WASHINGTON STATE UNIVERSITY EXTENSION

PLS-13
June 2004

European Paperwasp

By Todd Murray
WSU Extension – Whatcom County

Description and Life History

Remember getting harassed by yellowjackets last August when you began to prepare your gardens for winter? You thought that you'd get a break before they harassed you again, didn't you? In recent years, it appears that yellowjackets didn't reach their annual harassment quotas; they seem to be waiting to bother you in early spring, as early as March.

Washington State, along with the rest of the country, has inherited another critter from Europe. This new troublesome wasp is actually NOT a yellowjacket, but a paperwasp. The European paperwasp, *Polistes dominulus*, was first recorded in the U.S. in Massachusetts, 1981. Washington State's first record for the European paperwasp was in 1998. Over a period of twenty years, this wasp appeared to spread from coast to coast.

Figure 1. Vespula pensylvanica (yellowjacket on the right) and P. dominulus (left). Note difference in body shape, waste and antennal color.

Polistes dominulus has markings similar to the typical yellowjacket and are often confused with yellowjackets; they have the black and yellow warning coloration striped along their bodies. One superficial way to tell the difference is noting the body shape. Paperwasps in general are more slender and have longer legs. The constriction at the abdomen to the thorax is more gradual for paperwasps, while the constriction of the waist on yellowjackets tends to be abrupt (Fig. 1.).

Nesting habits are the easiest way to tell the difference between Polistes wasps and yellowjackets. Paperwasps create nests that are only one cell deep forming a single comb and resembling an upside down umbrella (Fig. 2.). The comb is not in an envelope and is exposed to the outside world. Yellowjackets create large aerial nests that are entirely enclosed in paper. Yellowjackets will also construct nests below the soil surface.

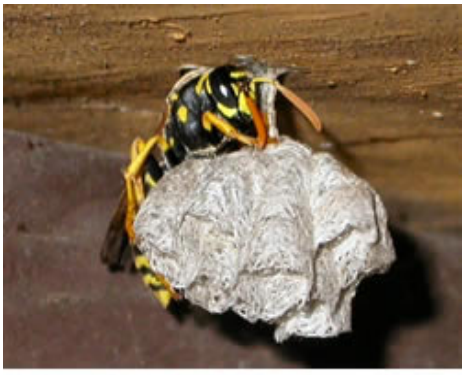

Figure 2. Newly emerged queen constructing a new nest under eaves.

Female *P. dominulus* wasps overwinter as fertile adults in protected habitats such as under tree bark, woodpiles and inside walls of structures. Females become active in early spring, beginning in late March or early April. Overwintering females can colonize an existing nest from the previous year, or construct a new nest made from chewed and pulped wood

fiber. The queen initially spends her time laying eggs and rearing the young. Queens deposit eggs singly into individual cells (Fig. 3.). These cells are home for the wasp larvae until they reach adulthood. The queen brings back prey items, such as caterpillars, and macerates the prey to feed to the developing larvae. The first brood can hatch to adults within forty days, given good environmental conditions. After the first brood, the queen continues to reproduce while the newly emerged workers take on the duties of foraging and maintaining the nest. Dr. Peter Landolt, USDA entomologist in Yakima, says that nests can grow large enough for 400 cells; however, most nests contain less than 100 cells. Male wasps, produced late in the season, mate with next season's new queens. The fertilized females seek out overwintering shelters to begin the lifecycle for next year.

Figure 3. Egg deposited inside cell

Damage: Garden friend or foe?

Generally, *Polistes dominulus* has brought excellent early-season biological control of many pests in Washington State. Not many natural enemies of insect pests are out in early spring. I have witnessed European paperwasps feeding on winter moth larvae this season. *P. dominulus* solely feeds on insect prey items (Fig. 4.).

