HOMEOWNER Guide to

by Edward Bechinski, Frank Merickel **BUL 853**

Minor Stinging Insects

University of Idaho Extension

"…unless hypersensitive people are present, none [of these insects] typically requires direct control action because these insects usually are encountered as an occasional individual."

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STINGING SOLITARY WASPS

MUD DAUBERS are elongate with a thin stem-like stalk between their thorax (where wings and legs attach) and their abdomen (the thickened main part of the body). Most common of many species in Idaho are the black and yellow mud dauber, *Sceliphron caementarium* (at top), and the blue mud dauber, *Chalybion californicum (*at bottom*)*. They capture and paralyze spiders, which they provide as food for their own larvae. They are often seen hovering at puddle edges collecting mud to make nests. **Nests:** Mud nests are often found on garage and shed ceilings, roof overhangs, and other sheltered building sites. No need to spray, as wasps don't live there. **Sting:** Only when trapped against your skin. Photos by Frank Merickel, University of Idaho

SPIDER WASPS, such as *Chirodamus pyrrhomelas*, are so named because they, too, capture and paralyze spiders for their larvae. They are among Idaho home landscapes' largest stinging insects. Common in Idaho are metallic blue or black; some have orange bands on the abdomen; one is black with smoky orange wings. You'll see them searching for spiders on soil surface or plants, twitching wings and walking with darting movements. **Nest:** Burrows dug in the soil. **Sting:** Yes. Avoid accidental contact. Photo from Ken Gray slide collection, Oregon State University

WESTERN CICADA KILLER, *Sphecius grandis*, causes anxiety because of its huge size and yellowjacket-like appearance. They have an unnerving habit of flying over nesting sites and buzzing after people. **Nest:** Burrows in bare soils in full sunlight; many solitary nests can occur together. **Sting:** Mild at worst. Photo by Frank Merickel, UI

VELVET ANTS, *Dasymutilla* species, are wasps. Ant-like wingless female with fine, fuzzy, bright yellow-to-orange-red hairs densely covering the upper body is usually found running rapidly over sunny, sandy ground where nests of soil-dwelling bees and wasps occur, especially in rangeland and canyon habitats. **Nest:** Don't have nests. **Sting:** Smooth, needle-like sting is visible to the eye. Fiery sting is intense. Avoid them if possible. Photo from Ken Gray slide collection, OSU

DIGGER WASP, *Sphex ashmeadi*, a dangerous-looking but relatively harmless dark-bodied, thread-waisted wasp with an orange abdomen feeds on flower nectar. **Nest**: Soil burrow. **Sting:** They do not sting unless stepped on or mishandled. Photo by Frank Merickel, UI

STINGING ANTS

HARVESTER ANTS, *Pogonomyrmex* species, large (3/8-inch) reddish-brown ants that gather seeds for food often clear huge bare spots around mound-like nest. **Nest:** Up to 6-inches-tall mound is often bare—stripped of plants. **Sting:** Intensely painful sting poses low risk to people because highly visible nests are easy to avoid. Photo from Ken Gray slide collection, OSU

PAVEMENT ANT, *Tetramorium caespitum*, small dark-brown ant builds small mounds of soil from cracks in sidewalks and along foundations of homes. **Nest:** Small mounds of soil seen in sidewalk cracks and along home foundations. **Sting:** So small it generally can't penetrate skin. Photo by Alex Wild/myrmecos.net

NON-STINGING WASPS AND FLIES

HORNTAILS, *Sirex* and *Urocerus* species, are up to 1 1/2–inch blue-black wasps with long, thick cylindrical abdomens. Some have broad orange-yellow bands on abdomen. It has no sting, though female's egg-laying tube looks like one, as does the male's stout tail-like plate at the tip of his abdomen.**Nest:** They lay eggs in bark of dead or dying conifers. **Sting:** No. Photo by Frank Merickel, UI

HOVER FLIES (also flower or syrphid flies) are harmless, but resemble bees and wasps. Look for only one pair of membranous wings, while bees and wasps have two pairs. As their name suggests, they can hover in mid-air, moving wings so quickly as to appear a complete blur. **Nest:** None. **Sting:** No. Photo by Dennis Schotzko, UI

NON-STINGING WASPS AND FLIES

ICHNEUMONID WASPS, small to large wasps' bodies are flattened from side-to-side. Females appear to have long stinger that trails behind as it flies. It's not a stinger, but an egg-laying ovipositor. *Netelia* species (bottom photo) poses a minor sting threat. This slow-flying wasp may be seen around lights. **Nest:** They lay eggs inside bodies of other insects (beetle and moth larvae), often imbedded in trees. **Sting:** No. Photos by Frank Merickel, UI

MANY TYPES OF STINGING INSECTS occur around Idaho home landscapes. This publication deals with a group of stinging insects less well known to homeowners than are bees and yellowjackets (publications mentioned below).

