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Pest Control Technical Note

Ants

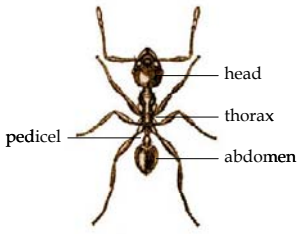
Ants belong to the Family Formicidae, within the Order Hymenoptera. This Order also includes bees and wasps. Ants are of ecological importance for their roles as predators and scavengers, for seed and pollen dispersal, and in soil structure. In Australia there are over 4000 known species of ants. A handful of these (mostly introduced species) are considered pests. Pest ants often nest in and around buildings, congregate in food preparation areas and have the potential to spread disease. Ants feed on a wide variety of foodstuffs. Many ant species rely on 'honeydew', produced by aphids and scale insects, as a food source. Ants may be observed 'farming' these insects on plant foliage.

Ants are social insects that live in more or less permanent nests. Nests contain one or more queens, males, and immature forms that are fed and cared for by sterile workers. Workers may be specialised, for example into minor and major (or soldier) castes. These perform specific tasks and appear physically different.

Ants are not related to termites, and cannot damage sound timber.

Structure

Most species of ant have three distinct body segments: head, thorax and abdomen. Small, constricted abdominal segments (the pedicel) connect the thorax and abdomen, giving the ant a 'waist'. When viewed under a powerful lens, the pedicel may contain projections called nodes, which can be useful in identifying the ant species. Ants have compound eyes and 'elbowed' antennae. If wings are present, the forewings are larger than the hind wings.



Life Cycle

The life cycle of an ant consists of four stages: egg, larva, pupa and adult. Fertilised eggs become females (usually sterile workers, but at certain times also fertile females which can potentially become queens). Unfertilised eggs become males. Adult workers feed the larvae and pupae. The pupa is similar in shape to the adult, but is usually soft, white and inactive, until the adult emerges and the cuticle hardens and darkens. The development from egg to adult may take from six weeks to very long periods, depending on the species, season and food availability.

Control Methods

Cleaning up and limiting food particles and residues around the house may reduce infestations. Food left outside (e.g. pet food) can also attract ants near the house. A number of pesticide formulations can be used for control.

Sprays

Surface sprays may be applied to nesting sites, travel routes (e.g. cracks in paths, walls skirting boards, door frames) and areas where ants gain access to the building (e.g. window sills, door jambs, wall voids, cupboards, cracks and crevices). When combined with good hygiene, surface sprays should provide suitably long-term prevention.

Space sprays are only of limited use in ant control. They can be applied to sites of activity, but are more useful for treating nests located in enclosed spaces.

Dusts

Dusts may be applied directly to nesting sites, or sprinkled lightly on surfaces where ants travel. Dusts are particularly useful in sensitive areas such as electrical power boxes, and in roof voids. Dusts are not as effective outside as they must remain dry.

Baits

Ant baits are useful when insecticides cannot be used (e.g. in hospitals), or the nest cannot be located. Baits are particularly useful in controlling some species of ant, but baiting may be a relatively slow procedure and so it requires patience and perseverance. The bait is collected at feeding sites by workers, who return to the nest and distribute it the rest of the colony. If successful, this results in eradication of the entire colony. The bait must be of a formulation that is attractive to the species being controlled. In placing baits, the safety of children and pets should be considered.

Remember to always follow the label directions when applying insecticides.

General Treatment Procedure

Unless otherwise specified, the following provides a general protocol for the treatment of ant infestations:

1. Inspect the house and surrounding area, following ant trails to locate nesting sites and determine where ants are entering and feeding.
2. Identify the species of ant, and determine the most appropriate control measures.
3. Treat the nest if possible and appropriate (direct treatment of the nest usually provides the most effective control), or treat surfaces where ants are most active, using either sprays or dusts. It is important that any barrier treatments are comprehensive as ants are adept at finding new routes to a food source. Use baits as appropriate, or where insecticides cannot be used.
4. Clean up food particles and other attractants. Ensure the client understands that hygiene levels must be maintained to achieve complete control. Follow-up treatments may be required for severe infestations.

Major Pest Species

Singapore Ant *(Monomorium destructor)*

Singapore ants are light brown with a darker posterior abdomen and are 1.5-3.0 mm long. Ants in a range of sizes bridge the smallest workers and the large-headed soldiers. The Singapore ant bites, and is an introduced species.

Monomorium destructor

Singapore ants are attracted to plastics in electrical, irrigation and other equipment. They frequently nest in power sockets and chew on electrical wiring, and have been responsible for electrical fires. They form slow-moving trails and feed on a variety of foodstuffs, probably preferring animal materials to sweets.

Argentine Ant *(Linepithema humile)*

Argentine ants are slender, brown, 1.5–3.0 mm long, have eyes close to the base of their antennae and no spines on the thorax. They do not produce a smell when crushed and do not have a soldier caste. They are an introduced species.

Argentine ants travel in slow-moving, well-defined trails up to 3 or more ants wide, which climb over anything placed in their way.

