



The European Paper Wasp

WASHINGTON STATE UNIVERSITY EXTENSION FACT SHEET • FS152E

Introduction

As a newcomer to our home landscapes in the Pacific Northwest (PNW), the European paper wasp, *Polistes dominula*, has a reputation as both a beneficial predator and a pest. The European paper wasp is a relatively tame wasp that forages within landscape plants in search of leaf-feeding caterpillars and other insect prey. However, it is also a nuisance pest that will sting people who accidentally disturb or threaten it or its nest. The purpose of this publication is to provide homeowners with images that will help them recognize the paper wasp and distinguish it from the more aggressive yellowjacket wasps found in the PNW. This publication also offers seasonal scouting tips and management strategies for living with paper wasps in the home landscape.

The Positive and Negative Effects of Paper Wasps

Paper wasps are members of the insect family Vespidae (Figure 1A, B), which includes yellowjacket wasps and

hornets. Most insects in this family are considered eusocial wasps, meaning insects that live in communities of fertile queens and infertile workers. Adult wasps gather wood fibers from tree bark and plant stems to construct nests that are gray or brown in color and have a papery texture (hence the name ‘paper wasp’). Sometimes these nests are hidden underneath, or within, man-made structures like house eaves, fence rails, porch furniture, birdhouses, windowsills, and light fixtures.

Paper wasps are beneficial predators because they prey on other insects, particularly caterpillars, as well as other insects that feed on plants. Homeowners are likely to encounter paper wasp adults searching for insect prey in amongst garden plants, landscape trees, shrubs, and flowers around the home. European paper wasps are active early in the growing season and may forage for prey as early as March. When a paper wasp locates prey, the adult wasp captures it and brings it back to the nest, where it feeds the thoroughly chewed-up insects to the wasp larvae. It is this predatory behavior that makes paper wasps a valuable species for conservation in the home landscape.



Figure 1. Two common paper wasps of the PNW are the European paper wasp (A), *Polistes dominula*, and the golden paper wasp (B), *Polistes aurifer*. Both species measure approximately 5/8-inch long, but they have different yellow markings on the thorax and abdomen.

This fact sheet is part of the WSU Extension Home Garden Series.

European paper wasps (Figure 1A) can damage ripening or over ripened fruits, such as apples, cherries, and grapes. As the name implies, this species is not native to the PNW and may displace native wasp species like the golden paper wasp, *Polistes aurifer* (Figure 1B). Because the European paper wasp is well established throughout the PNW, efforts to eradicate this exotic wasp have not been attempted.

Distinguishing Paper Wasps from Yellowjacket Wasps

In the PNW, paper wasps and yellowjacket wasps are common and are frequently mistaken for one another (Figure 2). They share the traditional coloration of yellow and black stripes that warns potential predators that they can sting. Paper wasps are approximately 5/8 of an inch long and tend to be slightly longer than yellowjackets. Paper wasps also have more slender bodies compared to the yellowjacket wasp, with longer hind legs, which extend behind its body (Figure 2A). When examined closely, paper wasps reveal an orange-colored antennae (Figure 1A). Yellowjackets are smaller (approximately 1/2-inch long), more compact, and possess mostly black antennae (Figure 2B). Like paper wasps, yellowjackets will feed on a range of insects, including caterpillars, flies, aphids,

and mosquitoes, and thus can be considered beneficial predators.

There are some compelling reasons for distinguishing between paper wasps and yellowjacket wasps. Both wasps are beneficial predators that prey on other insects, but yellowjackets tend to be far more aggressive towards humans and will mass attack intruders that threaten the nest. In these situations, yellowjackets become more than just a nuisance—they become a serious threat to human safety. Yellowjackets are also aggressive scavengers that will feed on insect carcasses, sweet substances, and protein sources, thus becoming nuisance pests at picnic tables, garbage areas, and on ripening berry and tree fruits. While paper wasps may scavenge on a small scale, nearly all complaints of troublesome wasps can be traced back to yellowjackets. For this reason, homeowners may opt to control or prevent yellowjackets from establishing nests in the home landscape.

