



Scorpions

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Scorpions are arachnids, close relatives of ticks, mites and spiders. They are easily recognized by their characteristic shape. Scorpions prefer dryland habitats but they do occur throughout Texas. They can be a nuisance when they interact with humans because they will sting when disturbed.

Scorpions have a long, slender body with a five-segmented tail that can be arched over the back. The tail ends in a bulb-like poison gland or stinger. Scorpions have four pairs of legs and two large pincer-bearing arms (pedipalps) in front. Scorpions are well equipped to defend themselves or attack prey with their pincers and stinger. Between the last pair of legs is a comb-like structure (pectines) that is used to identify surface textures and to detect prey.

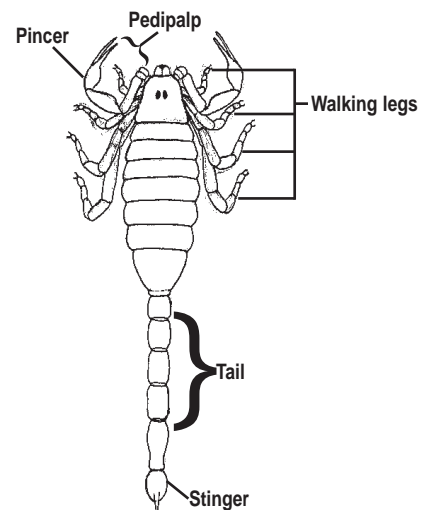
Scorpions have two eyes on the top of the head, and usually two to five pairs of eyes along the front corners of the head. They do not see well, however, and must rely on the sense of touch, using their pectines and other organs for navigating and detecting prey. They also have a well-developed sense of hearing.

Worldwide, scorpions range in size from 1/2 inch to 7 1/4 inches long (including the tail) depending on the species. The most common species in Texas is the striped bark scorpion, *Centruroides vittatus*. The adult of this species is about 2 1/2 inches long, the typical size of all species found in the state.

Biology

Scorpions hide during the day and become active at night. This behavior helps scorpions manage temperature and water balance, important functions for survival in dry habitats. Many species dig burrows in the soil. Their bodies are flat, which allows them to hide in small cracks, and under rocks, bark and other objects on the ground. From these hiding places they wait or search for prey. Chief foods are small insects, spiders, centipedes, earthworms and other scorpions. Once they capture their prey, they use the large pincers to crush and draw it toward the mouth so the prey's body juices can be eaten.

Some species may live for 20 to 25 years, but longevity of the typical scorpion is between 3 and 8 years.



Dorsal view of a scorpion.

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Adult scorpions may have several broods of young. Following an elaborate mating process, which lasts from 24 to 36 hours, the female undergoes a gestation period ranging from 5 months to more than 1 year. The young are born alive in semi-transparent sacs. As soon as the young scorpions free themselves from these thin wrappers, they climb onto their mother's back. Already capable of stinging, the young scorpions leave the mother after several days and begin to fend for themselves. Scorpions reach maturity in a year or more, depending on the availability of food.

The sting of scorpions may be painful, or even deadly, depending on the species. Of 1,500 species of scorpions worldwide, only about 20 to 25 are regarded as dangerous. Stings from such species may cause paralysis, severe convulsions, cardiac irregularities, or breathing difficulties that may lead to death. Antivenins are available in areas where dangerous scorpions live.

A scorpion's venom is a mixture of compounds including neurotoxins that affect the victim's nervous system. Fortunately, none of the species in Texas are considered deadly. Stings from most of these species are about as painful as a bee or wasp sting, but the severity of the sting is dependent upon the individual scorpion and the person's reaction to the venom. As with any arthropod venom, allergic reactions are possible. In these situations, immediate medical attention would be required.

Habitat

Scorpions are found in many types of habitats in the United States, including desert flats, sand dunes, desert and mesic mountains, grasslands, pine forests, deciduous forests and chaparral. Species are most diverse in desert areas.

Taxonomic Status

About 90 species of scorpions have been identified in the United States. Texas has 18 species and only one species, *Centruroides vittatus*, occurs throughout the state. It is the only species of scorpion found in the eastern part of Texas. West and South Texas have the largest number of species. One species has been recorded in the Dallas area, two near Austin, four near Amarillo, three near Abilene, five near Ft. Stockton, eight in the Ft. Davis region, eight near Langtry, and 14 in Big Bend National Park.

Striped Bark Scorpion

The common, striped bark scorpion has two broad, black stripes running the length of its back. Populations in the Big Bend may be only faintly marked or completely pale. The basic color of the scorpion varies from yellow to tan in adults. Immature scorpions may be lighter in color. There is a dark triangular mark on the front of the head above the eyes. In young scorpions, the base of the pedipalps and the last segment behind the abdomen is dark brown or black. This species can be easily identified by slender pedipalps (pincer-bearing appendages) and the long, slender tail. The tail is longer on males than females.

