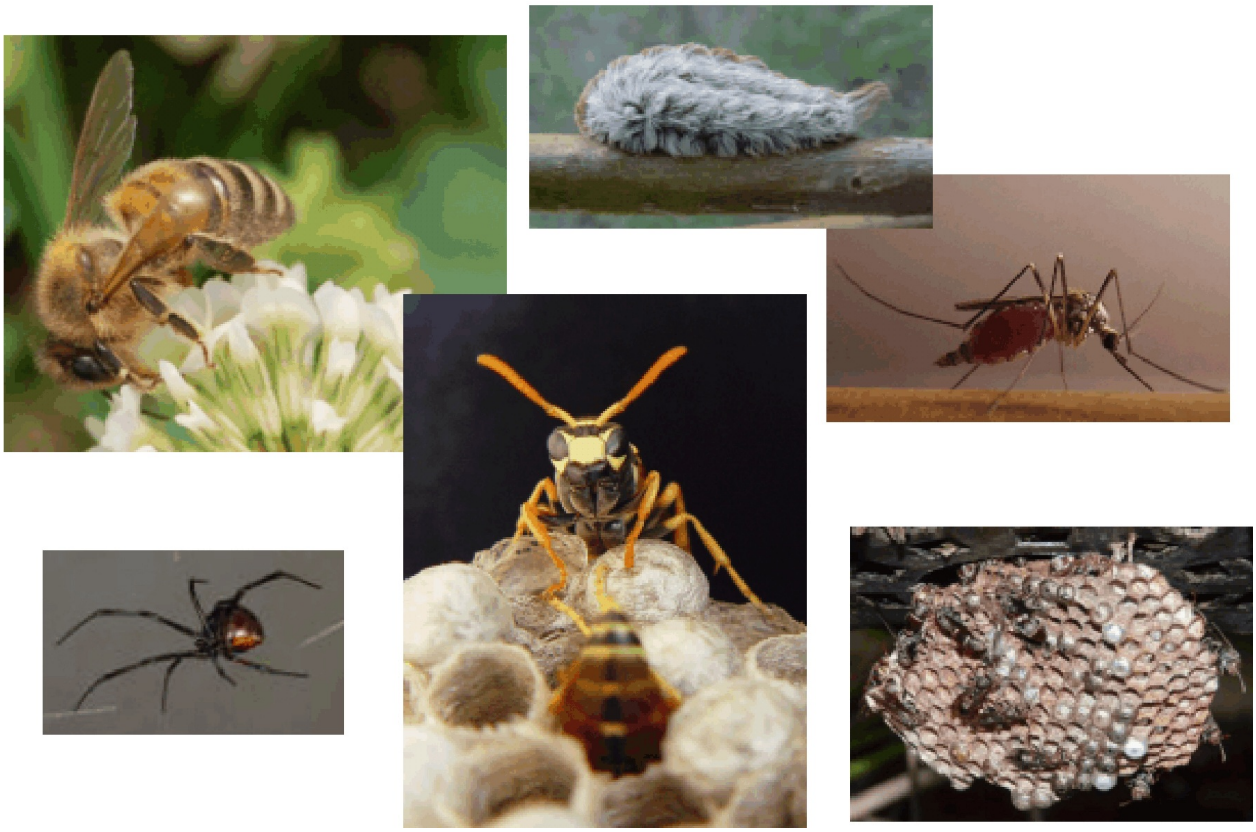
THE UNIVERSITY OF GEORGIA
COOPERATIVE EXTENSION
Colleges of Agricultural and Environmental Sciences & Family and Consumer Sciences

Stinging & Biting Pests of People



Revised by Elmer W. Gray, Extension Entomologist
Original document produced by Dr. Beverly Sparks

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When insects, mites and ticks bite, they inject saliva to aid in the feeding process. This saliva often causes the itching, redness and swelling that is associated with these bites. Insects and scorpions that sting and spiders that bite inject venom that is used to subdue prey or protect themselves and is usually painful to people. Bees and wasps that live in colonies and attack in large numbers cause the most problems when they believe the nest is threatened.

For most people, a single sting will cause pain, swelling and stiffness (if the sting was in a joint) that may last only a few minutes or for one or more days.