They are often seen on the trunks of trees and shrubs, as their primary food source is the sweet honeydew produced by aphids and scale insects. They prefer sweet foods, but may also eat meat and dead insects. Argentine ants usually nest outside in the bases of trees, around the edges of buildings and paths, and in lawns. They may move indoors in wet weather.

Linepithema spp

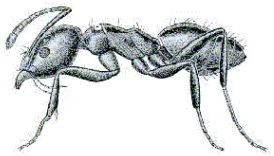
There are multiple queen ants in each nest and multiple nests may be interconnected with an exchange of queens and workers. An entire infestation from a single colony can cover several hectares.

An entire block may need treatment for Argentine ants. The perimeter of the block should be sprayed, as should the foundations of the building (for half a metre up and out from the foundations). Nests and trails, the edges of paths and driveways, the butts of trees and larges shrubs, and the areas around rubbish bins and taps should also be treated. Ants can re-colonise from a neighbouring area within two weeks, and a second spraying is often required.

Whitefooted House Ant *(Technomyrmex albipes)*

Whitefooted house ants (also known as Black ants in Victoria) are shiny black ants, uniform in shape and size, 2.8-3.5 mm long and have relatively large abdomens. Under a microscope, these ants have light-coloured feet. They bite, but don't sting and are an introduced species.

Whitefooted house ants are most common in moist, forested habitats and are more active at night. Workers of *Technomyrmex* frequently enter houses through small cracks and, on finding a suitable food or water source, form trails with many workers travelling between their nest sites and the food source.



Technomyrmex albipes

In general they nest outdoors but will sometimes establish small nests indoors (for example in wall cavities, behind cupboards and skirtings, and even in small, empty storage containers) near a well-maintained food supply. These ants prefer sweet foods, but will also eat meats.

One winged queen and many fertile, wingless 'intercastes' per nest can result in enormous reproductive potential. At some point 'budding' of the colony may take place, where a wingless reproductive and a large number of workers (who

carry larvae and pupae with them), leave the parent colony and establish a new colony a short distance away. Thus mass migrations of ants, carrying their white babies in their mouths, may be observed.

These ants can often be controlled using baiting methods. This will require some patience, and fresh bait will need to be put out daily. If ants are re-infesting from a nest outside, spraying of the nest, and perhaps walls or building foundations may be required.

Black House Ant *(Ochetellus glaber)*

Black house ants are 2.5-3.0 mm long, and intensely black with a sometimes subtle, purplish-green iridescence. They are smaller and stockier than the Whitefooted house ant and produce a distinctive strong odour when crushed, but the smell is reportedly imperceptible to some noses. These ants bite, but don't sting and are an introduced species.

Ochetellus spp

O. glaber may import and tend aphids and other bugs on domestic pot plants. They nest outside around the edges of paths, rockeries, and other structures, and also commonly also nest indoors in ceilings, cavity walls and subfloor areas. They prefer sweet foods, but will eat a variety of foodstuffs.

Pharaoh's Ant *(Monomorium pharaonis)*

Pharaoh's ants range from light yellowish-brown to darker brown and are 1.5-3.0 mm long. They do not produce an odour when crushed, and have no soldier caste. They are an introduced species.

Monomorium pharaonis

Generally found in large colonies, with many queens, they commonly nest within the structures of the warmer areas of buildings (e.g. adjacent to heating ducts). They are frequently found in hospitals and nursing homes. The workers may forage over large distances. The Pharaoh's ant prefers high protein foods such as meat and blood, fatty foods and vegetables.

Pharaoh's ants should not be sprayed as this fragments the colony, causing groups to 'bud', or split-off to form a new colony. This worsens the problem. Baits placed in all locations that the ants have been seen is the best strategy, but baiting may take several months to achieve control.

Coastal Brown Ant *(Pheidole megacephala)*

Coastal brown ants are shiny and light to dark brown in colour. Workers are 1.5-3.0 mm and soldiers 3.5-4.5 mm with large heads and powerful jaws. They give a relatively painless sting and are an introduced species.

Pheidole megacephala

These ants generally nest outside around paths and rockeries, where trails may be seen. In an infestation they are often located in the walls of houses, in wall crevices and behind skirtings. They prefer food of animal origin, including dead insects, meat and grease. There are multiple queens in each nest and nests are characterised by a number of interconnected holes.

Carpenter Ant *(Camponotus spp)*

Sometimes called sugar ants, *Camponotus* is one of the most common and widespread groups of ants in Australia. Species vary greatly in size and colour, ranging from about 2.5mm to 14mm in overall length, and from brown to pale brown in colour. They don't sting, but may bite.

Camponotus consobrinus

Carpenter ants rarely enter houses. Nests are commonly found in decaying wood, soil, between rocks, among the roots of plants and in twigs on standing shrubs or trees. These ants seldom tunnel into dry, sound wood, preferring to excavate moist, rotting wood and other soft materials to make nests. Thus, the Carpenter ant rarely causes structural damage. Carpenter ants are usually nocturnal, will often travel long distances for food and eat live and dead insects as well as sweet foods and household waste.

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