

## *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.



[view this species on IUCN Red List](#)

### 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).



# GLOBAL INVASIVE SPECIES DATABASE

FULL ACCOUNT FOR: *Vespula germanica*

## 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:

**Compiler:** IUCN/SSC Invasive Species Specialist Group (ISSG) with support from the Terrestrial and Freshwater Biodiversity Information System (TFBIS) Programme ([Copyright statement](#))

**Review:** Jacqueline Beggs School of Biological Sciences, Tamaki Campus University of Auckland. New Zealand

**Publication date:** 2006-11-28

## 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**

## BIBLIOGRAPHY

44 references found for *Vespula germanica*

### Management information

Beggs, J.R. 2000. Impact and control of introduced *Vespula* wasps in New Zealand. Hymenoptera: Evolution, Biodiversity and Biological Control. eds. A.D. Austin, M. Downton CSIRO publishing. 468 pp.

Beggs, J.R.; Harris, R.J. 2000. Can the wasp parasitoid, *Sphecofphaga vesparum*, significantly reduce the density of *Vespula* wasps? *New Zealand Journal of Zoology* 27: 73-74

**Summary:** Available from: <http://www.rsnz.org/publish/nzjz/2000/9.pdf> [Accessed 28 November 2006]

Beggs, J.R.; Rees, J.S.; Harris, R.J. 2002. No evidence for the establishment of the wasp parasitoid, *Sphecofphaga vesparum burra* (Cresson) (Hymenoptera: Ichneumonidae) at two sites in New Zealand. *New Zealand Journal of Zoology* 29: 205-211

**Summary:** Available from: <http://www.rsnz.org/publish/nzjz/2002/022.pdf> [Accessed 28 November 2006]

Chang V, 1988. Toxic baiting of the western yellow jacket (Hymenoptera: Vespidae) in Hawaii. *J. Econ. Entomol.* 81, 228-235.

D Adamo, P., Sackmann, P., Corley, J. C and Rabinovich, M., 2002. The potential distribution of German wasps (*Vespula germanica*) in Argentina *New Zealand Journal of Zoology*, 2002, Vol. 29 79-85

**Summary:** Available from: <http://www.rsnz.org/publish/nzjz/2002/010-lo.pdf> [Accessed June1 2005]

Donovan, B. J., 1996 Progress with biological control of wasps. *The New Zealand Beekeeper* 3 (4): 14-15

Donovan, B. J., Havron, A., Leathwick, D. M and Ishay, J. S., 2002. Release of *Sphecofphaga orientalis* Donovan (Hymenoptera: Ichneumonidae: Cryptinae) in New Zealand as a possible new association biocontrol agent for the adventive social wasps *Vespula germanica* (F.) and *Vespula vulgaris* (L.) (Hymenoptera: Vespidae: Vespinae). *New Zealand Entomologist* 25: 17-25.

**Summary:** Available from: [http://www.ento.org.nz/nzentomologist/free\\_issues/Vol%2025-17-25.pdf](http://www.ento.org.nz/nzentomologist/free_issues/Vol%2025-17-25.pdf) [Accessed June1 2005]

Donovan, B.J., Moller, H., Plunkett, G.M., Read, P.E.C., & Tilley, J.A.V. 1989. Release and recovery of the introduced wasp parasitoid *Sphecofphaga vesparum vesparum* (Curtis) (Hymenoptera: Ichneumonidae) in New Zealand. *New Zealand Journal of Zoology*, 16, 355-364.

D Adamo, P; Lozada, M 2005. Conspecific and food attraction in the wasp *Vespula germanica* (Hymenoptera: Vespidae), and their possible contributions to control. *Annals of the Entomological Society of America* 98: 236-240

D Adamo P, Lozada M, Corley J 2003. Conspecifics enhance attraction of *Vespula germanica* (Hymenoptera: Vespidae) foragers to food baits. *Annals of the Entomological Society of America* 96: 685-688

Harris, R J. and P.E.C. Read., 1999. Enhanced biological control of wasps. *SCIENCE FOR CONSERVATION* 115

**Summary:** Available from: <http://www.doc.govt.nz/upload/documents/science-and-technical/Sfc115.pdf> [Accessed 18 February 2008]

Harris R J, Etheridge N D, 2001. Comparison of baits containing fipronil and sulfluramid for the control of *Vespula* wasps. *New Zealand Journal Zoology* 28: 39-48.

