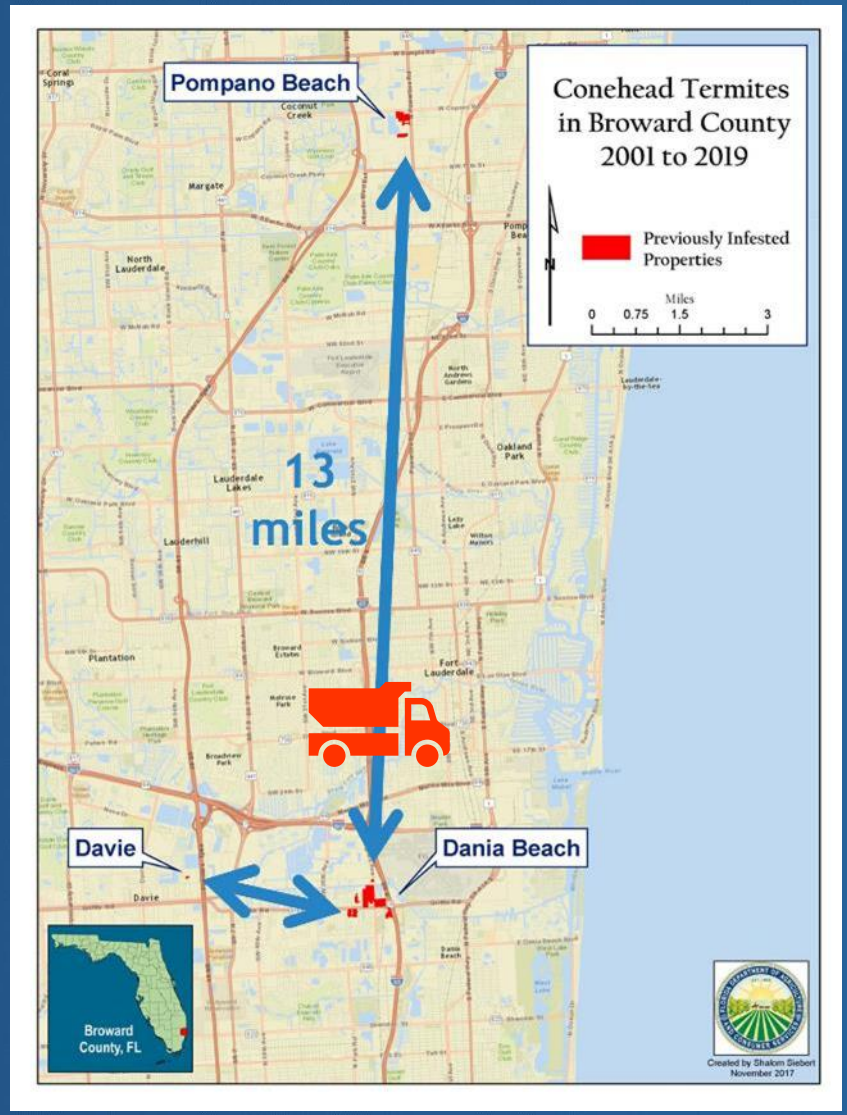
Helpful for eradication to attack and treat the whole colony at once

But…

High threat of easily transporting entire colonies to new locations

Eradication Challenges: Human Transport

- Since conehead termites live aboveground they can easily hide in items they have infested, such as:
  - Pallets
  - Landscaping waste
  - Bulk trash
  - Construction debris
- 13 miles between large populations in Broward yet genetic analysis show one single introduction



Eradication Challenges: Swarming

- Annual long distance dispersal swarms

Eradication Challenges: Hidden Young Colonies

- Young colonies stay hidden, sometimes for years, inside the host wood
- Only when they reach a certain population size do they produce tunnels and become easily detectible
- Necessitate annual surveys in high-risk areas, even if no termites have been found

Eradication Challenges: Multiple Queens and Rapid Growth

- Unlike most termite species, conehead termites typically have multiple egg-laying queens in each nest