Some people can develop more dramatic reactions. Swelling may involve an entire arm or leg, last several days or require hospital treatment.

A third type of reaction is called “anaphylactic shock.” In a few people, the immune system goes “wrong” and within minutes after receiving a sting they may develop: (a) nausea and constriction in the chest; (b) difficulty breathing and swallowing; (c) a drop in blood pressure, blue color in the skin (due to lack of oxygen), and in extreme cases, unconsciousness and death.

People who develop more than just the normal symptoms from a single sting should see their physician about the need to be desensitized, and/or the need to carry an allergy first aid kit with them.

Refer to the current version of the Georgia Pest Management Handbook for appropriate and effective pesticide recommendations for all of the pests described in this publication.

Stinging

Bees, wasps, hornets, fire ants and scorpions that inject venom from the tip of their abdomen are sometimes considered beneficial because of their importance in pollination or in preying on other pest insects. However, anyone who has ever been stung by one of these creatures will usually think otherwise. You can reduce the effects of venomous stings by applying wet salt to the site within five minutes of being stung. Leave the salt in place for 30 minutes. The salt will "draw" the venom from the wound. Similar results have been obtained with moistened tobacco, wet baking soda or wet aspirin.

The Solitary Stingers

The cicada killer, mud-dauber and scorpion are solitary and are usually encountered one at a time. They are non-aggressive but will sting if provoked or trapped against bare skin. Their food consists of spiders and insects.

Cicada Killers: The cicada killer is a large wasp that varies in length from 1 to 1 1/2 inches and is black or rusty colored with yellow bands on the abdomen. This wasp nests in burrows in the ground and provisions its nest with cicadas. Nesting usually occurs in sod-covered areas but the grass is not harmed. The solitary adult is often seen hovering 1 to 2 feet above the ground near the entrance to its nest.

Cicada Killer

Mud-daubers: Pipe organ mud-daubers are elongated, slender and usually shiny-black wasps that vary in length from about a half inch to an inch or more. These wasps make their mud nests with the cells arranged in the form of a long tubes, hence the common "pipe organ" name. Individual wasps make a buzzing sound as they shape mud into a nest and provision it with spiders. The nests are often in protected but open areas under the roof eaves of buildings or sheds.

Pipe Organ mud-dauber

Pipe Organ nest

Scorpions: Scorpions occur across the country. The abdomen is broadly joined to the head area and is differentiated into two parts: a broad seven-segmented front portion and a much narrower five-segmented rear portion that terminates in a stinger.

Scorpions prefer to nest under rocks, tree bark, boards, garbage cans and rubbish piles. Those found in Georgia are about 2 inches long and the pain of the sting is similar to that of a bee or wasp.

Scorpion

Control: Chemical controls are usually not necessary or appropriate for the solitary stingers. Turf areas can be treated with insecticides labeled for these sites to discouraging nesting of cicada killers. Scorpions can be killed with an application of insecticide, but eliminating their breeding areas is more effective and long lasting. There is not a good insecticide registered for control of mud-daubers. Mud-daubers are not aggressive and their nests can usually be physically destroyed with little danger from the wasp.

The Social Insects

Bees, wasps, hornets and ants develop colonies where there may be a few dozen to thousands of individuals with a queen, workers and an elaborate social structure. These are the social insects. While most individuals are non-aggressive, all will sting if handled. The social bees, wasps and hornets are a greater stinging threat than the solitary pests because they will attack in large numbers if they perceive the nest is in danger. Those that make a paper nest construct them of plant fiber and salivary secretions. In the fall when temperatures cool and food becomes scarce, the female wasps and hornets frequently enter homes for hibernation.

Honey Bees: One of the most widely known social insects, the honey bee was brought to this country from Europe many years ago. Most colonies are in man-made hives, but escaped swarms often nest in hollow trees, wall voids and attics. Honey bee colonies last several years with the queen and workers overwintering in the hive. A queen may live several years.

Honey Bee

Individual honeybees are encountered beyond their nest when they are collecting nectar and pollen from blossoms. People usually get stung while walking barefoot across a lawn that has blooming clover or dandelions, or if a bee gets trapped between clothing and skin.

