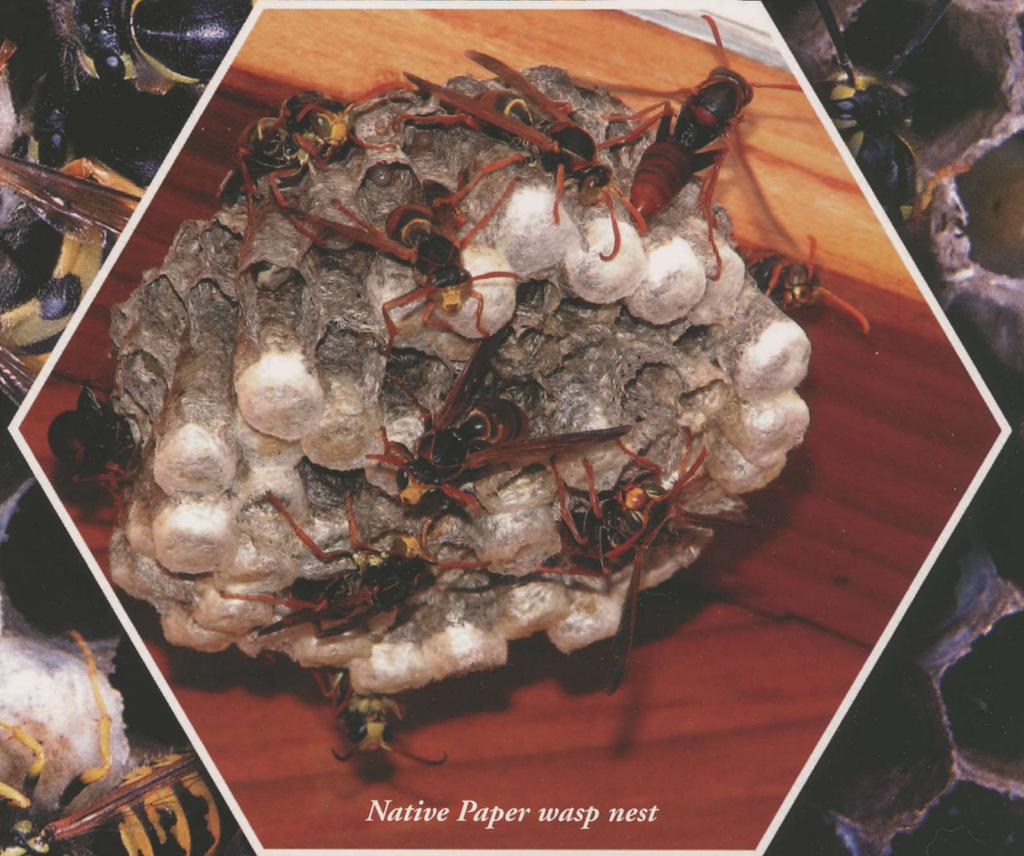


EUROPEAN WASPS *in Canberra*



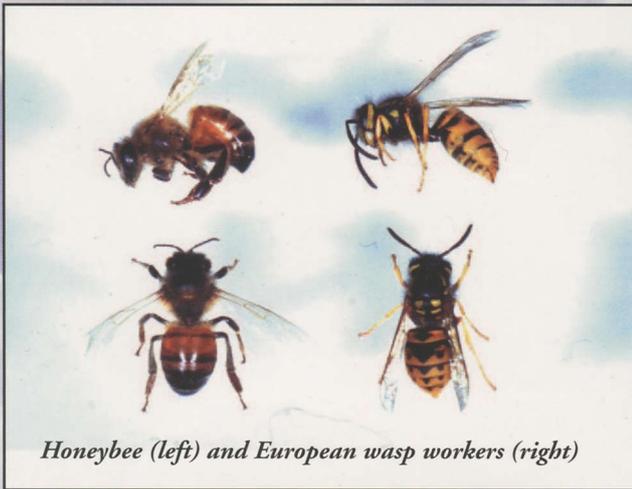
Native Paper wasp nest

fact sheet

European wasps in Canberra

The European wasp (*Vespula germanica*) was accidentally introduced to Tasmania in 1959 and to mainland Australia in 1977 – almost certainly from New Zealand where it has been established since 1945. The first European wasp nest in Canberra was recorded in Pialligo in 1984. The wasp is now widespread in Canberra's suburbs and parklands.