July 2021

January 2022

6 months growth

Multiple reproducing queens ⇨ Massive egg production ⇨ Rapid population growth

CISMA

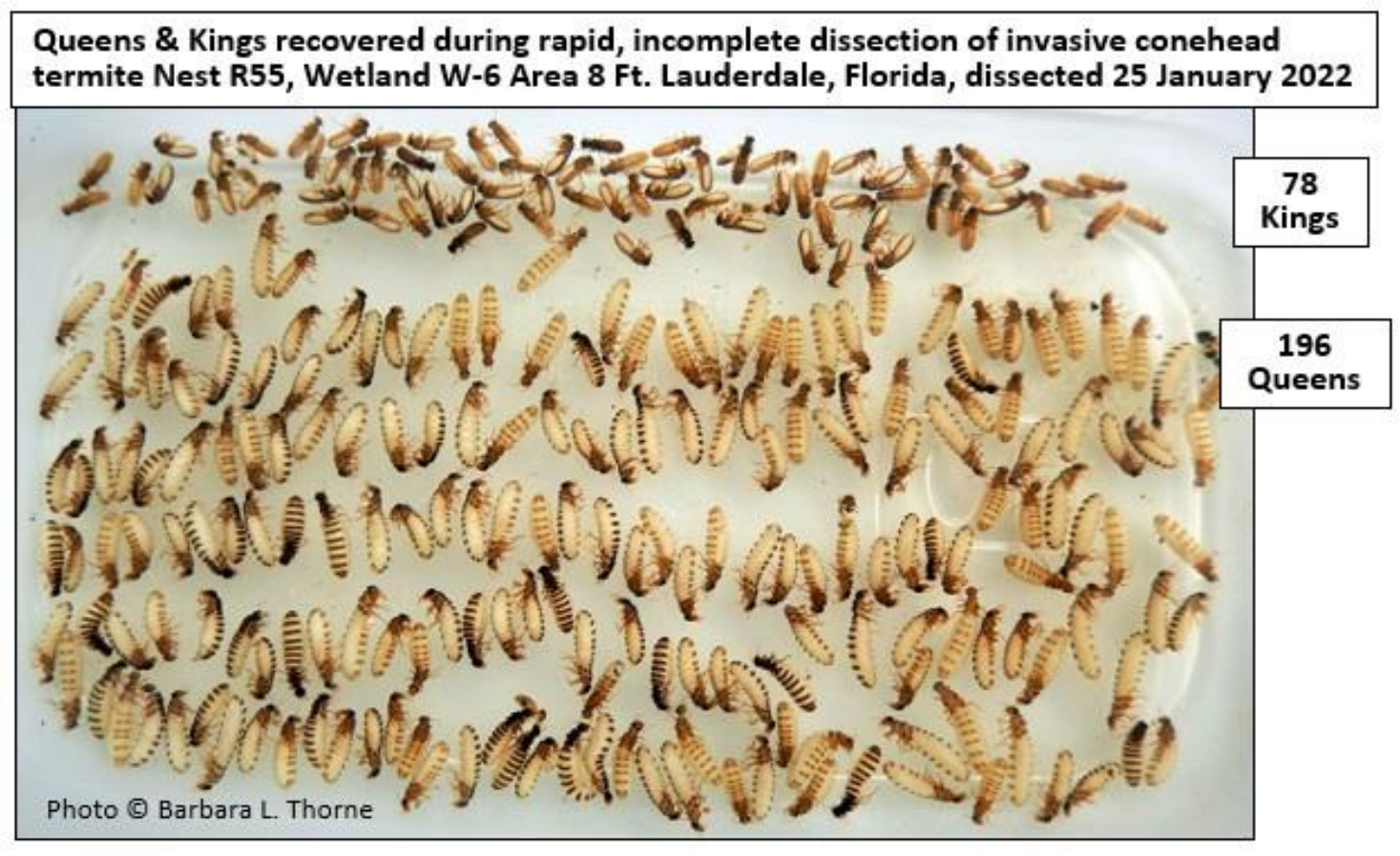
Everglades Cooperative Invasive Species Management Area

New Behavioral Adaptations Observed in Florida Conehead Eradication

Everglades Cooperative Invasive Species Management Area

Eradication Challenges: Ecological Release?

Highest # of Queens and Kings recorded in a single nest in Florida or documented in the Neotropics



Eradication Challenges: Ecological Release?

Highest # of Queens and Kings recorded in a single nest in Florida or documented in the Neotropics

