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Insec(tc)ure*:
Are you insecure about your insect cures?

A UT Urban IPM Lab Newsletter for the Pest Management Industry

The Dark Rover Ant, *Brachymyrmex patagonicus* Mayr

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You've gotta love your job as a pest management professional - it's exciting because there's always something new to learn.

Figure 1. The dark rover ant, *Brachymyrmex patagonicus* Mayr. Credit: April Nobile, CASENT0173480, from *www.antweb.org*.

Originally from South America, the dark rover ant, *Brachymyrmex patagonicus* Mayr, was discovered in the US in 1978 and rapidly expanded its range to the southeast (AL, AR, FL, GA, LA, MS, NC, SC, and TN) and the southwest (AZ, CA, NM,

and NV). However, *B. patagonicus* didn't significantly impact the pest control industry until the early 2000s. The dark rover ant was reported from Tennessee in 2017 as a single nest at the base of a Shelby County loblolly pine. Its appearance in Tennessee wasn't surprising because it was found in Marshall County, northern Mississippi (see map, https://antwiki.org/wiki/Brachymyrmex_patagonicus). But, we have few other reports of this ant in Tennessee. The University of Tennessee Facilities Services personnel found it in several Knoxville campus buildings, and there is a submission from Manchester, TN, on Inaturalist.org, but I suspect this may be misidentified.

Brachymyrmex patagonicus Mayr is in the subfamily Formicinae. So why am I informing you of the subfamily? Learning each subfamily's basic morphology will allow you to recall characteristics that help distinguish ant species easily. For instance, primary characters of the Formicinae include a **single-segmented waist** (petiole) and an **acidopore** (a circular opening at the end of the abdomen often fringed with hairs that help disperse defensive chemicals). (*Brachymyrmex patagonicus* ant also uses formic acid to detoxify other ant venom sprayed on its body, as does the tawny crazy ant.) By knowing this, you can distinguish the dark rover ant from other tiny pests such as the little black ant, Pharaoh ant, little fire ant, and thief ant in the subfamily Myrmycinae which have a two-segmented waist and a sting. In addition, ***Brachymyrmex* are easily distinguished from other genera in the Formicinae by their 9-segmented antennae.**

The dark rover ant worker is described as "minute" or "minuscule" and is less than 1.5 mm (~1/16 inch) from the tip of the head to the abdomen. It's medium to dark brown with slightly lighter legs and antennae. The gaster (the largest part of the abdomen) is often slightly darker than the other body regions. You'll find **at least four erect hairs on the body region directly behind the head** and many on the gaster. The gaster on these ants appears pudgier than other tiny ants. The petiole is hidden by the overhanging gaster, similar to the odorous house ant. The compound eyes are relatively large and are about as long as the space between the compound eye and mandible. The males are tiny too, about the same size as the workers, but the male body is a very light brown with a darker head. Queens are approximately three times larger than workers or males, around 4 mm. Winged forms (male and female reproductives, also called alates) have been found from April to August in the southern US and are a nuisance indoors. For further description of this species, see MacGown 2019. The taxonomy of the species is a bit controversial, but US experts are currently sticking with the scientific name of *Brachymyrmex patagonicus*. Only two species of *Brachymrmex* are known from Tennessee. The other species, *B. depilis,* is yellow.

Dark rover ant workers and alates are nuisance pests that are not reported to bite or damage structural wood, and of course, they can't sting because they lack a stinger. However, laboratory studies have shown that *E. coli* bacteria can survive for several meters on the rover ant's cuticle, thus posing a health risk, especially in assumed sterile rooms. *Brachymyrmex patagonicus* is found throughout the landscape and inside homes, schools, hospitals and other structures. Landscape nest locations frequently include mulch near the structure and the soil under rocks, stones, bricks, and other objects (railroad ties and landscape timbers). Piled leaves, loose bark at the bases of pine and other trees, rotting wood, wood piles and edges of grass along parking lots or lawns also serve as nest sites. Indoor nests are found in moisture-associated areas, such as voids in bathrooms and kitchens, potted plants, exterior block walls and under shingles. Nectaries or honeydew from sucking insects, including subterranean species, provide food for these ants. Dark rover ants are also found in natural environments such as pine and other forests, beaches and prairies.

I wouldn't bring this ant to your attention if it wasn't a problematic pest. Colonies are monogynous (1 queen per colony) and are small, just like the ant itself, ranging from hundreds to several thousand workers. These small nests occupy small spaces and are easily and unknowingly transported or overlooked. Large numbers of these ants around structures are due to multiple, unrelated, closely spaced colonies, on average, about 2.5 meters (8.2 ft) apart in dense populations. This is a very different scenario than we see with other pests ants. Odorous house ants or Argentine ants are polygynous (multiple-queened) and polydomous (many nests per colony), with no aggression between neighboring nests. With the dark rover ant, there's one nest per colony and food is not shared between nests/colonies. Thus, management is very challenging. All areas of activity, near and not so near the structure, must be located and treated. Most pest control

complaints to Mississippi State University's Entomology Department in 2005 and 2006 were concerned with management failures of this pest. Some failures to reduce indoor foraging or flight activity have been blamed on the missed treatment of outdoor nests farther from the structure than expected.

There are few published research studies on managing *B. patagonicus*. Maxforce® Quantum Ant Bait, Terro® PCO gel and an experimental ant gel bait with dinotefuran were effective against the dark rover ant in lab studies and caused at least 88% mortality of colony fragments 15 days after bait introduction. Advance® ant granular bait at several widths, an experimental granular bait with dinotefuran, Extinguish Plus granular bait, Intice Rover Ant Bait and Advion Ant Gel did not perform as well over the same time interval.

Interestingly, fipronil did not perform well against this ant as it does against other pest ants. Laboratory studies on a porous and non-porous surface revealed that lambda-cyhalothrin and indoxacarb were effective 90 days post-application, but fipronil's impact was similar to the untreated control. Reduction in outdoor foraging 30 days after treatments was greatest in the Demand CS perimeter treatment (84% reduction) but was not significantly different from Temprid SC (73% reduction), Termidor SC (69% reduction) or Talstar P (62% reduction) applied according to the label. In another exterior treatment, Temprid SC (0.75%) used one foot up and out from the foundation as well as entry points was compared to Maxforce Quantum gel (imidacloprid 0.03%) applied to cracks and crevices, and a combination of the Temprid SC perimeter spray with the Maxforce gel application. Ninety days after treatment, the greatest reduction in foraging occurred in the Maxforce Quantum gel treatment (95%), but it wasn't significantly different from the decrease caused by the Temprid SC treatment alone (89%). The combination performed well at 83% reduction but was significantly less effective than the two individual treatments.

In his Texas A & M dissertation, Chris Keefer suggests evaluating the combination of Demand CS with Maxforce Quantum Gel or TerroPCO, ensuring the bait isn't contaminated by the spray. Remember, dark rover ants reproduce not by budding but by mating flights. So, manipulating lighting on and near the structure to make it less attractive to the swarming alates could prevent new colonies from establishing nearby. Reducing moisture and other conducive conditions around and in the building may make it less attractive to this ant. And decreasing the number of honeydew producers on landscape plants may also be helpful.

So be watchful for this ant on your client's property. More important than ever is confirming the identity of the ant before starting treatment. Or maybe it will take Termidor being less effective than expected to cause you to look a little closer.

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