



A POCKET GUIDE TO
Fort Riley Hazardous
Plants and Animals



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Velvet Ant © Steven N. Severinghaus

Introduction

The Fort Riley Military Installation is the home of the Big Red One. This 101,000 acre military training facility is located between Junction City and Manhattan in the Flint Hills of northeastern Kansas.

It is one of the largest publicly owned tallgrass prairie tracts in the United States. Not only does the installation offer state of the art training for our country's Soldiers, it also provides some of the best outdoor recreational opportunities in the state. Any time spent outdoors, either for training or recreation, should be spent cautiously as many animals and plants in the area could be potentially hazardous.

The purpose of this pocket guide is to help you identify and understand those hazardous plants and animals found on Fort Riley and the surrounding area. The species mentioned in this guide comprise an extremely interesting and beneficial segment of our flora and fauna. Although hazardous, they should be avoided, not destroyed. These organisms have developed complex and often unique defense mechanisms to help them survive. We should remember that in some cases, their survival depends upon our attitudes and actions.



Fort Riley Military Installation



There are very specific requirements for public access to Fort Riley. Information concerning access and outdoor recreational opportunities is available by calling (785) 239-6211 during regular business hours.

Poison Ivy

Toxicodendron radicans

Poison ivy is a native, woody species that grows in three forms in Kansas: an erect shrub that can grow up to six feet tall, a short shrub that spreads by underground stems or rhizomes, and a climbing woody vine with aerial roots. The shrub form can be found statewide in a variety of habitats while the vine form is more common in the eastern half of the state. On all forms, the leaves are alternate and compound with three leaflets that are two to six inches long and pointed, having edges either smooth or coarsely toothed. Small yellowish-green flowers bloom in May-June in loosely branched clusters. The fruit and seeds are round and ivory in color and are consumed by a wide variety of birds. Poison ivy contains oily and resinous compounds, known as urushiols, that cause dermatitis in most people within a few hours of contact. The oil is not volatile, and despite many claims, one cannot be affected merely by being near the plant. Plants retain the urushiols after drying, and smoke from the burning plants may be dangerous if inhaled. Animals are seldom susceptible although their fur can transmit urushiols to humans. For those individuals that are sensitive to urushiol, itching starts and small blisters form, usually within a few hours after exposure. Depending on how strong the exposure was and/or how sensitive the person is, it may develop into an inflamed, swollen rash with open, weeping sores that persists for up to two weeks.

Over-the-counter anti-itch medications may be effective for some, but individuals with severe cases should seek medical attention. If you have been exposed, wash quickly with soap and water. Washing will aid in breaking down the oils, reducing the chance or severity of a reaction. The best treatment is prevention. Become familiar with the appearance of the plant and try to identify it before exposure. Remember “Leaves of three, let it be.”



Stinging Nettle

Urtica dioica

Stinging nettles are native to and very abundant in Kansas. Usually found growing near or around water, this herbaceous perennial can grow up to 10 feet tall (usually three to five feet) during the summer and dies down to the ground during the winter. The soft green leaves are one to six inches long, with strongly serrated edges. Both the leaves and the stems are covered with brittle, hollow, silky glass-like hairs that contain acetylcholine, serotonin and histamine. When bare skin brushes up against the stinging nettle plant, it tends to break the delicate defensive hairs and release the trio of chemicals, usually resulting in a temporary and painful sting. The discomfort is short lasting, and the best treatment for the irritated area is to wash with soap and water. If irritation persists, over-the-counter medications containing an antihistamine or hydrocortisone can be effective.



Stinging Nettle

© Uwe H. Friese



Stinging Hairs

© Frank Vincentz

Edible vs. Non-Edible Plants

Many species of edible plants can be found in Kansas. However, many also contain toxins that may be harmful if ingested by humans. Wild plants should not be consumed unless properly identified using a plant identification book or by someone knowledgeable about Kansas' plants. The majority of individuals that are poisoned by ingesting wild plants have mistaken them for similar species. The following illustrations are two examples of plants found in Kansas that are often mistaken for edible plants.

Poison Hemlock

Conium maculatum

The **poison hemlock** plant is often mistaken for wild carrots or other edible members of the parsley family. Symptoms develop in one to three hours and include abdominal pain, diarrhea, headache, and a rise in blood pressure. It is often followed by reduced pulse, gradual weakening of muscle strength, loss of sight, difficulty breathing, coma, and eventually death due to respiratory failure. Seek medical attention immediately if any of the above symptoms develop.



Poison Hemlock

© *Mike Haddock*

Nuttall's Death Camas

Zigadenus nuttallii

The **death camas** is a poisonous plant that grows from a bulb and is often mistaken for wild onions. Symptoms include dry, burning mouth, thirst, headache, dizziness, severe vomiting, cardiac irregularities, loss of muscle control, and in severe cases, coma and death. Seek medical attention immediately if any of the above symptoms develop.



Nuttall's Death Camas

© *Mike Haddock*

Poisonous vs. Non-Poisonous Mushrooms

Mushrooms are fleshy, spore-bearing fruiting bodies of fungi typically produced above ground on soil or on other food sources like wood or decaying matter. These fruiting bodies come in a wide variety of shapes, sizes, and colors. There are over 60,000 known species of higher fungi worldwide and over 750 species here in Kansas. The harvest of edible wild mushrooms (mushrooming) is an annual event for many outdoor enthusiasts and is gaining in popularity throughout the nation. The most well-known and sought after fungi in Kansas is the Yellow Morel (*Morchella esculenta*). The fruiting bodies have a pitted yellow-brown head that is fused to the stalk at the lower margin, forming a continuous hollow. The pits are rounded and irregularly arranged, as in the specimen illustrated.



Yellow Morel

© Taylor F. Lockwood

There are a number of species of mushrooms that are poisonous, and although some may resemble edible varieties and often grow in the same area, eating them could be fatal. Eating mushrooms gathered in the wild can be risky and a practice not to be undertaken by individuals not knowledgeable in mushroom identification. Even mushrooms that are well-established edibles, like the above mentioned morel, do sometimes make people sick due to an individual's allergic sensitivity. The incubation period of mushroom poisoning may vary from 15 minutes to five days after ingestion. Individuals poisoned may experience abdominal pain, vomiting, diarrhea, blood in the urine, extreme thirst, and shallow breathing. Serious cases may include delirium, dizziness, tearing in the eyes, and drooling. Damage to the liver, intestines, kidneys, and nervous system may occur. Seek medical attention immediately if any of the above symptoms develop.



