BUG BIZ
Pest Management and Insect Identification Series
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Polistes carolina, Fine-Backed Red Paper Wasp and *P. rubiginosus,* Coarse-Backed Red Paper Wasp
(Hymenoptera: Vespidae)

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Description

Red paper wasps are native species occurring across the southeastern and southcentral areas of the United States. The two most common species in Louisiana are *Polistes carolina* and *Polistes rubiginosus*. Both are rust-colored and are similar in appearance and behavior.

Polistes carolina and *P. rubiginosus* adults possess slender, elongated bodies ¾ to 1 inch in length (20-25 mm) with red/rust colors. The bodies of female *P. carolina* possess more of the red, rusty color than those of the males. Color variations are possible, including black markings around the eyes and dorsal surface. Dark bands are also possible on other areas of the body such as underside and top (ventrites and tergites, respectively) of the abdomen. The mouthparts and parts of the legs may have yellow markings. However, males have more defined black markings than females on some ventrites and tergites. The wings of both sexes are typically black to dark brown in color. The legs are lighter orange, and the antennae are rust colored tapering to darker brown or black. *Polistes carolina* tends to possess more black markings on the thorax compared to the *P. rubiginosus*. Due to variation within both species, positive identification can be difficult. Larvae are grub-like with white to tan colors and are legless. They range in size and length depending on which instar stage. Pupae are also white to tan in color and are similar in shape to the adult wasp.



Polistes rubiginosus foraging for nectar (kbbutler, iNaturalist.org, Creative Commons Attribution-NonCommercial 4.0 International).

Polistes carolina and *P. rubiginosus* are known as "paper wasps" or "red wasps." A similar species, also common in Louisiana, is *Polistes metricus*, which is overall darker in color and has yellow on the legs. *Polistes carolina* and *P. rubiginosus* are fully rust-colored with small dark markings around the body, and this will separate them from other species.

Life Cycle

Paper wasps are eusocial insects that live in colonies comprising three castes (males, workers and queens). The workers build paper nests that are typically constructed as a single layer of hexagonal brood cells. Nest size depends on the age of the colony and typically reaches a maximum diameter of around 6 inches (15 cm). Nests are constructed of a paper-like material derived from chewed and regurgitated wood fibers from various sources. Males are produced during the fall and die soon after mating. The fertile queens overwinter in sheltered locations until spring. At the onset of spring, queens choose a nesting site and commence building a small nest. Nests are typically located under eaves of houses, in tree hollows or any covered area protected from the elements. A single egg is deposited in each of the newly constructed cells. First generation workers take over nest construction, and the nests are enlarged as additional workers become available for duty. One larva develops in each open cell while the workers feed and care for them. Brood cells remain open until the

larvae pupate, when the cell is covered by a thin layer of protective paper. Paper wasps are predators that capture and consume various other insects, especially caterpillars, including garden and crop pests. These are consumed and chewed into a compact food ball that is fed to the developing larvae and queen. Adults also visit flowers and feed on nectar. Workers oversee the defense of the nest from predators such as summer tanagers, other birds and small mammals. Workers are capable of delivering painful stings to intruders. Workers are all female wasps, as is the case with all social Hymenoptera, and the stinger is a highly modified egg laying apparatus, the ovipositor. Red paper wasp nests may consist of up to 20 to 30 workers at one time. Queens stop egg-laying during late summer, and the colony begins to decline as workers die. At the onset of the fall breeding season, nests are abandoned, and the cycle begins anew.

Ecological Significance and Pest Status

Although *Polistes carolina* and *P. rubiginosus* are considered pests by many homeowners, they are of important ecological significance in terms of garden and crop pest management. Paper wasps are beneficial predators of pests such as destructive beetle larvae, caterpillars and even cicadas. These wasps also have the ability to pollinate plants when feeding on plant nectar. Homeowners may consider them pestiferous due to their swarming behavior in defending nests built on homes or other structures in the vicinity of residences. In Louisiana, the long warm season and humid climate provides ample opportunity to build large colonies inside tree hollows, warm sheds, electrical boxes, underneath patio furniture and on wood fencing.

Control

Monitoring and surveillance. Surveying for *Polistes* paper wasps involves simple methods. Home or business owners can carefully monitor prime, potential nesting sites beginning in March through May to determine *Polistes* activity. Paper wasps can be aggressively defensive if bothered, so it is important to exercise caution when surveying.

Environmental control. If paper wasps' nests have more than a small number of adults present, use of insecticides might be necessary. But, if only one adult (the queen) is present, generally when the nest is first being built, homeowners can knock down the nest with a broom or other tool to prevent further formation to encourage her to move to a safer location. Additionally, single wasps can be vacuumed and disposed of.

Recently, the notion of putting artificial nests of wadded up paper or paper bags around areas of high human traffic has become widespread via social media. The idea is that these fake nests will discourage the construction of new nests by founding queens. There are no data that back up these claims. In fact, these paper facsimiles provide a perfect material for workers to use in nest construction.

Chemical control. Many homeowners believe paper wasps are a hazard due to their tendency to sting, and they can be controlled with insecticides if needed. It is safer to spray nests during evening hours when they are the least active. See the Louisiana Insect Pest Management Guide for approved insecticides for control of the paper wasps.



Polistes carolina adults building their summer nest (aprilsee, iNaturalist.org, Creative Commons Attribution-NonCommercial 4.0 International).



Adult Polistes carolina foraging for nectar (Johnny N. Dell, Bugwood.org, Creative Commons License 3.0).

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