

## European Wasp and English Wasp

*Vespula germanica* and *Vespula vulgaris*

*This information is reproduced from a website previously published by David Latter.*



The European and English wasps are both in Australia and are so similar that they can be considered the same. The wasps need to be examined closely to tell them apart. The main difference is the black marking on the middle of the first abdominal segment. It is in the shape of a small arrow head for the European wasp, where the marking tapers to a point for the English wasp. The nest colour differs for the two species. The more common European wasp has a grey nest made from weathered wood, where the English wasp nest is light brown as it is made from rotted wood. All the pictures here are of European Wasps.

European wasps are dangerous and can, unlike Bees, sting many times each. The wasps eat a large range of foods, pet food and meat being particularly attractive to them. They also eat fruit, nectar and even other insects.

They are a serious pest of the Honey Bee, as they kill and eat the adult bee, then raid the hives for both honey and young bee brood. Heavy predation can lead to the destruction of the bee hive.

### Life Cycle

What started in winter as a single wasp queen hibernating somewhere safe and warm until spring, has by the end of summer created a dangerous nest of perhaps many thousands of worker wasps and will before the cold of winter release many new queens to start the cycle again. In Europe most nests will die of the cold of winter, however in Australia, these nests can survive our mild winters to create "super" nests that are huge. These super sized nests are extremely aggressive above and beyond the normal dangerous nests.... They can and do attack anything moving near the hive. Like Bees, the Queen wasp is basically the same as the workers, except it is slightly larger and fertile. When the colder weather starts at autumn very large slowly flying, larger than normal wasps are sometimes seen, these are the new queens looking for winter hibernation locations. They are sometimes located in winter inside or under various objects to survive the cold. Wood heaps are very popular with them. Note, The Queens can sting, the Drones do not.

## The Nest

The nest is usually in the ground but can on occasions be in walls, trees or inside house roofs too. Most are in the ground and are very often on a bank or cutting, sometimes on stream banks, where locating the nest can be difficult due to bush cover. A typical nest that has not survived from the previous winter, will in late summer, have an entrance of somewhere around 25 - 30mm. However, sometimes if conditions are good and there has been a good food supply, the entrance may be a little larger. Nests that have over-wintered, may have multiple entrances, each up to 75mm. These are thankfully fairly unusual. The basic nest is the entrance hole which will go down a variable amount from almost nothing to about 40cm, then it can go sideways, in some cases at a slight rise, up to 1m (but normally a lot less) into the main chamber. Most holes just simply go down to the main chamber. This chamber is normally the size of a football, but can be in excess of 40cm across and 60cm high. If this chamber is shallow and if it is offset from the hole then there is a risk of the dirt giving way should you happen to stand on it. Take great care when standing near a nest. Having a few thousand unhappy wasps attack you would not be fun. If the nest is in a field with livestock, horses for example, mark the nest and after it has been confirmed dead, try to collapse the chamber and fill the hole. An old collapsed nest could cause a broken leg on a horse. It can take several years for a large hole to appear where the nest was.

When the queen comes out of winter hibernation, she creates a small delicate nest that looks like paper in several layers, see the picture below. It is around 40mm in diameter. The queen constructs the nest and lays a small number of eggs in it. She cannot lay too many as she also has to forage for food for herself and the growing brood. This is the most difficult time for the colony as the queen is at the most risk until she can get enough brood hatched to take over the never-ending search for food for the growing brood. Many nests fail at this time. Those that survive concentrate on food as the key to survival and tend to ignore "threats" around the hive, this changes as the nest gets older.

The colony grows over the warmer months and instead of just a few cells in a "cup", the nest is a massive structure of thousands of cells all protected of a papery structure, this actually is made by the wasps from chewing weathered wood, sometimes they can be seen chewing the surface of weathered timbers.



A very young European wasp nest, about 30mm across.



Ever wondered what the inside of a wasp nest looked like?



A typical nest of 35cm diameter cavity (not particularly big). The above nest when first exposed. There was only 13cm of dirt over a empty cavity space of 12cm. The nest was 21cm deep. The entrance was around 30cm away from the chamber.



The darker small cells are worker wasp cells, the white areas are the larger cells needed for the new queens about to leave the hive. Estimated somewhere around 10-15 thousand cells in nest!