Bumble Bees: Most people are familiar with this big, buzzing, furry, yellow and black bee that can produce a very painful sting. Like yellow jackets and hornets, only fertilized females hibernate during the winter and each starts a new nest during the spring. Nests are usually constructed in cavities in the soil previously used by field mice. People are usually not stung unless they disturb the nest.

Bumble Bee

Umbrella Wasps (Polistes Wasps): Umbrella wasps, also called polistes wasps, are dusky brown wasps with various orange markings. They construct an open paper nest suspended from a short stalk. Wasps that build their nests under the eaves of houses, on porches, in attics or in dense shrubbery can become a problem. A new nest is made each year, founded by a fertilized overwintering queen. These wasps feed themselves and their young on caterpillars. Nests are small compared to those of yellow jackets and hornets and contain only up to about 250 wasps.

Umbrella Wasp on nest

Yellow Jackets: Yellow jackets are small (half-inch long) wasps marked with yellow. Colonies are initiated by overwintering queens that make paper nests underground, but occasionally in hollow trees, wall voids and attics or on a branch over a stream. A fully developed nest may contain from a few hundred to many thousand adults. Yellow jackets feed on a variety of pest insects, but will also forage for meat or soft drinks at picnic, camp and garbage sites. This habit often brings them into close association with people. Good sanitation in picnic areas can help reduce problems with these pests. Solitary scavenging yellow jackets are usually non-aggressive unless handled, but become very aggressive as a group if they believe their nest is threatened. Yellow jackets will vigorously pursue an intruder who threatens their nest and are generally considered the most dangerous of the social insects.

Yellow Jacket

Baldfaced Hornets: The white or light yellowish markings on the face, thorax and part of the abdomen help to identify the baldfaced hornet. Its nest looks like a "bloated football" high off the ground in a tree or bush. Usually, there is a single entrance opening at the lower end of the nest.

Baldfaced Hornet

European Hornets (Giant Hornets): The European hornet (also knows as the giant hornet) is large (over one inch), with its head and thorax a characteristic dark brown; the only yellow markings are on the abdomen. Paper nests are constructed in hollow tree trunks, buildings, and occasionally in the ground or in aerial situations. The European hornet chews the bark off living plants, such as lilacs, to make paper for its nest and is attracted to ripening fruit, meat and sweets. This hornet is unusual in being attracted to lights on summer evenings, but they aren't usually a problem unless their nest is near human activity.

European Hornet

Fire Ants: Superficially, fire ants look much like ordinary house and garden ants. As with wasps and hornets, fire ants inject venom from the tip of the abdomen. Their sting causes a swollen, red area with a blister that fills with a pus-like material and heals slowly. A single fire ant mound may contain up to 200,000 workers.

Fire Ant

Control: Most social bees, wasps and hornets are beneficial and should not be controlled unless their nest and activities are close to humans and create a hazard. For bees, wasps and hornets, apply an insecticide in the evening when they are at rest. With the wind at your back and an escape route selected, aim the insecticide at nest openings in trees, bushes, under eaves, ground cracks and crevices in and around nest openings. Re-treatment may be necessary. If possible, destroy the nest or seal the nest opening.

Readily available insecticides include a variety of formulations of aerosols for quick knockdown and kill. Some aerosols produce a jet stream of up to 20 feet for operator safety and the ability to reach nests high off the ground. For honey bees nesting in buildings, control procedures are more complicated. Colony removal services are available for fee. Contact your extension agent for more information.

For fire ants, treat individual mounds when they are freshly rebuilt after rains. Pour an insecticidal drench over a mound so that the mixture will break the surface; do not stir the mound. Use 1 to 2 gallons for an average (12- to 14-inch diameter) mound. There are also granular and bait formulations available.

Contact

Caterpillars with poisonous spines: The caterpillars of some moths have sharp, hollow spines or hairs that contain poison. Contact with these spines causes a burning inflammation of the skin, but can be more serious when in contact with a mucous membrane or the eyes. The spines from dead caterpillars are still poisonous.

Most of these caterpillars feed on the leaves of various hardwood trees and shrubs and contact with people is uncommon. The poisoned spines are a defense mechanism and the colorful patterns or unusual body shapes serve as a warning to their enemies. There are about 25 species that have spines that can be painful. Three of the more common species are described below.

