

Homeowner Guide to

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. Courtesy of 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. Courtesy of 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. Courtesy of Frank Merickel, University of Idaho.



VELVET ANTS, *Dasymutilla* species, are wasps. Ant-like wingless female with fine, fuzzy, bright yellow-to-orangered 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. Courtesy of Ken Gray slide collection, Oregon State University.



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. Courtesy of Frank Merickel, University of Idaho.

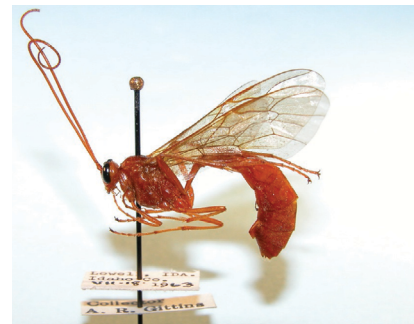
STINGING ANTS



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. Courtesy of Ken Gray slide collection, Oregon State University.



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. Courtesy of Alex Wild/myrmecos.net.



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. Courtesy of Frank Merickel, University of Idaho.



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. Courtesy of Frank Merickel, University of Idaho.



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. Courtesy of Dennis Schotzko, University of Idaho.

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MANY TYPES OF STINGING INSECTS occur around Idaho home, agricultural, rangeland, suburban, and urban landscapes. This publication discusses a group of stinging insects less well known to the general public than the more easily identifiable bees and yellow jackets.

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

See other colorfully illustrated publications in this series: University of Idaho Extension BUL 852, *Homeowner Guide to Yellow Jackets, 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, yellow jackets, or honeybees. Instead, they work as single individuals that build nests where their immature larvae and pupae grow and develop into adults. All solitary wasps are carnivorous and predaceous. They provision their nests with live insects and spiders that they paralyze with venom by stinging their prey item. These wasps might best be considered highly 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 modified into a sting.

Except for people with known allergies to wasps, the solitary wasps of Idaho 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 extremely and intensely painful sting that is much worse than yellow jackets or bees. But unless hypersensitive people are present, none typically requires direct control action because the insects usually are encountered as an occasional individual.

MUD DAUBERS LAY EGGS IN NESTS THEY MAKE FROM MUD

Adult mud daubers are medium-size (¾–1 inch), elongate wasps with a characteristic thin, stem-like stalk between their thorax and abdomen.

Many different species of mud daubers are known from Idaho, but two of the most 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 primarily black with yellow marks and the blue mud dauber, *Chalybion californicum*, is an overall metallic blue color.

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, typically on a vertical substrate, overhang, or wall (Figure 1a).

Common nest sites include garage and shed ceilings, roof overhangs and similarly sheltered sites on a variety of 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 or other prey items.



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. Courtesy of Ken Gray slide collection, Oregon State University.

Mud daubers are solitary wasps. Each female independently constructs and provisions her own nest. Control action is not warranted for mud dauber wasps. 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 them. 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 (numerous species) are among the largest stinging insects encountered around Idaho. Many are solidly colored metallic blue or often black in color; some have orange bands on the abdomen. One commonly observed species in residential areas, *Calopompilus pyrrhomelas* (formerly in the genus *Chirodamus*), has a 1-inch-long dull black body with bright smoky orange wings.

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

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



Figure 1b. Mud dauber nest artificially opened shows cells provisioned with paralyzed spiders as food for developing wasp grub. Courtesy of Ken Gray slide collection, Oregon State University.

CICADA KILLER WASPS — NOT A MURDER HORNET, RATHER A BENEFICIAL WASP

Cicada killer wasps are yet another group of solitary wasps that only sting people defensively during accidental contact. They are most common in the Midwest and eastern United States, but two western species, *Sphecius grandis* and *S. convallis*, cause high anxiety for their supersized (up to 1 3/8 inches long) yellow-jacket-like appearance and their habit of nesting gregariously in yards and Idaho landscapes. They are often mistakenly identified as “murder hornets” (for example, the northern giant hornet, *Vespa mandarinia*), though despite their large size they are half the size of the invasive species. Murder hornets have not been reported in Idaho to date.

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 after being stung. Sting encounters typically occur when barefooted individuals accidentally step on female wasps digging nests in the soil.

Cicada killers prey primarily on cicadas, insects that make shrill buzzing sounds from hidden sites on coniferous trees June–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. Indeed, 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 occur together in these settings, cicada killers do not live together in colonies like yellow jackets. 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, yellow jackets, and bees, the male cicada killer wasp cannot sting.

Cicada Killers Are Beneficial and Seldom Require Control

The best strategy to remove their 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 nesting sites in home landscapes. University of Idaho policy does not recommend using pesticides unless both the pest (cicada killer wasps) and application site (nests in home landscapes) are directly stated on the pesticide label.

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* is a solitary species, but sometimes many wasps dig nests in the same general area.

GREAT GOLDEN DIGGER WASP

The great golden digger wasp, *Sphex ichneumoneus*, is another large, solitary, ground-nesting wasp found throughout Idaho with alternating colors of black, orange, and yellow. It is a predatory species that is often found foraging on flowers for their nectar.

