

## General Pest Control & Inspection



German and Brown Banded cockroaches congregating

### Rodents

The rodents that are of great concern not just in Australia but throughout many countries are:

#### Norway Rat (*Rattus Norvegicus*)

Also referred to as the common rat, sewer rat, brown rat and water rat.

The Norway rat is the larger of the pest rats usually growing up to 40cm, with their tail being a further 25cm in length to their actual body length. They have a more solid body, blunt snout, small close-set ears and a tail shorter than its body length. Their fur is coarse and usually brown or dark grey in colour.



Norway Rat (*Rattus Norvegicus*)

They Norway rat normally lives 9-12 months and may have 5-6 litters per year (each with 8-10 young). The young achieve sexual maturity at 3-4 months. Clearly its reproductive potential is very high. Usually active at night the Norway rat is an extremely good swimmer but generally a very poor climber.

#### Roof Rat (*Rattus Rattus*)



Roof Rat (*Rattus Rattus*)

Also referred to as the black rat and ship rat.

The roof rat is the smaller of the pest rats usually 15- 20cm in length and their tail being a further 20cm in length to their actual body length and are of slighter build.

It has a more pointed snout, large prominent ears and a tail longer than its body length. It normally lives 9-12 months and may have 4-5 litters per year (each with 6-8 young).

The young achieve sexual maturity at 3-4 months. Usually active night the Roof rat is generally a poor swimmer, but an extremely good climber.

#### House Mouse (*Mus Musculus*)

Also referred to as the field mouse.

The house mouse is small and has rather large ears, a pointed snout and a tail at least as long as its body length. House mice living indoors are usually a darkish grey colour, with lighter grey on the belly, while those living mainly outdoors tend to a more sandy or yellow-brown colouring—hence the references to “field mice”.



House Mouse (*Mus Musculus*)

They tend to live for about 1 year and may have 6-10 litters per year (each with 5-6 young). The young achieve sexual maturity at about 6 weeks.

These rodent pests are well adapted to living in very close association with us humans, sharing our food and shelter. Throughout history rats and mice have been responsible for enormous losses of food and due to their ability of transmitting diseases to humans, enormous losses of human life. The distribution and abundance of pest rodents are largely determined by the availability of food and shelter. Being basically social animals, rats and mice live in groups and in nests constructed of any soft materials available e.g. paper, fabric and insulation.

Outdoors they may nest in burrows, under buildings, in rubbish heaps and other places where food and shelter are within reasonable reach. Indoors they may construct nests in wall cavities, roof voids, under floors and even within stored foods. They are very agile animals and mostly nocturnal, but they may feed during the day, particularly if the population is large, food is short, or there is little disturbance or danger. The presence of rats and mice in buildings is usually regarded as undesirable due to food spoilage and contamination, physical damage to the building, and the transmission of diseases to humans.

The black death (bubonic plague) which claimed more than 25 million lives in Europe was transmitted from rat to rat and then from rat to human by the Oriental rat flea. Rats and mice in buildings pose a serious threat to human health.

### **Examples of how you can be contaminated by Rodents**

- Contamination of your food and utensils with rodent urine or faeces. E.g. Salmonella food poisoning, Choriomeningitis (virus carried by mice).
- Contamination by you having direct contact with the rodent's urine or faeces, where a bacterium from the urine or faeces enters your skin through small scratches: e.g. Weil's disease
- Contamination by a rodent directly biting you e.g. rat-bite fever.

The disease threat alone to you and your family is a justifiable cause for concern and for the implementation of Forensic Pest Management Services rodent control procedures call us today for some friendly advice or for an effective environmentally friendly solution to your Rodent problem.

### **Bees**

Bees are most active during the warmer months of the year, from early spring to late summer. They invade buildings in order to establish new colonies and to shelter. Scout bees will fly around a building, looking for entry points. Usually these are holes in the mortar of brick walls, in ventilation holes (weep holes) and under tiles on roofs etc. They do not fly far from a previous colony and it is not unusual to see a swarm of bees settle onto a building within a few seconds.

A swarm of bees can be extremely aggressive and are known to attack a human or animal in such large numbers actually capable of causing death. Bees cause painful stings by injecting a highly toxic venom through a dart-like needle in their tails directly into the victim's bloodstream, thereby causing extreme swelling of the skin. Once the bee stings they leave their darts behind, stuck in your skin and subsequently die.