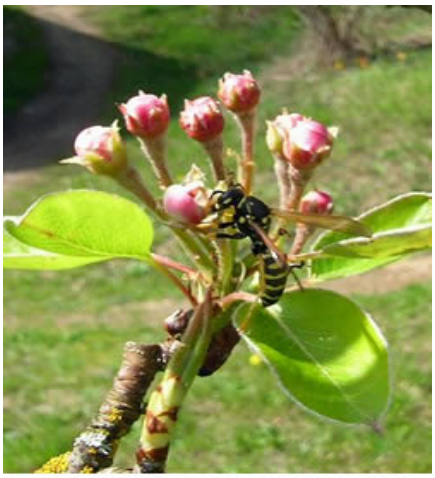

Figure 4. Queen foraging for food and building supplies (courtesy E. LaGasa)

Paperwasps can inflict painful stings when disturbed just as yellowjackets. Paperwasps are capable of stinging multiple times. So far, the European paperwasp had been described as docile in the Pacific Northwest. While photographing a queen, I bumped her with the camera lens and she just shot me a dirty look and went back to work. Eric LaGasa (our state entomologist) claims that *P. dominulus* will give you a "courtesy bump" telling you to back off before they threaten to sting you. Back east, this species is labeled as a fierce defender of nests and will attack potential threats. From what I've witnessed, the wasps are docile and are only concerned about maintaining their nests. Rarely do I see aggression when I'm present around their nests (Fig. 5.).

Figure 5. Mid-season nest with brood maintaining the nest (courtesy E. LaGasa).

The pestiferous tendency of the European paperwasp is found in its nesting habits. *P. dominulus* appears to find human structures a favorable place to set up home. Often nests are constructed on roof eaves, decks, chairs, overhangs, doorways, outdoor light fixtures, BBQ grills, birdhouses and mailboxes (Fig. 6.).

Figure 6. P. dominulus queen maintaining a nest inside a mailbox.

Over all, the introduction of this highly successful wasp may impact our local ecology. Some scientists are concerned that the European paperwasp will out-compete native wasps for nesting sites and food. Other concerns are for early season native caterpillars and other insects that the wasps prey on.

Monitoring & Management

If possible, leave the nests alone. You will benefit from having these voracious predators working for you in your garden and landscape. In fact, entomologists at North Carolina are providing instructions on how to construct a 'wasp box' http://www.ces.ncsu.edu/depts/ent/notes/Other/note121/note121.html.

In April and May, regularly check for nests in areas that are frequented often by your family and mail carriers. If it can be done safely, remove the nest and dispose of it. I've done this on my eaves during mid-day when the queen was away and haven't been attacked. But please be careful when you do this; some people can be highly allergic to wasp venom and it is not worth the risk. Nest removal is best done early in the season before the first brood hatches. Many times there will just be a single queen present.

Prevention is key for keeping wasps out of wall voids, attic spaces and other interior habits. Seal any cracks, gaps and holes to prevent wasps from entering your house. For air vents, install small-sized wire screen to prevent wasps and other critters from entering. Wasps entering my house to overwinter was the only situation where I was stung by the European paperwasp. A wasp found my folded, winter blanket to crawl into. It was quite a surprise to me the next time I used the blanket!

Insecticides may be necessary if there is a fear of being stung or the nest is hard to reach and is in a problematic location. Aerosol cans of pyrethroid insecticides labeled for wasp control will kill *P. dominulus*. See http://cru.cahe.wsu.edu/CEPublications/eb0643/eb0643.pdf for current recommendations. Many of these cans are constructed to deliver a precise stream of insecticide up to twenty feet away. Treat nests at night when the paperwasps have returned to the nest. Leave the sprayed nest in place for

several days. There will be residual activity and latecomers to the nest will be exposed to the insecticide. Read and follow the label directions carefully.

Drs. Antonelli and Landolt have revised WSU EB 0643 Yellowjackets and Paper Wasps to include the European paperwasp.
http://cru.cahe.wsu.edu/CEPublications/eb0643/eb0643.pdf

To reach Todd Murray, please call (360) 676-6736 or e-mail
tamurray@coopext.cahe.wsu.edu