The species in this publication often capture the attention of homeowners, but their sting hazard rarely justifies control action around the home. We also describe here several fearsome-looking, but entirely harmless, insects sometimes mistaken for stinging wasps and bees.

Also see other colorfully illustrated publications in this series: University of Idaho Extension BUL 852 *Homeowner Guide to Yellowjackets, Bald-Faced Hornets, and Paper Wasps* and BUL 854 *Homeowner Guide to Bees*.

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STINGING SOLITARY WASPS LIVE ALONE

Solitary wasps do not live in a central cooperative colony as do social insects like ants or yellowjackets or honey bees. They instead work as single individuals to build nests where their immatures grow and develop. All solitary wasps are carnivorous. They provision their nests with live insects and spiders that they paralyze by stinging. These wasps might best be considered beneficial when their prey is plant-damaging insects.

Only female insects can sting. The sting apparatus of insects is a highly-modified ovipositor, an egg-laying tube that through the course of evolutionary time became adapted for injecting venom. Male insects cannot sting because they never had an egg-laying tube that evolutionary selection could modify into a sting.

Except for people with known allergies to wasps, the solitary wasps as a group pose minor sting threats around home landscapes. Many commonly encountered species do not sting unless intensely provoked by being pressed against the skin. Even then their sting is only slightly painful, often more numbing than causing pain.

However, a few solitary wasps—spider wasps and velvet ants—have an intensely painful sting that is worse than yellowjackets. But unless hypersensitive people are present, none typically requires direct control action because these insects usually are encountered as an occasional individual.

MUD DAUBERS—LAY EGGS IN NESTS THEY MAKE FROM MUD

Adult mud daubers are medium-size (3/4 to 1 inch), elongate wasps with a characteristic thin, stem-like stalk between their thorax (where wings and legs attach) and their abdomen (the thickened main part of the body). Many different species of mud daubers are known from Idaho, but two commonly encountered species are the black and yellow mud dauber and the blue mud dauber. As their names suggest, the black and yellow mud dauber, *Sceliphron caementarium*, is black with yellow marks (page 3), and the blue mud dauber, *Chalybion californicum*, is an overall metallic blackish-blue (page 3).

Homeowners typically see mud daubers at the edges of puddles where adult wasps gather mud for nest construction. Nests consist of a few 1–inch long, closed tubular-shaped mud cells arranged side-by-side (Figure 1a). Common nest sites include garage and shed ceilings, roof overhangs, and similar sheltered sites on buildings. Female wasps provision each cell with several spiders they paralyze by stinging (Figure 1b). Wasps lay a single egg in each cell, and the hatching wasp larva eats the spiders.

Mud daubers are solitary wasps. Each female independently constructs and provisions its own nest. Control action is not warranted for mud daubers. They do not defend their nests and only sting when trapped against the skin or similarly threatened. There is no need to spray nests because adult wasps do not live in nests. If nests are unsightly, scrape them from buildings with a putty knife. Mud cells with holes identify empty nests where larvae have completed development and escaped as adult wasps.

SPIDER WASPS STING MAINLY SPIDERS (TO FEED THEIR LARVAE)

Spider wasps (many species) are among the largest stinging insects encountered around Idaho home landscapes. Many are solidly colored metallic blue or black; some have orange bands on the abdomen. One commonly observed species in residential areas, *Chirodamus pyrrhomelas* (page 3), has a 3/4-inch long dull black body with smoky orange wings.

Like mud daubers, spider wasps are solitary insects. They search out and sting spiders as paralyzed prey for their larvae. Spider wasps can be seen searching for spiders on the soil surface and on plants, twitching their wings and walking with darting movements. Nests consist of burrows dug into the soil.

Spider wasps can sting painfully if handled. But because they only are encountered as individual wasps (rather than as massive colonies in nests), the best way to reduce sting hazard from spider wasps is to avoid accidental contact.

WESTERN CICADA KILLER—LOOKS LIKE OVERSIZED YELLOWJACKET

Cicada killers are yet another group of solitary wasps that only sting people defensively during accidental contact. They are most common in the midwest and eastern U.S., but one western species, *Sphecius grandis* (page 3), causes high anxiety for its super-sized (up to 1 3/8-inches long) yellowjacket-like appearance and its habit of nesting gregariously in yards. In spite of the fearsome appearance of cicada killers, their sting generally is reported as more numbing than painful, though some people report intense pain. Sting encounters typically occur when barefooted children step on female wasps digging nests in the soil.