This is why bee jobs are considered to be an emergency as many people are allergic to their stings, some severely.

Adults are small to large and of diverse form. Wings are membranous: the forewings are usually larger than the hind wings, and there is a coupling mechanism. Mouthparts are of chewing type, with some modifications for lapping or sucking. Compound eyes are usually large. Females often have an ovipositor developed for sawing, piercing or stinging.

Habits vary enormously within the group. Some are solitary insects while others are social, forming sometimes very complex societies that involve different castes and a high degree of communication. Reproduction may be sexual or by parthenogenesis. Eggs of parasitic species are usually laid in or on the host animal. Eggs of foliage eaters are usually laid in or on the host plant. In social insects, eggs are tended by workers. Larvae undergo a number of moults before pupating.

### **Honey Bees**



Honey Bee

Honey bees often leave commercial hives and settle in and around buildings, when established between the walls of the building they present special problems and must be dealt with urgently. Where necessary, the hive must be killed, particularly when allergic people are likely to be stung. Some people may die from one bee sting. It is important that the bee is identified correctly, as the native honey bee may be involved in a situation where killing of the hive is not necessary, for the honey bee does not sting.

The native honey bee also nests in trees and in hollow log sections of large stumps. It is a much smaller bee and of a different colour.

### **Mortar Bees**

These bees are mostly large and have coloured bands across the abdomen. They normally make their nests on banks of hard soil or sand. Brick homes and those with brick foundation walls and poor quality mortar may be damaged by the female mortar bees that often make their burrows deep into the mortar. Each female makes its own burrow, but it may be part of a complex of separate burrows in the mortar. The female lines the burrow with a wax-like material and this gives some protection to the young which are reared in the burrow.

### **Solitary Bee**

Small solitary bees will excavate the early wood on the end grain of softwoods such as Douglas fir and lay their eggs plus food for the young after they hatch. The young are fed in the recesses until they pupate when the ends are sealed. The adults break the seal when they are emerging. This type of attack may be found on the end sections of roofing timber in open areas such as carports and garages.

## Fleas

Adults are very small usually 2 - 2.6mm long, usually dark reddish to brown in colour. Their bodies are flattened from side to side, and have are covered in stout, with backwardly projecting spines that assists the flea to clinging to the host. Legs are stout and spiny, and the hind legs are enlarged for jumping distances between 10-30cm. They are wingless and have no compound eyes: only lateral ocelli sometimes are present.

To aid in the detection of a host, fleas have two short antennae on there heads that are sensitive to stimuli including vibration, change of air currents, shadows, heat and carbon dioxide. Their mouthparts are developed for piercing and sucking. Larvae are very small, legless, worm-like creatures with short antennae, chewing mouthparts and rigid hairs along the body.



Flea

Fleas are external parasites of mammals, in the main and birds. Adults are quite active, crawling among hair or fur and often moving by jumping. They may spend little time on the host, perhaps visiting only briefly for a blood meal when required.

When a flea blood feeds, a small amount of anticoagulant is injected with the saliva which permits easy siphoning of the blood from the host. The female flea uses her blood to nourish her developing eggs, and is capable of producing up to four eggs after each blood meal.

Reproduction is sexual and eggs which are oval in shape, usually white to cream in colour and measuring 0.5mm in length usually fall into host's nest or immediate environment.

Larvae feed on organic material, such as skin scales or food scraps in carpet or floor cracks. When fully fed, the larvae pupates in a protective cocoon, and the adult later emerges.

Fleas are annoying and irritating in the home where, particularly climate conditions favorable, they can create huge populations. More importantly, some fleas are carriers of serious diseases, such as bubonic plague, murine typhus and a number of tapeworm infections.

## Cockroaches

These widely known groups of ancient insects are much despised, largely owing to the success with which a small handful of species have exploited environments in which us humans live and work. Those few species are supreme scavengers. Adults are generally medium to large in size, flattened and, viewed from above, mostly oval shaped, with the head shielded beneath the pronotum. They have long and slender thread like antennae, legs well suited to running, well developed compound eyes and chewing mouthparts. Wings may be developed, reduced or absent. The abdomen is large is carries a pair of unusually prominent cerci.

