

Tarantula Hawk Wasp

(*Pepsis sp.*)

Although they're strikingly beautiful, Tarantula Hawk Wasps have the second most painful sting in the animal kingdom. According to the Schmidt Sting Pain Index, only the bullet ant (*Paraponera clavata*), found in South and Central America, has a more painful sting. The pain from the Tarantula Hawk Wasp's sting has been described as instantaneous, electrifying, excruciating, and totally debilitating. However, the pain lasts only about 5 minutes and leaves no nerve damage or lasting residual harm to humans. Only female Tarantula Hawk Wasps sting and they are nonaggressive toward humans.



Milne's tarantula hawk wasp



Pepsis menechma

Male and female Tarantula Hawk Wasps look very similar. Both have long black legs and a dense black exoskeleton with a metallic blue sheen in certain lights. Some species have orange wings with dark margins; others have black wings. Males are slightly smaller and lack a stinger.

Females can measure 2 inches or more with up to a 4 inch wing span and a one third inch stinger. Female antennae are gently curved while male antennae are straighter with tightly curled ends. Some species have orange antennae.

There are about 250 species of Tarantula Hawk Wasps but only 18 can be found in the United States, mostly in the southwest. Only three species of Tarantula Hawk Wasp are found in Florida, the most common being *P. menechma*, also known as *P. elengans* or the Elegant Tarantula Hawk Wasp. This species of Tarantula Hawk Wasp has many different color forms over its range and has been classified as several species. Its most common eastern form is a large black wasp with black wings and orange antennae. Two other species have also been recorded in South Florida, *P. marginata*, a large black wasp with orange wings

and *P. ruficornis*, also known as *P. saphirus*. It's a black wasp with black wings and orange antennae, commonly called the Orange-horned Tarantula Hawk Wasp.

Tarantula Hawk Wasps are solitary wasps. Females build nests in burrows. Some species dig their burrow in the ground, others use cavities in rocks, and other species steal their burrow from other insects or small animals. The main tunnel in their burrow branches into several small chambers, each meant for one egg. The adult female lives 4 to 5 months and lays an average of 13 eggs in its lifetime.

Tarantula Hawk Wasps belong to the spider wasp family, *Pompilidae*. They get their name because the female hunts tarantula spiders to be hosts for their larvae. Females fly low over the ground looking for tarantulas or occupied tarantula burrows. They prefer female tarantula spiders because they are larger and juicier. When they spot a tarantula or an occupied burrow, they prod the tarantula with their antennae until the spider rears up, exposing its abdomen. The Tarantula Hawk Wasp then stings the spider and injects its venom into the spider, instantly paralyzing it. The female Tarantula Hawk Wasp then drags the paralyzed but still living spider into its burrow, lays one egg on its abdomen and covers the entrance to that chamber. The egg hatches in 3-4 days and the larva eats the living paralyzed spider over the next few weeks, burrowing deeper into the spider while avoiding its vital organs. The size of the captured tarantula often

determines the gender of the larva. A larger host spider produces a larger wasp. Female Tarantula Hawk Wasps are also able to lay unfertilized eggs which develop into males. The larvae of Tarantula Hawk Wasps molt through several instars before pupating. Pupation lasts 2-3 weeks except in late fall when the pupae overwinter. Tarantula Hawk Wasps are active from spring until late fall.

Adult male Tarantula Hawk Wasps live only a few weeks. They spend their time seeking females to mate with. They fly a repeated pattern searching for the females or sometimes they use a behavior called hill-topping where they sit on the top of a tall plant watching for females.

Both male and female Tarantula Hawk Wasps are nectarivores. They consume the juice of fruits and berries and the nectar of flowers and other plants and are particularly fond of milkweed. They occasionally consume fermented juice, become intoxicated and have difficulty flying. They are normally strong agile fliers. Wasps have low-resolution vision. They rely on visual clues and a photographic memory for navigation to food sources and their burrows. They are also able to recognize individual faces and remember them.

Tarantula Hawk Wasps are beneficial because they are accidental pollinators and, mostly, because they keep the tarantula spider population down.

Mary Jo Davis is the Chair of the Birds, Butterflies, Bats and Bees Committee.