**Summary:** Available from: <http://www.rsnz.org/publish/nzjz/2001/4.pdf> [Accessed 28 November 2006]

[Landcare Research. 2007a. Home > Research > Biodiversity and Conservation > Invasive invertebrates > Identification & surveillance.](#)

**Summary:** Available from: [http://www.landcareresearch.co.nz/research/biocons/invertebrates/id\\_surveillance.asp](http://www.landcareresearch.co.nz/research/biocons/invertebrates/id_surveillance.asp) [Accessed 11 April 2007]

[Landcare Research. 2007d. Home > Research > Biodiversity and Conservation > Invasive invertebrates > Wasps > Wasp Control.](#)

**Summary:** Available from: [http://www.landcareresearch.co.nz/research/biocons/invertebrates/Wasps/wasp\\_control.asp](http://www.landcareresearch.co.nz/research/biocons/invertebrates/Wasps/wasp_control.asp) [Accessed 10 April 2007]

Merino, L., France, A. & Gerding, M. (2007). Selection of native fungi strains pathogenic to *Vespula germanica* (Hymenoptera: Vespidae). *Agricultura Tecnica* 67(4): 335-342.

Sackmann P, Rabinovich M, Corley J C, 2001. Successful removal of *Vespula germanica* (Hymenoptera:Vespidae) by toxic baiting in NW Patagonia, Argentina. *J. Econ. Entomol.* 94, 812-816.

Spurr, E B., 1991. Reduction of wasp (Hymenoptera: Vespidae) populations by poison baiting; experimental use of sodium monofluoroacetate (1080) in canned sardine. *NZ. J. Zool.*18, 215-222.

Sutherst, R. W.; Maywald, G. F.; Yonow, T.; Stevens, P. M. 1999: CLIMEX: predicting the effects of climate on plants and animals. User guide. CSIRO Publications. 88 p.

[Walker, K. 2007. European wasp \(\*Vespula germanica\*\) Pest and Diseases Image Library.](#)

**Summary:** PaDIL (Pests and Diseases Image Library) is a Commonwealth Government initiative, developed and built by Museum Victoria s Online Publishing Team, with support provided by DAFF (Department of Agriculture, Fisheries and Forestry) and PHA (Plant Health Australia), a non-profit public company. Project partners also include Museum Victoria, the Western Australian Department of Agriculture and the Queensland University of Technology.

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/about/Overview.aspx>, this page is available from: <http://www.padil.gov.au/viewPestDiagnosticImages.aspx?id=794> [Accessed 10 November 2007]

[Warren J, Statham M 2002. Control of European wasps \(\*Vespula germanica\*\) by baiting Tasmanian Institute of Agricultural Research Report to the TIAR Board](#)

**Summary:** Available from: [http://www.dpiw.tas.gov.au/intertext.nsf/Attachments/CART-63G3FC/\\$FILE/Wasp\\_Report\\_02\\_final.pdf](http://www.dpiw.tas.gov.au/intertext.nsf/Attachments/CART-63G3FC/$FILE/Wasp_Report_02_final.pdf) [Accessed 28 November 2006]

Wood G, Hopkins K, Schellhorn N A, 2006. Preference by *Vespula germanica* (Hymenoptera: Vespidae) for processed meats: implications for toxic baiting. *J Econ. Entomol.* 99, 263-267.

## General information

Allsopp, M & G. Tribe (ARC-PPRI) 2003. Recent spread of *Vespula germanica* (Hymenoptera: Vespidae) is cause for concern [ORAL PAPER] 14th Congress of the Entomological Society of Southern Africa, held at the University of Pretoria, 6-9 July 2003

Archer M. E. 1998. The world distribution of the Euro-Asian species of *Paravespula* (Hym., Vespinae). *Entomol. Mon. Mag.* 134:279-284.

Barlow, N.D; Beggs, J.R.; Barron, M.C. 2002: Dynamics of common wasps in New Zealand beech forests: a model with density-dependence and weather. *Journal of Animal Ecology* 71: 663-671.

Clapperton B K, Alspach P A, Moller H, Matheson A G 1989. The impact of common and German wasps (Hymenoptera, Vespidae) on the New-Zealand beekeeping industry. *New Zealand Journal of Zoology* 16 (3): 325-332

[Clapperton, B.K.; Tilley, J.A.V.; Beggs, J.R.; Moller, H. 1994. Changes in the distribution and proportions of \*Vespula vulgaris\* \(L.\) and \*V. germanica\* \(Fab.\) \(Hymenoptera: Vespidae\) between 1987 and 1990-91 in New Zealand. \*New Zealand Journal of Zoology\* 21:295-303.](#)

**Summary:** Available from: <http://www.rsnz.org/publish/nzjz/1994/29.pdf> [Accessed 28 November 2006]

Dubatulov, V.V. & Milko, D.A. (2004). Social wasps of the subfamily Vespinae (Hymenoptera, Vespidae) of the Kyrghyz Republic. *Entomological Science* 7: 63-71.

