BASIC PREPAREDNESS GUIDEBOOK:

SNAKE, INSECT AND OTHER VENOMOUS CREATURES IDENTIFICATION, STING / BITE SYMPTOMS / FIRST AID FOR OKLAHOMA AND SURROUNDING STATES





CITY OF SHAWNEE

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OKLAHOMA

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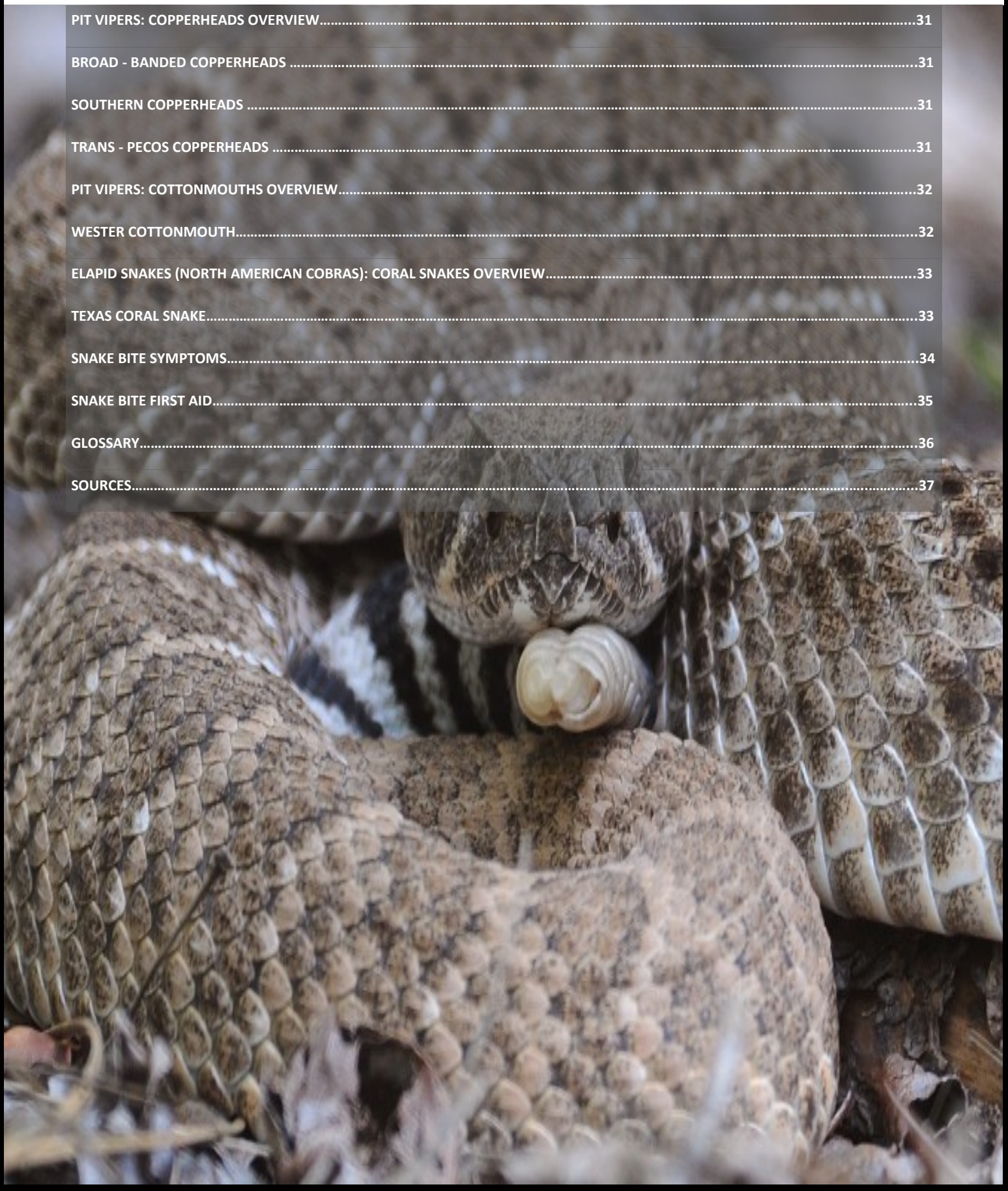
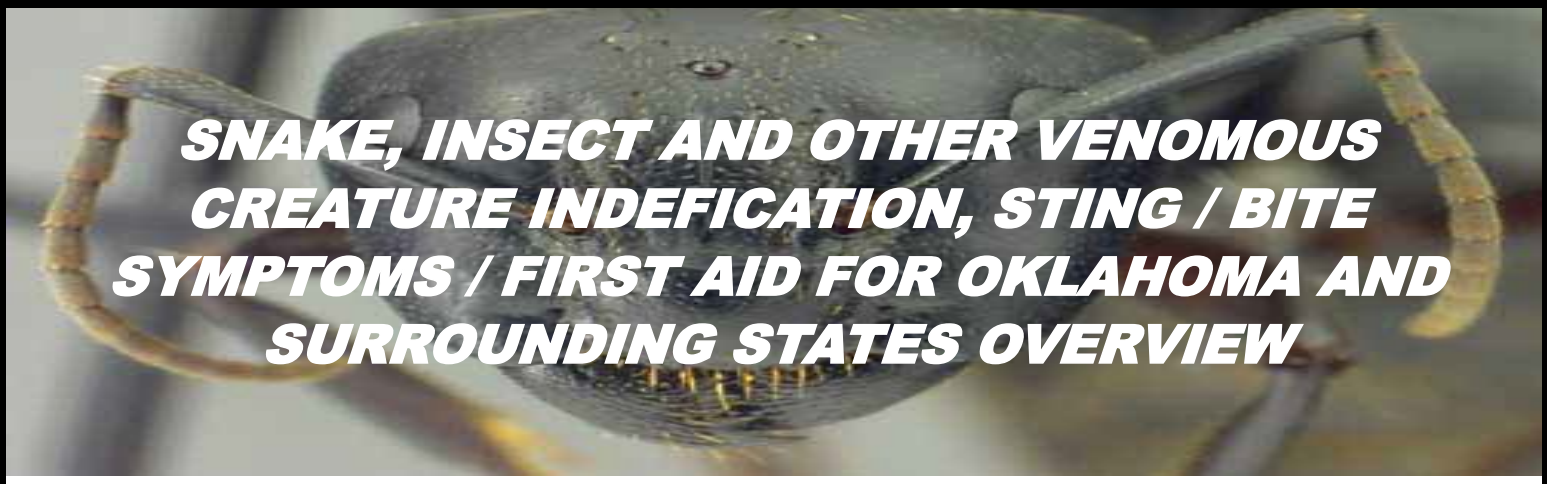