Nymphs are mostly similar to adults except in the development of wings, genitalia and sometimes the colour and texture of cuticles. Adults and nymphs alike frequent mostly dark, humid places and are, for the most part, nocturnal, resting during the daytime. Some species are capable of flight, but very warm conditions are usually required. Reproduction in most species is sexual, often involving attractant pheromones, courtship procedures and what is often a rather prolonged end to end copulatory session. A number of eggs are glued together in a capsule which is usually identified by its shape.

Cockroaches are predominately tropical and subtropical. A number of species with the aid of commerce dispersed worldwide, exploiting built environments for food and shelter. Many such environments can provide year round warmth, food and shelter, which may support literally thousands of cockroaches.

Cockroaches eat stored foods and other materials. Also, they contaminate foods and food handling areas with droppings, cast skins, regurgitation marks and odours caused by abdominal secretions. As well, disease organisms of various kinds such as bacterial, viral and protozoan have been isolated from cockroach bodies and droppings. Infestations of cockroaches are generally regarded as a threat to human health.

### **German Cockroach**

The relatively small German Cockroach is probably the most widespread and successful cockroach that coexists with humans in buildings. It is the most prolific breeder of all the pest cockroaches, taking as little as 40 days to develop from hatching to adulthood.

Adults are light amber-brown, with two dark longitudinal dark stripes on the pronotum. Egg cases are usually carried by the female until just prior to hatching, and these may contain 30-40 eggs.



German Cockroach

This cockroach seeks conditions that provide warmth, moisture and food. The majority of infestations are associated with kitchens or food handling areas. Within such areas adults and nymphs find cracks and crevices in which they hide during the day. If numbers of cockroaches are seen during daylight, or if they are seen in non food handling areas of a building such as a bedroom, it is likely that the building is housing an enormous population.

The German Cockroach can usually be found under sinks and cupboards, in and under drawers, in and around water heaters and appliances such as refrigerators, stoves and microwaves. It will eat almost any organic material found in food handling areas, ranging from crumbs to built-up grease.

Where water is available, adults may survive up to a month without food. Although adults are winged, this cockroach does not seem to fly. It's very wide dispersal is attributed largely to human error, whereby egg cases, nymphs and adults are transported to new locations amongst our food packages, drink cartons or cardboard boxes. Efforts made at controlling this successful scavenger are regularly and constantly made.

### **Brown Banded Cockroach**



Brown Banded Cockroach

The brown banded cockroach is relatively small. Adults are pale brown in colour with very pale bands across thorax and abdomen. The females wings are somewhat reduced, while those of the male extend past the abdomen.

Egg cases, which may contain up to 18 eggs, are glued to surfaces, and the hatched nymphs require 2-4 months to develop into adults. Adults typically live for up to 6 months, during which time the female produces up to 13 egg cases.

This cockroach tends to be an indoors pest frequently infesting the dwelling parts of buildings. Egg cases, nymphs and adults may be found in wardrobes, dressers and cabinets and behind book shelves or wallpaper.

Usually preferring warmer temperatures this cockroach does not require moisture as the German cockroach. The brown banded cockroach is very active and may fly if disturbed or in warm conditions. Sightings of them during the day are not unusual.

## Oriental Cockroach

The medium sized oriental cockroach is dark brown to black. The female has much reduced wings while the male has wings that cover most, but not the entire abdomen.

Egg cases are usually glued to surfaces and may contain up to 16 eggs. Nymphal development may require 6-18 months. Adult lifespan is usually about 3-6 months, and a female may reproduce up to 14 egg cases during her adult life.



Oriental Cockroach

The Oriental Cockroach is the major pest cockroach of buildings in Britain.

Its preference for relatively cool conditions this cockroach is usually found under leaf litter and bark and in damp sub floors, around drainage systems. Being relatively sluggish it feeds on a variety of decaying organic matter, frequently feeding in garbage disposal areas. As well, starches and sizing of wallpaper and books may also be attacked.



American  
Cockroach

## American Cockroach

The American cockroach is probably the largest cockroach that infests dwellings and utilities. Adults are fully winged and are a reddish-brown in colour with a pale yellow border around the pronotum.

Egg cases are usually dropped or glued to surfaces within reasonable proximity to food and water.

