

= Banded sugar ant =

The banded sugar ant (*Camponotus consobrinus*) , also known as the sugar ant , is a species of ant endemic to Australia . A member of the genus *Camponotus* in the subfamily Formicinae , it was described by German entomologist Wilhelm Ferdinand Erichson in 1842 . Its common name refers to the ant 's liking for sugar and sweet food , as well as the distinctive orange @-@ brown band that wraps around its gaster .

The ant is polymorphic and relatively large , with two different castes of workers : major workers (also known as soldiers) , and minor workers . These two group of workers measure around 5 to 15 millimetres (0 @.@ 2 to 0 @.@ 6 in) in length , while the queen ants are even larger . Mainly nocturnal , banded sugar ants prefer a mesic habitat , and are commonly found in forests and woodlands . They also occur in urban areas , where they are considered a household pest . The ant 's diet includes sweet secretions that are retrieved from aphids and other insects that it tends . This species is a competitor of the meat ant (*Iridomyrmex purpureus*) , and food robbery and nest @-@ plugging is known to occur between these two ants . Workers prey on insects , killing them with a spray of formic acid . Banded sugar ants are preyed upon by other ants , echidnas , and birds . The eggs of this species were consumed by Indigenous Australians .

= = Taxonomy = =

The banded sugar ant was first described by German entomologist Wilhelm Ferdinand Erichson , who named it *Formica consobrina* in 1842 . The holotype specimen is a queen collected from Tasmania , which is now housed in the Museum für Naturkunde in Berlin . *Formica consobrina* was later moved to the genus *Camponotus* as *Camponotus consobrinus* , by entomologist Julius Roger in 1863 . In 1933 , American entomologist William Morton Wheeler described some subspecies and variants of the banded sugar ant . These subspecies were *C. consobrinus lividipes* and *C. consobrinus nigriceps* , while the variants were *C. consobrinus* var. *obniger* and *C. consobrinus* var. *perthianus* . Some of these classifications were short @-@ lived ; *C. consobrinus nigriceps* was later revived as a full species in 1934 as *C. nigriceps* , while *C. consobrinus lividipes* was synonymised with *C. consobrinus* . *C. consobrinus lividipes* was treated as a subspecies for *C. nigriceps* in 1985 , now known as *C. nigriceps lividipes* . In 1996 *C. consobrinus perthianus* was synonymised with *C. nigriceps* , and *C. consobrinus* var. *obniger* was synonymised with *C. consobrinus* .

The specific name is derived from the Latin word *consobrina* , meaning " cousin " . This is in reference to its similar appearance with the species *C. herculeanus* .

The ant is a member of the *Camponotus nigriceps* species group , which also includes *C. clarior* , *C. dryandrae* , *C. eastwoodi* , *C. loweryi* , *C. longideclivis* , *C. nigriceps* , *C. pallidiceps* and *C. prostans* . The species is commonly known as the banded sugar ant or sugar ant due to its attraction to sweet food and the orange @-@ brown band that is present on its gaster .

= = Description = =

Banded sugar ants appear in different forms , varying from 5 to 15 millimetres (0 @.@ 2 to 0 @.@ 6 in) in length , making them a large species . Banded sugar ants are polymorphic , and colonies have two types of workers : minor workers and major workers that have different size ranges . The two castes can be identified easily , due to the workers being smaller and more slender , while the soldiers are larger and more robust . Both castes carry a set of powerful mandibles . Queen ants are the largest ants in the colony . Banded sugar ants come in a variety of colours , possibly due to ecological rather than genetic influences . For example , humidity , insolation and temperature may all affect the colour of an individual .

Female banded sugar ants are easily recognised by their black head , orange thorax and the orange @-@ brown band that wraps around their gaster . Males of the species are completely black . The dark sides of the thorax and legs are ferruginous (rusty in colour) . The scape (the base of the antenna) and mandibles are black , and the head is wider than the thorax . The thorax is longer

than its total width and slightly compressed , and the gaster is covered with tiny black dots . Erect setae are golden in colour and absent under the head but present on the mesosoma . The setae on the tibia and scape are shorter than those on the mesosoma . The anterior of the gaster is lighter in colour compared to the posterior , and the dorsum of the mesosoma is outlined and curved . A worker 's metanotum is absent and the eyes are bulging , while a soldier 's metanotum is noticeable and the eyes are flat . The wings on the queen are dark , and the stigmata and nerves are yellow . While many ant species have a metapleural gland , the gland is not present in the banded sugar ant ; the number of malpighian tubules in workers is 21 .