Destroying Angel (Deadly Poisonous)

© Richard Kay

Chiggers

Eutrombicula alfreddugesi

The species of **chigger** found in Kansas should not be confused with the tropical chigger or chigoe, a flea that burrows into the skin to lay its eggs. The chigger, sometimes called redbugs or harvest mites, are actually the juvenile (or larval) form of a specific family of mites, the Trombiculidae. Mites are arachnids, like spiders and scorpions, and are closely related to ticks. Chiggers are red and small, about 1/150th of an inch in diameter, making them almost invisible to the unaided eye. Chiggers do bite, much as ticks do, by attaching to a host using specialized mouth parts that are inserted into skin depressions, usually at skin pores or hair follicles. After attaching to the host, they secrete a strong digestive enzyme that liquefies the skin cells. It is this liquefied tissue, not blood, which the chigger ingests and uses for food. The chigger usually goes unnoticed for several hours until the skin around the bite becomes irritated. Red welts and intense itching usually follow and can last up to three to four days. Chiggers are affected by temperature and are most active in the afternoons, or when the ground temperature is between 77 and 86 degrees. Chiggers become completely inactive when the substrate temperatures fall below 60 degrees and die when it falls below 42 degrees. The first line of defense is proper clothing to deter the chiggers away from your skin.

Wear tightly woven socks and clothes, long pants, long-sleeved shirts, and high shoes or boots. Tucking pant legs inside boots and buttoning cuffs and collars as tightly as possible also help keep the wandering chiggers on the outside of clothes. Regular insect repellents will repel chiggers. Applying these products to exposed skin and around the edge of openings in your clothes, such as cuffs, waistbands, shirt fronts and boot tops, will force chiggers to cross the treated line to get inside the clothes. Clothing-applied repellents containing permethrin will also aid in deterring chiggers but should never be applied to the skin. The best precaution

against chigger bites is to wash possible areas of exposure with warm soapy water to remove and kill the chiggers before they have a chance to bite. If these precautions fail, the ultimate cure is time. There are many over-the-counter and home remedies that will aid in itch relief, but few will stop it completely.



Chigger

© *Ohio State University Acarology Lab*

Image enlarged approximately 1,500 times using a scanning electron micrograph.

Ticks



Family *Ixodidae* (*Hardbacked Ticks*)

Ticks are not insects but are arthropods more closely related to mites and spiders. There are about 80 species of ticks in the United States, with four species occurring in Kansas. They are found in a wide variety of habitats, from grasslands to woodlands. Ticks are obligate blood-feeders that require an animal host to survive and reproduce. Adult ticks wait for suitable host animals on the tips of grasses and shrubs. When an animal or person brushes the vegetation, the tick will grab on to the passing host. Once on the host, the tick will wander, looking for a suitable place to attach and feed over a period of several days. If the tick is infected with pathogenic organisms, it can transmit the infection to the host during the feeding process. As the tick feeds, the pathogens multiply, migrate to the tick's salivary glands, and are carried into the wound site along with the saliva. Successful transmission of pathogens requires the tick to be attached for at least several hours. Therefore, the sooner infective ticks are removed, the less likely they will be able to transmit infection.



Lone Star Tick

Amblyomma americanum

The female **lone star tick** is about $\frac{1}{4}$ inch long and is easily recognized by the bright white dot on the center of the back. The male lone star tick is slightly smaller and lacks the white spot but has two faint, white, inverted U-shaped marks on the posterior margin of the abdomen. The mouth parts are relatively long and often remain embedded in the bite when the tick is pulled from its point of attachment (see **Tick Defense & Removal**). It occurs statewide but is more common in the eastern half of Kansas. It is known to transmit Rocky Mountain spotted fever, tularemia, human monocytic ehrlichiosis, and Lyme disease.



© Texas Parks & Wildlife Department

American Dog Tick

Dermacentor variabilis

The **American dog tick** is similar in size to the lone star tick and is probably the most common tick species in Kansas. It attacks a wide variety of animals including people and is especially common on dogs. The female is a reddish-brown color, marked with ivory around the scutum (dorsal shield). The male also is reddish-brown with two irregularly shaped ivory bands running the full length of the body on either side of the dorsal midline. The American dog tick is the primary vector of the Rocky Mountain spotted fever throughout the United States and also transmits tularemia.



© Texas Parks & Wildlife Department

Gulf Coast Tick

Amblyomma maculatum

The **Gulf Coast tick** is a southern species that occurs in eastern Kansas. It is similar in size to the lone star and American dog tick. The shield on the back of the female is marked with an incomplete white square on either side of a large, white “U.” The back of the male is marked with a net-like pattern of silvery-white lines. This species attacks a wide variety of animals, including ground-dwelling birds.



© James Gathany, Centers for Disease Control and Prevention

Blacklegged or Deer Tick

Ixodes scapularis

The **blacklegged or deer tick** is thought to be the primary species that transmits Lyme disease in Kansas. Adults are about 1/8 inch long (about half the size of the American dog or lone star tick) and attack a wide variety of animals, including reptiles. They are reddish-brown with a black legs and scutum (circular dorsal shield). They are found in the forested areas in the eastern part of the state.



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© Texas Parks & Wildlife Department

Tick Defense & Removal

Wear the proper clothing:

- ✱ Long sleeves;
- ✱ Long pants tucked into boots or socks;
- ✱ Shirt tucked into pants;
- ✱ Light-colored clothing to make it easier to spot ticks.

Use these safe and effective insect repellents:

- ✱ Treat clothing with permethrin repellent. When ticks crawl onto the treated fabric, they absorb a tiny amount of permethrin, making them too sick to bite. Follow application directions on the repellent label.
- ✱ Apply DEET repellent to skin that is not covered by clothing. Follow application directions on the label.

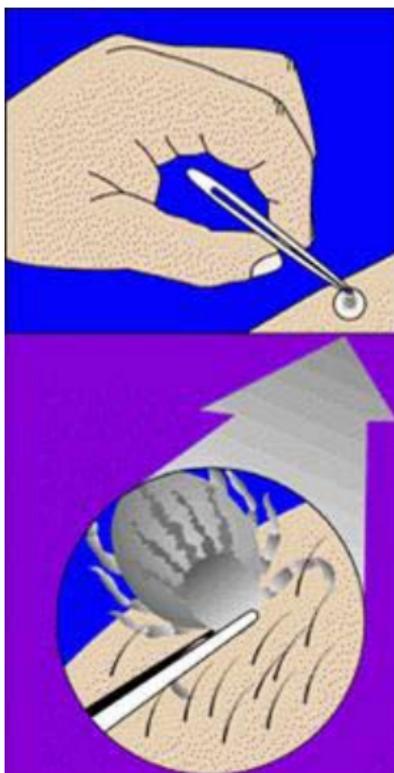
Check yourself for ticks routinely:

- ✱ Use the buddy system to check each other for ticks.
- ✱ When going indoors, remove all clothes, take a shower, and check the skin carefully.
- ✱ Placing clothes in a hot dryer for 20-30 minutes will ensure that any remaining ticks will be killed.

Remove attached ticks immediately:

- ✱ Grasp the tick's mouthparts as close to the skin as possible with fine-tipped tweezers; pull back slowly and steadily with firm force until the barbed mouthparts can be eased out of the skin. Be patient.