Up to 16 eggs may hatch from each egg case, and nymphs may take 6-12 months to develop into adults. Adult lifespan may be 6-12 months and females may produce up to 50 eggs.

As the American cockroach prefers warm, moist, dark conditions, it tends to live indoors in colder regions and outdoors in warmer regions. Partly due to its size it tends not to so often infest the dwelling parts of buildings although it is a very widespread pest often found in wall cavities, roof and sub floor voids, sewers, drains, moist cellars, grease traps and rubbish dumps.

This cockroach seems to have a preference for decaying organic matter, but will eat human and animal foods along with books, paper and clothing particularly if soiled.

## Australian Cockroach

The Australian cockroach is relatively large. In appearance adults are similar to the American cockroach, but the body is a darker brown, the yellow markings on the pronotum are more clearly defined, and the foremargins of the forewings have a distinct yellow marking.



Australian Cockroach

Egg cases that are either dropped or glued by the females may contain up to 24 eggs which, after hatching, require some 6-12 months for nymphal development.

Adults seem to live for about 4-8 months, during which time females may produce up to 20 egg cases. Preferring food of plant origin, this cockroach may be encountered in greenhouses and under bark or leaf litter in gardens. As well, it is found in sub floor voids, wall voids and roof voids etc. This cockroach tends to be more frequently encountered in warm, subtropical to tropical conditions.

## Smokey Brown Cockroach



Smokey Brown  
Cockroach

The Smokey Brown Cockroach is relatively large, and adults are dark brown to almost black with no pale markings. Its life history is somewhat similar to that of the American cockroach.

Egg cases dropped or attached to surfaces by females may contain up to 26 eggs, which, when hatched, may require 6-12 months for nymphal development. Adult lifespan is probably about 6-12 months, and during this time, a female may produce close to 20 egg cases.

The habits of the Smokey Brown Cockroach are in some ways similar to those of the American cockroach, and it is often found in garages, sheds, sub floor areas, roof voids and in and around grease traps and drains.

The Smokey Brown Cockroach does; however, seem to have a particular preference for food materials of plant origin, so it is often a pest in greenhouses, nurseries and gardens. It is most often regarded as an outdoor species, and very seldom does it infest the dwelling parts of buildings. Adults are fully winged and can fly short distances in warm conditions, often being attracted to lights at night.

## Spiders

Spiders belong to a class called Arachnida. Spiders have 8 jointed legs and their bodies are divided into 2 sections: cephalothorax and abdomen. The cephalothorax is a fused head and thorax region. Palps are located in the front and are often mistaken for an extra pair of legs. Their function is sensory, and in the male they are also associated with reproduction. Legs and body may be heavily or sparsely clothed with hairs. In determining the sex of spiders, the difference in size between adult males and females is usually so marked it is a useful feature on its own. The male is usually smaller than the female of the same species, and its legs are longer than the females. Most spiders have 3 or 4 pairs of eyes situated on the sides and top of the cephalothorax, although some have only 1 or 2 pairs.

After fertilization the mature female spider produces an egg sac, which varies in size and shape depending on the species. The egg sac of all spiders consists of a mass of silken threads enclosing many eggs. Some spiders leave their sacs near their habitats or in burrows. The eggs hatch inside the egg sac, and the young shed their skin once before emerging.

Most spiders are nocturnal. During the day they are seldom seen, unless they are sought or disturbed in their natural environments. When the light fades spiders become active leaving their shelters in search of food or in the case of webbing spiders construct their webs to snare prey. In true spiders the male reproductive organ is located in the pedipalpi. The male secretes his seminal fluid on either the ground, bark or a web specially made for this purpose. He then picks up the seminal fluid on his palps and conveys this to the spermatheca of the female. After the female has been fertilized, the male is often caught and consumed by the female. Cannibalism is well established amongst spiders from an early age, and more frequently when food is short, spiders kill and eat one another.

## Red Back Spider



Red Back Spider

The red back spider has long thin legs, a large bulbous abdomen and a small cephalothorax. The male red back spider is much smaller and insignificant to the female. Females are usually 12-15mm in length whilst the male is 3-4mm in length.

The red back spider has black velvet like coloring with a well defined red stripe on its dorsal surface, with a more pale looking coloring to its ventral surface.

