Managing Tawny Crazy Ants:
Guidelines for the Pest Management Professional

Daniel R. Suiter, UGA Department of Entomology
Robert W. Davis, BASF Professional and Specialty Solutions
Robert T. Puckett, Texas A&M Department of Entomology

UNIVERSITY OF GEORGIA EXTENSION

Tawny crazy ants (TCA), or *Nylanderia fulva* [Mayr], are one of a number of pest ant species that have been accidentally introduced to the U.S. mainland from abroad (Figure 1). The establishment and subsequent expansion of TCA have proven to be a major nuisance to property owners, disrupting ecological balance by outcompeting native ant species, negatively affecting various arthropod and vertebrate animal species, and becoming an economic pest. Examples of other invasive ants that have made their way to the U.S. since the late 1800s include the red imported fire ant (*Solenopsis invicta*), the Argentine ant (*Linepithema humile*), the bigheaded ant (*Pheidole megacephala*), the ghost ant (*Tapinoma melanocephalum*), the dark rover ant (*Brachymyrmex patagonicus*), and the Asian needle ant (*Brachyponera chinensis*), to name a few.

Pest status

TCA form large colonies that consist of numerous nest sites encompassing large foraging areas, often covering multiple properties. Ants may travel hundreds of feet among nest sites and feeding sites. In areas where they become established, TCA dominate the food resources and nesting locations of native ants, thereby driving many species to near extinction. The only species able to coexist are small-bodied ants and ants that live in trees and small, hollow nesting cavities inaccessible to TCA. Evidence suggests that in areas where TCA and red imported fire ants live together, TCA are displacing fire ants. Because of their need to expand nesting sites as populations grow, TCA have been known to nest in cavities and other locations where sensitive electrical equipment is housed, leading to damage in some cases. Additional evidence from Texas suggests that TCA are a livestock pest.

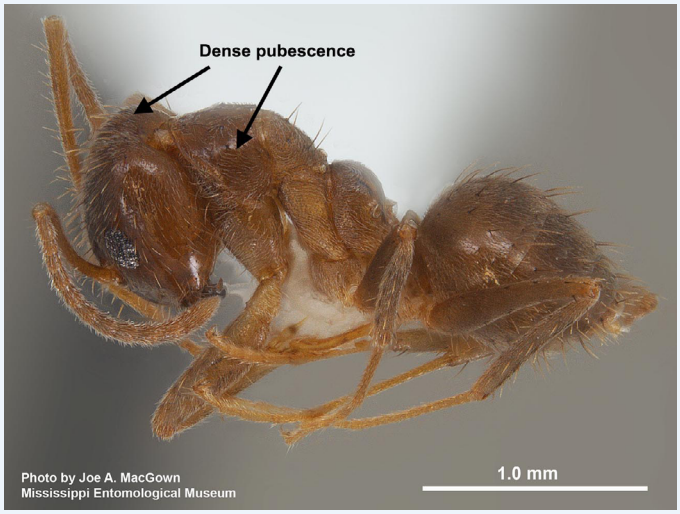

Figure 1. The tawny crazy ant, *Nylanderia fulva* (Mayr).

Are you sure it's a tawny crazy ant?

In much of its known distribution, TCA co-occurs with the Argentine ant, another highly invasive ant pest from South America. Because the two species are similar in appearance, size, and biology, it is important that pest management professionals are able to identify both species. Gochnour *et al.*, 2015, listed in the reference section, can help pest management professionals differentiate between these two pest ant species. Under high magnification, TCA are hairier than the Argentine ant (Figure 1). Argentine ants have been in the Southeastern U.S. since the late 1800s, while TCA were introduced many decades later.

A common and unique visual sign of TCA is large numbers of dead ants found outdoors piled in corners of structures or along walls next to buildings (Figure 2). This is a telltale sign that the ants in question are TCA. Should it be suspected that TCA has been found, it is important that the pest management professional confirm its identity.

