



EUROPEAN PAPER WASP

Polistes dominula, Vespidae

Before 1981, the European paper wasp was not recorded in North America. In its native region, *P. dominula* is the most abundant paper wasp in those countries around the Mediterranean. It is also found in southern Europe, northern Africa, the Middle East, and eastward into China.

A highly successful colonizer, this wasp has rapidly increased its distribution in the United States during the past 20 years. Before the introduction of this new species, the northern paper wasp, *Polistes fuscatus*, was the most frequently encountered species in and around structures in Pennsylvania.



Image 1. *P. dominula* Steve Jacobs - Penn State Entomology Dept.

DESCRIPTION

P. dominula is frequently mistaken for a yellowjacket. Smaller than the native northern paper wasp, the European paper wasp (Images. 1 & 2) is yellow and black, resembling the pattern (especially on the abdomen) of the yellowjackets in the genus *Vespula*.

As in all paper wasps, the “waist” is very thin. During flight, the hind pair of legs trail below in an extended fashion. The nest is the characteristic upside-down umbrella shape, and the open cells can be seen from below. Cream-colored larvae are legless and remain within their cells until they emerge as adult wasps.



Image 2. *P. dominula* on nest. Steve Jacobs - Penn State Entomology Dept.

DISTRIBUTION

P. dominula was first discovered near Boston, in Cambridge, Massachusetts, during the late 1970s. Since then, the wasp has been recorded from Maine, Vermont, Connecticut, New York, New Jersey, Maryland, Pennsylvania, Ohio, Michigan, Virginia, and Wisconsin. It has recently been discovered in California, Colorado and Washington.

BEHAVIOR & LIFE HISTORY

Fertilized queens from the previous year begin new colonies of *P. dominula* each spring. These queens overwinter in protected areas such as under the bark of dead trees, in hollow trees, within wall voids of houses, under siding and occasionally within the cells of a paper wasp nest. Although most nests are newly constructed each year, the queens will sometimes use a previous year’s nest, thereby establishing their colonies earlier in the season than our native species.

The queen deposits small, elongated eggs (one to a cell) that hatch in several days. She will feed her young larvae masticated caterpillars and other insects. In contrast, our native species of *Polistes* prey only on caterpillars. After the first brood of larvae mature and emerge as worker females, the queen will limit her activity to laying eggs to expand the number of workers. The workers assume the duties of food collection, nest construction, and colony defense. With optimal temperatures and a plentiful food source, the larvae complete their development and become

adult wasps in as little as 40 days.

Nests are constructed in protected locations such as under and within the eaves of structures, in attics and wall voids, and in many other enclosed areas. Some of the more notable locations where nests have been encountered include exterior lighting fixtures, parking meters, animal skulls, bird boxes, and infrequently used equipment like gas grills, motor homes, boats, and autos.

Speculations for the rapid expansion of the European paper wasp have included:

- Earlier seasonal establishment of colonies allowing *P. dominula* to establish workers before our native species, thereby benefiting foraging activities and colony expansion; (Note: In Pennsylvania, this behavior can expose them to late-season freezes resulting in a high level of mortality.)
- Avoidance of native bird predators by early nest establishment. Early establishment provides the nest with more workers to protect the larvae;
- Use of numerous enclosed nest sites, providing protection from predation;
- A more varied diet (many different genera of insects in several orders) benefits early and rapid larval development.

IMPACT, DAMAGES AND CONCERNS

European paper wasps are very attentive to potential threats to their nests. They can detect movement at 12 to 20 feet from the nest but fortunately do not typically attack unless people are very close (inches away). However, since they prefer to hide their nests within voids and other enclosures, this behavior increases the risk for unpleasant encounters. An unsuspecting homeowner may be stung, for instance, while attempting to change a lightbulb for an outside fixture, or while painting or removing window shutters. Furthermore, observations in Pennsylvania indicate that these wasps are extremely common in urban settings.

Whenever new species are introduced into an environment (either intentionally or accidentally), there are unpredictable consequences. The increased risk for stings is an obvious concern. Even more troubling, it appears that this new introduction has had an adverse impact on the native species of *Polistes*. The apparent reduction of indigenous *Polistes* will undoubtedly result in a change in the faunal balance. It is unclear what the consequences will be. Some entomologists worry that the large numbers of *P. dominula* will adversely affect the species of desirable insects (i.e., butterflies).

MANAGEMENT AND PREVENTION

Every attempt should be made to limit suitable nest sites. Repair holes in walls, caulk cracks in soffits and eaves, and screen vents

and louvers. Nests made early in the season by founding queens are easier to eliminate before workers are produced. During this period it is easy to knock down exposed nests and kill the queen. Nests that have several workers can be treated with a wasp and hornet spray. These sprays produce a stream of insecticides that can shoot up to 20 feet from the nozzle. Treatments should be made at night when all the workers and the queen are on the nest. Those nests located within eaves and soffits can be treated by applying an insecticidal dust to the openings of the voids. Blow the dust into the opening, taking care not to breathe dust that becomes airborne. Select a dust that is labeled for this type of application. Appropriate dusters available include bulb dusters and plunger or pump dusters. Pest control firms also provide services to control paper wasps.

WARNING

Pesticides are poisonous. Read and follow directions and safety precautions on labels. Handle carefully and store in original labeled containers out of the reach of children, pets, and livestock. Dispose of empty containers right away, in a safe manner and place. Do not contaminate forage, streams, or ponds.

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