It is important to note that this red defined stripe may be missing on some. Red backs make a loose web in rubbish, unsewered toilets and under houses. Most bites that are recorded are on the male genitalia. The red back spider is not an aggressive spider, although their bites are very toxic and painful.

## White Tail Spider

The white tail spider has a cigar like shaped body that is grey to black in color with a prominent white mark on the end of its abdomen.

The female white tail spider is generally 12-15mm in length and the males are generally 5-8mm in length.

This spider is often found under bark of trees and often enters houses residing in bathrooms. Their bites cause local pain and blistering and also tissue necrosis.



White Tail Spider

## Sydney Funnel Web



Sydney Funnel Web

Considered the most dangerous spider in the world is the male Sydney funnel web. Usually identified by its shiny cephalothorax and its spinnerets that are quite long. The male has palps and a small spur on its 2nd pair of legs.

The female is generally 30mm in length and the male is 25mm in length. The Sydney funnel web is a covering of black fine reddish hairs over its body. This species favors moist dark situations. They are an extremely aggressive spider and their bites are very toxic, the male being more toxic than female.

## Huntsman

The Huntsman is quite a large flattened hairy spider and its first 2 pairs of legs are longer than its rear two legs.

The male is slightly smaller than the female with enlarged palps. Females are usually 35-40mm in length and the males are usually 15-25mm in length.



Huntsman

Their colorings are usually buff dark patch like looking on cephalothorax and abdomen. They mostly live under bark during daytime and emerge at night to feed. They are often offenders entering inside houses. Their bites are not toxic but may be painful though.

## Black House Spider



Black House Spider

The Black House Spider has a large abdomen and its fangs are not obvious but move pincer wise. The females are usually 15-18mm in length while the males are generally 8-10mm in length. They are mainly dark brown in colour and its legs are often black. They construct a felted like web and in the centre of the web is a tunnel. They can be often sighted in sheds, toilets, windows and under guttering.

They are a non aggressive spider. But their bites are toxic which produces pain, nausea and sweating.

## Garden Orb Weaving Spider

The garden orb weaving spider has a rather large abdomen with an abundant of hairs covering its body surface. The male species is seldom encountered. The female is about 20-25mm in length whilst the male is usually 5-10mm in length.

The garden orb weaving spider ranges from a dark to light brown in colour with a distinct pattern to its body. This species hides in foliage during the day and then constructs its web at night. They are considered not to be aggressive and its bite is not toxic.



Garden Orb Weaving Spider

## Bed Bugs

Bed bugs are small ranging from 6 mm to 0.24 inch in length, oval in shape, dorsoventrally flattened enabling them to readily hide in cracks and crevices, adults are usually a reddish-brown in colour whereas the nymph is almost colourless darkening throughout its development. After a blood meal the bed bug will appear to be more swollen, elongate and a darker colour. All life stages of the bed bug, exclusive of the egg, are obligate blood feeders preferably to the human but if unable to reach the human, bedbugs will feed of warm blooded animals such as birds, rodents and pets. The bed bug a fast moving insect within itself is so widely distributed worldwide mainly due to us humans transporting them around with us either in our clothes, luggage, bedding or furniture.



Bed Bug

Bed bugs are most commonly found infesting rented apartments, hostels, hotels and motels and this is mainly due to the high turnover of occupants. Bed bugs are associated with harborage such as mattresses and bedding fabrics keeping in close proximity to their host.

In heavy infestations, they may hide behind picture frames, under carpet, behind wallpaper, and in cracks and crevices of walls, picture frames and curtains of human dwellings. They can also be found in some bird nests and also associated with bats.

Bed bugs are nocturnal parasites, which means they rest during the day and feed on the blood of humans at night, this is why most bites occur at night while the victim is sleeping. While the initial bite from their piercing-sucking mouthparts typically is painless and feeding generally lasts approximately 3 minutes for a nymph and 10-15 minutes for an adult, toxic saliva containing an anticoagulant which assists in the siphoning of the blood is injected during feeding. This toxic saliva can cause the development of an inflamed wheal that may itch intensely.

Some individuals develop allergic reactions to the saliva injected into the host after repeated feedings, and this can result in dermatitis, localized inflammation, and formation of prominent wheals. Rarely, some individuals become hypersensitive to bed bug saliva and may develop asthma, urticaria, arthralgia, and anaphylaxis, but such responses usually cease when the victim is removed from the source of bed bugs.