SNAKE, INSECT AND OTHER VENOMOUS CREATURE INDEFICATION, STING / BITE SYMPTOMS / FIRST AID FOR OKLAHOMA AND SURROUNDING STATES OVERVIEW

PURPOSE OF GUIDE

The purpose of this guidebook is to assist citizens in identifying various reptiles and vertebrates found in and around the State of Oklahoma that are capable of causing harm due to envenomation (biting or stinging), to know what signs and symptoms to look for and first aid measures to take should one be bitten or stung.

It is NOT the purpose of this guidebook to encourage citizens to kill or bring harm to these creatures. ALL of the identified species in this guidebook play a valuable role in our ecosystem; many reduce pest population; and some are currently endangered.

It is also not the intention of this guidebook to give citizens a false - sense of knowledge on how to handle these creatures. If you encounter any of the species listed in this guidebook, simply leave them alone or call a professional for the removal and relocation of these creatures. NEVER APPROACH OR TOUCH THEM.

DISCAIMER NOTICE

BUILDING A FIRST AID KIT

- The following are recommended items for a first aid kit; modify to suit your particular needs. When in doubt, always seek advice from a licensed healthcare professional.
- Adhesive Tape (non-allergenic)
- Antiseptic Ointment
- Band-Aids (assorted sizes)
- Benadryl®
- Blanket
- Cold Pack
- Disposable Gloves
- Epi-Pen® www.epipen.com
- Gauze Pads & Roller Gauze (assorted sizes)
- Hand Cleaner
- Plastic Bags
- Safety Pins
- Scissors & Tweezers
- Small Flashlight & Extra Batteries
- Topical Cream containing: antihistamines, menthol, corticosteroids, or benzocaine (e.g. Sting Kill®)
- Triangular Bandage

All agents should be used according to the manufacturer's use and dosing recommendations.

INSECTS: ANTS

Around the world, more than 14,000 species of ants range in size from a grain of sand to 1 ½" long. Many of these ants play an important role in many different habitats. However, not all species are beneficial - some species, like the red imported fire ant, is an invasive species that make it difficult for native species of ants.

CARPENTER ANTS: Carpenter ants are one of the most common indoor pests found in New England. When these large black or black and red ants invade buildings, they often construct their nests in moist wood. Unlike termites, carpenter ants do not eat wood, but they do damage wood as they excavate to make room for their growing colony. Carpenter ants devour scavenged insects and collect carbohydrate secretions ("honeydew") produced by aphids feeding on outside vegetation. These ants also wander around the inside of the house looking for sweet things to eat.

SYMPTOMS

- Multiple Stings
- Severe Burning Sensation
- Small Blister or Whitish Pustule

FIRST AID

- Remove stinger and Wash wound
- Apply topical cream containing antihistamines, corticosteroids, benzocaine or menthol / Or, apply baking soda paste
- Use pain reliever if necessary

HARVESTER ANTS: The harvester ant gets its name from its behavior of collecting seeds. Approximately 22 species of harvester ants are found in the United States, with the most common types of harvester ants are being the California harvester ant, Florida harvester ant, red harvester ant, black harvester ant and the Western harvester ant. With the exception of the Florida harvester ant, all are limited to the west of the Mississippi River .

SYMPTOMS

- Multiple Stings
- Severe Burning Sensation
- Small Blister or Whitish Pustule

FIRST AID

- Remove stinger and Wash wound
- Apply topical cream containing antihistamines, corticosteroids, benzocaine or menthol / Or, apply baking soda paste
- Use pain reliever if necessary

LEAFCUTTER ANTS: Rusty brown ants with spines on their thorax (remember – that's the middle part of an insect's body). They get their name because they actually cut leaves into pieces, which they carry to their nest underground. There, the leaf pieces are used to grow into a fungus, which feeds the colony.

SYMPTOMS

- Not Aggressive
- Sting Only When Handled
- Minor Sting

FIRST AID

- Wash wound
- Apply topical cream containing antihistamines, corticosteroids, benzocaine or menthol / Or, apply baking soda paste
- Use pain reliever if necessary

RED IMPORTED FIRE ANT: The red imported fire ant was imported into the USA around the 1930's and has spread to infest more than 260 million acres of land primarily in 11 southeastern states, including all or portions of Florida, Georgia, South Carolina, North Carolina, Virginia, Tennessee, Alabama, Mississippi, Arkansas, Texas and Oklahoma. These fire ants are pests of urban, agricultural and wildlife areas and can pose a serious health threat to plants and animals including humans. These ants also have an economic impact. In fact, in Texas, the red imported fire ant is thought to have an estimated economic impact of $1.2 billion annually.

SYMPTOMS

- Multiple Stings
- Severe Burning Sensation
- Small Blister or Whitish Pustule

FIRST AID

- Wash Wound
- Apply topical cream containing antihistamines, corticosteroids, benzocaine or menthol / Or, apply baking soda paste
- Use pain reliever if necessary
- Reaction Far From Sting Suggests Risk for Anaphylaxis with Future Stings

INSECTS: BEES

Bees are flying insects that are related to the wasps and ants. Bees gather pollen and nectar from flowers from which it makes beebread and honey for food, and usually live in large colonies, although some species of bees are solitary. The best - known species of bee is the European Honey Bee, which plays a vital role in pollination. There are currently 20,000 known species of bees. Bees can be found on every continent excluding Antarctica, in every habitat that contains insect - pollinated flowering plants.