Perhaps the easiest way to distinguish between paper wasps and yellowjackets is by the construction of their nests (Figure 3). Paper wasp nests consist of a single exposed comb made up of multiple hexagonal cells suspended by a narrow stalk attached to man-made structures like house eaves, porch ceilings, wooden fences, and the like

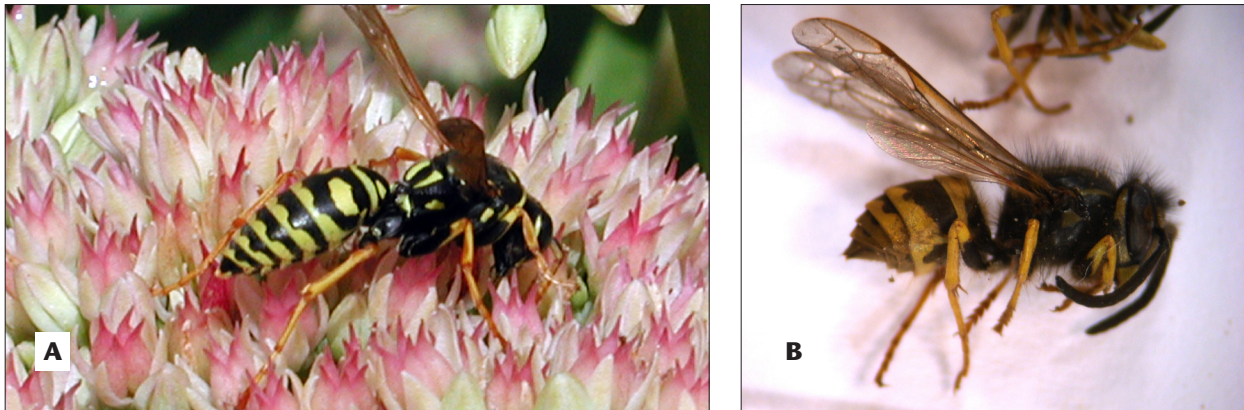


Figure 2. A visual comparison of an adult paper wasp (A) and an adult yellowjacket wasp (B). Body length of the paper wasp is approximately 5/8-inch long, while the body length of the yellowjacket wasp is approximately 1/2-inch long.

