

Scorpions



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Scorpions are arachnids, close relatives of ticks, mites and spiders. They are easily recognized by their characteristic shape. Although scorpions prefer dryland habitats, they can be found throughout Texas. Humans consider scorpions to be a nuisance because they will sting when disturbed.

Description

Scorpions have long, slender bodies with a five-segmented tail that can arch over their backs. The last segment of the tail is a bulb-like poison gland or stinger. Scorpions have four pairs of legs, with two large pincer-bearing arms (pedipalps) in front. Worldwide, scorpions range from 1/2 inch to 7 1/4 inches long (including the tail), depending on the species.

Scorpions are well equipped with pincers and stinger to defend themselves or to attack prey. Between their last pair of legs is a comb-like structure called the pectines, feather-like sensory organs used to sense surface textures and detect prey. A scorpion's head has two eyes on top and usually two to five pairs of eyes along the front corners. Scorpions do not see well, however, and must rely on the sense of touch, using their pectines and other organs for navigation and for

detecting prey. They also have a well-developed sense of hearing.

The most common species of scorpion in Texas is the striped bark scorpion, *Centruroides vittatus* (Fig. 1). Adults are about 2 1/2 inches long. The striped bark scorpion has two broad, black stripes running the length of its back and a dark triangular mark on the front of its head above the eyes. Big Bend area populations may be marked only faintly or may be completely pale. Adult scorpions' basic color varies from yellow to tan. Immature striped bark scorpions' color may be lighter. In young scorpions, the base of the pedipalps and the last segment behind the abdomen are dark brown or black. Striped bark scorpions can be easily identified by slender pedipalps (pincer-bearing arms) and long, slender tails. Males have longer tails than females.

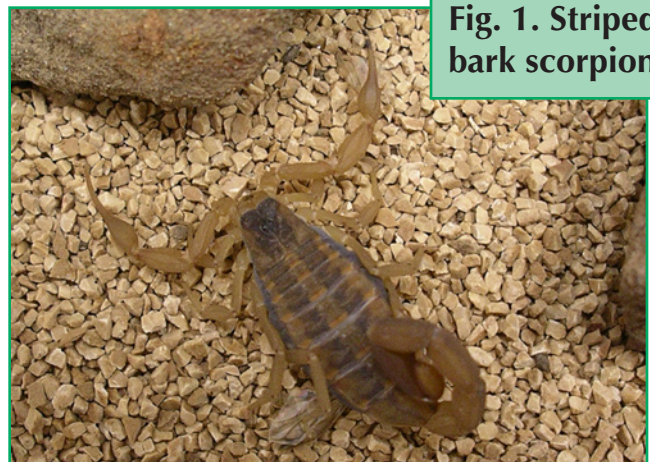


Fig. 1. Striped bark scorpion.

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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 into the soil. Their flat bodies allow them to hide in small cracks and on the ground under stones, bark, wood or other objects. From these hiding places, they either wait for prey or actively search for it. Scorpions eat mainly small insects, spiders, centipedes, earthworms and other scorpions. Once a scorpion captures its prey, it uses its large pincers to crush and draw the prey toward its mouth so it can ingest the prey's body juices.

Although some scorpion species may live for 20 to 25 years, the typical scorpion's longevity is between 3 and 8 years.

Adult scorpions may have several broods of young. Following an elaborate mating process lasting from 24 to 36 hours, females undergo gestation periods ranging from 5 months to more than 1 year. Young are born alive in semitransparent 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 after a year or more, depending on food availability.

The striped bark scorpion apparently mates in the fall, spring or early summer, and its gestation period lasts about 8 months. Typically, females give birth to 13 to 47 young with an average of 31. Immature scorpions molt within 3 to 7 days after birth, then remain on their mother's back another 3 to 7 days. These scorpions molt five or six times before reaching maturity and live for approximately 4 years.

Taxonomic Status

About 90 species of scorpions have been identified in the United States. Texas has 18 species, but only one, *Centruroides vittatus*, is found throughout the entire state. It is the only scorpion species found in the eastern part of Texas. West Texas has 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 Fort Stockton, eight in the Fort Davis region, eight near Langtry, and 14 in Big Bend National Park.

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.

The striped bark scorpion can be found indoors or outdoors in a wide variety of habitats; it often is found under rocks, under boards and in debris. Striped bark scorpions are active foragers, do not burrow and are distinctly associated with dead vegetation, fallen logs and human dwellings. This scorpion commonly climbs trees and walls, and it often is found in attics of homes. During hot weather, scorpions may move into living areas to escape high temperatures in attics.

Scorpion Stings

A scorpion's sting 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. A scorpion's venom contains a mixture of compounds, including neurotoxins that affect a victim's nervous system. 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.

Stings from Texas scorpions produce only moderate reactions in most people, because these scorpions' poison has little effect on the nervous system. Severity of a sting depends upon the individual scorpion and the victim's reaction to its venom. A person who has been stung by a scorpion should be watched closely for adverse reactions. As with any arthropod venom, scorpion stings may cause allergic reactions. An ice pack applied to the affected area will relieve some pain. If swelling and/or pain persists or if breathing difficulties occur, the victim needs to seek immediate medical attention.

Scorpions as Pets

Although scorpions have been kept as pets, this practice generally is 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 in adults allergic to the toxin.

Management

Scorpions are difficult to control using only insecticides. Therefore, the first control strategy should be to modify the area surrounding a residence by taking the following actions:

- 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, because tree branches can provide a path to the roof for scorpions.
- Store garbage containers in a frame that keeps them above ground level.
- Never bring firewood inside the house unless it is placed directly onto 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 leading into the home.
- Keep window screens in good repair. Make sure they fit tightly in the window frame.

To control scorpions with chemicals, consult a pest control operator or purchase products containing these active ingredients (example brands are in parentheses):

- permethrin (Prelude[®], Dragnet[®]);
- cyfluthrin (Tempo[®], Bayer[®] Advanced Home Pest Control);
- cypermethrin (Demon[®]);
- lambda-cyhalothrin (Demand[®] CS, Spectracide[®] Triazicide Soil & Turf Insect Killer Concentrate);
- deltamethrin (Suspend[®]);
- propoxur (Baygon[®]);
- carbaryl (Sevin[®]);
- bifenthrin (Bifenthrin Pro Multi-Insecticide[®], Ortho Home Defense Max[®]);

- dimethylcyclopropanecarboxylate (Bonide[®] Flying & Crawling Insect Killer);
- synergized pyrethrins.

Apply pesticides around the foundation of a house and on exterior walls up to 1 foot above ground level. Also apply pesticides around doors, window eaves and other potential entry points. Indoor treatments should be directed at potential entry points and at corners, cracks and crevices where scorpions hide. Follow package directions for dosage, mixing and application methods.

Tips for Professionals

Professional pest control applicators should note the following points:

- For perimeter sprays, wettable powder formulations provide better residual control of crawling pests.
- 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 Texas Cooperative Extension 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
- 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 both 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 or her livestock and crops, as well as problems that could arise from drift or movement of the pesticide from his or her property to that of others.

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Revision