# CONEHEAD TERMITE
## *Nasutitermes corniger*

Soldier, *Nasutitermes corniger*
*Credit: Jason Headley, iNaturalist.org*

THE CONEHEAD TERMITE (*Nasutitermes corniger*) is the first non-native termite from the Termitidae family established in the United States. Native to the Neotropics, it is known for its soldiers' distinctive nasus, an elongated projection on the head, and its conspicuous nests. These termites feed on various wood types, including structural wood and dead wood on living trees, posing a serious economic threat, especially in urban areas. Previously confused with *Nasutitermes costalis*, it is now recognized as the same species, with the approved common name being the **conehead termite**.

## Biology

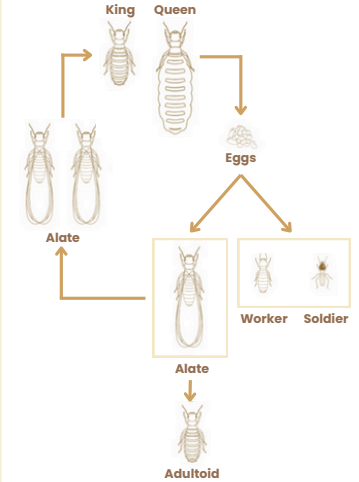
Conehead termites are social insects that form large colonies, sometimes containing up to 900,000 individuals. These colonies rely on a caste system, with each caste - reproductives, soldiers, and workers - performing specific roles to ensure the colony's survival and growth.

While some colonies have only one primary **queen and king**, others include multiple primary queens and kings. The queen, responsible for reproduction, can lay up to 3,000 eggs daily and may live up to 25 years. Her abdomen enlarges to support continuous egg production. Alongside the queen is the king, forming a royal pair that stays together throughout the colony's life cycle.

The reproductive caste also includes **alates** and **adultoids**. Alates, or winged reproductive adults, have dark brown bodies with dark wings and are relatively large, measuring 15 to 18 mm. They stay in the colony for several months before swarming (dispersal flight), often after rain. During these seasonal swarms, alates pair off, shed their wings, and search for moist environments with wood to start new colonies. Alates that do not leave the nest become adultoids, shedding their wings within the natal nest and remaining to contribute to reproductive output.

**Soldiers**, comprising around 20% of the population, act as the colony's defenders. These 5-millimeter-long termites have brown to black heads with a cone-shaped projection called the nasus. Though their mandibles are small, soldiers defend the colony by squirting a toxic secretion from the nasus, deterring predators such as ants and even anteaters. Beyond defense, they also help regulate foraging activities by identifying food sources and coordinating the movements of workers.

**Workers** are essential to the colony's daily operations. These wingless termites, about 5 to 6 mm long, are creamy-white and exhibit sexual dimorphism, with females larger than males. Their duties include gathering food, building and repairing the nest, carrying eggs, and caring for immature termites. Workers also feed and groom soldiers and reproductive members, contributing to the colony's overall well-being.




Simplified life cycle
*Adapted from Boulogne (2017) by AI. Bonifassi*

Winged adult, worker & solider
*Credit: Reina L. Tong, UF/IFAS*

Queens of *Nasutitermes corniger*
*Credit: Katherine Tenn & Sue Alspach, FDACS*

## Life History

After swarming, alates land, find mates, and become the new queens and kings of emerging colonies, marking the beginning of a new colony life cycle. Conehead termite nests are primarily built from carton, a material composed of masticated wood and feces, bound together with salivary secretions. These nests have three main sections: a protective outer layer that shields the colony from predators and environmental threats such as desiccation and flooding; a middle section made up of interconnected galleries; and a queen chamber located near the center.

In addition to the main nest structure, conehead termites build extensive networks of carton-covered tunnels that radiate from the nest. These tunnels provide safe passage during foraging, linking the nest with feeding sites and protecting termites from exposure and predators. These networks are highly branched and can extend over 30 meters from the central nest.

Nests can be built in a variety of locations—on or within trees, shrubs, or structures, perched on the ground, or hidden among debris. Conehead termites are adaptable and may establish nests in unexpected places, such as within structures, trash piles, under cement blocks, or other human-made materials.

Conehead nest on sabal palmetto
*Credit: Bugwood.org*

Conehead nest on tree
*Credit: Vinicius Rodrigues de Souza, iNaturalist*

Conehead broken tunnel on tree
*Credit: Anne-Isabelle Bonifassi*

## Distribution & Host

*Nasutitermes corniger* is native to Central and South America and the West Indies. It is invasive in the Bahamas, Florida, and New Guinea and is considered one of the most common termite species in the neotropics.
It was first detected outside its native range in May 2001, with populations discovered in Dania Beach, Florida. This infestation likely originated from the West Indies, transported via an infested boat or shipping container, as the initial outbreak occurred near a major seaport with abundant leisure boat traffic. In response, the Florida Department of Agriculture and Consumer Services (FDACS) launched an eradication campaign in 2003. Despite efforts, conehead termites persisted in the original infestation area through 2012, and previously cleared sites were reinvaded.