The related black @-@ headed sugar ant (*Camponotus nigriceps*) has a similar appearance and may be mistaken for a banded sugar ant . Black @-@ headed sugar ants are lighter in colour than banded sugar ants and the orange @-@ brown band is absent from their gaster .

= = Distribution and habitat = =

The banded sugar ant is one of the most widely distributed ants in Australia , but is most commonly found in south @-@ east Australia . It occurs along the north @-@ east coast of Queensland , from Charters Towers in the north to Brisbane in the south . The ant is widespread in New South Wales , the Australian Capital Territory , Victoria and Tasmania . In South Australia , it is a common household pest in Adelaide , and populations are mostly found in the south @-@ east of the state while the species is absent in the north @-@ west . The banded sugar ant 's presence in Western Australia has yet to be verified . These ants are found in urban areas , eucalypt forests , dry sclerophyll woodland , grasslands and heaths , preferring a mesic habitat . In the drier regions of Australia , the banded sugar ant is absent and is usually replaced by *Camponotus nigriceps* . Banded sugar ants have been recorded from elevations ranging from 170 to 853 metres (558 to 2 @, @ 800 ft) .

Nests are found in a variety of sites , including holes in wood , roots of plants , twigs of trees and shrubs , between rocks , in the soil , and under paving stones . Sometimes , banded sugar ant colonies form small mounds , which are less than 20 cm (8 in) in diameter and usually funnel @-@ shaped and ephemeral . Mounds are not constructed in undisturbed regions where land degradation has not occurred . Instead , the entrance of a nest consists of a smooth @-@ walled vertical shaft that is 15 to 17 millimetres (0 @.@ 59 to 0 @.@ 67 in) in diameter . Chambers in the nest have a similar appearance to the nest entrance (shaft @-@ like walls) , and the floors within the chambers are typically 20 to 30 millimetres (0 @.@ 8 to 1 @.@ 2 in) in length with an arched roof that is 10 millimetres (0 @.@ 4 in) in height . Excavated meat ant nests show that banded sugar ants will also inhabit them .

= = Behaviour and ecology = =

Banded sugar ants are the dominant group of nocturnal ants in their range . Workers are mostly encountered at dusk when they are foraging for food on marked trails or on Casuarina and Eucalyptus trees . These ants also forage during the day , but they are more frequently seen at night . They are also more active during the warmer seasons , especially summer . Banded sugar ants use multiple social techniques to make other ants follow them to a food source ; this includes a worker carrying another worker , tandem running , or simply leaving a pheromone trail to the source . Around 2 ? 35 % of foraging workers engage in tandem running .

Banded sugar ants will often attack the nests of other ant species at random , while ignoring other ants nearby . They use their mandibles to hold opponents , and use formic acid to kill them . Foraging workers use visual cues to help them find their way around , or to let them determine that they are lost ; workers will identify landmarks they are familiar with to orientate themselves . When provoked , an individual banded sugar ant will lift up its abdomen and use its large mandibles to fend off an attacker . If further provoked , it can defend itself by spraying formic acid from its abdomen to deter predators .

Meat ants have been observed blocking banded sugar ant nesting holes with pebbles and soil to

prevent them from leaving their nest during the early hours of the day . The ants counter this by preventing meat ants from leaving their nest by blocking their nesting holes with debris , a behaviour known as nest @-@ plugging . If meat ant nests are encroached by trees or other shade , banded sugar ants may invade and take over the nest , since the health of the colony may deteriorate from overshadowing . Members of an affected meat ant colony later move to a nearby satellite nest that is placed in a suitable area , while invading banded sugar ants fill nest galleries up with a black resinous material . In a 1999 study , *Pogonoscopus myrmex* leafhoppers were placed in a banded sugar ant colony to test the reaction of non @-@ host ants . These leafhoppers were attacked , suggesting no symbiotic relationship between the two .