BUMBLE BEES: A large, fuzzy or hairy bee with a black and yellow (sometimes orange), usually banded, coloration. Bumble bees always have some fuzz on the abdomen. Females have pollen baskets on the last pair of legs.

SYMPTOMS

- Multiple Stings
- Painful Stings

FIRST AID

- Apply topical cream containing antihistamines, corticosteroids, benzocaine or menthol
- Or, apply baking soda paste

CARPENTER BEES: Carpenter bees somewhat resemble bumblebees but have a noticeably black, shiny abdomen. (Bumblebees, although about the same size and shape, have a noticeably fuzzy abdomen, usually with a prominent yellow band across it.) You can also distinguish the two by their behaviors: Carpenter bees are rather solitary and excavate their nests in wood. A small pile of sawdust beneath a hole about 3/8 inch in diameter is a clue to their presence.

SYMPTOMS

- Multiple Stings
- Painful Stings

FIRST AID

- Apply topical cream containing antihistamines, corticosteroids, benzocaine or menthol
- Or, apply baking soda paste

LEAFCUTTER BEES: Leafcutter bees are common from late spring into early autumn. All are solitary. They are dark-colored with several whitish hair bands across the abdomen. Pollen is carried exclusively on the underside of the abdomen, never on the hind legs. One sign of their presence is the rounded holes they cut in the leaves of plants.

SYMPTOMS

- Not Aggressive
- Sting Only When Handles
- Minor Sting

FIRST AID

- Apply topical cream containing antihistamines, corticosteroids, benzocaine or menthol
- Or, apply baking soda paste

SWEAT BEES: Sweat bees are small and non - aggressive. They can be brightly colored or dark; they can be metallic; their markings vary from green to red to yellow, often with bands similar to those of honeybees. To humans, one of the most noticeable traits of sweat bees is their attraction to perspiration, which offers them precious moisture and salts.

SYMPTOMS

- Attracted to sweat
- Sting only when touched / disturbed
- Minor sting

FIRST AID

- Apply topical cream containing antihistamines, corticosteroids, benzocaine or menthol
- Or, apply baking soda paste

HONEY BEES: To distinguish honeybees from other types of bees, note the following:

- Workers carry pollen in pouches on their legs, and they have hair on their head and eyes, and
- Their stingers are barbed and can only be used once; when the bee flies away, part of her abdomen tears out and remains attached to the stinger, and she dies within minutes.

Wild populations occur throughout the United States. The single queen's only function is to lay eggs. She may live several years and produce many thousands of eggs. New queens are produced annually in healthy colonies. At this time the old queen leaves the nest with a swarm of workers to establish a new colony, while the new queen stays in the old nest with the remaining workers. Honey and pollen stored in nest cells nourish the adult bees in winter.

The honeybee is the major pollinator of many field crops and almost all tree fruits. It is the world's most beneficial insect.

SYMPTOMS

- Single sting
- Tissue swelling
- Burning pain

FIRST AID

- Remove Stinger
- Wash Wound
- Apply topical cream containing antihistamines, corticosteroids, benzocaine or menthol / Or, apply baking soda paste

You've probably heard that honey bees in this country are in trouble, with about one-third of our managed colonies dying off every winter.

While scientists continue work to identify all the factors that have lead to honey bee losses, it is clear that there are biological and environmental stresses that have created a complex challenge that will take a complex, multi-faceted approach to solve. Parasites, diseases, pesticides, narrow genetic diversity in honey bee colonies, and less access to diverse forage all play a role in colony declines. To confront this diverse mix of challenges, we require a mix of solutions – the odds are that we won't find one magic fix to help our honey bees.

The parasitic mite Varroa destructor remains the major factor in overwintering colony declines. The varroa mite's full name is Varroa Destructor, and it is perhaps the most aptly named parasite ever to enter this country. An Asian native that arrived here in 1987, Varroa Destructor is a modern honey bee plague. The problem is that varroa mites are becoming resistant to the miticides used to control them. And while there are folk remedies and organic treatments, none of those work as well. New treatments are in the pipeline, but another miticide can only be a short-term solution as the cycle of new treatment and new resistance continues.