A sample of the ants, as well as photographic documentation, should be sent to a local county Extension agent. If the county agent is unable to confirm the identity of the ant, there are other resources available to allow them to make a positive identification. As in all integrated pest management (IPM) programs, proper identification leads the professional to information about the pest's biology, food preferences, and harborage requirements, thereby aiding the pest management professional during inspection and the development of an action plan to solve the problem.

Figure 2. Dead tawny crazy ants commonly collect in corners and along walls on the outside of infested structures, a telltale sign of infestation.

Movement

TCA expansion is either by slow, methodical crawling by workers or by "jump movement," in which ants are moved by people, perhaps miles, from an infested location to a location where the ant does not occur. In Texas, for instance, TCA may expand their local range about 800 feet per year, and in Georgia it may move up to 1,300 feet per year by crawling along roadsides. Jump movements are characterized by the sudden presence of the ant in areas where it was formerly unknown. Jump movements by TCA are almost always human aided. A jump movement occurs when a small group of ants (called a "propagule"), consisting of an egg-laying queen(s), workers, and brood are inadvertently moved (such as in a potted plant) from infested to uninfested areas. When the ants arrive at their new home, they must establish new nest sites as colonies grow and expand. Because colonies consist of multiple egg-laying queens, worker numbers may increase rapidly in the heat and humidity of summer. As colonies grow in size, they begin filling every potential nest site.

Nesting sites

To name a few of the numerous areas these ants can live and thrive, TCA commonly nest under rocks, patio stones, and potted plants; inside rotted logs; under the bark of fallen trees; under and between manmade items lying on the ground; in the headspace between old roof shingles; amongst piles of scrap, rotting lumber or wood piles; inside hollow pipes; and the tight spaces between pieces of plywood or tin sheets lying on the ground (Figure 3). The common denominator of TCA nest sites is the necessary dark, secluded, humid environment required for the ants to live and expand colony

Figure 3. The common denominator of TCA nest sites are dark, secluded, and humid environments created by (a) old tarps and hollow pipes; and the headspace between (b) asphalt roof shingles, (c) plywood, and (d) metal awnings.

size. Excessive harborage not only allows the opportunity for TCA populations to grow large, but it also creates spaces for other pests such as rodents, cockroaches, and other pest ant species, such as Argentine ants.

Eliminating nesting sites

Pest management professionals must make it known to their clients the necessity of removing yard debris and trash so as to deny TCA potential nest sites. Pest management professionals should work with the property owner to develop a plan to eliminate, as much as economically and practically feasible, all natural and man-made litter, debris, trash, and outdoor clutter (Figure 3). *When items are removed it is vitally important to avoid the inadvertent spread of ants to un-infested sites. Before trash and other debris leave the property, it should be thoroughly inspected to ensure that it is free of ants.* Pest management professionals should consider treating infested materials, as appropriate, with a liquid insecticide before removal from the property. Lastly, because TCA forage into shrubs and trees while collecting honeydew produced by aphids and scale insects, property owners should keep all vegetation from touching outside walls, gutters, and other parts of buildings.

Insecticidal control

Keeping the outdoor environment free of debris is often not enough to alleviate the nuisance of this persistent ant pest. Insecticides, in the form of baits, liquid sprays, or granular (non-bait) formulations, are often needed to provide relief. Based on the ant's biology (large populations) and the inherent limitations of some contact insecticides (short residual given the extreme outdoor conditions prevalent in summer when ants are at their peak activity), pest management professionals should operate with the expectation that chemically based pest control is unlikely to provide long-term relief. Persistence and vigilance are required, and frequent return trips may be necessary following initial treatment. Managing TCA requires persistent effort involving numerous tactics, both -chemical and chemical. For guidance, see UGA Extension Bulletin 1352, "Insecticide Basics for the Pest Management Professional."