- ✱ DO NOT squeeze the body of the tick or apply any substance, including petroleum jelly, finger nail polish, finger nail polish remover, repellents, pesticides, or a lighted match to the tick while it is attached. These materials or methods are either ineffective, or worse, might force more infective fluid into the bite site.
- ✱ After removal, wash the bite with soap and water and apply an antiseptic.
- ✱ Save the tick for future identification should disease symptoms develop by placing it in a clean, dry jar (or other sturdy container) and keeping it in the freezer.
- ✱ Discard the tick after about one month, as tick-borne diseases will generally display symptoms within this time period.
- ✱ If flu-like illness, rashes, or other unusual symptoms develop after the tick bite, seek medical attention immediately. Take the tick to the clinic. Prompt diagnosis and treatment will likely speed recovery and prevent lingering symptoms.



Mosquitoes

Family *Culicidae*

Mosquitoes are well known to the public but are often confused with some midges and other closely related flies. There are approximately 50 species of mosquitoes in Kansas, most of which are difficult to identify without technical keys or the aid of an entomologist (a person who studies insects). Mosquitoes have gray, brown, or black, scaly bodies and scales on the veins of their wings. Males have bushy antennae and do not bite. Females, which only have a few short hairs on their antennae, do bite and are often serious pests. Mosquitoes serve as vectors of several important diseases: malaria, dengue, yellow fever, filariasis, encephalitis, and West Nile virus (WNV). Most of these diseases are not found in the Fort Riley regional area, but some do have low a frequency of occurrence. The WNV is of greater concern due to its rapid westerly spread throughout the United States. People who are infected with the WNV experience mild, flu-like symptoms, which can include fever, headaches, and body aches. In a small number of cases, particularly among the elderly, the disease is much more serious and causes encephalitis. This inflammation of the brain is marked by rapid onset of severe headache, high fever, stiff neck, disorientation, muscle weakness, paralysis, coma, and occasionally death.



Photo Courtesy of the U.S. Department of Agriculture

Avoid mosquito bites and reduce the risk of becoming infected by:

- Staying indoors at dawn, dusk, and early evening when mosquitoes are most active.
- Wearing long-sleeved shirts, long pants, and socks whenever outdoors. Wear loose-fitting clothing to prevent mosquito bites through thin fabric.
- Using insect repellents that contain DEET on all exposed skin.
- Eliminating mosquito-breeding sites by emptying water from birdbaths, old tires, and other outdoor containers or debris.

Cicada Killer

Sphecius speciosus

The **cicada killer** is a very large wasp, normally over one inch in length. They are characterized by having a black body marked with yellow across the thorax and on the first three abdominal segments. The coloration may resemble a yellowjacket with the head and thorax being rusty red and the wings brownish. Females are considered non-aggressive and rarely sting unless caught in clothing or disturbed in some way, such as lawn equipment. Males are considered harmless. Cicada killers are commonly seen during the spring and summer around lawns, shrubs, and trees, looking for cicadas which they utilize as food for their young. Be cautious for nests in the ground, around flowerbeds, under shrubs or other ground cover, and in sand traps on golf courses.



Photo Courtesy of the Kansas Department of Agriculture

Paper Nest Wasps

Polistes exclamans

Paper nest wasps are a slender wasp about $\frac{3}{4}$ to one inch long with a narrow waist and long legs and is characterized by its reddish-orange to dark brown color. Yellowish markings are also prominent on their abdomen. Sometimes called “umbrella wasps,” they build papery-looking umbrella-shaped nests by mixing their own saliva with dead wood and plant stems. Paper nest wasps are considered non-aggressive and generally only attack if their nest is threatened. Their nests are hung from almost any protected structure, including porches, door frames, window frames, and eaves of roofs. There are two other species of paper nest wasps in Kansas: *Polistes carolinus* and *Polistes metricus*. Both species are similar in size and appearance.



Photo Courtesy of the Kansas Department of Agriculture

Eastern Yellowjacket

Vespula maculifrons

The **eastern yellowjacket** is typically around ½ inch long with a short or blocky appearance and with alternating black and yellow bands on the abdomen. It also has two sets of yellow dots between its wings. Its legs are yellow and all abdominal segments have a yellow band at the hind margins. Yellowjackets have a lance-like stinger without barbs and can sting multiple times. Nests are normally built underground in holes or burrows and are similar to paper nest wasps. Yellowjackets frequently visit picnics in the spring and summer where an abundance of sweet liquids attracts them. Another species of yellowjacket (*Vespula squamosa*) is found in Kansas, which is somewhat larger and less common than the eastern yellowjacket although similar in coloration and habits.



Photo Courtesy of the Kansas Department of Agriculture

Mud Daubers

Family Sphecidae

The **blue mud dauber** (*Chalybion californicum*) and the **black and yellow mud dauber** (*Sceliphron caementarium*) are both common wasp species on Fort Riley. Both species are about one inch long with a narrow thread-like waist. The blue mud dauber has a shiny, bluish-black body and wings with no light markings. The black and yellow mud dauber has a black body and wings with yellow legs and markings on the thorax. Both species can be beneficial by eliminating bugs and spiders and rarely sting humans. Either of these species can be found building or living in its nests during the spring and summer months on the exterior of barns, sheds, homes, or other structures.



Black and Yellow Mud Dauber

© Bruce Marlin

Great Black Wasp

Sphex pennsylvanicus

The **great black wasp** is typically one inch or longer in length and is identified by its solid, dark body with no light markings. Its dark wings generally have a glistening or metallic appearance. It normally digs holes in the ground for nesting or uses pre-existing holes. Its nests are normally located in dry, hard-packed soil, such as around flagpoles. It is most active during the spring and summer months during nest construction and rarely stings humans. It primarily feeds on insects and is considered to be beneficial.



Great Black Wasp

© Bruce Marlin

Velvet Ant

Dasymutilla occidentalis

Velvet ants are not ants at all but a specialized group of insects belonging to the wasp family. This species of wasp can be found in Kansas during the summertime in both urban and rural habitats. They are often referred to as velvet ants because the females are wingless, ant-like and often covered with a velvety “fur.” They range in size from about $\frac{1}{4}$ to $\frac{11}{16}$ inch long and are frequently found outdoors in dry, sunny and sandy, open areas. Males are winged and are more wasp-like in appearance. Bodies of both sexes are dark and are generally covered with pale, yellow, reddish-orange, or red hair that varies in length. They are occasionally referred to as “cow-killers” because of the painful sting that the female can inflict. People are most likely to receive a sting from a velvet ant when walking barefoot in infested areas. The intensity of pain and reaction to the sting will vary according to the sensitivity of the person stung; however, the sting is usually much more painful than a bee sting.

Velvet ant stings should be cleaned and disinfected like a bee sting. Ice packs and pain-relievers should be applied as necessary. Because velvet ants usually travel alone and are not social, a person is unlikely to receive multiple stings. As with any stinging insect, if the sting victim experiences a generalized rash or difficulty breathing (signs of an allergic reaction), they should receive medical attention immediately. Two other species of velvet ants (*Dasymutilla quadriguttata* and *D. vestita*) common in Kansas are similar in size and are covered with hair but have slightly different markings.