Introduction to new countries and localities and subsequent long-distance dispersal of the wasp is through the movement of cargo or materials containing hibernating queens. After their introduction to a new area, European wasps increase in numbers and extend the area occupied when the queens leave their hibernation quarters in the spring and search for suitable nest sites.



Honeybee (left) and European wasp workers (right)

Biology of the European wasp

During the winter months, hibernating queens may be found in well-insulated places such as leaf litter, bark of trees and piles of firewood, or in sheds and houses. In spring (October) the queens begin searching for suitable nesting sites such as holes in the ground or behind retaining walls and even in cavity walls or roof spaces in houses. The single queen builds a small comb of about 30 brood cells surrounded by an umbrella-like envelope to rear her first generation of daughters (see circle right).

Once adult worker wasps (sterile daughters of the founding queen) are produced they begin to take over the duties of foraging for food and building materials as well as excavating the nest cavity to enable enlargement of the nest. Nests are built of wood fibres scraped off dead, sound timber such as wooden power poles and fences. This is chewed up into a pulp and added to the nest structure in thin strips to form a *papier mâché*. If required, water will be collected to soften the soil surrounding the nest to help excavate and enlarge the nest cavity.

Foraging for food includes protein for the developing larvae in the form of insect prey, carrion and pet food left in gardens or food scraps in garbage bins. The adults require carbohydrates for energy and they forage for nectar, tree sap, honeydew and fruit but will also take soft drinks and beer at picnics, barbecues and at outdoor cafés.

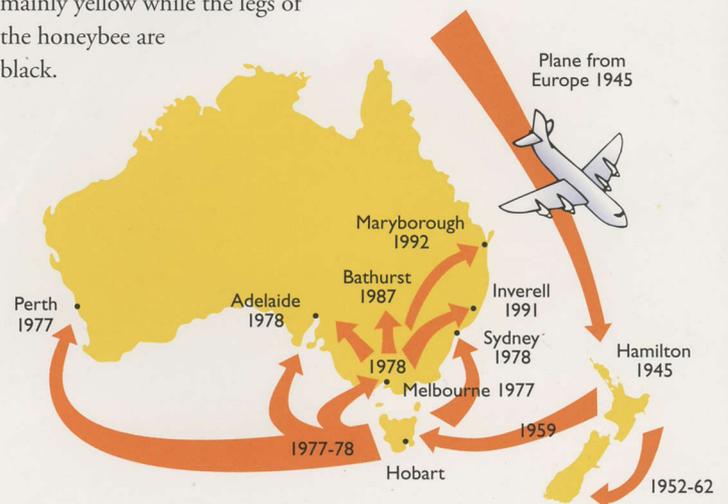
Because of their nesting and foraging habits, European wasps thrive in suburban areas where they frequently come into contact with people.

As autumn approaches, European wasp colonies will have built 10,000 or more brood-rearing cells in several round combs suspended one below the other by strong paper pillars and all surrounded by a thick layer of insulating wasp paper about the size of a basketball. At this time the adult population comprises around 3,000 worker wasps, each capable of stinging many times and fiercely protective of their nest and brood.

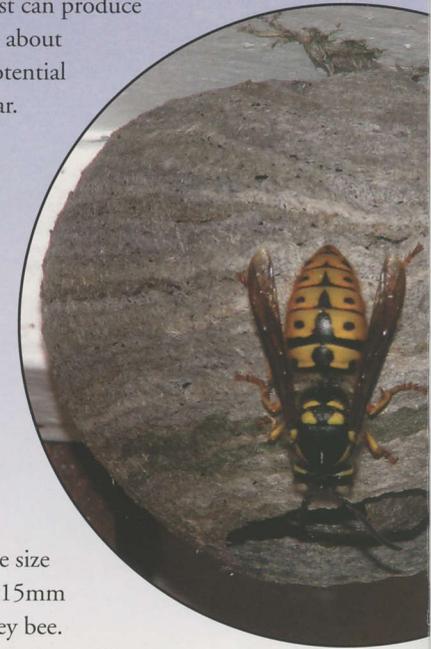
The construction of larger cells for rearing the new crop of queens commences in autumn (late March) with new adult queens and males being produced from mid to late April, and continuing through and into winter (May -June). By the end of the season, a mature nest can produce up to 15,000 new queens (average about 8,000 queens per nest) – each a potential new wasp colony the following year. Some nests may over-winter and continue producing queens. Most of the new queens leave their nests, mate and then seek hibernation sites where they remain until the following spring.