The striped bark scorpion apparently mates in the fall, spring or early summer. Gestation requires about 8 months. Litter size varies from 13 to 47. The average is about 31 young per litter.

Immature scorpions molt within 3 to 7 days after birth and remain on the mother for another 3 to 7 days after that. There are five or six molts to maturity. A striped bark scorpion probably lives for approximately 4 years.

The sting of this species causes local pain and swelling. Deaths attributed to this species have not been substantiated.

The striped bark scorpion is often found under rocks, under boards and in debris. It can be found indoors or outdoors in a wide variety of habitats (pine forests in East Texas; rocky slopes, grasslands and juniper breaks in other parts of the state). *Centruroides* are active foragers that do not burrow. They are distinctly associated with dead vegetation, fallen logs and human dwellings. It is common for them to climb trees and walls, and often are found in the attics of homes. During periods of hot weather, scorpions may move into living areas to escape the high temperatures in attics.

Scorpion Stings

When handled or disturbed, scorpions can inflict a painful sting using the poison gland at the end of the tail. Avoiding their habitats helps prevent stings. The stings from Texas scorpions produce only moderate reactions in most people because the poison has little effect on the nervous system. However, a person who is stung by a scorpion should be watched closely for adverse reactions. An ice pack applied to the affected area will relieve some pain. If swelling and/or

pain persists or if breathing difficulties occur, immediate medical attention is necessary.

Scorpions as Pets

Scorpions have been kept as pets, but this practice is strongly discouraged. Scorpions should never be kept indoors or around small children. Scorpions with even relatively low poison levels can produce fatal reactions in young children and also in adults allergic to the toxin.

Control

Scorpions are difficult to control with insecticides alone. Therefore, the first control strategy is to modify the area surrounding a house.

- Remove all trash, logs, boards, stones, bricks and other objects from around the home.
- Keep grass closely mowed near the home. Prune bushes and overhanging tree branches away from the house. Tree branches can provide a path to the roof for scorpions.
- Store garbage containers in a frame that allows them to rest above ground level.
- Never bring firewood inside the house unless it is placed directly on the fire.
- Install weather-stripping around loose fitting doors and windows.
- Plug weep holes in brick veneer homes with steel wool, pieces of nylon scouring pad or small squares of screen wire.
- Caulk around roof eaves, pipes and any other cracks into the home.
- Keep window screens in good repair. Make sure they fit tightly in the window frame.

To control scorpions with chemicals, use insecticide products that contain any of the following:

- permethrin (Prelude®, Dragnet®);
- cyfluthrin (Tempo®);
- cypermethrin (Demon®);
- lambda-cyhalothrin (Demand CS®);
- deltamethrin (Suspend®);
- propoxur (Baygon®);
- diazinon;
- chlorpyrifos (Dursban®);

- malathion; or
- synergized pyrethrins.

Apply pesticides around the foundation of the house and up to 1 foot above ground level on the exterior walls. Also apply pesticides around doors, window eaves and other potential points of entry. Follow directions on the package for dosage, mixing and application methods.

Tips for Professionals

- Wettable powder formulations provide better residual control for crawling pests when applying perimeter sprays.
- When using pyrethroids or other insecticides labeled for scorpion control, be sure to use the highest permissible label rate.

Policy Statement for Making Chemical Control Suggestions

Suggestions on pesticide use made by the Texas Agricultural Extension Service and the Texas Agricultural Experiment Station are based upon:

- effectiveness under Texas conditions,
- avoidance of residues in excess of allowable tolerances,
- avoidance of toxicity to desirable vegetation, animals and humans, and
- avoidance of adverse side effects upon beneficial predators, parasites, honeybees, fish and other wildlife, plants, animals and humans.

Suggested pesticides must be registered and labeled for use by the Environmental Protection Agency and the Texas Department of Agriculture. The status of pesticide label clearances is subject to change and may have changed since this publication was printed. County Extension agents and appropriate specialists are advised of changes as they occur.

The USER is always responsible for the effects of pesticide residues on his/her livestock and crops, as well as problems that could arise from drift or movement of the pesticide from his/her property to that of others.

Acknowledgment

The previous edition of this manuscript was prepared by J. W. Stewart, former Extension entomologist, and forms the core of this version.

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Produced by Agricultural Communications, The Texas A&M University System

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Issued in furtherance of Cooperative Extension Work in Agriculture and Home Economics, Acts of Congress of May 8, 1914, as amended, and June 30, 1914, in cooperation with the United States Department of Agriculture. Chester P. Fehlis, Deputy Director, Texas Agricultural Extension Service, The Texas A&M University System.

5,000 copies, Revision

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