

Wasp

Wasp, any member of a group of insects in the order Hymenoptera, suborder Apocrita, some of which are stinging. Wasps are distinguished from the ants and bees of Apocrita by various behavioral and physical characteristics, particularly their possession of a slender, smooth body and legs with relatively few hairs. Wasps also generally are predatory or parasitic and have stingers with few barbs that can be removed easily from their victims. Similar to other members of Apocrita, wasps have a narrow petiole, or “waist,” which attaches the abdomen to the thorax.



paper wasp
Paper wasp (*Polistes fuscatus*).
Bruce J. Marlin



cicada-killer wasp
Cicada-killer wasp (*Sphecius speciosus*).
Fritz Geller-Grimm

Wasps have biting mouthparts and antennae with 12 or 13 segments. They are normally winged. In stinging species, only the females are provided with a formidable sting, which involves use of a modified ovipositor (egg-laying structure) for piercing and venom-producing glands. Adult wasps may feed on nectar and, in some species, on the secretions produced by larvae. Larvae of predatory wasp species typically feed on insects, while larvae of parasitic species feed on their hosts.

Wasps are subdivided into two groups: solitary wasps, which live alone, and social wasps, which live in colonies. Of the tens of thousands of species of wasps that have been described, the vast majority are solitary in habit. The social wasps are confined to about 1,000 species within the family Vespidae (superfamily Vespoidea) and include the hornets and yellow jackets (yellowjackets). They differ from other wasp families in having their wings folded longitudinally when at rest.

Solitary wasps are distributed in the superfamilies Chrysidoidea, Vespoidea, and Apoidea. Most species build isolated nests, which they provision with paralyzed insects or spiders. The female wasp deposits an egg in each cell of the nest, and the wasp larva hatching from that egg feeds to maturity upon the food with which its cell has been provisioned. The vast majority of solitary wasps nest in the ground, digging tunnels in the soil in which to lay their eggs. But the Sphecidae, or thread-waisted

wasps (superfamily Apoidea), contain forms of more diverse habits, with some nesting in wood, pithy plant stems, or in nests made of mud. Spider wasps (Pompilidae) usually build nests in rotten wood or in rock crevices and provision them with spiders. The potter, or mason, wasps (subfamily Eumeninae) of the Vespidae build nests of mud, which are sometimes vase-like or jug-like and may be found attached to twigs or other objects.



thread-waisted wasp

Ammophila sabulosa, a species of thread-waisted wasp.

Beentree

The social wasps within the family Vespidae are among the best-known species of wasps. Most of them belong to the subfamilies Vespinae or Polistinae. In their societies they have a caste system consisting of one or several queens, a few drones (males), and sterile females called workers. The queen, a fertilized female, begins the colony in the spring by building a small nest and laying eggs that hatch into workers. The latter enlarge the paperlike nest, which is composed of chewed dry plant material, usually wood, that has been mixed with saliva and regurgitated. The nest consists of one or more layers of cells that are arranged vertically with the openings downward.

Depending on the species, the nest may be found in cavities in the soil, in tree trunks, or hanging from leaves, branches, or the

eaves of buildings.



Paper wasps (*Polistes*)

Anthony Bannister—NHPA/Encyclopædia Britannica, Inc.

The most familiar social wasps in northern temperate regions are species of the genera *Polistes*, *Vespa*, and *Vespula*. Many are large and aggressive and are equipped with formidable stings. Some *Vespula* species are called yellow jackets owing to the black and yellow bands on their abdomen. Species of *Vespa* are called hornets, which are mostly black, with yellowish markings on the face, thorax, and the tip of the abdomen. The Asian giant hornet (*Vespa mandarinia*) is the largest known hornet in the world, with some workers growing to nearly 4 cm (1.6 inches) in body length and queens typically exceeding that size.

Four major groups of solitary wasps are parasitic and do not construct nests. These are the cuckoo wasps (family Chrysididae) in the superfamily Chrysoidea, and the tephritid wasps (family Tephritidae), scoliid wasps (family Scolidae), and velvet ants (family Mutillidae) in the superfamily Vespoidea. Cuckoo wasps are mostly brilliant metallic-green or -blue in colour and have intricate sculpturing on the exoskeleton. They lay their eggs in the nests of solitary bees or wasps. The larvae hatching from those eggs feed on the bee or wasp larvae or on the food provisioned by the latter's parents. The velvet ants have bodies clothed with long thick hair of contrasting colours, often black and red. The females are wingless and antlike in appearance. Most of them are parasitic on the larvae and pupae of solitary bees and wasps. Most species of tephritid and scoliid wasps parasitize beetle grubs that live in the soil.



sand wasp (*Bembix*)

Sand wasp (*Bembix*).
Peter Firus, Flagstaffotos