Starlings have been observed to rub banded sugar ants on their feathers and skin , a behaviour known as anting .

== = Diet and predators == =

Banded sugar ants are omnivores and feed on sweet substances . They tend plant @-@ eating insects such as aphids , and feed on the fluids they secrete . Honeydew secretions are produced from the anus of the aphid , which is later provided to the ants . This behaviour is mutually beneficial to both organisms , as the ants protect the aphids from predation and the aphids provides a nutritious liquid to the ants . Banded sugar ants also tend the larvae of the southern purple azure butterfly (*Ogyris genoveva*) . They are visitors to flowers of *Eucalyptus globulus* trees , where they can act as pollinators . They may be seen at night foraging under lights in urban areas for arthropod prey , such as termites and the southern cattle tick (*Rhipicephalus microplus*) . During the night , banded sugar ants are known to " rob " food sources excreted by Hemiptera insects that are fed on by meat ants during the day . Banded sugar ants and meat ants tend to nest near one another , and areas where the two ants forage have shorter foraging periods due to interference between the species . However , banded sugar ants are nocturnal while meat ants are not , so foraging periods are extended by one or two hours if no interference occurs .

Banded sugar ants have been found in the feces of the short @-@ beaked echidna (*Tachyglossus aculeatus*) , and non @-@ passerine birds are known to predate them . The blackish blindsnake (*Ramphotyphlops nigrescens*) follows trails laid by banded sugar ants , possibly to locate them as potential prey . Blindsnakes are also known to consume the brood of this species . Nematodes are a parasite to banded sugar ant larvae , as several mermithergate larvae were described . Infected individuals are recognisable by their swollen gasters ; for example , uninfected ants measuring 13 to 14 millimetres (0 @.@ 51 to 0 @.@ 55 in) in length have a gaster length of 4 to 5 millimetres (0 @.@ 16 to 0 @.@ 20 in) while the gaster of infected individuals who are similar in size is 6 to 7 millimetres (0 @.@ 24 to 0 @.@ 28 in) . Some specimens collected had gasters so swollen that the intersegmental @-@ membrane was exposed .

== = Life cycle and reproduction == =

Like all ants , banded sugar ants begin life as eggs . If the egg is fertilised , the ant becomes a female ; if not , it will become a male . They develop through complete metamorphosis , meaning that they pass through a larval and pupal stage before emerging as adults .

Although most banded sugar ant colonies are monogynous (a nest that contains a single queen) , some have been found to be polygynous , where a colony will have multiple queens ; this is the fourth *Camponotus* species that is recognized as exhibiting polygyny . In polygynous colonies , queens are not territorial and free @-@ mixing of offspring is observed . Despite the homogeneous environmental factors , however , different family lineages are strongly correlated with ant caste , suggesting caste is largely genetically determined . Nests containing a single queen are monandrous , where a queen will only mate once with a male . Not much is known about their nuptial flight , although virgin queens and males (alates) were observed mating in South Australia in January . This hints that banded sugar ants will mate during mid @-@ summer , and colony foundation occurs at this time . Ideal conditions for nuptial flight is on warm days during the

afternoon at temperatures of 20 ? 25 ° C (68 ? 77 ° F) , which is when the alates begin to swarm . A colony can be long @-@ lived , with queens living for seven years or more . The black carpenter ant (*Camponotus pennsylvanicus*) is known to adopt larvae and pupae from banded sugar ant colonies .

Workers that belong to different matriline (female ancestry) appear significantly different from each other in size . Matrilines are also said to influence caste determination within the species .

= = Interaction with humans = =

The banded sugar ant is considered a household pest and is occasionally seen in houses at night , capable of damaging furniture and fittings by chewing the wood ; carbon disulphide is used to treat and remove a banded sugar ant nest . These ants do not pose any threat to humans , as they are incapable of stinging and can only spray formic acid , however , the larger soldiers are capable of inflicting a painful bite with their powerful jaws , and the formic acid they spray is corrosive to human skin . The eggs of this species were consumed by the Australian Aborigines .