*Nasutitermes corniger* consumes a wide variety of cellulose-based materials. It prefers intermediate-density wood and can target both dry and moist wood, whether natural or manufactured. It feeds on trees, shrubs, roots, fences, wooden furniture, artwork, structural wood such as framing, plywood, and bamboo, as well as paper products and wood debris. This broad range of material consumption makes it a significant pest in both natural and urban environments.

Geographical distribution of *Nasutitermes corniger*
*Source: Boulogne et al., 2017*

## Damages

Conehead termites are aggressive foragers known for their ability to consume a wide range of plant materials. Because they build extensive networks of tunnels and nests, they can expand their reach across numerous substrates. Foraging tunnels have been found on exterior walls of homes, metal gates, cement blocks, and decaying stumps, as well as in fruit trees and on the ground.

They pose a significant threat to agricultural, structural, forest, and natural areas. Historical records label them as a 'major' pest of fruit trees and crops like sugarcane, and they remain a critical structural pest throughout the Neotropical region. In their native habitats, such as savannas and secondary growth areas, they play an ecological role in nutrient recycling. However, their adaptability also allows them to flourish in urban environments, where they can inflict severe damage.

In South America, conehead termites are the only native species considered a major structural pest, where they damage timber used in construction and furniture production. In Florida, colonies have displaced native termites while successfully resisting predation by ants. The economic impact in Florida alone is significant, with the estimated costs for treatment and structural repairs projected to reach $6.9 to $9.9 million over the next decade.

Conehead tunnel on stucco wall
*Credit: Bugwood.org*

Conehead damage on wooden pallet
*Credit: Bugwood.org*

## Management

Managing *Nasutitermes corniger* is challenging due to frequent infestation relapses caused by polycalic nests, often far from damaged areas. Although the species spreads slowly due to poor flying ability and the need for stationary colonies, these same traits make it resilient, with colonies remaining hidden for long periods and producing thousands of alates annually.

**Immediate action** is crucial upon first detection. Conehead termites are destructive, but their visible above-ground nests and foraging tubes help locate colonies and target treatments effectively. **Non-repellent liquid termiticides** are effective for treating nests, tunnels, and infested sites, while heavy structural infestations may require **fumigation**.

In urban areas, infestations have been managed with **chemical barriers in soil** and **chemical treatments of timber**, though these methods raise environmental concerns due to high-residual insecticides.

# FOR MORE INFORMATION

## Prevention Tips for Homeowners

- **Inspect Regularly:** Check for mud tubes, rotted wood, and hollow-sounding wood.
- **Reduce Moisture:** Fix leaks, maintain gutters, and divert water from your home.
- **Maintain Distance:** Keep soil 18 inches from wood and firewood 20 feet away.
- **Stay Proactive:** Schedule annual professional inspections.

## Links To Know More...

**Florida Department of Agriculture and Consumer Services (FDACS)**

- Conehead Termites: Photos, Videos and Educational Materials
- Conehead Termite Brochure
- Conehead Termite Biology
- Conehead Termite Eradication in Florida

**Bugwood.org**

- *Nasutitermes corniger*

**University of Florida**

- Conehead termite – Entomology and Nematology Department
- IFAS Extension, Conehead termite *Nasutitermes corniger*

**TED Ed**

- Coneheads, egg stacks and anteater attacks: The reign of a termite queen

## Glossary

**Adultoids:** Wingless reproductive termites that remain within the natal nest.

**Alates:** Winged reproductive termites that swarm to establish new colonies.

**Caste System:** The division of labor in a termite colony, based on the members' structure, function, and behavior.

**Polycalic Nests:** Multiple interconnected nests forming a colony.

**Sexual Dimorphism:** Physical differences between males and females of the same species.

**Swarming:** A dispersal flight where alates leave the colony to mate and form new colonies.

**REPORT SIGHTINGS OF CONEHEAD TERMITES IN FLORIDA**

If you wish to report sightings, please call

**1-888-397-1517**

or email with a photo of the termite or dwelling area at

**DPIHelpline@FDACS.gov**

Conehead soldiers
*Credit: Arman, iNaturalist.org*

Conehead worker (white)
*Credit: Anne-Isabelle Bonifassi*

Conehead nest on tree
*Credit: Linton Arneaud, iNaturalist.org*

Broken tunnel on wood
*Credit: Yby, iNaturalist.org*

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