

Update on the Invasive Conehead Termite Treatment Program in South Florida

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In May 2001, conehead termites (*Nasutitermes corniger*) were identified in the City of Dania Beach in southeastern Florida. This invasive termite is assumed to have arrived in wooden materials on a boat that traveled through the termite's native range in the Caribbean islands or Central or South America before docking at a private marina in Dania Beach (Scheffrahn *et al.* 2002). This is the only population of conehead termites established in the United States. Beginning in 2003, the Florida Department of Agriculture and Consumer Services (FDACS) has led a force of government officials, research scientists, pest management professionals, trade associations and manufacturers to work collectively and productively toward eradication of this exotic pest species.

The eradication effort that began in 2003 suppressed visible conehead activity, and some reports claimed eradication. However, in 2011, thriving colonies of conehead termites were discovered outside the originally infested area, and the containment / control / eradication effort was restored. The current status, based on comprehensive visual inspections for signs of activity, is that this invasive population has been suppressed, but activity persists at two locations — a forested wetland and a cluster of contiguous properties including adjacent overgrown lots. We remain on high alert in all previously infested areas and beyond in order to identify any resurgence of young colonies growing from alates that dispersed. This article provides an update on the conehead termite program, highlighting initiatives aimed at containing and controlling

the termites, and discussing challenges in this ambitious endeavor.

A total of 71 properties in Dania Beach, ranging from small residential homes and yards to densely overgrown natural areas, including a 7-acre wooded lot and a 3-acre wetlands area, have been treated following the discovery of live conehead termites since the program was reinstated in May 2012. As of this writing, only two general locations made up of 11 properties have known conehead activity, and aggressive treatments continue in those locations.

Use of insecticides remains the primary protocol and treatment anchor of the program. Property owners trimming overgrown vegetation and eliminating wood debris from their yards have also helped reduce termite food and shelter, enabled thorough inspections, and allowed for effective termiticide application. The following are additional strategies that have had

significant impacts on the conehead termite program:

Nest Removal Followed by Termiticide Treatment of Nest Area/Footprint

FDACS' new treatment protocol, implemented in fall 2012, involves the removal and destruction of all conehead termite nests, followed by thorough application of liquid termiticide under the footprint of the removed nest, including injection into any holes in structural wood or plant material under the nest (Thorne 2013, Thorne 2015). The conspicuous carton nest is the heart of a conehead colony, normally containing the reproductives, eggs and nursery, and up to several hundred thousand soldiers and workers. Depending on season, the nest may also house prealates and/or mature alates (swarmers) that disperse to establish new colonies. Nest removal and



Conehead trails on live avocado tree. Photo courtesy of Barbara L. Thorne.

destruction delivers a powerful, if not mortal, blow to a colony. Although termites traveling and foraging outside the nest are left behind, removing the nest dramatically reduces the chance that replacement reproductives will develop to revitalize the remaining population, and the severe injury to the colony lowers the probability that it will fledge large numbers of alates. Nest sites are monitored so that if residual foragers attempt to rebuild a carton structure in the vicinity, a rare but possible occurrence, it too can be removed, destroyed and treated.

Fumigation of Severely Infested Residential Properties

Two homes were heavily infested with conehead nests and foraging trails. One was unoccupied and had an overgrown yard. When the team was able to gain access inside to inspect, more than five large conehead termite nests were discovered. These were perhaps satellite nests from a single colony (see Adams & Atkinson 2007). In addition, there was substantially eaten, infested structural timbers including rafters, fascia and plywood in the irreparably damaged, collapsed roof. The second home contained densely packed, large storage areas inside the house and in the yard. Active conehead termite foraging trails and numerous nests covered much of the property. Because of the severity of these infestations, FDACS worked with the private firm Dead Bug Edwards to fumigate both houses along with exterior piles of stored materials. The fumigations eliminated those infestations and thereby halted alate flights from the mature nests on those properties.

Full-time Program Coordinator

To help stay on top of the conehead situation, FDACS hired a full-time program coordinator to work in Dania Beach. Sue Alspach, an experienced FDACS inspector involved with this project since 2011 and an author of this article, took the position in November 2014. Her responsibilities include coordinating all local activities relating to the

conehead termite program including inspections and treatments; community, city, and county involvement; alate monitoring; and data collection and management.

Frequent Surveys of all Properties Within ¼ mile of Previous Conehead Termite Activity

Once live coneheads are found on a property, FDACS treats immediately, then continues to monitor for

resurgence or reinfestation. If reproductives are not killed during treatment, the colony can hide, consuming cellulose and growing until its population expands to a size where workers begin building foraging tunnels to exploit more distant resources. Resurveying previously treated properties is essential to suppressing the coneheads if and when they reappear.

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Additionally, all properties located within ¼ mile of a previously infested property are surveyed annually to monitor for termite dispersal and possible spread of the invasive population. During the 2015 expanded survey, a new area of infestation was discovered by inspectors. The infested area involves eight residential yards and two overgrown lots. No conehead activity was found at any of those properties during the 2014 expanded survey, emphasizing the importance of continued vigilant monitoring.

Fostering Collaborations

This eradication program requires assistance from other constituencies, officials, pest management professionals and termite experts. FDACS continues to establish and expand collaborative relationships. Priorities include: informing and involving residents, contractors and city personnel working in the area; working with pest management professionals and termite experts to develop and implement best practice treatment and prevention recommendations; and sustaining property inspections and landscape maintenance.


Applicator Licensing and PMP Contractual Issues

Pest control operators requested clarification from FDACS regarding the treatment of conehead termites in

the landscape of a property. Conehead termites are wood destroying organisms (WDO) when they are in, on, or under a structure. They are landscape and ornamental (L&O) pests when in the landscape. A termite control or prevention contract that lists conehead termites as wood destroying organisms covered by the contract would allow a WDO applicator to treat nests or foraging areas on that property because conehead activity in a yard could be associated with infestation of the structure.

The significant reduction in known conehead termite activity since May 2012 is encouraging and supports continued focus on eradication. While progress continues, ongoing challenges remain.

As an example, one of the current known hot spots of conehead termite activity is a densely vegetated natural area surrounding a small lake. Eradication has been difficult due to overgrown vegetation; dead trees, shrubs, and branches; and thick layers of vegetative litter providing termite food and harborage. Most root systems of fakahatchee grass plants in this area are infested with conehead termites, including nests. Access and visual inspections are difficult, and dense ground cover prevents liquid termiticide from reaching the soil. FDACS has developed a treatment strategy for this property that includes removal of all fakahatchee grass plants, trimming of infested trees and ground debris clean up. Partnerships in this phase will be pursued to assist with labor, debris removal and ongoing maintenance.

When FDACS reinstated the conehead termite eradication in May of 2012, the extent of the infestation was daunting. Conehead foraging trails were conspicuous on trees, nests were common and the infested area covered approximately 22 acres. Nearly three years later, foraging trails within the previously-treated active area are limited and nests are seldom found. As demonstrated during this year's expanded survey, we have not relaxed our guard knowing that coneheads may again reveal themselves in previously infested areas or may have colonized outside the mapped boundaries. Suppression of the known population shows, however, that focused attention on active conehead termite sites coupled with diligent, comprehensive, long-term surveillance throughout the area can have a substantial impact and, eventually, could truly eradicate this challenging and destructive invasive termite. 

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