Bed Bug nesting site

The bedbug is also known to cause anxiety, insomnia and stress to the human due to the intense irritations caused. Under normal circumstances itching associated with bed bug bites can be managed with the use of topical corticosteroids and systemic antihistamines.

Bed bugs have not been shown to transmit any disease pathogens to people.

## Wasps

Although all wasps have the ability to sting people, they generally only use their sting to paralyse or kill their prey. However it is important to note that wasps will attack to defend their nests when intruded upon. Social wasps live in colonies of various sizes and colours and their “paper” nests are mainly built of wood fibres mixed with their saliva. Their nests are often sighted amongst trees and shrubs, under rockeries, in wall/ roof cavaties and underground. Unlike the bee wasps do not loose their dart, and do not die after they sting therefore the wasp is able to sting multiple times.

Wasp stings are extremely painful and are often accompanied by a localized swelling to the affected area. It is important to seek medical attention as you may be allergic to wasp stings without knowing.

## Paper Wasp



Paper Wasp

Paper wasps have a rather slender body with quite a narrow waist with a small head usually 10-15mm in length. Their eyes and antennae are generally medium in size.

They have two pairs of long /thin brown coloured wings, with the first pair being larger. The abdomen of the paper wasp has some yellow/orange bands, but is mostly black. Yellow markings may also be seen on their face.

As their name best describes their nest, these wasps construct a cone shaped nest with several hexagonal cells inside, some with white caps. These nests are constructed of wood fibres mixed with their saliva.

Inside each hexagonal cell contains one larvae, the larvae are fed on chewed up caterpillars, whilst the adults rather feed on nectar substances. Their nests can usually be sighted under eaves of houses and in amongst trees/shrubs.



Paper Wasp nest in tree

These wasps generally only become aggressive when defending their nests

but it is important to note that they do inflict quite painful stings and whilst being able to sting multiple times, a more severe reaction may occur.

## European Wasp

The worker wasps of this species are sterile females and are 12-15mm in length, with yellow bands on a black body. European wasps are fast fliers, with clear wings that fold longitudinally over their bodies.

They have black antennae and fly with their legs held close to their bodies. Queens and males measure about 20mm in length, with the queen having a stout abdomen and the male a long thin abdomen.



European Wasp

The nest varies in size from about 15cm to about 5 metres and may contain up to four million cells and over one hundred thousand workers. The nests are commonly found underground, amongst tress stumps and rockeries and also in roof voids and wall cavities.

These wasps also construct their nests with wood fibres mixed with their saliva. The workers feed mainly on sweet substances such as fermenting fruit and human food and drink. These wasps are common intruders of pet food lying around the home they are generally looking for meat to take back and feed to their grubs in the nest.

European wasps are extremely aggressive wasps and if their nest is disturbed they generally swarm out to attack the intruder. Their stings are very painful often inflicting a burning pain accompanied with swelling, if multiple stings occur this can be very dangerous if not fatal.

## Mud Wasp



Mud Wasp

Due to their large size and bright black and yellow coloring the Mud wasp is considered to be the most easily identified wasp. These wasps have a long thin waist with quite long slender legs and are often sited collecting mud from puddles in which they roll the mud into a ball and take it away to construct their nest.

Their nests can often be found under eaves or attached to the walls of buildings. They will basically construct their mud nests on basically anything that is left undisturbed such as handles of tools left outside.

The adults generally feed on nectar where as their young are provided with spiders and insects that the adult has paralysed and taken back to the nest. Once she has paralysed her prey she then places it in her nest and then seals it off with a newly laid egg, its when the young have hatched they can then begin to feed. These wasps are not an aggressive wasp but will inflict a painful sting if bitten.

## Silverfish

Silverfish have flattened bodies and are generally up to 15mm in length and most species are clothed in tiny scales. As their name describes their colouring they are silver in appearance. They are wingless and have chewing-type mouthparts and medium to long thread-like antennae. Compound eyes may be present, reduced or absent.



Silverfish

In their natural habitat, silverfish live under bark and in soil, leaf litter and rotting logs. Being nocturnal, they mostly hide during the day, becoming more active at night when they seek food.

They seem to be mostly omnivorous. They are fast running and agile, and their easily detached scales probably aids in the escape of its predators.

