

Tapinoma melanocephalum (Ghost Ant)

Order: Hymenoptera (Ants, Wasps and Bees)

Class: Insecta (Insects)

Phylum: Arthropoda (Arthropods)



Fig. 1. Ghost ant, *Tapinoma melanocephalum*.

http://www.discoverlife.org/IM/I_BLF/0009/320/Tapinoma_melanocephalum_side_CASENT0005325.I_BLF983.jpg,
downloaded 10 March 2016]

TRAITS. *Tapinoma melanocephalum* is a small ant, with average length of 1.3-1.9mm (Issg, 2016). It is bicoloured where the head and thorax is blackish brown and the abdomen and legs have a milky white colour which gives the ant its ghost-like appearance and the name *melanocephalum* (black headed) (Fig. 1) (Nickerson and Bloomcamp, 2003). The antennae are 12-segmented, and gradually get thicker toward the tip. The thorax lacks a spine. There are four segments on the surface of the gaster (abdomen) (Cabi, 2016). It also has big eyes and one abdominal pedicel segment (Nickerson and Bloomcamp, 2003).

DISTRIBUTION. The ghost ant is an invasive species and is spread by humans, and is now widely distributed in tropical and subtropical areas (Wetterer, 2009) (Fig. 2). It is thought to have

originated in the Old world tropics of Africa or Asia, but is now so widespread that its native distribution is unknown. It is present in Trinidad and Tobago as an invasive species (Wetterer, 2009).

HABITAT AND ACTIVITY. *Tapinoma melanocephalum* occupies disturbed habitats, where they are able to survive even though more dominant species are present. Therefore, they can often be found near human settlements, demonstrating their flexibility as a species. They nest in temporary habitats, as well as unstable ones, at ground level or in trees. These habitats, for example, are old branches, dry grass clumps, moist grass and plant stems (Issg, 2016; Cabi, 2016). It is also found in rotten wood, soil and decayed tree parts or beneath the bark and in the walls of houses and plant pots. In temperate regions, where the temperatures are lower, they are confined to heated buildings and greenhouses.

FOOD AND FEEDING. *T. melanocephalum* is an omnivorous species. It has been observed consuming different types of insect larvae (Cabi, 2016) and also feeds on both living and dead insects (Issg, 2016). They tend to forage on household food items but show preference to sweet items like sugar (Fig. 3). Additionally, the workers have a liking for honeydew, which they consume while tending to honeydew excreting insects. It is a habit of the workers to intermittently run around secreting an odour similar to that of rotten coconuts. At times however, they move more slowly. As foragers, *T. melanocephalum* have the ability to swiftly find and recruit to food hastily, however the recruits can end up being displaced if a more dominant ant species is present in larger numbers (Harris, 2016).

POPULATION ECOLOGY. *T. melanocephalum* colonies are polygynous, meaning that there are several queens, and unicolonial, meaning that they are in separate nests collectively working as one (Cabi, 2016). Each nest houses approximately 100-1000 individuals. New colonies are formed when a queen, along with some workers, migrates over a short distance. This ensures dispersal throughout the entire appropriate habitat (Harris, 2016). The lifespan of a queen is short, being only a few weeks. No fighting or animosity between nests or colonies have been observed. If their habitats become unfavourable, they are able to readily relocate.

REPRODUCTION. Reproduction involves the laying of eggs. There are four larval instars in *T. melanocephalum*, from the hatching of the eggs, to adult stage of the life cycle. Examination by De Jesus and Bueno (2007) shows that the highest number of eggs laid per day was 5.3 per day per queen. Putting it into perspective, if there are 20 queens that would result in a maximum of 106 eggs per day or 742 a week. Development lasts 16-52 days. During development, the larvae are looked after by sterile female workers (PestNet, 2016). Nuptial flights have not been observed.