Cicada killers prey on cicadas, insects that make the shrill buzzing sounds from hidden sites on trees during July and August. Female wasps search out cicadas, paralyze them with their sting, and carry them back to burrows with cells dug in the soil. After provisioning the burrow with one or two cicadas, the female wasp lays a single egg from which emerges the grub-like larval stage that feeds on the cicada. Each female constructs many burrows, each 1/2-inch in diameter and up to 10-inches deep. The resulting piles of soil around burrows can be a bigger nuisance than the wasps.

Nest sites. Dry, bare soils in full sunlight are especially favored nest sites. Although many nests can occur together in those settings, cicada killers do not live together in colonies like yellowjackets. Each female independently digs and provisions her own nests. Male cicada killer wasps are territorial. They fly over nesting sites and have the unnerving habit of buzzing after people. But like all male wasps and bees, the male cicada killer cannot sting.

Cicada killers are beneficial and seldom require control. The best strategy where they do present a sting hazard is to permanently eliminate bare spots in yards favorable to nesting. Either replant bare areas with grass or lay down a fabric weed-barrier cloth and cover with 3 or 4 inches of landscape mulch.

No insecticides specifically are registered for application to cicada killer nests in home landscapes, and it is University of Idaho policy not to recommend pesticides unless both the pest (cicada killer wasps) and application site (nests in home landscapes) are stated on the pesticide label.

Labels of two commercial insecticide dusts—*Bonide Home Garden & Pet Dust* and *Bonide Spider & Ground Bee Killer*—say they can be applied to nests of ground dwelling bees around home landscapes; a third product, *Eliminator Ant & Spider Killer Granules*, says it can be applied to nests of digger wasps. Homeowners legally can apply any of these three products to nests of cicada killers in residential lawns.

DIGGER WASP HAS ORANGE ABDOMEN

This dangerous-looking but relatively harmless 1-inch long, dark-bodied, thread-waisted wasp with an orange abdomen often is seen feeding on nectar from landscape flowers. It is a solitary, ground-nesting hunter of grasshoppers, provisioning a soil burrow for its larvae with prey it paralyzes by stinging. *Sphex ashmeadi* (page 3) is a solitary species, but sometimes many wasps dig nests in the same general area. **Control action is not needed. They do not sting unless stepped on or otherwise mishandled.**

VELVET ANT FEMALES ARE FUZZY WINGLESS WASPS

Contrary to their name, velvet ants, *Dasymutilla* species (page 3) are wasps, not ants. Males look like typical wasps and usually go unnoticed. The ant-like, wingless female velvet ant draws attention for the fine, fuzzy, bright yellow to orange-red hairs that densely cover the upper body surface. A smooth, needle-like sting is visible to the naked eye at the tip of the female's body.

Velvet ants are solitary wasps that feed as larvae on soil-nesting bees and wasps. Females most often are encountered running rapidly over sunny, sandy ground where nests of soil-dwelling bees and wasps occur, usually in rangeland and canyon habitats rather than around home landscapes.

Most painful sting of any insect in Idaho. A velvet ant's fiery (but non-lethal) sting is so intense that these insects are nicknamed cow-killers in the mistaken belief the pain of their sting is enough to kill livestock. Avoidance is the best way to deal with velvet ants. Velvet ants are too infrequently seen in home landscapes to justify any direct control action.

STINGING ANTS—MOUND BUILDERS THAT EAT SEEDS

Most ants in Idaho home landscapes entirely lack stings. The only species that pose significant sting hazard to people in Idaho are harvester ants, *Pogonomyrmex* species (page 4). These large (up to 3/8-inches) reddish-brown ants are named for their food habits. They gather seeds for food, clearing huge bare spots entirely stripped of plants around their mound-like nest. Workers collect seeds across adjoining yards from foraging trails that radiate up to 200-feet from the nest mound.

Nests. Harvester ant nests appear as low flat mounds, usually about 6-inches tall. They almost always occur in open unshaded areas with dry soils, especially in rangeland habitats (Figure 2) and only rarely around homes. Nests often have a scattering of pebbles around the entrance. Other non-stinging ants in Idaho resemble harvester ants and also build nest mounds, but the non-stingers are easy to identify because their mounds are NOT surrounded by large spots of bare soil.

Harvester ant stings are intensely painful but pose low risk to people because their highly visible nests are easy to avoid. Control is justified only in the rare circumstances where mounds occur in home landscapes.

Pavement Ant—stings too small to hurt. The pavement ant, *Tetramorium caespitum*, is the small (1/16 to 1/8-inch) dark brown ant that builds small mounds of soil from cracks in sidewalks and along foundations of homes (Figure 3).