If you come into contact with a hive, DO NOT try to remove the hive yourself. Always contact a professional beekeeper to remove the hive to be relocated elsewhere.

AFRICANIZED HONEY BEES: Africanized honey bees differ from European honey bees in behavior not appearance. Neither type of honey bee will indiscriminately attack humans or animals. The Hollywood image of "killer bees" is a dramatic exaggeration devised to sell movie tickets. Stinging is a defensive behavior employed by the colony to protect their brood (young bees) and food supply. Once a honey bee stings it dies. All bee colonies should be respected. Wild (feral) colonies should be avoided and reported to the county extension agent or the State Department of Agriculture. Africanized honey bees will respond in much greater numbers than European honey bees to a perceived threat.

SYMPTOMS

- Single sting
- Tissue swelling
- Burning pain

SYMPTOMS

- Remove Stinger
- Wash Wound
- Apply topical cream containing antihistamines, corticosteroids, benzocaine or menthol / Or, apply baking soda paste

DIFFERENCES BETWEEN EUROPEAN HONEY BEES (EHB) AND AFRICANIZED HONEY BEES (AHB)

- AHB are more defensive than EHB.
- AHB defend a larger area than EHB.
- AHB are more easily disturbed and respond in greater numbers than EHB.
- AHB may swarm as often as every six weeks.
- EHB generally only swarm once a year.
- AHB will nest in any available cavity or in the open. Nest sites include: water meter boxes, metal utility poles, cement blocks, junk piles, and house eaves. Other potential nesting sites include overturned flower pots, old tires, mobile home skirts, and abandoned structures. Holes in the ground and tree limbs, mail boxes, even an empty soda pop could be viewed as "home" to the AHB.
- EHB nest in larger cavities above ground and sometimes in the open. EHB do not nest in holes in the ground. Nest sites include: a beekeeper's hive, hollow trees, cavities in walls and occasionally in the open on a tree limb.

- AHB are more sensitive to vibrations than EHB, therefore care must be used when operating machinery near known AHB colonies.
- AHB will pursue a threat for over a mile where EHB will only pursue a threat for a few hundred yards.
- What to do if Attacked by Africanized Honey Bees:
- RUN away quickly. Do not stop to help others. However, small children and the disabled may need some assistance.
- As you are running, pull your shirt up over your head to protect your face, but make sure it does not slow your progress. This will help keep the bees from targeting the sensitive areas around your head and eyes.
- Continue to RUN. Do not stop running until you reach shelter, such as a vehicle or building. A few bees may follow you indoors. However, if you run to a well-lit area, the bees will tend to become confused and fly to windows. Do not jump into water! The bees will wait for you to come up for air. If you are trapped for some reason, cover up with blankets, sleeping bags, clothes, or whatever else is immediately available.
- Do not swat at the bees or flail your arms. Bees are attracted to movement and crushed bees emit a smell that will attract more bees.
- Once you have reached shelter or have outrun the bees, remove all stingers. When a honey bee stings, it leaves its stinger in the skin. This kills the honey bee so it can't sting again, but it also means that venom continues to enter into the wound for a short time.
- Do not pull stingers out with tweezers or your fingers. This will only squeeze more venom into the wound. Instead, scrape the stinger out sideways using your fingernail, the edge of a credit card, a dull knife blade or other straight-edged object.
- If you see someone being attacked by bees, encourage them to run away or seek shelter. Do not attempt to rescue them yourself. Call 911 to report a serious stinging attack. If you have been stung more than 15 times, or are feeling ill, or if you have any reason to believe you may be allergic to bee stings, seek medical attention immediately. The average person can safely tolerate 10 stings per pound of body weight. This means that although 500 stings can kill a child, the average adult could withstand more than 1100 stings.