Eradication Challenges: Inaccessible Colony Locations

When can treat them if we can get to them…

but the reality on the ground is not always easy

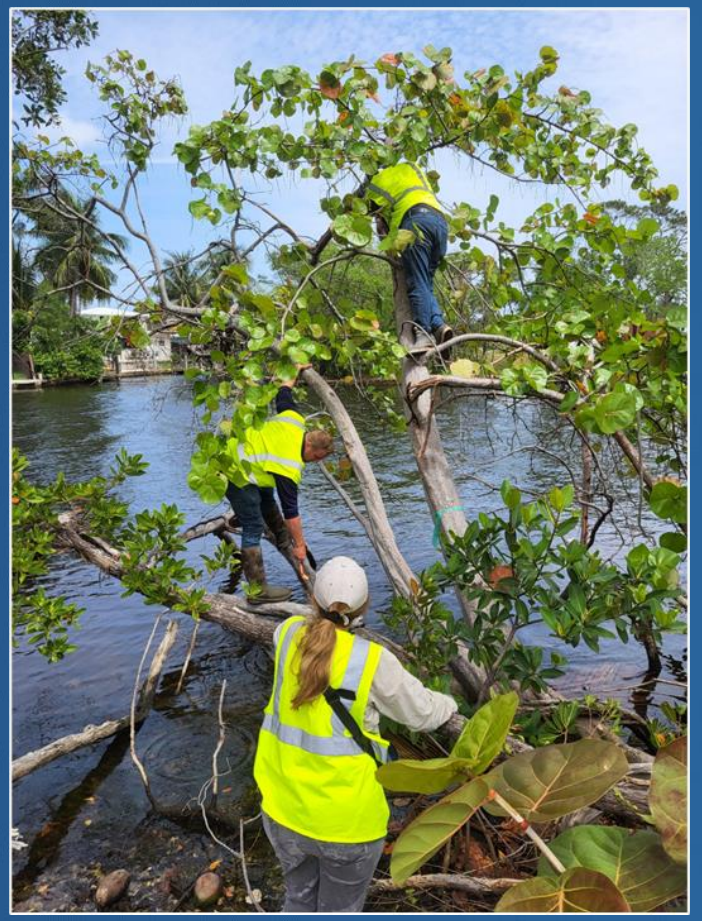
- Inside tree trunks

Eradication Challenges: Inaccessible Colony Locations

When can treat them if we can get to them…

but the reality on the ground is not always easy

- Moving up high



Eradication Challenges: Subterranean Nests

When can treat them if we can get to them…

but the reality on the ground is not always easy

- Moving underground

Eradication Challenges: Subterranean Nests

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- Moving underground

Eradication Challenges: Under Concrete

When can treat them if we can get to them…

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- Moving underground?

Eradication Challenges: Under Concrete

When can treat them if we can get to them…

but the reality on the ground is not always easy

- Moving underground?

Challenging? *Yes*
Possible? ***Absolutely***

We can adapt too.

New treatment and survey strategies are coming from what we are learning in the field

Please help in any way that you can

- Be extra eyes in the field
- Spread the word
- Offer assistance or expertise

Report any possible sightings!

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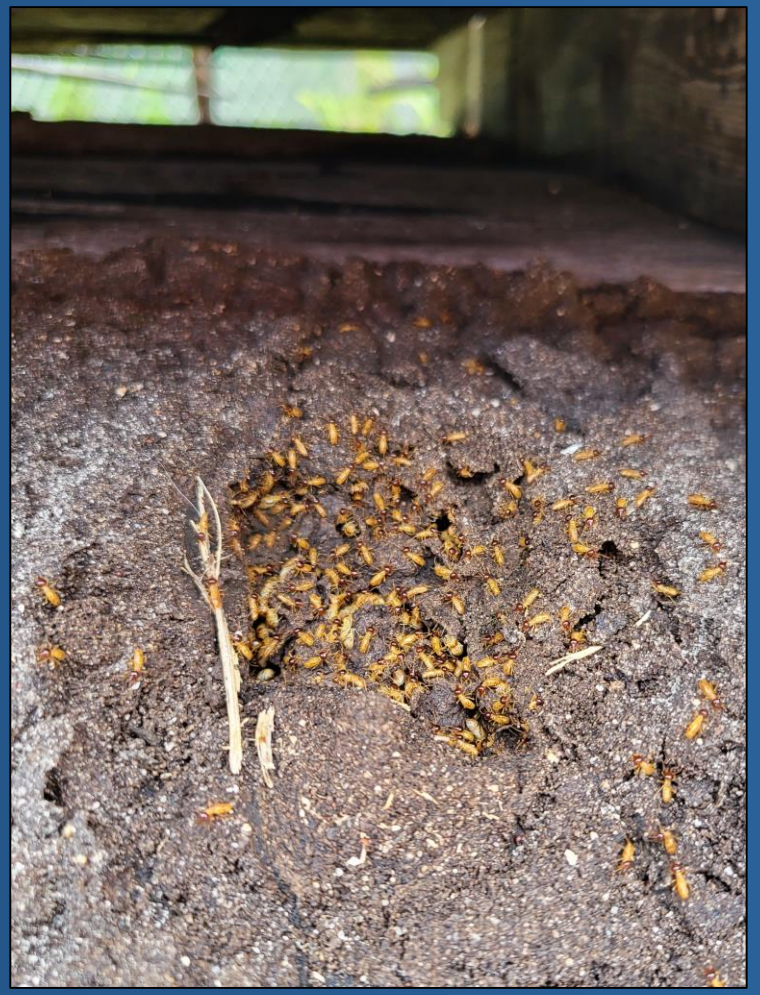
EDRR in Action: New Termite Introduction at the Port of Palm Beach

EDRR in Action: Port of Palm Beach

- April 30: Report came in via phone call and on the FDACS Conehead Termite website reporting form
- Photos were shared and we immediately set a plan in action for control

EDRR in Action: Port of Palm Beach

- May 1: We arrived on site with a treatment time to treat and destroy the nest
- Following week it was confirmed to be a different species of termite in same genus as coneheads – *Nasutitermes acajutlae*
  - First record of this species on land in the state of Florida



EDRR in Action: Port of Palm Beach

- Success highlights:
  - Our program's strong outreach to the pest control industry
  - Trust between industry and state government to work together in unknown situations
  - Capitalizing on this as a learning opportunity for everyone involved
- Continued concern for potential spread if nest had swarmers and/or was at the port for an extended period of time.
  - We are still working to find these answers
- Continued threat of introductions of non-native termites from off-shore

Questions