



## Bugs Around Your House

### 1. European paper wasps

(Scientific name: *Polistes dominulus*;  
Family: Vespidae; Order: Hymenoptera)

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**Description** European paper wasps can be easily mistaken as yellowjackets, both are about 3/4" long and slender. This paper wasp has a yellow and black pattern on the abdomen, thus strikingly similar to yellowjackets, which is in a different subfamily (Vespinae). Paper wasps (subfamily Polistinae), however, have a thin waste (or petiole, the first segment of abdomen is much smaller than the rest). This particular paper wasp has a yellow or orange colored antenna (the easiest way to tell it from a yellowjacket), while the yellowjackets have black antenna and has some hair on the thorax. Paper wasps also fly in a different manner from yellowjackets, their legs are usually hang down during flight while yellowjackets fly with their legs retracted. Yellowjackets almost invariably nest underground in soil, their nests have a paper envelope surrounding multi-layers of brood cells, but paper wasps usually nest in the open or in crevices, rarely inside soil. Their nest consists of a single disk hanging vertically with one layer of cells (although I have seen a few attached sideways to a transformer box).



Above: three queens wintering inside the black cardboard boxes used to protect bee hives during winter. Right: partial view of a mature nest during July, with more than 200 workers. Photos by Zachary Huang



**Distribution** European paper wasps are native to Europe and Asia and was introduced into North American during the late 70s. Since its first discovery in Massachusetts, it has moved westward slowly in the past 20 years. It was not very common in Michigan prior to 1999, but now it is nesting everywhere and seems to be winning the battle in competing out the original paper wasp species (*Polistes fasciatus*), which is gray, not as productive (thus not as common), and not as aggressive (thus less stinging incidents).

**Behavior and Biology** Paper wasps in temperate climates have an annual cycle, similar to yellowjackets and bumble bees. Fertilized females (queens) from the previous year construct new nests around April and May in Michigan. The queens overwinter in protected areas. I have seen them in the cracks on a deck, inside wrappings of honey bee hives (see photo above right), or under sidings of a house. They usually start new nests with a single queen, but occasionally use old ones. The queen would forage for caterpillars or other insects, chew them up, and feed to the larvae, which has no legs and stay inside the hexagonal cells, totally dependent upon adults for food and care. Once the first batch of workers emerge as adults, the queen retires from foraging task and stay home as a full time mother. Each batch of workers take about 40 days to complete development, so by the time in July, the nest can be quite large and could have up to 400 workers (photo on right). They nest anywhere it can find a shelter: under eaves of houses, underneath satellite dishes, inside vent pipes, electric switch boxes, etc. etc. The wasps are not as aggressive as yellowjackets, but are far more aggressive than the native paper wasps. Most stinging incidents occur due to the fact that they are nesting at a place that we are not expecting and thus poorly prepared for their attack.

**Control and Prevention** Because these wasps are predators of other insects, if they are not bothering you or not nesting close to your house, they might be doing a good job getting rid of other insects in your garden. To minimize their presence around your property, try to limit suitable nest sites for them. Seal holes in walls, put screens on vents, and remove old nests in structures. Concentrate your efforts for nest removal and spraying early: in Michigan it would mean before end of May. It is easy to kill one queen than to kill 400 workers later. If the nests are large with many workers on it, wait till dark (workers would all be home and also cannot fly in darkness), then use a hornet or wasp spray to reach the nest. Apply dusts at the entrance (or pump the dust inside), if they are nesting inside a cavity and you cannot precisely locate the nest. If you are allergic to insect stings, have someone help you, or call a pest control firm listed in your yellow pages.

Disclaimer: This fact sheet is for information only. Mention of products does not indicate endorsement. Prepared by Zachary Huang, Department of Entomology, Michigan State University, East Lansing, MI 48824, USA. email: bees@msu.edu.

url: <http://cyberbee.msu.edu/column/stinging/euro-paperwasp.pdf>