BEHAVIOUR. Ghost ants have developed a symbiotic relationship with jumping spiders. The spiders were found living inside *T. melanocephalum* nests beneath leaves. It is believed that the relationship is based on the spider gaining a stable place to construct webs while offering protection to the ants from predators and parasites (Nickerson and Bloomcamp, 2003). *T. melanocephalum* workers possess a pygidial gland from which they release secretions as a form of alarm and defence against other ants, such as *Solenopsis geminata*, during violent encounters. 6-Methyl-5-hepten-2-one, which makes up part of the secretion, is active as a releaser of alarm behaviour, and actinidine acts as a repellent to other workers of *T. melanocephalum* (Tomalski et

al., 1987). Even though there are different nests, workers are still shared among the nests (Nickerson and Bloomcamp, 2003), moving along odour trails (Discover Life, 2016).

APPLIED ECOLOGY. *T. melanocephalum* is not listed in the IUCN but is rather known as an invasive pest species that is rapidly spreading around the globe. Irritation of the skin can be caused following contact. It is also one of the most infesting ant species in homes in many places such as Florida and Brazil. Additionally, it can play a role in the transmission of diseases as it has the ability to transport pathogenic microbes, for example, *Staphylococcus*. Its abundance in hospitals in places like South America increases the risk of transmission (Harris, 2016). This ant can, however, be used as a biological control agent as it is a predator of the two-spotted spider mite, which is a plant pest. It is also considered to be useful in greenhouses as it reduces vermin (Discover Life, 2016).

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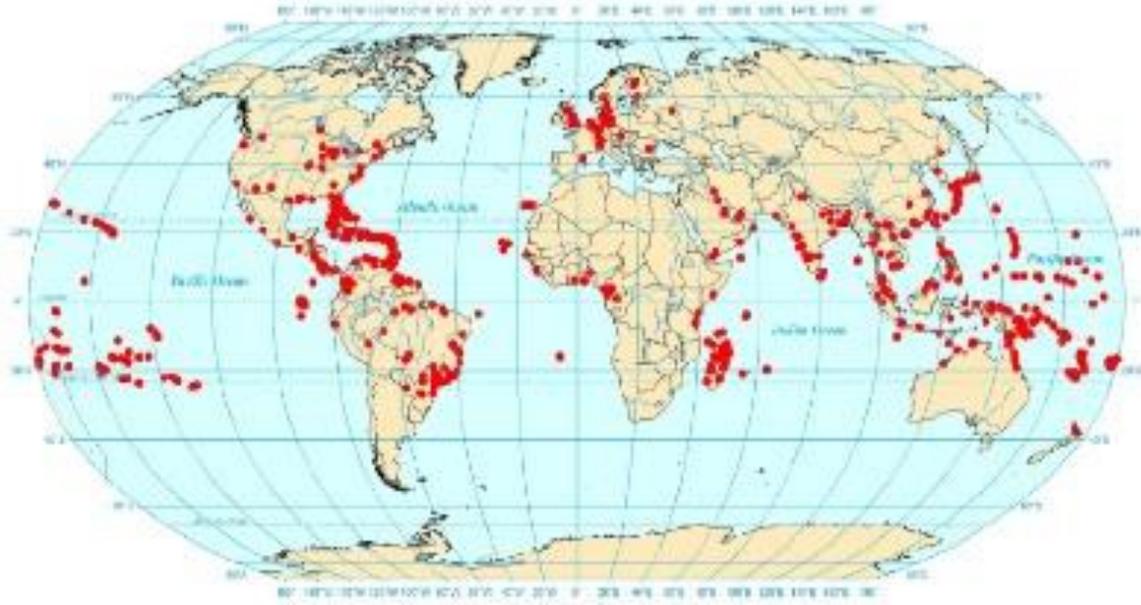


Fig. 2. *Tapinoma melanocephalum* geographic distribution.

[http://bioweb.uwlax.edu/bio203/f2012/jascor_sash/tapinomamap1.jpg, downloaded 10 March 2016]



Fig. 3. *Tapinoma melanocephalum* at sugar solution bait.

[[http://itp.lucidcentral.org/id/ant/pia/Images/lucid%20live%20photos%20TN%20\(200\)/Tapinoma_melanocephala_1_MG_1449.jpg](http://itp.lucidcentral.org/id/ant/pia/Images/lucid%20live%20photos%20TN%20(200)/Tapinoma_melanocephala_1_MG_1449.jpg), downloaded 10 March 2016]

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