Puss Caterpillars: Puss caterpillars may be pale yellow, gray or reddish brown, about 1 inch long and densely covered with hairs. Among these hairs are hollow spines with venom. Stings on the hand can cause the entire arm to swell and become numb. Later, there can be severe pain followed by itching. Young children are often more severely affected. Large population increases in local areas can cause a problem.

Puss Caterpillar

Saddleback Caterpillars: The saddleback caterpillar is green with a brown saddle mark on its back and has fleshy “knobs” on its body with venom-filled spines.

Saddleback Caterpillar

Hag Moth Caterpillars: The hag moth caterpillar is a strange-looking brownish caterpillar with four pairs of long, plume-like projections on its back, projecting out the sides and suggesting the disarranged hairs of a hag. Among the brown hairs on the plumes are longer black stinging hairs.

Hag Moth Caterpillar

Control: Control is usually not needed since contact is uncommon, and then only with an isolated individual. If a number of stinging caterpillars are seen feeding on the foliage around areas where children are active, spray the foliage with an insecticide labeled for tree and shrub application. Remember, dead caterpillars can still cause painful stings. Spread a cloth or plastic sheet under a tree or shrub to collect the fallen dead caterpillars, and then carefully dispose of them.

Biting

Mosquitoes, flies, fleas, ticks, chiggers and spiders: The puncture from a bite, the saliva used in feeding or the venom injected (by spiders) can all cause pain, swelling and itching.

Mosquitoes: There are more than 60 species of mosquitoes in Georgia, many of which will feed on people. The female mosquito must have a blood meal before her eggs will develop. Eggs are laid near or on the water, depending on the species. The eggs hatch into larvae or "wigglers." These develop into pupae or "tumblers" and the adult emerges from the pupa. The egg to adult transition can occur in seven to 10 days. Female mosquitoes will range from 300 feet to 20 miles or more in search of a blood meal, depending upon the species. Most can fly in a radius of at least 1 mile. Most, but not all, females prefer to feed in the evening. The saliva they inject helps to keep blood from coagulating as they feed. It is also an irritant responsible for some of the itching and swelling.

Mosquito

Mosquitoes that bite in the evening can breed in ditches, ponds, temporary pools, marshes and swamps. Mosquitoes that bite during the day often breed in artificial containers, such as tires, buckets and bottles.

Deer and Horse Flies: Deer and horse flies are strong fliers and a serious nuisance of warm-blooded animals and people. Only the females need a blood meal. Their mouthparts are bladelike and it is painful when they cut through the skin. When the blood is flowing from the wound they will "lap" it up. The larvae feed in a wide variety of wet or damp sites that are high in organic material. Most females feed during the warmer parts of the day, but some species prefer the hours at dawn or dusk. Horse flies are larger than deer flies and usually have clear wings, while the deer fly has dark markings on the wings.

Horse Fly

Deer Fly

Biting Midges, "No-see-ums," "Punkies" and "Sand Flies": These pests are very small flies (about 1/32 to to 1/16-inch long) whose small, bladelike mouthparts make a painful wound out of proportion to its tiny size. Welts and lesions from the bite may last for days. The larvae of various species breed in a wide variety of damp or wet places high in organic matter. Most are attracted to lights. One vicious biter breeds along the Atlantic coast in salt marshes and wet soil. Another species, found in mountainous areas, feeds in the evening and night hours and is small enough to pass through ordinary screens. These are important pests along coastal and mountainous areas and can seriously interfere with outdoor activities.

Biting Midge (no-see-ums)

Black Flies (Buffalo Gnats): Black flies, also known as buffalo gnats, are small (1/16- to 1/8-inch long), blood-sucking flies that are usually black to gray in color. They typically bite in shaded or partially shaded areas and may fly as far as 15 miles or more from breeding areas. The larvae are found attached to underwater objects in fast flowing sections of rivers and streams. For this reason, they can be very troublesome in mountainous areas. The saliva injected while feeding causes swelling and soreness that may persist for days.