© Steven N. Severinghaus

Bees

Family Apoidea

Bees are flying insects varying in size and are closely related to wasps and ants. Around 20,000 species of bees exist in the world and are found on every continent except Antarctica and in every habitat that has flowering dicotyledons (broadleaf plants). The many bee species found in Kansas are not considered to be aggressive but will sting if they are harassed or threatened. Only female bees have a stinger, which is actually a modified ovipositor (egg-laying tube) that is connected to a venom gland near the rear of the abdomen. Bees can inject venom into victims by stinging them, and depending upon the species, the stinger can be left in the skin. If the stinger remains in the skin, it is best to quickly remove it by scraping with a credit card or fingernail. Although minor pain and some swelling may accompany a sting, no serious problems will result from a bee sting unless the victim has a severe allergy to the insect venom. Reactions can occur quickly and include dizziness, gastrointestinal distress, hives, swelling, vomiting, and labored breathing. It is best to monitor the sting closely and seek medical attention immediately if an allergic reaction to a bee sting develops.

These insects can be found almost anywhere on Fort Riley and are controlled primarily by the use of wasp spray. The installation currently allows use of wasp spray by non-certified, but installation-trained, pesticide applicators.



Stinging Bee

© *Scott Camazine*

Honeybees

Apis mellifera

It would only make sense that the most recognized bee in Kansas would also be the state insect. The common variety of honeybee found in Kansas is the Italian, which is a yellow and brown bee. The front of the abdomen is yellow, with some yellow between the four brown bands on the rest of the abdomen. Honeybees are social insects that build very elaborate nests called hives which can accommodate up to 20,000 individuals in the wild and over 80,000 individuals in domestic hives. Only female honeybees have a stinger, which is actually an ovipositor (modified egg-laying tube) that is combined with a venom gland near the rear of the abdomen. Unlike the worker bees, which are all sterile females, the queen's stinger is curved without barbs, enabling her to sting multiple times. The worker bee's stinger is straight and barbed, so it remains embedded in the skin. For this reason the worker bee can only sting once and then dies because the end of her abdomen is pulled off when she flies away. Males, not having an ovipositor, do not have stingers and are considered harmless. When the hive is in danger, honeybees will swarm out and use their stingers to drive away the threat. When alarmed, honeybees will release a pheromone that stimulates the attack response in other honeybees. Honeybees will normally only chase invaders up to fifty yards before returning to the hive.



Honeybee

© *Bruce Marlin*

Carpenter Bees

Xylocopa virginica

The **carpenter bee** is a large, black bee about one inch long that is often seen around homes in the spring. Carpenter bees resemble bumble bees in size and shape, but carpenter bees have a bare and shiny black upper abdomen whereas bumble bees have a hairy abdomen with at least some yellow. As is the case with many bees, only the females have a modified egg laying tube which can be utilized as a stinger. The males are occasionally aggressive but do not have a stinger and are relatively harmless. Carpenter bees overwinter as adults in abandoned nest tunnels and emerge in April or May. After emerging from the nest, carpenter bees actively search for mates and new sites for burrowing and creating their own nests. The nest sites are typically in bare wood that has not been treated or painted such as wooden sheds, porches, and other structures including houses. New nests may be identified by the coarse sawdust the color of freshly cut wood. The burrow entrance will be perfectly round and about a ½ inch in diameter.



Carpenter Bee

© *Pollinator*

Bumble Bee

Bombus pennsylvanicus

The **bumble bee** is a larger species of bee that is similar in size and shape to the carpenter bee. The bumblebee is characterized by the black and yellow branched setae (bristly hairs) that cover most of its body and the indistinct black band across the thorax between the front wings. The head is entirely black, and the hind legs of the females, with a structure called a corbicula (pollen basket), are bare but surrounded by a fringe of hairs. Other species of bees have hind legs that are completely covered with hair. The queen and worker bees, being females, have stingers that are not barbed and can be used multiple times. Bumblebees are not considered aggressive unless their nest is threatened, or they are harmed.



Bumble Bee

© Skoch3

Sweat Bee

Agapostemon virescens

Sweat bees are small, $\frac{3}{16}$ to one inch long, sometimes mistaken for wasps or flies, in the Halictidae family. Most of these bees are shiny, metallic green, blue, black, or red in color. The entire Halictidea family of bees is commonly referred to as “sweat bees,” although only 12 of the 500 North American species are attracted to sweat. These bees are not considered aggressive and will generally not sting unless they are pinched against the skin or swatted. Stings from these bees are generally not painful or persistent. Most Halictid bees are solitary and burrow an underground nest for their offspring.



Sweat Bee

© Bruce Marlin

Brown Recluse Spider

Loxosceles reclusa

The **brown recluse spider** is sometimes referred to as the “fiddleback” or “violin” spider because of the shape of the distinctive dark marking on the dorsum of the cephalothorax (head). It varies in color from light tan to brown. A mature spider is about $\frac{1}{2}$ inch long by $\frac{3}{16}$ inch wide. It is very common in Kansas and can usually be found in any structures that contain dry, cluttered space that is undisturbed and has a supply of insects or other small organisms to serve as suitable prey. The brown recluse is nocturnal and is most active when it is foraging for food. During the day it spends most of its time resting in secluded spaces. Most encounters and bites occur when seldom-used clothes, containing a spider that has been using the garment as a hiding place, are worn. Brown recluse spiders cannot bite humans without some form of counter pressure. This pressure usually occurs when they are trapped against the skin while the garment is put on. Both male and female brown recluse spiders are venomous.





Brown Recluse

© John S. Williams

Human reactions to the bite vary and depend on the amount of venom injected by the spider and the victim's sensitivity to the venom. Brown recluse bites usually go unnoticed for an hour or more, but some victims may have an immediate painful reaction with stinging and intense pain. A small white blister usually develops at the site of the bite, followed by swelling. The tissue dies and eventually sloughs away, leaving a sunken, ulcerated sore. Medical attention should be obtained as soon as possible after a bite occurs. Prompt medical attention can prevent severe reactions and lessen the long-term effects.

Black Widow Spider

Latrodectus mactans

The female **black widow spider** has a shiny black, nearly spherical, abdomen with red markings above and below. On the ventral surface, the mark may be in the shape of an hourglass. It is shy, nocturnal and usually seeks nesting sites under stones, in embankments, and in other undisturbed areas. When alarmed, this spider usually attempts to escape rather than bite. Most bites occur when seldom used clothing or shoes housing a spider are disturbed. The neurotoxic venom injected with the bite can cause severe abdominal cramps, nausea, pain, sweating and trembling. It rarely causes death, except for in very small children or elderly. The female black widow will sometimes eat the male after mating, hence the name widow. There are three species of black widows found in Kansas, with all three species ranging in size from $\frac{1}{3}$ to $\frac{1}{2}$ inch long. Males are much smaller than females and usually have yellow and red bands and spots on the body. Immature black widows have similar markings. Only the female black widow is venomous.