### Finding the Nest

The hardest part is finding the nest; the best method is to observe the flying wasps on a warm, calm, sunny day. This may be easier if the sun is behind you. Cloudy overcast days are not conducive to wasp finding, it can be too hard to see them. Wasps circle and zigzag when hunting, so ignore those and look for the ones flying straight and fast, these wasps are either going to or coming from a nest. Take note of the line of flight, then move sideways some distance from the line to another clear area and look for another line, hopefully it will be at a slight angle to the first line, and then you can use triangulation and have a good guess on the direction of the nest and the distance. It is usually better to move in the apparent direction of the nest a short distance and again take a reading on the direction of flight, as often the wasps will curve their flight path around large obstacles such as trees. Follow the line made by these wasps and they will suddenly drop into the nest, sometimes they just seem to vanish above the nest. As you get closer to the nest, the number of observed wasps will rapidly increase. When this is observed, stand still and look to see the wasps fly vertically up and down. They have a set flight paths in and out of the hive. You then have the nest. However, should the behaviour of the wasps change and they all seem to be lost and circling you, take care as you are disturbing their flight path and you may well be just about standing on the nest, or within a metre or two. Always be alert to changes in their behaviour.

The nests are normally underground, often in banks of creeks, drains or road cuttings. They are also found in retainer walls, bases of trees or old stumps etc. They may be exposed in the open (which makes them easier to find) but also may be hidden in blackberries or bushes etc, which makes them harder to find if they are deep in cover as the flight paths are dispersed in the cover. They can also be in houses in the roof cavity or walls.

The best places to start the search is a clear area, it is even better if there are trees etc some distance away that are not directly illuminated by the sun, as the wasps flying will be and will stand out against the darker background. If you have good eyesight, then you can check a large area quickly by simply looking for wasps flying against a darker background or look for flying wasps silhouetted against the sky. Many people have trouble with this, but after you do track one or two nests down, you will then have your "eye-in" and will find them a lot quicker from then on. You are looking for heavy flight paths. The wasps will fly everywhere, but you need to latch onto a flight path of a lot of wasps going in the same direction. In some cases, especially if wasps are in bushland, the light is critical. In bushland the wasp flight paths are very dispersed and are very hard to track especially if the main flight path is above gum trees! A nest can be easily totally missed at one time, yet a few hours later, the vertical flights into the hole may be illuminated and will stand out. If you suspect a nest in a area, but cant find it, come back at another time, either a few hours earlier or later and try again.

In difficult cases, placing some sardine cat food on a fence post in the open is useful as the wasps will roll the food into a ball and fly directly back to the nest after circling the post to regain their orientation, these are much easier to track as they appear larger and fly much more slowly. However, don't stand too close to the post or you will have difficulty tracking them circling.

As a guide, the number of wasps seen at any given time in late summer can be a rough guide to how close a nest is to you. Assuming no food source, such as ripe fruit etc, large numbers of wasps investigating everything or appearing instantly in numbers the moment something is disturbed, or eating bugs off car numberplates etc, indicates a nest that is very close, possibly less than 100m, maybe 50m or less if they are a real nuisance. If you have a few wasps, but only a dozen visible at a time (assuming no food source, such as ripe fruit etc) then the nest will most likely be around 100m away. If there is only one or two wasps checking out bushes etc, then odds are, the nest is some distance away, 200m plus. Around the 500m mark is about the maximum practical distance a nest can be tracked back to. If there is a bountiful food source, such as sweet fruit or meat etc, then large numbers of wasps will be present, but the nest could be anywhere up to 500m away, possibly more. They will travel large distances to a good food source.

If you find the nest, mark it with a stick, or ideally, something reflective, so you can find it again at night for eradication. A wasp nest that has survived over winter will be huge, these large nests are extremely aggressive and should only be taken on by an experienced person. Do not underestimate just how dangerous these things can get.



Cat food on a post being rolled up by wasps.



A typical wasp nest entrance. Note size of wasp in foreground.



A larger serious sized wasp entrance. (Most are 25-30mm) They can get much bigger and are very dangerous.



The treated wasp nest. Note, the wasps cannot avoid contact with the powder. (A bit too much powder around the hole though)



A old collapsed wasp nest in a horse paddock  
There is a risk that horses could break their legs in them.