Black Fly

Control: Because of the wide-spread breeding sites and long flight range of most mosquitoes, deer and horse flies, biting midges and black flies, control by homeowners is not always practical. Aerosols can be used indoors for occasional invaders. For day-biting mosquitoes, the elimination of artificial containers as a breeding site can reduce biting since these mosquitoes only fly a few hundred feet from their breeding area. Turn over, puncture, cover with plastic or store potential breeding sites in an area protected from rain.

Repellents should be used outdoors when needed. Various formulations (many different brand names) containing “deet” (N, N-diethyl-m-toulamide) can be applied to the skin to give several hours of protection. Perspiration and activity tend to reduce the length of protection. Those formulations with a higher percent of “deet” tend to last longer but also tend to cost more. The CDC has recently approved Picaridin, Oil of Lemon Eucalyptus and IR3535 as effective alternatives to deet. For additional protection against mosquitoes that bite through clothing, Permanone (brand name of an aerosol) containing permethrin, which is sprayed on clothing to repel and kill ticks, is also effective against flying insect pests for a day or more.

Electromagnetic and ultrasonic devices are sometimes advertised to control these pests, but are worthless. There is no evidence that black lights with electric grids for outdoor patios give any control of these insects.

Fleas: All adult fleas feed exclusively on the blood of their host. Fleas are common on most mammals, including cats, dogs and rodents. They are wingless and have strong legs for jumping. Eggs from the female usually hatch in the nest or resting areas of the host. The eggs hatch in about 10 days into tiny, worm-like white larvae that feed on flea excrement, skin scales and other debris. The larva require a week to several months to complete development before they pupate and emerge as adults. Adult fleas can survive for two to four months without a blood meal. Cat and dog fleas will readily bite humans, especially when the normal host is absent. When people go on vacation for a week or more, a large number of fleas can often be found waiting for the owners upon their return. Large numbers of fleas can also build up in yards. Fleas most often bite people on the legs and ankles. A small red spot usually appears at the bite site surrounded by a red halo with little swelling. Young children tend to be more sensitive to flea bites than older children.

Flea

Chiggers: The chigger is a tiny, red mite that, in its immature stage, will feed on humans, rodents, birds, snakes and a wide variety of other animals. Chiggers are especially common in second growth areas, blackberry patches and forest edges. Chiggers are very active in crawling about looking for a host, and may crawl over the skin for some hours before beginning to feed. When the mouthparts are inserted into the skin, a fluid is injected that dissolves the cells upon which it feeds. The chigger does not, as is commonly believed, burrow into the skin. Itching can begin three to six hours after exposure. Examination of the skin may reveal minute red mites moving about. A soapy bath taken as soon as their presence is noted will often remove many of them before they begin feeding.

Chiggers

Ticks: The two most common ticks that feed on humans in Georgia are the American dog tick and the lone star tick. The adult female tick drops from the host after a blood meal to lay her eggs. The eggs hatch and develop through three stages: the larva (six-legged, very tiny - sometimes called a “seed tick”), and the eight-legged nymph and adult. During each of these three stages, the tick will attach itself to a host, take a blood meal, then drop off to continue the cycle. All stages of the lone star tick will attack humans, but only the adult stage of the American dog tick will. Both ticks feed on a wide variety of animals, although the American dog tick is especially common on dogs and the lone star tick on deer and livestock. Ticks are most common along trails, feeding and resting areas of their hosts. Both species can carry Rocky Mountain Spotted Fever (RMSF), a dangerous disease that causes a skin rash and high fever that may be mistaken for measles.

American Dog Tick

Lone Star Tick

The black-legged tick is less commonly found on people, but transmits Lyme disease. This disease initially has flu-like symptoms and sometimes an expanding red rash at the bite site. Months or years later the disease can invade the neurological or cardio-vascular system or joints of the body. Lyme disease mimics other diseases, such as rheumatoid arthritis. The characteristic bull’s-eye rash only occurs in about 70 percent of the cases. Early treatment with antibiotics is much more effective than treatment months or years later.

