



# MISSOURI BOTANICAL GARDEN

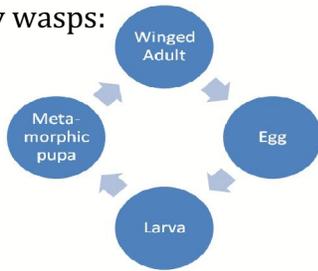
## William T. Kemper Center for Home Gardening

Visit us on the Web: [www.gardeninghelp.org](http://www.gardeninghelp.org)

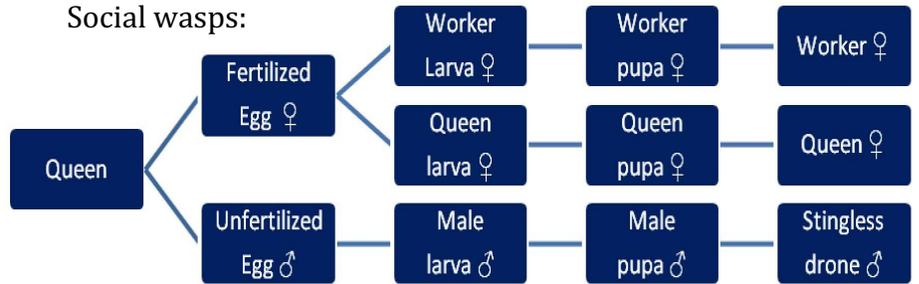
### *Insect Order ID: Hymenoptera (Stinging Wasps)*

**Life Cycle**—Complete metamorphosis: Queens or solitary adults lay eggs. Larvae eat, grow and molt. This stage is repeated a varying number of times, depending on species, until hormonal changes cause the larvae to pupate. Inside a cell (in nests) or a pupal case (solitary), they change in form and color and develop wings. The adults look completely different from the larvae.

Solitary wasps:



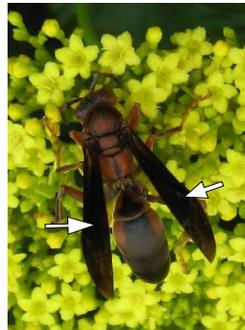
Social wasps:



**Adults**—Stinging wasps have hard bodies and most have membranous wings (some are wingless). The forewing is larger than the hindwing and the two are hooked together as are all Hymenoptera, hence the name "married wings," but this is difficult to see. Some species fold their wings lengthwise, making their wings look long and narrow. The head is oblong and clearly separated from the thorax, and the eyes are compound eyes, but not multifaceted. All have a cinched-in waist (wasp waist). Eggs are laid from the base of the ovipositor, while the ovipositor itself, in most species, has evolved into a stinger. Thus only females have stingers. *(Click images to enlarge or orange text for more information.)*



Cinched in waist



Folded wings appear long & narrow



Compound eyes but not multifaceted



Oblong head

**Eggs**–Colonies of social wasps have at least one queen that lays both fertilized and unfertilized eggs. Most are fertilized and all fertilized eggs are female. Most of these become workers; a few become queens. The few unfertilized eggs are male. Eggs are tended by workers. Solitary wasps collect food, usually nectar and pollen, and lay their eggs on the food source.

**Larvae**–All are vermiform (worm-like), so they have no legs, no prolegs, no wings, no wingbuds. Heads are difficult to discern. They produce no frass. Larvae are rarely seen, as they are either tended inside a colony or are provided with food by a solitary female and left inside an individual nest, sometimes made of mud or paper. *(Click images to enlarge or orange text for more information.)*



Solitary wasp nest



Stocked with prey



Hornet's nest containing the queen, workers, eggs, larvae and prey (food)

**Pupae**–All have a pupal stage, during which the adult form develops. In velvet ants, which are not actually ants, only males develop wings. All pupae are exarate (the appendages are free and visible as they develop). *(Click images to enlarge or orange text for more information.)*



Exarate pupa  
Appendages free

**Beneficial/Benign Aspects**–All species are important predators of garden pests. They are also important pollinators. Not all wasps have stingers, but even stinging wasps are beneficial predators and most will only sting if their colony is approached too closely or if an individual wasp is captured or attacked. Solitary wasps rarely sting unless trapped. *(Click images to enlarge or orange text for more information.)*



Lapping up nectar,  
collecting pollen



Prey (left)  
Predator (right)



The largest wasps use their  
size to intimidate, not sting



A bag of caterpillars

**Damage**—Both adults and larvae have chewing mouthparts or chewing-lapping mouthparts. Since stingers evolved from ovipositors (egg-laying organs) and only females lay eggs, only females have stingers. Unlike bees, which can sting only once, the stingers of wasps do not remain in the victim's skin, so each wasp can inflict multiple stings. However, most are only aggressive in defense of their colony or if provoked. Yellow jackets (the Eastern yellow jacket, Southern yellow jacket and German yellow jacket) are probably the most dangerous wasps partly because of their habit of nesting in the ground or in cavities that can be easily and unknowingly approached by humans, partly because of their extreme aggressiveness in protecting their nests, and partly because of their habit of entering sugary drink containers. However, since most species of stinging wasps are solitary, most wasps are not aggressive, and aside from stinging, stinging wasps are entirely beneficial. *(Click images to enlarge or orange text for more information.)*



Only females have stingers



Look!  
Before you drink!



Southern yellow jackets are very aggressive—never swat at them



Dangerous when approached otherwise beneficial



Not all black & yellow wasps are yellow jackets

**Comments**—Stinging wasps are classified in the order Hymenoptera, Suborder Aculeata. The term "stinging wasp" is simply a term of convenience for all species in the suborder Aculeata except bees (Superfamily Apoidea). Although ants (Superfamily Vespoidea, Family Formicidae) are classified as stinging wasps, there is a separate page dedicated to ant identification.

Distinguishing parasitic wasps (suborder Apocrita) from stinging wasps (suborder Aculeata) can be very difficult, unless a long ovipositor is present, indicating Apocrita (parasitic wasps), or a stinger is present, indicating Aculeata (stinging wasps).

For information on wasp species in Missouri, see [MU Guide G7391 "Bees and Wasps."](#)