Throughout reproduction eggs are laid singly or in batches, usually in crack or crevices. The young grow slowly and are almost exact miniature replicas of the adults.

After reaching maturity the adult silverfish continues to moult throughout its life, which may be as long as four years. In Australia silverfish have exploited built environments, feeding on, and often damaging, books, paper, human foods, wall papers, glues and starchy cotton/linen. No disease transmission is known.

### Carpet Beetle

Carpet beetles are widely known for the damage they may cause to a variety of materials of animal origin. A number of species are active in Australia but the more common encountered ones are the variegated carpet beetle and the black carpet beetle. The distribution of carpet beetles is much higher than that of the common clothes moth.

Adult carpet beetles are typically small up to 5mm in length and oval in shape. Larvae are usually a reddish-brown in colour and are covered with stiff bristles over their bodies.



Black Carpet Beetle

Adults are mostly pollen and nectar feeders and are often sighted around windows, probably migrating out to find flowers. Their habit of feeding on flowers often facilitates their transport into homes by hitch hiking on cut flowers and once inside they look for an egg laying site.



Variegated Carpet Beetle

Carpet beetle larvae may feed on or in wool, fur, hair, silk, clothes, fabrics,carpets,rugs,underfelts,fibre type insulating material,animal carcasses, bee and wasps nests and stored foods. The presence of flying or crawling adult carpet beetles may indicate the presence of an infestation.

Sighting of damaged materials, sand like larval droppings will confirm their activity.

### Meal Moth

Adult Meal moths generally have a wing span of between 20-25mm in length. the base and apex of their forewings are a reddish brown in colour while the rest of their wings are fawn in colour. Larval meal moths can be anywhere up to 24mm in length and are a grayish white colour with a dark head and prothorax. They have 3 pairs of legs plus their prolegs.



Indian Meal Moth

Meal moths attack mostly moist or out of date grain and grain products. They have also been known to attack damp straw and other materials of vegetable origin. The larvae of the meal moth create manes of webbing within the household.

### Ants

Ants are social insects that live in more or less permanent nests. Colony sizes vary enormously and are mostly located in soil, wood and amongst rocks. Ants have three castes consisting of queens, males and

workers. The queens and males are the reproductives and the workers are sterile wingless females. In relation to their feeding habits ants may be predators with specific prey such as termites or scavengers and some omnivorous.

Being very common intruders in and around buildings, ants tend to be very familiar insects. They are commonly sighted around foundations and in walls, roof voids, kitchens, lawns and gardens, the wood of decaying trees and rockeries. Ants vary from brown to black in colour depending on the species and have an obvious constriction between their thorax and abdomen regions. Antennae are variable, but are often characteristically elbowed in shape. They have two pairs of wings, unequal fore- and hindwings and one pair of compound eyes.

Workers, soldiers and sexual forms of ants have cuticles that are not sensitive to desiccation so they can exist outside the more humid environment of their colony.

### **Black Household Ant**



Black Household Ant

These are the common house ants that are found nesting in paths, in wall cavities, roof voids, fences, woodwork, masonry, soil and rotted wood. They are generally shiny black in colour with a pale tarsi. They have a long slender body usually 2.5-3.0mm in length and have chewing mouthparts.

They have no nodes present on one segmented pedicel and their larvae is a whitish looking grub. They feed mainly on sweets, meats, vegetables, honeydew and other insects. Ants are known carriers of disease organisms such as smallpox, salmonella and dysentery.

### **Coastal Brown Ant**

Coastal brown ants are generally 1.5-2.5mm in length and their bodies also appear long and slender. They are a light yellowish brown to brown in colour and have two raised nodes on pedicel with the hind node being more rounded. Coastal brown ants also have one pair of small spines on the hind part of their thorax.

This species of ant has two worker castes - those with enlarged darkened heads are the major workers sometimes called soldiers and the others are the smaller minor workers. They are commonly found nesting in building structures, in crevices in brickwork, in cavity walls, inside termite tracks, paths, rockeries and behind skirting walls and architraves. Their larvae are a whitish looking grub. They feed mainly on materials of animal origin including dead insects, meat particles, fat and grease.

These ants are common offenders for shorting out electrical appliances such as hot water systems as their nests contain high moisture levels. Ants are known carriers of disease organisms such as smallpox, salmonella and dysentery.