Black Widow Spider with Egg Sac

Photo Courtesy of the Kansas Department of Agriculture

Striped Bark Scorpion

Centruroides vittatus

The **striped bark scorpion** is fairly common in Kansas where it can be found under rocks, loose tree bark, or other objects. During the summer they often enter houses, most often crawl spaces and attics. Although scorpions tend to be found on dry land, they require moisture and may be attracted to water sources. Adult striped scorpions are about 1½ inches in length and are yellowish tan with two broad, darkened longitudinal bands on the top of the abdomen. Scorpions have large pincer-like pedipalps (modified front legs) and a long post-abdomen with a long segmented tail that ends in a stinger. Scorpions have a pair of eyes on their back and several pairs of eyes along the front of their body. Female striped scorpions produce live young, which she carries on her back for five to 15 days. They can inflict a painful sting, which only lasts for a short time followed by numbness. Apply an antiseptic and an ice pack to the affected area. Some people, especially children, are sensitive to scorpion venom. If itching and swelling of the face, nose, or throat occurs, seek medical attention.



© Emily Tenczar

Harmless, Beneficial Spiders

All spiders are considered predators and should be considered beneficial. They play an important role in regulating insect and other arthropod populations in many different ecosystems. All of them are venomous, but almost none of them are venomous enough to seriously bother a human being, except for the black widow and brown recluse. If an individual is bitten by a spider, it will result in nothing more than a sore, itchy, swollen spot that goes away in a few days. It is estimated that a few hundred different species of spiders are found in Kansas. A few species are quite large, but most of them are small enough to go unnoticed. These illustrations are a few of the larger, more common species of harmless beneficial spiders found on Fort Riley.



Wolf Spider



Golden Garden Spider

Photos Courtesy of the Kansas Department of Agriculture

Bats

Order Chiroptera

Approximately 900 species of bats are found worldwide, with around 15 known to exist in Kansas. These 15 species feed exclusively on insects and are thus **extremely beneficial**. They typically eat more than 50 to 75 percent of their body weight in insects each night. Bats are primarily nocturnal although many may fly early in the evening, sometimes before sunset. During the day, bats will roost in the leaves of trees, in caves, or under loose tree bark. Some species prefer to roost in or around man-made structures and are particularly fond of old buildings. The most common species of bat found on and near Fort Riley is the big brown bat (*Eptesicus fuscus*). Bats, like many other mammals, can contract and transmit rabies as well as other diseases. Rabies is an infectious, viral disease that affects the nervous system of mammals, including humans. Although rabies has been found to occur in many bat species in the United States, it is relatively uncommon. Rabid bats are seldom aggressive. Fewer than 40 people in the U.S. are known to have contracted rabies from bats during the past 40 years. However, because bats can carry and transmit rabies, they should be left alone and not handled. This is especially true for bats found on the ground because they may be ill.

If a person is bitten by a bat or if infectious material such as saliva from a bat contacts the eyes, nose, mouth, or an open wound, wash the affected area thoroughly with soap and water and then immediately seek medical attention. Whenever possible, the bat should be captured by a specialist and sent to a laboratory for testing. ***Never attempt to capture a bat!***



Big Brown Bat

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Rats & Mice

Order Rodentia

There are four families with 23 species of rats and mice that can be found in Kansas. Almost all of them are beneficial and play an important role in our ecosystem. Like most wild animals, they become a nuisance by residing where they are not wanted and are known carriers of diseases that can affect humans. Several species of field rodents found on Fort Riley and the surrounding area are known to be frequent carriers of viruses associated with hantavirus pulmonary syndrome. The hantavirus infection is not common but can be severe. Precautions should be taken when trapping or handling rodents or disturbing/cleaning up rodents' droppings, urine, or nesting materials. Infection from the virus usually occurs indoors when rodent contaminants such as saliva or excreta (droppings) are aerosolized and breathed into the lungs due to lack of ventilation. Transmission may also occur when contaminants are directly introduced into broken skin, eyes, or ingested in contaminated food or water. Individuals have also become infected after being bitten. Rats and mice should not be handled, and care should be taken when cleaning up rodent contamination. The first signs of sickness (especially fever and muscle aches) appear one to five weeks after exposure, followed by shortness of breath and coughing. If any of these symptoms appear after exposure, immediately seek medical attention.



Deer Mouse

© Bob Gress



White-footed Mouse

© Bob Gress

Other Mammals

Like bats and rodents, all wild mammals are beneficial and play an important role in the ecosystem. They are capable and willing to bite or attack humans if provoked or handled. Mammals, particularly the predators and scavengers, can contract and transmit rabies or other diseases to humans. Many carry internal and external parasites like worms, ticks, and fleas, that can be transmitted to humans and pets. Most mammals are nocturnal and avoid humans as much as possible. While it is a natural instinct to help an injured or sick wild animal, it is best just to leave it alone. More than likely, if the animal is seen during the day and shows no apparent fear of humans, it is probably sick. Remember that all wild animals have strong survival instincts and will defend themselves against anything they see as a threat. Observe and enjoy them from a distance.



Raccoon

© Bob Gress



Striped Skunk

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Opossum

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Copperhead

Agkistrodon contortrix

The **copperhead** is the only distinctly banded snake with no rattle on its tail in Kansas. It has a small pit on each side of its head between and slightly below the eye and nostril. This snake normally has a pattern of seven to 20 distinct, light-edged bands on its body that are narrow on the back and wide on the sides. It varies in color from gray to light brown with dark gray or brown crossbands. The head may be gray, brown, or reddish. The belly is white with large, dark gray, brown, or black blotches on its edges extending a short distance up onto the sides of the body. It can grow up to 40 inches in length and weigh up to 14 ounces. Juveniles look like miniature adults, but with yellowish or greenish tails. The copperhead's range in Kansas is restricted to the eastern third of the state, generally no farther west than the western edge of the Flint Hills and is common on Fort Riley. The copperhead prefers open, rocky woodland, woodland edge, and meadows adjacent to woodland. The color and pattern of this snake allows it to blend in perfectly with the forest leaf litter. Because of its shy, retiring disposition and camouflage pattern, this snake easily exists in reasonable numbers near areas of heavy human population. Estimates indicate a population density as high as three to four copperheads per acre in northeastern Kansas. One to 14 young per litter are born from August to October. Copperheads feed on insects, frogs, toads, lizards, small birds and mammals, and other snakes.



