

Vespula germanica

System: Terrestrial

Kingdom	Phylum	Class	Order	Family
Animalia	Arthropoda	Insecta	Hymenoptera	Vespidae

Common name Deutsche Wespe (English, Germany), Avispa comun (English, Spain), German wasp (English), German yellowjacket (English), European wasp (English), Vespa germanica (English, Italy), Guêpe germanique (French), Avispa germànica (English, Spain)

Synonym

Similar species

Summary

Vespula germanica, commonly known as the German or European wasp, is a social wasp species. In introduced regions, where it is often more successful than in its native range, it efficiently exploits important food resources, such as nectar and insects, that native fauna may depend on. *V. germanica* displays many characteristics that make a species a successful invader and a new colony can be established from a single inseminated female.



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Species Description

Adult German wasps are 12mm to 17mm long (queens may be up to 20mm long) with a blackish brown pedunculate abdomen and bright yellow stripes. They have strong black markings including an arrow-shaped mark down the middle of the abdomen a black spots on either side. Wings are long and translucent, legs are yellow and antennae black. Antennae are divided into 12 or 13 segments depending on gender (males have 13) and the abdomen is divided into 6 or 7 segments also depending on gender (males have 7). Females are equipped with an ovipositor (HYPPZ 1998; CISRO 2005).

Habitat Description

Vespula germanica usually nests underground in holes dug in the soil. Alternatively it may construct its nest in the crevices of tree trunks or stacked materials or in compost or hedges. In urban areas the possibilities are even greater and wasps often nest in walls, roof spaces or other convenient gaps in buildings (Ward et al. 2002). In urban areas, 30% of nests are located in buildings while in rural or forested areas up to 100% of nests are found in the ground (Moller et al. 1991). (The nest is nearly always concealed from view and has a 2 to 3cm wide opening. The cells and walls of the nest are made from bits of young wood and tree bark, which are chewed by the worker and mixed with saliva to form a special paste used to fabricate the nest, which may be the size of a football (HYPPZ 1998; AM 2005; CSIRO 2005).

V. germanica may invade both disturbed environments and natural ecosystems. In Patagonia (Argentina) *V. germanica* is present in native beech forests in low densities (Sackmann et al 2001). It has been noted that human activities that fundamentally change environments may encourage wasp colonisation; in the Rio Negro valley (also in Argentina) fruit production and irrigation have made food and water resources unexpectedly plentiful for wasps and has thus favoured their establishment (D'Adamo et al. 2002).

It is suggested that climate is an important determinant of invasion success (Kemper 1960, Edwards 1976, Madden 1981). A slightly longer wasp-activity season exists in the warmer parts of Australia (Sydney) than in the cooler parts (Melbourne, Hobart) (Ward et al. 2002). *V. germanica* is sensitive to prolonged extreme temperatures and is restricted to the temperate regions of Asia (Spradbery and Maywald 1992). *Vespula* spp. may be suppressed by high rainfall and low temperature as underground nests are susceptible to flooding (Fox-Wilson 1946; Akre and Reed 1981; Barlow et al. 2002).

Reproduction

Queens begin constructing nests in spring. The first batch of adult worker wasps emerges to take over the work of enlarging the nest and feeding the larvae, leaving the queen to continue egg-laying (Spradbery 1973). There is continuous enlargement of the nest during summer, to a point in late summer/early autumn when several hundred queens and drones are reared. These usually depart from the nest in autumn and take part in mating flights (Spradbery 1973). In Australia, queens are typically polyandrous (Goodisman et al. 2002). The queens seek winter shelter to hibernate, the males die off, and the remaining occupants usually die, leaving the nest empty. Occasionally, new queens and some workers remain in the nest over the winter period, building the nest up to an extremely large size in the following summer (Spradbery 1973).

Nutrition

Vespula germanica exploits available fruit and flower resources during the summer, collecting flower nectar and feeding off fermented fruit pulp; workers may also collect secretions from honeydew producing insects. *V. germanica* hunt and consume arthropods, including flies, mosquitoes and caterpillars; wasp larvae require a protein rich diet of insects and spiders (Harris 1991, Kasper et al. 2004).

General Impacts

In urban areas the German wasp has the potential to become a serious pest and annoyance to humans in it reaches high densities as it will sting people if its foraging is disturbed (Levick et al. 1997, in Ward et al. 2002). *Vespula* spp. are pests of stone fruit and grape cultures and have the potential to economically disadvantage sectors dependent on these primary production crops (they are also enemies to the honey industry as they hunt and kill honeybees) (Clapperton et al. 1989, Thomas 1993, Darby et al. 1998, in Ward et al. 2002).

In terms of natural ecosystems *Vespula* spp. may potentially have a disruptive impact on a variety of ecosystem processes (Toft and Rees 1998, Beggs and Rees 1999, in Ward et al. 2002). The most obvious effect would be on native arthropod species on which the German wasp directly preys on. In New Zealand, for example, the German wasp mainly hunts arthropods from the orders Diptera, Araneae and Lepidoptera, potentially reducing numbers of native arthropods in these groups. To assess the risk posed to native communities and ecosystems by *V. germanica*, it should be taken into account that the German wasp is known to deplete local supply of carbohydrate sources in scrubland habitats (indirectly harming native fauna by reducing food resources that they depend on for survival) (Harris 1996).



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Management Info

Please follow this link for detailed information on the [control and management of *Vespula germanica*](#)

Pathway

Inseminated queens search for well-insulated places in which to hibernate, a feature that can have important consequences on wasp dispersal. Queen hibernation behaviour has meant their survival in cargo to distant parts of the world (Spradbery and Maywald 1992).

Principal source:

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ALIEN RANGE

[1] ARGENTINA

[1] CANADA

[1] ICELAND

[4] NEW ZEALAND

[2] SOUTH AFRICA

[10] AUSTRALIA

[1] CHILE

[4] JORDAN

[1] SAINT HELENA

[1] UNITED STATES

Red List assessed species 3: CR = 1; EN = 2;

[Loxioides bailleui](#) CR

[Nestor meridionalis](#) EN

[Loxops coccineus](#) EN

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The aim of the project is: 1) Production of high quality images showing primarily exotic targeted organisms of plant health concern to Australia. 2) Assist with plant health diagnostics in all areas, from initial to high level. 3) Capacity building for diagnostics in plant health, including linkage developments between training and research organisations. 4) Create and use educational tools for training undergraduates/postgraduates. 5) Engender public awareness about plant health concerns in Australia. PaDIL is available from : <http://www.padil.gov.au/aboutOverview.aspx>, this page is available from: <http://www.padil.gov.au/viewPestDiagnosticImages.aspx?id=794> [Accessed 10 November 2007]

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