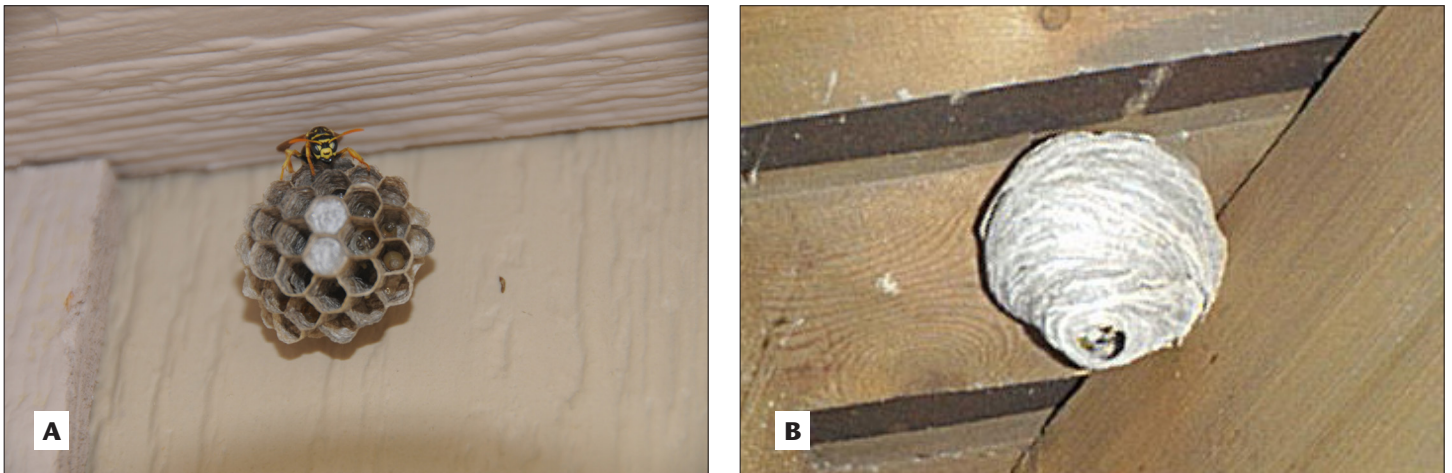


Figure 3. A visual comparison of aerial nests constructed by the European paper wasp (A) and the yellowjacket wasp (B). (Photo (B) courtesy of B. York, York's Exterminating.)

(Figure 3A). Sometimes these nests are hidden or tucked inside man-made structures, such as light sockets, window vents, outdoor furniture, mailboxes, and under soffits. These nests are often occupied by multiple paper wasps and may number in the dozens or hundreds late in the summer. Individual paper wasps defend the nest from intruders, including humans, who come too close to the nest or inadvertently make contact with it. Yellowjackets construct a more globular or oval paper nest with a single entrance that leads to multiple combs (Figure 3B). These nests may be aerial, subterranean, or located in empty spaces inside man-made structures. Yellowjacket nests contain only a few individuals early in the spring, but may grow to several thousand insects later in the summer. Yellowjackets will **aggressively** defend their nest and will attack **en mass** any intruder that disturbs or threatens the nest site. This defensive behavior makes yellowjackets one of the most dangerous insect species in the Pacific Northwest.

Life History and Management Options for the Paper Wasp

The following section provides a seasonal synopsis of the life history of the European paper wasp and the strategies that homeowners can use to scout for, manage, and conserve populations of this beneficial insect in home landscapes.

Mid-autumn

- In the autumn of each year, dozens of fertilized, mature female (or queen) wasps (Figure 4) leave their colony to overwinter in warm, sheltered areas, including attics, garages, basements, and other areas often within urban settings.
- Homeowners should make efforts to keep paper wasps from entering into their living quarters by maintaining door and window screens, repairing or caulking holes in walls or siding, and screening off any attic and other household vents. These precautions are especially necessary if anyone in

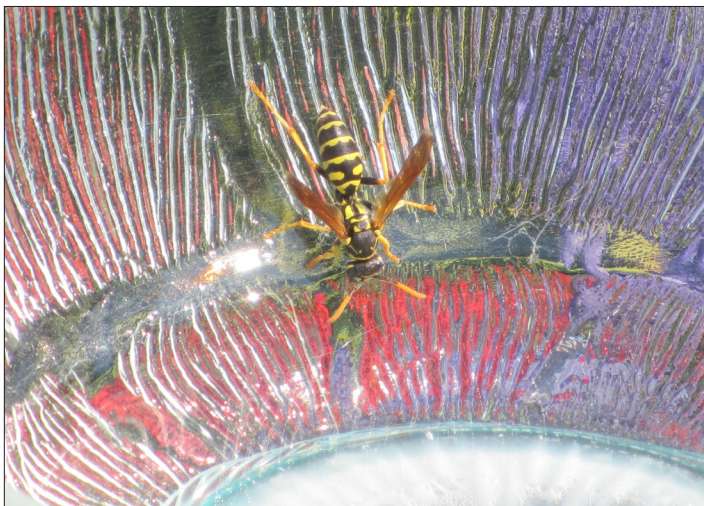


Figure 4. An adult female wasp (or queen) gathering water at a birdbath. (Photo courtesy of S. Spain, WSU Master Gardener.)

the household has a history of severe or allergic reactions to bee stings.

- Check firewood for overwintering females before bringing it into the home since these wasps naturally overwinter in logs and fallen trees.