Black-legged Tick

When in tick-infested areas, you should check your body (especially the back of the head) at least twice a day for ticks. Since imbedded ticks need 12 to 24 hours to transmit RMSF or Lyme disease, early removal is a good preventative for these diseases. Imbedded ticks should be removed with tweezers or wrapped in cloth or paper to avoid contact with the fingers. Grasp the tick as close to the skin as possible and gently pull directly, but firmly, away from the skin. Immediately wash the bite site and your hands with hot, soapy water to minimize the chance of infection, as juices from an infected tick can transmit RMSF.

Spiders: While spiders are beneficial in that they feed on various insects, there are at least two species in Georgia that are dangerous to humans. One is the black widow. It is shiny black with a red hourglass design under the abdomen. This spider makes an irregular web in piles of trash and lumber, around rock borders and in cracks and crevices around the foundations of homes. The black widow is timid and will not usually bite unless handled. The other species is the brown recluse. Its dark violin-shaped marking is distinctive. This spider is also timid and seldom seen since it lives in undisturbed areas inside buildings (e.g., under the basement steps, in unused clothing) or outside under rocks, piles of tires, under houses or under loose tree bark.

Black Widow

Brown Recluse

The bite of the black widow is very painful, while the bite of the brown recluse can cause a spreading ulcer that is slow to heal and can leave a scar. Suspected bites should be treated promptly by a physician and the identification of the spider confirmed — your county extension agent can help.

Control: Controlling fleas on pet dogs and cats greatly reduces the problem on people. Vacuuming pet resting areas at least twice a week in the house reduces all flea stages in the carpet and flooring. Aerosol sprays can be used to fumigate infested rooms. The inclusion of methoprene, a growth regulator, with an insecticide is the best combination for long control. Methoprene is slow in its action since it only stops the growth of the flea (the insecticide usually combined with it will give a quick kill). This method of control is a very safe and effective long-term solution. Various formulations of insecticide can be used in the yard. Read the label carefully for proper use. A repellent is often the most practical method of personal protection from chiggers and ticks due to the widespread areas in which they are found. Repellents containing “deet” are available under many brand names. Application to the skin or clothing will usually give several hours of protection. Those with a higher percentage active ingredient usually last longer, but also often cost more. Permethrin (Permanone by brand name) comes as an aerosol and is applied to the clothing only. It is effective in repelling and killing chiggers and ticks. Using “deet” on the skin and permethrin on the clothing seems to give the best protection, although either alone can be effective.

Open, sunlit areas where the grass is cut short discourage ticks and chiggers because these areas are not humid enough for their survival.

Reduce spiders by removing piles of wood and trash close to inhabited areas. Spot-treat infested areas with products labeled for this use.

Attention! Pesticide Precautions

1. Observe all directions, restrictions and precautions on pesticide labels. It is dangerous, wasteful and illegal to do otherwise.

2. Store all pesticides in original containers with labels intact and behind locked doors. KEEP PESTICIDES OUT OF THE REACH OF CHILDREN.

3. Use pesticides at correct label dosages and intervals to avoid illegal residues or injury to plants and animals.

4. Apply pesticides carefully to avoid drift or contamination of non-target areas.

5. Surplus pesticides and containers should be disposed of in accordance with label instructions so that contamination of water and other hazards will not result.

6. Follow directions on the pesticide label regarding restrictions as required by state and federal laws and regulations.

7. Avoid any action that may threaten an endangered species or its habitat. Your county extension agent can inform you of endangered species in your area, help you identify them, and through the Fish and Wildlife Service Field Office, identify actions that may threaten endangered species or their habitat.

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Honey Bee	David Cappaert, Michigan State University Bugwood.org
Bumble Bee	David Cappaert, Michigan State University, Bugwood.org
Umbrella Wasp on Nest	Joseph Berger, Bugwood.org
Yellow Jacket	David Cappaert, Michigan State University, Bugwood.org
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European Hornet	Louis-Michel Nageleisen, Département de la Santé des Forêts, Bugwood.org
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Puss Caterpillar	Herbert A. "Joe" Pase III, Texas Forest Service, Bugwood.org
Saddleback Caterpillar	Herbert A. "Joe" Pase III, Texas Forest Service, Bugwood.org
Hag Moth Caterpillar	Jerry A. Payne, USDA Agricultural Research Service, Bugwood.org
Mosquito	Pennsylvania Department of Conservation and Natural Resources, Forestry Archive, Bugwood.org
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