## Control Methods

Killing wasp nests is potentially a very dangerous practice. This page is from the experiences of the author and is only intended as a guide to methods used by the author. The author accepts no responsibility for anyone else trying to do the same work with wasps. Each wasp nest is different and can behave differently. Anyone attempting to eradicate a wasp nest must make their own judgement on the dangers and best methods of doing so. There are a range of available products in most hardware stores registered for use in killing wasps. Always read the instructions carefully and follow all safety procedures recommended. There is a concern that some products may be a possible carcinogen (some products have apparently been withdrawn from the market because of possible litigation risks), so treat them with appropriate care. Generally, the idea is to use enough powder in the hole to ensure that the wasps have to crawl over the powder. The wasps are particular about cleaning themselves and any powder they take in the nest on themselves, they clean off and get it mixed in their food supply which will eliminate the whole colony. In the case of very large entrances, it may be beneficial if the hole size is reduced with a rock or sticks etc, to help cover the wasps with powder as they enter. Note, if it rains after the powder is applied, it may need a second application to get the job done. Generally the powders available are very effective and will reduce a large nest to nothing by the following day. A typical container of dust for wasps will treat a number of nests, there is simply no need to waste a whole container on just one nest. Just enough to force all the wasps to land and crawl through some is enough. Also be aware that some super sized nests may have multiple entrances, these may be spaced apart by 40cm or so, but may be hidden in grass etc. Anything put in one hole will send angry wasps out of the other, or possibly others. All holes must be treated but do not remain near the nest should the wasps suddenly pour out of the other holes. Unless you have a lot of experience with the wasps, eradication at night is essential for these bigger nests.

A litre of petrol, kero or diesel poured down the hole also works well, (the usual preference is Petrol) but you must seal the fumes in! Block the entrance with a rock and put a spadeful of dirt over it. Do not light the fuel, as it is the fumes that kill them. Killing the nest at night is recommended as most worker wasps are in the nest and it is a lot safer for the exterminator. This is essential if the nest is in an area that will have people nearby as sealing the nest in daylight will mean that there are a large number of workers who will not be in the nest and they will circle the blocked hole for days. This will also mean that any other nests nearby will be harder to track. Never use any fuels on wasps in walls etc, the powders are the best option should you not want to use a professional pest controller in this case. Note, while a nest can be treated with powders in daylight, any nest in a place that is close to other people, play grounds, walking tracks etc, should still be done at night as when the powder is deposited into the entrance, the wasps can get aggressive and go on the attack with anything moving nearby. Only experienced persons should treat any wasp nests in daylight.

It is a good idea to protect yourself from the wasps when dealing with them. Overalls, gloves and a bee-veil are useful protection items. Red cellophane over the torch is a useful tool as the wasps are not able to see with the red light. Always remember these pests are dangerous. If things get out of hand, turn off the lights and walk away. At night the wasps will fly to a light should they get disturbed.

If you suspect you are allergic to Wasps, Bees or Ants, it would be best to get someone else to kill the wasps, as it may be far too dangerous for you to be near them. When a wasp stings or is crushed, they seem to release a scent which will attract the others to you, also remember that each

one can sting more than once!. Another danger, not very common, but should be always guarded for, concerns the construction of the wasp nest. The nest may not be directly under the hole in the ground, it is normally offset by a varying amount and if this chamber is shallow, there is a risk of the dirt giving way should you happen to stand on it.

A note on legalities. You technically will only have the right to use chemicals to kill wasps on your land only. You really do need the permission of the land owners to put poisons on their land. Any wasp nest on Council land is actually their responsibility, so you can simply report the location for them to eradicate. Most Councils also have the power to issue fines for landowners not controlling their wasp problems. So any nest seen on other's properties, simply advise the property owner of it, ask if they would like help with it, should you be willing to kill them, but should they refuse your help and then do nothing about the wasps, report them to your local Council and request their Local Law enforcement officers to enforce removal of the nest.

The Tasmanian Department of Primary Industries and Water (DPIW), have an interesting web page containing information on Poisoning of Wasps by Baiting, to see it click on link below.

<http://www.dpiw.tas.gov.au/inter/nsf/WebPages/CPAS-5y9793?open>

This is a clever open air feeder containing a bait and poison, using the behaviour of the wasps to add the poison to the bait they chew off. The legality of doing this yourself is unknown at this time, but may vary state to state. It may well be an "off-label use", which is illegal without special permits. It is assumed that these would be tied up out of reach by pets and children etc. This is a new development (Feb 2007?) and further details will be added here if details on legalities come to hand.

Please read the Directions of Use and the Material Safety Data Sheet (MSDS) of any chemical you use. These tell you the full details on using the product on all allowed targets and full safety data on the dangers of the product.

Some currently available chemical control options are:

"Hortico, Ant & Roach Dust" (Active constituent is 10g/Kg Permethrin) Tip on Pack

"Bayer, Ant & Wasp Dust" (Active constituent is 10g/Kg Permethrin 25:75) Puffer pack

"Next Generation Aerosols, Wasp & Nest Killer Spray Pack" (Active constituent is 1.2g/Kg d-Phenothrin, 1.3g/Kg d-Allethrin) Aerosol spray can

## Contact

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