## Summary:

Edwards R. 1976. The world distribution pattern of the German wasp *Paravespula germanica* (Hymenoptera:Vespidae). *Entomol. German.* 3:269-271.

Farji-Brener, A. G., and J. C. Corley. 1998. Successful invasion of hymenopteran insects into NW Patagonia. *Ecol.Aust.* 8: 237-249.

Goodisman M A D, Matthews R W, Crozier R 2002. Mating and reproduction in the wasp *Vespula germanica*. *Behavioral Ecology and Sociobiology*, 51, 497-502.

Haddad, N.J., Dvorak, L., Adwan, O., Mdanat, H. & Bataynah, A. (2007). New data on Vespidae wasp fauna of Jordan (Hymenoptera, Vespidae). *Linzer Biologische Beitrage* 39(1): 137-142.

Harris R J 1991. Diet of the wasps *Vespula vulgaris* and *Vespula germanica* in honeydew beech forest of the South Island, New Zealand. *New Zealand Journal of Zoology*, 18, 159-170.

[Harris, R. J. 1996. Frequency of overwintered \*Vespula germanica\* \(Hymenoptera: Vespidae\) colonies in scrubland-pasture habitat and their impact on prey. \*New Zealand Journal of Zoology\*, 1996, Vol.23: 11-17](#)

**Summary:** Available from: <http://www.rsnz.org/publish/nzjz/1996/91.pdf> [Accessed June 1 2005]

Kasper, M. L., Cooper, S. J. B., Perry, K. D and Austin, A. D., 2004. Assessment of prey overlap between a native (*Polistes humilis*) and an introduced (*Vespula germanica*) social wasp using morphology and phylogenetic analyses of 16S rDNA. *Molecular Ecology* 13, 2037-2048

Kasper, M.L., Reeson, A.F., Mackay, D.A. & Austin, A.D. (2008). Environmental factors influencing daily foraging activity of *Vespula germanica*. *Insectes Sociaux* 55: 288-295.



# GLOBAL INVASIVE SPECIES DATABASE

FULL ACCOUNT FOR: *Vespula germanica*

---

[Landcare Research. 2007b. Home > Research > Biodiversity and Conservation > Invasive invertebrates > Wasps > Distribution > Distribution of Social Wasps in New Zealand.](#)

**Summary:** Available from: <http://www.landcareresearch.co.nz/research/biocons/invertebrates/Wasps/distribution.asp> [Accessed 10 April 2007]

Matthews, R.W., Goodisman, M.A.D., Austin, A.D. and Bashford, R. 2000. The Introduced English Wasp *Vespula vulgaris* (L.) (Hymenoptera: Vespidae) newly recorded invading native forests in Tasmania, *Australian Journal of Entomology* 39: 177-179.

McGain, F., Harrison, J., & Winkel, K.D. 2000. Wasp sting mortality in Australia. *Medical Journal of Australia*, 173, 198-200

Mingomataj, E., Ohri, D., Dhimitri, V., Priftanji, A., Qirko, E., Pani, L., Fischer, T.C., Dinh, Q.T., Peiser, C., Fischer, A., & Groneberg, D.A. 2003. Hymenoptera sting anaphylactic reactions in the Mediterranean population of Albania. *Journal of Investigational Allergology and Clinical Immunology*, 13, 272-277.

[Museum Victoria Australia. \(n.d.\). European Wasps. \[Accessed 17 July, 2009 from http://museumvictoria.com.au/wasps/index.asp\]](http://museumvictoria.com.au/wasps/index.asp)

Plunkett, GM; Moller, H; Clapperton, BK; Thomas, CD 1989. Overwintering colonies of German (*Vespula germanica*) and common wasps (*Vespula vulgaris*) (Hymenoptera: Vespidae) in New Zealand. *New Zealand Journal of Zoology* 16, 345-353.

Spradbery, J.P. and Maywald, G.F., 1992. The distribution of the European or German wasp, *Vespula germanica* (F.) (Hymenoptera: Vespidae), in Australia: past, present and future. *Australian Journal of Zoology*. 40: 495-510

Tribe, G. D., Richardson, D. M., 1994. The European wasp, *Vespula germanica* (Fabricius) (Hymenoptera: Vespidae) in southern Africa and its potential distribution as predicted by ecoclimatic matching *Afr. Entomol* 1994 vol. 29, page 277

Ward, D., Honan, P. and Lefoe, G. 2002. Colony structure and nest characteristics of European wasps, *Vespula germanica* (F.) (Hymenoptera: Vespidae), in Victoria, Australia, *Australian Journal of Entomology* 41: 306-309.