Copperhead

© *Bob Gress*

Timber Rattlesnake

Crotalus horridus

The **timber rattlesnake** is the largest venomous snake in Kansas. It is characterized by a pit on each side of the head between and slightly below the eye and nostril and a rattle on a jet black tail. It has small scales covering most of the top of the head with one large scale over each eye and a pattern of 18 to 33 dark bands or chevrons on the back. It can grow up to 60 inches in length and weigh over five pounds. Head and body vary in color from pinkish gray to yellowish brown, with a rusty reddish stripe running down the middle of the back. The belly is grayish white. Juveniles look like miniature adults. This species is restricted to the eastern third of Kansas, with Riley and Geary Counties at the western edge of its range. Timber rattlesnakes may occur in suitable habitat on Fort Riley. It prefers heavily vegetated, rocky outcrops on partially forested hillsides. It is diurnal during the spring and fall but prowls at night during the summer months to avoid higher daytime temperatures. Females give birth in August through October to litters of five to 14 young. Young timber rattlesnakes are venomous at birth and have a single button on their tail. Additional segments are added to the rattle each time the snake sheds its skin. It feeds on a wide variety of small mammals as well as on smaller snakes.

The timber rattlesnake has a fairly mild disposition compared to other rattlesnakes found in Kansas. When approached, it frequently remains motionless and quiet in order to avoid being seen. No one should rely on rattlesnakes to 'warn' them by rattling since many rattlesnakes never rattle until stepped on or otherwise molested. The timber rattlesnake has been designated by the Kansas Department of Wildlife and Parks as a *Species in Need of Conservation*, due in large part to habitat loss.



Timber Rattlesnake

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Prairie Rattlesnake

Crotalus viridis

The **prairie rattlesnake** is found throughout the western half of Kansas from Jewell County south to Barber County. This snake can grow up to 57 inches in length and is characterized by a pit on each side of its head between and slightly below the eye and nostril. Small scales cover most of the top of the head with one large scale over each eye. A pattern of dark blotches cover the back with dark bands on the tail. The head, body, and tail are greenish-gray to brown in color. There are 30 to 55 dark gray or brown blotches on the back with a grayish or white belly. Adult males have longer and thicker tails than the females. It prefers rocky canyons and open prairies with an abundance of small mammal burrows. It suns on south facing rocky hillsides in the spring and fall. During the heat of the summer, it often becomes nocturnal, roaming open prairies at night. Females will give birth every other year to a litter of five to 18 young that are venomous at birth. Juveniles look like miniature adults. This species prefers to eat lizards, rats, mice, gophers, and young prairie dogs. Unlike the timber rattlesnake, this snake is quite aggressive and has a nasty disposition. It invariably rattles when approached too closely and should be avoided.



Prairie Rattlesnake

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Massasauga

Sistrurus catenatus

The **massasauga** is the smallest rattlesnake in Kansas, growing up to 33 inches in length. It is characterized by a small pit on each side of the head between and slightly below the eye and nostril. It has a small rattle on the tail and nine large scales on the top of the head. The head, body, and tail are gray or light brown in color. Twenty to 50 dark gray or brown blotches cover the back and sides, with smaller blotches on the tail. The belly may be mottled or light with an indistinct pattern. Adult males have longer and thicker tails and reach a greater length than the females. It is found throughout the eastern three-quarters of Kansas in a wide variety of habitats, ranging from arid, sagebrush prairie to rocky, prairie hillsides to open wetlands. Like other venomous snakes, it is diurnal during the spring and fall, becoming nocturnal during the heat of the summer. Females give birth to a litter of three to 15 young from July to August. Juveniles look like miniature adults. It feeds on frogs, lizards, other snakes, and rodents. Because of its small size, the massasauga is difficult to hear when it rattles.

Note: The Cottonmouth (or Water Moccasin) was not included in this pocket guide. Its range in Kansas is restricted to the extreme southeastern corner of the state where suitable habitat and weather occur.



Massasauga Rattlesnake

© *Bob Gress*

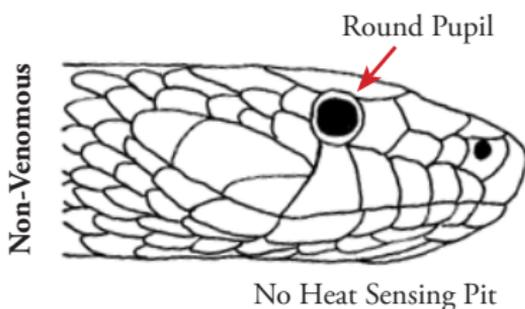
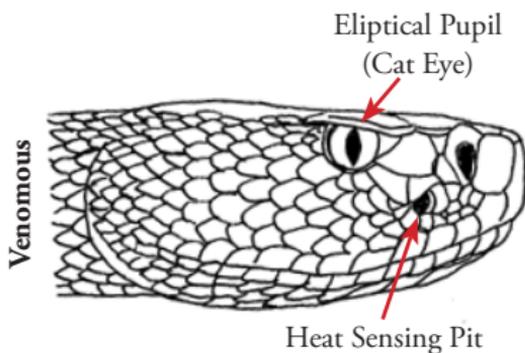
Venomous vs. Non-venomous Snakes

All venomous snakes found in Kansas belong to the Family *Viperidae*, or pit-viper family. Members of this family share common physical characteristics that separate them from non-venomous species. Pit vipers have a sensory pit located between the eye and the nostril on each side of their head. These pits detect heat, thereby helping the snake locate warm-blooded prey, even in the dark. They have developed the ability to inject venom into their prey using specialized teeth called fangs. Fangs are sharp and hollow, functioning much like a hypodermic needle. Once the snake strikes and inserts its teeth into its prey, venom is squeezed from a gland under each eye into the venom duct and then out through the fangs. The venom will eventually kill or subdue the prey, allowing the snake to consume it. Most of the venomous snakes found in Kansas are shy and are usually not aggressive unless harassed. Bite wounds usually consist of two puncture wounds where the fangs penetrated the skin. Non-venomous snakes are harmless to humans and kill their prey in various ways. Most constrict their prey to kill it while others just catch and swallow their prey alive. Their defenses vary as well. Some will musk (defecate) while others will wildly squirm. Many of these harmless snakes will mimic more dangerous snakes in an attempt to bluff would-be predators. Almost all of them will bite and can be very aggressive.

A bite by the smaller species can hardly be felt and will not break the skin. Bites from the larger species like the gopher snake, rat snakes and northern water snake can be a painful experience, although not life threatening. Non-venomous snakes do not have fangs, but they do have many small, sharp, stationary backward-facing teeth that function to keep prey from escaping once captured. Bite wounds consist of several very small, needle-like puncture wounds, sometimes in parallel rows that resemble a scratch.

How can you tell them apart?

- Head Shape
- Eyes (Pupil Shape)
- Heat Sensing Pits



Snakebite

Deaths from snakebites are rare. Only one fatality has been documented in Kansas since 1950. Snakebites still occur, so knowing what to do is important for anyone who spends time in areas where venomous snakes are found.

Precautions

- Always wear protective clothing, like long pants and boots.
- Wear gloves if possible and do not stick hands under rocks, logs, or stumps.
- Try to stay on paths or trails, watching carefully with each step.
- Learn to identify the venomous and harmless, non-venomous snakes found in Kansas.