Identification and comparison with bees and native wasps

European wasp queens are about 20mm long, approaching twice the size of the worker wasps which are 12-15mm long, about the same size as a honey bee. Wasps have shiny black and yellow stripes with black spots on the abdomen and are not obviously hairy like the honey bee which is markedly hairy and has yellow and brown bands on the abdomen. The wings of the wasp are folded when at rest. The legs of the wasp are mainly yellow while the legs of the honeybee are black.



Paper wasp nest in Spring



The entrance to a European wasp nest site is generally via a hole in the ground with workers flying in and out on foraging activities. The nests, which are normally hidden underground but sometimes found in wall and roof cavities of buildings, are made of grey-coloured 'wasp paper' and may grow to the size of a basketball or more by the end of the season.

Native paper wasps (*Polistes*) are brown in colour without pronounced stripes and build round, exposed combs suspended from the branches of shrubs and also eaves and gutters of buildings. Mud dauber and potter wasps have black, brown and yellow markings and many have long, thin waists. They build cells from mud which are often attached to the walls of houses. The larvae in the cells are provided with paralyzed prey such as caterpillars or spiders.

Because of the more benign weather which results in a much longer 'wasp season' and an abundance of food – including native insects and human food sources, and possibly because the wasp was introduced with none of its natural enemies, this species has thrived in Australia. Their nests are typically twice the size and can produce more than 8,000 new queens per colony compared with less than 2,000 queens from a European colony.

Significantly, this species can over-winter in Australia, resulting in nests of prodigious size in following years (see below). Thus, their potential for population increase and geographical dispersion are far greater than in their original homeland.

This aggressive colonizer now threatens rural industries such as berry and grape growing and bee keeping and has the potential to impact adversely on tourism when they are very abundant at outdoor venues.

Because of high densities and their insect-foraging activities, European wasps can destroy virtually all insect species in an area with up to 100kg of insect and spider prey per year captured by foragers for a single overwintering nest.

*Large European wasp nest
(Tasmania)*



Mud dauber wasp building its nest

This heavy insect predation pressure results in a decrease in biodiversity through loss of birds and other predators which feed on insects. There is also a potential for a decrease in plant pollinating insects with potentially disastrous consequences for native plants.

What to do to find, target and destroy nests

The destruction of their nests is the only effective way to reduce the impact of the European wasp in the community. If there are wasps in your area, try and locate the nest entrance, talk with your neighbours and raise awareness of the wasp problem. After collecting food or wood fibres for building, worker wasps generally return directly to their nest – try and follow the 'wasp line' and establish the direction back to the nest.

Once found and confirmed by phoning the European Wasp Hotline, wasp nests are best destroyed by a professional pest controller. If you attempt to destroy a nest without suitable experience and protective clothing, be warned – European wasp nests in Australia can be twice as big, with many times more worker wasps, than their counterparts in Europe!



The European Wasp Seasonal Cycle in the ACT

WINTER (June-August) – Queens in hibernation. A few overwintering nests still active.

SPRING (October) – Queens leave their hibernation quarters and search for suitable nest sites and establish an embryonic nest.

EARLY SUMMER (December) – Nests with several hundred cells and hundreds of worker wasps. Foraging and building activities increasing.

SUMMER (January – February) – Nests increasing in size with up to 10,000 rearing cells for worker production. Up to 1,000 adult worker wasps per nest.

EARLY AUTUMN (late March) – Queen cell building begins. Up to 2,000 adult workers present.

AUTUMN (mid to late April) – New queen adults start being produced. Number of worker wasps can reach 3,000 per nest.

LATE AUTUMN (May) – Queen production in full swing. The number of adult wasps up to 4,000 per nest. Colony cycle reaches its climax with up to 30,000 worker-rearing cells and 15,000 queen-rearing cells per nest.

WINTER (June – August) – After producing upwards of 7,000 queens, some nests continue into winter mode and low-level queen production is maintained. A maximum of 12-16,000 queens can be reared in a single nest. Most queens leave their nests, mate and then hibernate until spring. Very few nests successfully overwinter.



(Top) Potter wasp laying egg in cell (PNG).

(Bottom) Potter wasp nest: wasp lava in left cell with wasp egg and caterpillar prey in right cell.



Further information

For identification of the European wasp and other insect and spider specimens, and for further information, contact: **European Wasp and Insect Identification Hotline** at XCS Consulting, telephone: **6162 1914** or email: spfad@netspeed.com.au



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