SAND WASPS

A number of sand wasp genera and species (family Crabronidae) occurs throughout Idaho. Generally, these wasps tend to prefer soil conditions that are predominantly composed of sand particles for digging and provisioning their nest site. Females of these solitary wasps are predatory beneficials and are ground-nesting wasps. The two most common genera that may be encountered include the often brightly colored *Bembix* sand wasps and the green-eyed *Tachytes* sand wasps.

Note: Control action is not needed for digger and sand wasps. 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) are solitary wasps, not ants. Males look like typical wasps and usually go unnoticed in landscapes. The ant-like, wingless female draws attention for the fine, fuzzy, bright-yellow to orange-red or even white hairs that densely cover its upper body surface. A smooth, needle-like sting is visible to the naked eye at the tip of a 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. Disturbed velvet ants make a squeaking or chirping sound audible to the human ear with stridulatory organs located on the underside of their thorax.

Most Painful Sting of Any Insect in Idaho

A velvet ant's fiery sting is so intense that these insects are nicknamed "cow-killers," in the mistaken belief that the pain of their sting is enough to kill livestock. Avoidance is the best way to deal with them. Velvet ants are too infrequently seen in home landscapes to justify any direct control action.

STINGING ANTS — MOUND BUILDERS THAT EAT SEEDS

HARVESTER ANTS

Most ants in Idaho home landscapes entirely lack stings. The only species that poses a significant sting hazard to people in Idaho are harvester ants, *Pogonomyrmex* species. These large (up to $\frac{3}{8}$ inches), reddish-brown ants are named for their food habits. They primarily 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 a 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 Idaho's rangeland habitats (Figure 2) and only rarely around homes. Nests often have a scattering of pebbles around the entrance. Other nonstinging ants in Idaho resemble harvester ants and also build nest mounds, but the nonstingers 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 ANTS — STINGS TOO SMALL TO HURT

The pavement ant, *Tetramorium caespitum*, is a small ($\frac{1}{16}$ – $\frac{1}{8}$ inches) dark brown ant that builds small mounds of soil from cracks in sidewalks and along home foundations (Figure 3).

They sting, but the ant is so small it generally cannot penetrate the skin of most individuals. 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.**



Figure 2. Harvester ant nests typically appear as a low mound in rangeland areas. Courtesy of Ken Gray slide collection, Oregon State University.



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

NONSTINGING WASPS AND FLIES

ICHNEUMONID WASPS: LOOK FOR ITS LONG, TRAILING OVIPOSITOR

Ichneumonid wasps (pronounced ick-new-món-id) 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. Despite its threatening appearance, the long thin needle is the ovipositor — an egg-laying tube — and not a stinger. These wasps never use their egg-laying tube as a stinger and thus can be handled without any sting threat.

Females only use their ovipositor to lay eggs inside the bodies of other pestiferous 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 pestiferous 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* poses an inconsequential sting hazard to people. *Netelia* has a small ovipositor that it uses to deliver eggs into caterpillars; the egg-laying tube is sharp enough to puncture human skin with moderate to intense pain if the insect is physically mishandled. *Netelia* ichneumonids are often seen around porch lights at night during midsummer. Eliminate the sting hazard by avoiding contact with these slow-flying, nonaggressive species when seen around lights.

HORNTAILS LOOK LIKE THEY HAVE STINGERS, BUT THEY DON'T STING

Horntails (*Sirex* species and *Urocerus* species) are large (up to 1½ inches) blue-black wood 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 ½-inch long in larger specimens.

Although both structures are mistaken for stingers, horntails entirely lack stings and consequently never pose a hazard to human health.

Female horntail wasps generally are seen during late summer or early fall on the bark of dead, dying, or severely weakened conifer or deciduous 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 1–5 years later. Because the immature grubs almost always feed on dead wood, larval control is not generally warranted.

HOVER FLIES CAN HOVER; HAVE A SINGLE SET OF WINGS

Hover flies, also known as flowerflies or syrphid flies, are harmless, nonbiting, and nonstinging look-alikes of bees and wasps that occur in every Idaho landscape. As their name suggests, these flies hover stationary in midair, moving their wings so quickly that they appear to be a complete blur. They are also called flowerflies because they feed on nectar from blooming flowers. Syrphid fly is the shorthand version of their technical family name, Syrphidae.

They are convincingly colored with wasp- and bee-like yellow and black bands and their feeding behavior around flowers makes them easy on first glance to confuse with a small yellow jacket or bee. 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 front wings and a smaller (narrower and shorter) pair of hindwings.

They don't sting. Indeed, like all true flies, hover flies never have a stinger, hence they cannot sting. Species seen around yards and gardens are entirely beneficial; their grub-like larval stage feeds exclusively on aphids and other small-bodied, pestiferous insects. **No control action is needed.** To the contrary, conserve and maintain hover flies by planting small-flowered, long-blooming flowering plants in landscapes as nectar and pollen food sources for the adult flies.

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