It is estimated that 90 percent of people bitten by venomous snakes were trying to catch or kill them. When encountering a venomous snake, leave it alone. They are not only fascinating but play an important role in the ecosystem.

If you are bitten by a snake

Was the snake venomous? If it can be determined that it was a bite by a non-venomous snake, it will save a lot of stress and eliminate the need for treatment. People are bitten by non-venomous snakes each year and experience nothing more than a small scratch that heals quickly. If it is certain that a venomous snake was involved, seek medical attention immediately.

If possible, notify the medical staff ahead of time via telephone of the situation. This will give the physician time to prepare and call the nearest poison information center for advice. The Arizona Poison and Drug Information Center in Tucson (520-626-6016) maintains a list of antivenins that are available and where to call in the event of a bite from a venomous snake.

If bitten by a venomous snake,

- Stay calm.
- Treat for shock.
- Drive to the nearest hospital or medical facility.
- Remove constricting objects (watches, rings, etc.).
- Restrict movement with a loose splint below the heart.
- Disinfect area with Betadine or wash with soap and water.
- Remember that some bleeding is OK.
- **DO NOT** attempt to suck venom by mouth from the site of the bite. A tooth cavity or gum sore might allow the venom to reenter the body.
- **DO NOT** make cuts through or near the site of the bite.
- **DO NOT** use a tourniquet. If tied too tight, it may cause the loss of a limb.
- **DO NOT** attempt to kill or capture the snake. It gives the snake another opportunity to bite. **DO** identify or get a description of the snake;
- **DO NOT** allow anyone, including the physician, to administer antivenin UNLESS test are first run to determine if a possible allergy to antivenin exist.

Information

Interested in learning more about the plants and animals discussed in this pocket guide? Check out the following web sites and publications that were used as references for this pocket guide.

Kansas Herpetofaunal Atlas (webcat.fhsu.edu/ksfauna/herps)

U.S. Army Center for Health Promotion & Preventive Medicine
(chppm-www.apgea.army.mil/)

A Guide to Kansas Mushrooms. By Bruce W. Horn, Richard L. Kay, & Dean S. Abel, University Press of Kansas, Lawrence.

Amphibians and Reptiles in Kansas. Third Edition. By Joseph T. Collins & Suzanne L. Collins, University Press of Kansas, Lawrence.

Insects in Kansas. Third Edition. By Glenn A. Salsbury & Stephan C. White, Kansas Department of Agriculture, Topeka.

Mammals in Kansas. By James W. Bee, Gregory E. Glass, Robert S. Hoffmann, & Robert R. Patterson, University Press of Kansas, Lawrence.

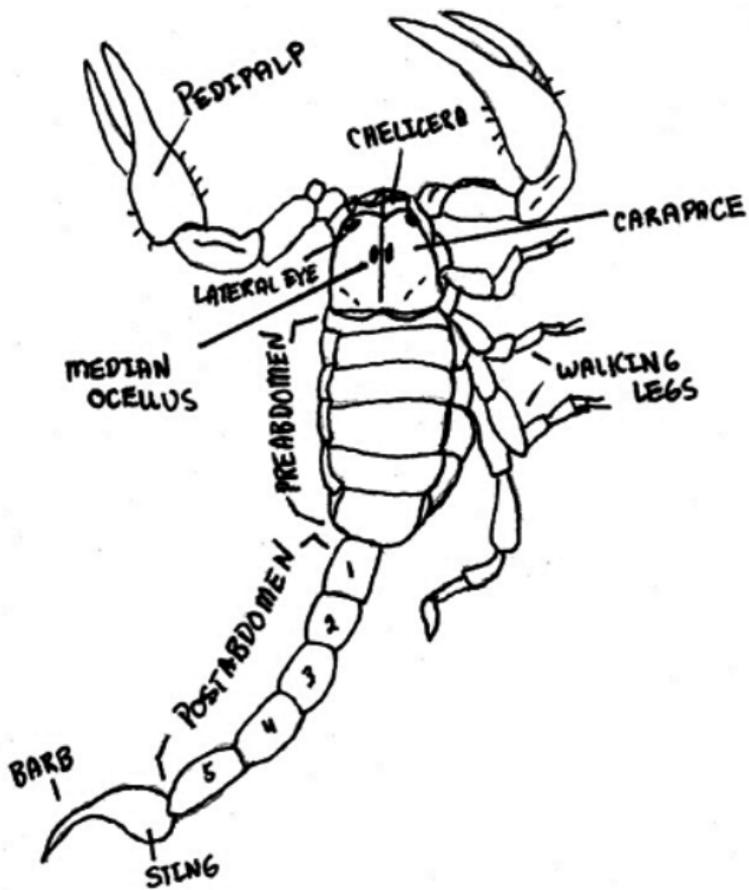
Petersons Field Guide to Venomous Animals and Poisonous Plants. By Steven Foster & Roger Caras.

The Snakes, Lizards, Turtles, and Amphibians of Fort Riley and Vicinity. Second Edition. By William H. Busby, Joseph T. Collins, & Gibran M. Suleiman, Kansas Biological Survey.

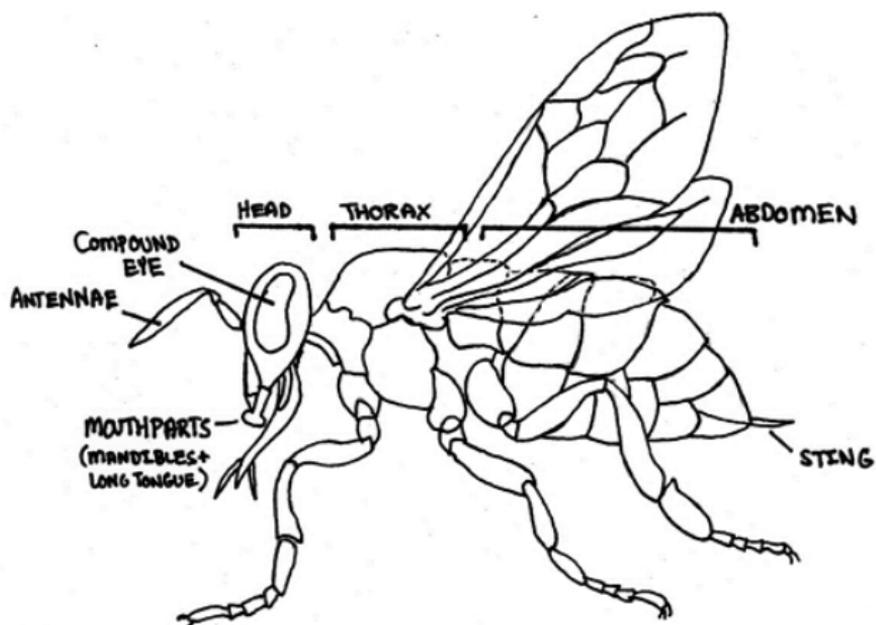
Weeds of the Great Plains. Third Edition. By James Stubbendieck, Mitchell J. Coffin, & L.M. Landholt, Nebraska Department of Agriculture, Lincoln.