Early spring

- From April to May, a surviving queen wasp will seek out a nesting site, construct a new single-comb nest out of chewed or pulped wood (Figure 5), or repair or pirate another paper wasp's nest.
- Female wasps deposit a single egg within each cell of the nest.
- Cream-colored, legless grubs will complete their development within these cells.
- Eventually each grub will cap off and pupate within the cell.
- In early spring, homeowners may remove wasp nests by knocking them down with a long broom, pole, or strong stream of water from a hose. This is the best time to remove a nest because only a single female will be guarding it. It may take repeated removal of each nest to discourage the wasps from replacing it. It is important to wear gloves and protective clothing to reduce any risk of getting stung, and although the sting is mild, it will get your attention.



Figure 5. An adult paper wasp guarding its nest from intruders. Note the eggs, developing larvae or pupae in each hexagonally shaped cell.

Late spring/early summer

- Throughout the summer, adult wasps will forage (Figure 6), capture, and feed the immature grubs caterpillars and other insects.
- No control of paper wasp adults is recommended since these wasps rarely sting while foraging.
- The commercially available baited traps used to capture yellowjackets are typically not effective for trapping European paper wasps.



Figure 6. An adult wasp foraging for insect prey in cilantro.



Figure 7. A paper wasp nest guarded by multiple individuals in early autumn. (Photo courtesy of A. Antonelli, WSU Emeritus.)

Late summer/early autumn

- During the summer or autumn, nests get larger and multiple wasps may “guard” the nest, so physical nest removal is more hazardous (Figure 7).
- Unwanted paper wasps and their nests located in high traffic areas or hidden under furniture, fixtures, grills, and mailboxes can be sprayed with an insecticide labeled for use in home landscapes. These products often come as aerosol formulations that can be sprayed directly towards the wasps and their nesting sites from a safe distance of several feet. For best control, spray these nests early in the morning, or late in the evening when the adult wasps are on the nest rather than foraging for food.
- For a list of products available for control of home garden pests, consult the WSU publication *Hortsense: Home Gardener Fact Sheets for Managing Plant Problems with IPM or Integrated Pest Management* at <http://pep.wsu.edu/hortsense>.
- Remove any wasp nests in autumn to prevent recolonization of abandoned nests in the spring.

Conclusions

Paper wasps and yellowjacket wasps are primarily predators that prey on other insects. They may be considered beneficial in the home landscape because they prey on insects that are pests of landscape plants. Unfortunately, yellowjacket wasps can be aggressive scavengers, unwelcome visitors at picnics, and will defend their nest by attacking and stinging anything that appears to pose a threat. These behaviors make yellowjacket wasps a

serious threat to homeowner safety and may necessitate control. Paper wasps, however, are much less aggressive in scavenging and stinging, so they can be discouraged from nesting in areas frequented by people and pets, and they can be managed in a way that allows homeowners to benefit from the pest management services they provide.

Further Reading

- Akre, R.D., A. Greene, J.F. MacDonald, P. Landolt, and H.G. Davis. 1981. *The Yellowjackets of America North of Mexico*. USDA Agriculture Handbook, Number 522.
- Akre, R.D., and A.L. Antonelli. 1997. *Yellowjackets and Paper Wasps*. *Washington State University Publication* EB643. <http://cru.cahe.wsu.edu/cepublications/eb0643/eb0643.pdf>.
- Crenshaw, W. 2008. *European Paper Wasp*. *Colorado State University Extension Publication* 5.611. Accessed at <http://www.ext.colostate.edu/Pubs/insect/05611.html>.
- Landolt, P.J., and A. Antonelli. 1999. The Paper Wasp *Polistes dominulus* (Christ) (Hymenoptera: Vespidae) in the State of Washington. *Pan Pacific Entomologist* 75(1) 58–59.
- WSU Extension. 2014 *Hortsense: Home Gardener Fact Sheets for Managing Plant Problems with IPM or Integrated Pest Management*. Washington State University. <http://pep.wsu.edu/hortsense>.



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Use pesticides with care. Apply them only to plants, animals, or sites as listed on the label. When mixing and applying pesticides, follow all label precautions to protect yourself and others around you. It is a violation of the law to disregard label directions. If pesticides are spilled on skin or clothing, remove clothing and wash skin thoroughly. Store pesticides in their original containers and keep them out of the reach of children, pets, and livestock.

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