Figure 1a. Nest and adult wasp of blue and yellow mud dauber. Only the immature wasp grubs live inside these nests, not the adult wasps. Photo from Ken Gray slide collection, Oregon State University

Figure 1b. Mud dauber nest artificially opened shows cells provisioned with paralyzed spiders as food for developing wasp grub. Photo from Ken Gray slide collection, OSU

Figure 2. Harvester ant nests typically appear as a low mound in rangeland areas. Photo from Ken Gray slide collection, OSU

Figure 3. Pavement ant nests along sidewalks and driveways are common to most Idaho home landscapes. The ants pose inconsequential sting hazards. Photo by Edward Bechinski, UI

They have a sting, but it is so small it generally cannot penetrate skin. The pavement ant primarily is a pest because it nests inside homes and becomes a nuisance in kitchens and bathrooms. **Sting hazard by itself does not justify any control action.**

NON-STINGING WASPS AND FLIES

ICHNEUMONID WASPS: LOOK FOR ITS LONG TRAILING OVIPOSITOR

Ichneumonid wasps (pronounced ick-new-mónn-idd) are a diverse group of frequently seen small to large wasps whose bodies are distinctively flattened from side-to-side. Females of some species appear to have a long stinger that trails prominently several inches behind the insect as it flies. In spite of its threatening appearance, the long thin needle is the ovipositor—an egg-laying tube—not a stinger. These wasps never use their egg-laying tube as a stinger and so can be handled without any sting threat (page 4).

Females only use their ovipositor to lay eggs inside the bodies of other insects; the grub-like larval stage that hatches from the egg feeds internally on the host insect and kills it. Wasps with long ovipositors typically attack beetle and moth larvae that tunnel within trees; wasps push their ovipositor through the bark and deliver an egg inside the body of the immature wood-borer grub within the tree. Wasps with short ovipositors lay eggs within the bodies of leaf-feeding caterpillars or other types of exposed insects.

Control action never is warranted for any ichneumonid wasp; all are highly valuable natural enemies of pest insects.
Ichneumonid wasps with long, easy-to-see ovipositors are entirely harmless; they only use the ovipositor to saw through tree limbs and lay eggs inside beetle grubs and caterpillars.

One Idaho ichneumonid wasp named *Netelia* (page 4) poses an inconsequential sting hazard to people. *Netelia* has a tiny ovipositor that it uses to deliver eggs into caterpillars; the egg-laying tube is sharp enough to puncture human skin with moderate pain if the insect is physically mishandled. *Netelia* ichneumonids are often seen around porch lights at night during midsummer. **Eliminate sting hazard by avoiding contact with these slow-flying, non-aggressive species when seen around lights.**

HORNTAILS LOOK LIKE THEY HAVE STINGS, BUT THEY DON'T

Horntails, *Sirex* species and *Urocerus* species (page 4), are large (up to 1 1/2-inch) blue-black wasps with long, thick cylindrical abdomens. Some are solidly colored dark blue to black while others have a few broad orange-yellow bands on their abdomen. Males have a stout tail-like plate at the tip of their abdomen that ends in a sharp spine; females additionally have a thick, elongate egg-laying tube (ovipositor) up to 1/2-inch long in larger specimens. **Although both of these structures are mistaken for stings, horntails entirely lack stings and so never pose hazards to human health.**

Female horntail wasps generally are seen during late summer or early fall on the bark of dead, dying, or weakened conifer trees where they lay eggs in moist wood. Their grub-like larvae subsequently tunnel through the heartwood and eat wood-decay fungi, emerging as adult wasps one to five years later. Because the immature grubs almost always feed on dead wood, larval control is not warranted.

HOVER FLIES CAN HOVER; HAVE SINGLE SET OF WINGS

Hover flies, also known as flower flies or syrphid flies, (page 4) are harmless, non-biting and non-stinging look-alikes of bees and wasps that occur in every Idaho home landscape.

As their name suggests, these flies can hover stationary in mid-air, moving their wings so quickly as to appear a complete blur. Hover flies also are called flower flies because they feed on nectar from blooming flowers. Syrphid fly is a short-hand version of their technical family name, Syrphidae.

Hover flies convincingly are colored with wasp-like yellow and black bands, and their feeding behavior around flowers makes them easy on first glance to confuse with small yellowjackets or bees. But hover flies are true flies, meaning they only have a single pair of membranous wings. Wasps and their relatives have two pairs of wings—a large pair of frontwings and a smaller (narrower and shorter) pair of hindwings.

No sting. Like all true flies, hover flies never have a sting. Species seen around yards and gardens are entirely beneficial; their grub-like larval stage feeds exclusively on aphids. **No control action is needed.** To the contrary, hover flies should be conserved and maintained by planting small-flowered, long-blooming flowering plants in landscapes as nectar and pollen food sources for the adult flies

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