Glossary

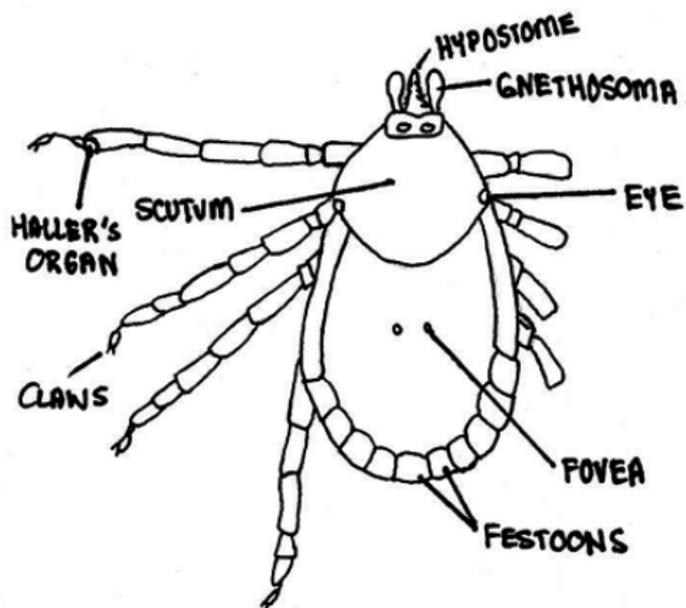
- Aerosolized:** The process of tiny particles of solids or liquids being suspended in a gas.
- Cephalothorax:** An anatomical term used in arachnids for the first (anterior) major body section.
- Dicotyledons:** The name for a group of flowering plants whose seed typically contains two embryonic leaves or cotyledons.
- Diurnal:** The behavior of being active during the daytime and sleeping during the night.
- Dorsal:** Pertaining to the back or upper side; top or uppermost.
- Hemotoxin:** A toxin employed by venomous animals that destroys red blood cells, disrupts blood clotting, and/or causes organ degeneration and generalized tissue damage.
- Neurotoxin:** A toxin employed by venomous animals that acts specifically on nerve cells, often causing paralysis.
- Nocturnal:** The behavior of being active at night and sleeping during the daytime.
- Obligate Parasite:** A parasite that cannot survive without its host.
- Ovipositor:** The egg-laying apparatus.
- Pathogenic:** A biological agent that is causing or capable of causing disease.
- Posterior:** Pertaining to the hind or rear.
- Setae:** With bristles.
- Substrate:** The base on which an organism lives; usually referring to soil.
- Thorax:** The body region behind the head which bears legs and wings.
- Vector:** An organism that does not cause disease itself but which spreads infection by conveying pathogens from one host to another.
- Ventral:** Lower or underneath; pertaining to the underside or abdominal region.



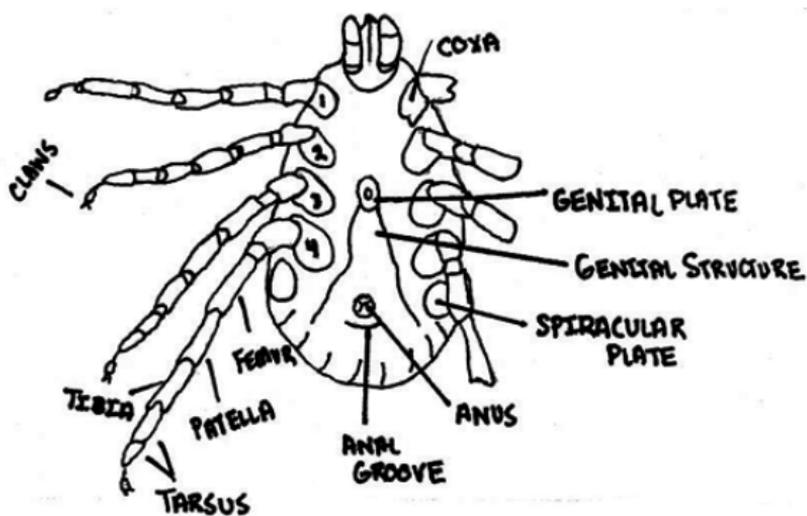
Scorpion
(Dorsal View)



Bee
(Dorsal View)

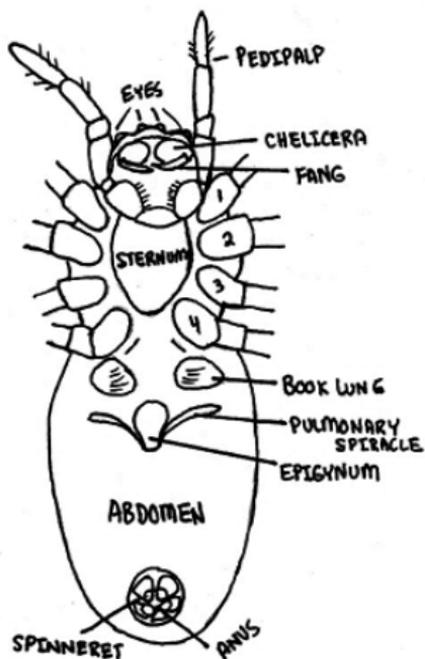
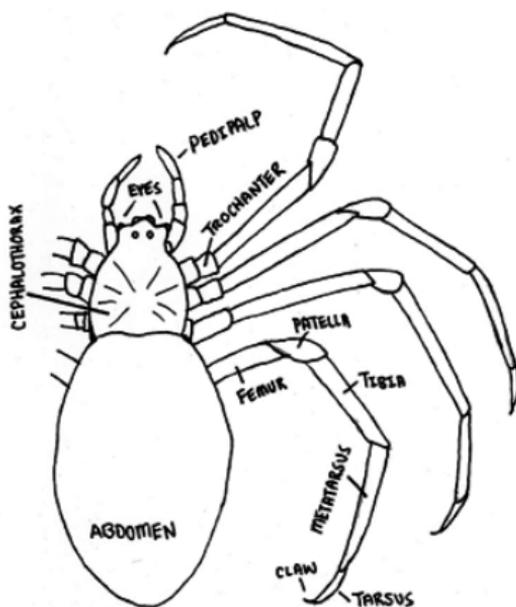


Tick
(Dorsal View)



Tick
(Ventral View)

Spider
(Dorsal View)



Spider
(Ventral View)

Acknowledgements

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—Steven Wahle and Adam Hastert

Questions about hazardous animals on Fort Riley should be directed to the Conservation Office, 239-6211. Concerns about hazardous animals and plants in or near housing areas or administrative buildings should be directed to the appropriate service order desk.

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PUBLIC WORKS
Fort Riley, Kansas



Environmental Division
Conservation & Restoration Branch
Fort Riley, Kansas