Before undertaking chemically based control measures, conduct a thorough inspection of the outdoor premises to determine the extent, and especially the origin, of TCA infestation. The inspection should return information to help guide the pest management professional on where to treat and which products and formulations to use. Although there are a number of chemical approaches for treating existing TCA infestations, no single insecticide-based approach is completely effective. An integrated approach that incorporates both chemical and non-chemical techniques is best suited for the management of this highly invasive ant. When using chemical controls, especially liquid sprays and granular products, it is important that pest management professionals read and strictly follow all product label instructions. Some insecticides are highly toxic to fish and other aquatic life, so it is important to avoid applying any pest control product in a manner that could inadvertently contaminate a local body of water.

Baits are composed of a toxicant incorporated into a food source that is palatable to ants. They are effective against ants because workers share food (bait) in a behavior known as "trophallaxis" (Figure 4). Baits should be placed in areas where ants are found foraging around the outside of structures, especially in the landscape. Interior baiting should be avoided as it may attract foragers into structures. Because colonies can be large and forage over large areas (often multiple properties), baiting TCA may require a large quantity of bait (i.e., multiple placements of large quantities of bait). Although baiting for an ant as ubiquitous as TCA can be labor intensive, if a newly established TCA infestation is discovered prior to its period of rapid growth, bait treatments can be very helpful in providing control.

Figure 4. Ants exchange food by trophallaxis.

The success of chemical control tactics against ants is often based on the target's colony structure and foraging biology, including colony size, food preferences, and nesting habits. Control of some ant species, for instance, is best achieved with bait because worker populations are relatively small (up to just several thousand ants) and food preferences are met by available baits. Control of large colonies

of ants covering large swaths of property may be best achieved by actively searching for and treating central nest sites, characterized by an accumulation of eggs, larvae, pupae, and queens, with a liquid spray product. This active approach is dependent upon thorough inspection. It is also advisable to apply liquid sprays to the structure's perimeter as band treatments to protect the area immediately surrounding the structure and to keep ants from entering the structure. Perimeter treatments are typically made with either pyrethroid or non-pyrethroid liquid spray products. All will kill ants upon direct, topical treatment and some products provide longer contact residual activity than others. When using liquid insecticides, never apply product to flat, hard surfaces, especially if they are routinely exposed to irrigation or rain. Check with your county Extension agent, state department of agriculture, or distributor for recommendations and additional information.

Contact insecticides may also be delivered as a granular formulation. Granular products are formed by impregnating or coating a small granule of an inert carrier with an active ingredient and various inert ingredients designed to enhance the performance of the product. Granulars are applied to thatch, high grass, mulch, leaf litter, and other areas where ants are known to nest. Never allow stray granules to remain on flat, hard surfaces where they might be accidentally washed into a local body of water. The weight of the granule allows the insecticide to reach deeper into treated areas than would occur with a liquid spray applied to the surface of the same substrate. After application, the insecticide must be released from the granule by allowing water to wash over it in a process referred to as "activation." This concept should be kept in mind, as granular products are often not effective during periods of drought or when artificial irrigation in not available. Granular products do, however, result in pulse activations of insecticide after every irrigation event until the granule has completely dissolved. Like liquid sprays, granular products kill ants by contact—ants do not eat granular products. Some granular products, such as those containing essential oils like rosemary, spearmint, and cedar may help keep foraging ants out of treated areas. Essential oils are highly repellent to many ants.

Conclusion

In summary, the tawny crazy ant is a highly invasive pest ant from South America. It is most common in Texas and Florida (where it was first found) but has since spread to numerous states in the Southeastern U.S. The movement of TCA is mostly the result of people moving ant-infested materials to locations where the ant didn't previously occur. The TCA is a major nuisance pest, disrupts ecological balance, is an economic pest, and perhaps a pest of livestock. Large populations often cover multiple properties. Control of TCA requires a two-pronged, persistent approach—eliminating trash and other debris where the ants live and using insecticidal baits, sprays, and granular formulations.

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