INSECTS: WASPS AND HORNETS

Wasps and hornets have similar hairless bodies. The major difference between wasp and hornets is size and color. Wasps are about one third inch (one centimeter) to one inch (two and one-half centimeters) long. Hornets are larger. While bees are beneficial to humans because they pollinate plants, wasps and hornets help out by eating other insects. Stings from wasps can be dangerous to those allergic to their venom - although these insects will only sting if they feel they or their nests are in danger. It should be noted that unlike bees, wasps and hornets will not die after they sting.

BALD - FACED HORNET: A fairly large wasp that is primarily black, with white or ivory markings on the face, thorax and toward the tip of the abdomen. The wings are translucent dark brown.

In winter after leaf-fall, look up into trees for old nests, which are large, rounded, papery, and gray. The nests of this social insect are frequently seen in natural history displays. Unlike the wasps we usually call yellow-jackets, this species is not yellow. Its larger size and black and ivory coloration make it easy to distinguish as a distinct type of social wasp.

SYMPTOMS

- Central White Spot with Red Halo
- Local Swelling

FIRST AID

- Wash wound
- Apply topical cream containing antihistamines, corticosteroids, benzocaine or menthol / Or, apply baking soda paste
- Use pain reliever if necessary

CICADA KILLER WASPS: This is an exceptionally large species, with rusty clear wings and the black and yellow markings common of wasps. In addition to their size and coloration, their behavior identifies them.

Males, however, are incapable of stinging, and females (unless molested) reserve their stinging for the cicadas they hunt.

SYMPTOMS

- Typically Do Not Sting
- Have a Long Stinger

FIRST AID

- Wash wound
- Apply topical cream containing antihistamines, corticosteroids, benzocaine or menthol / Or, apply baking soda paste
- Use pain reliever if necessary

MUD DAUBERS: Mud daubers are familiar wasps with narrow or threadlike waists. These solitary wasps belong to a number of related groups, but we call them "mud daubers" because they all build their nests out of mud. You can identify the different species by coloration and by the distinctive nest architecture.

The black-and-yellow mud dauber constructs nest cells side by side or on top of one another; the final product is rounded and about the size of a lemon or a fist.

The organ pipe mud dauber is black with blue wings, with white "stockings" on the hind legs. It makes vertical, parallel rows of cells; the finished product looks like a pipe organ.

The blue mud dauber is metallic blue; it does not build nests but instead reuses those of one of the other species. Instead of mud, it carries water, which it uses to soften and remodel the mud of the older nests.

SYMPTOMS

- Multiple Stings
- Painful Bite
- Swelling

FIRST AID

- Wash wound
- Apply topical cream containing antihistamines, corticosteroids, benzocaine or menthol / Or, apply baking soda paste
- Use pain reliever if necessary

PAPER WASPS: Paper wasps are the most familiar of the social wasps. Their tan, papery nests are easy to identify: a single layer of hexagonal cells, arranged side-by-side like a honeycomb, and suspended by a single stalk from some overhanging shelter (such as the eaves of a house or other building). The wasps themselves look something like skinny yellow jackets. They are black or brown, often with rusty or yellowish markings, and fly with their legs dangling.

Paper wasps are commonly seen chewing bits of wood from untreated wooden fences, park benches, and so on, which they mix with saliva and use to build their remarkable paper nests.

SYMPTOMS

- Multiple Stings
- Painful Bite
- Swelling

FIRST AID

- Wash wound
- Apply topical cream containing antihistamines, corticosteroids, benzocaine or menthol / Or, apply baking soda paste
- Use pain reliever if necessary

TARANTULA HAWK WASP: Tarantula hawks are found in every continent except Europe and Antarctica. In the United States, they are found in the deserts of the southwest. Tarantula hawks are large wasps. Pepsis thisbe, the most common species of tarantula hawk in the Grand Canyon, can grow up to 2 inches (5mm) in length.

Tarantula hawks have dark blue, iridescent bodies, bright orange wings, and long legs.

Males have straight antennae, females have curly antennae.

SYMPTOMS

- Stings Are Typically Rare But Extremely Painful

FIRST AID

- Wash wound
- Apply topical cream containing antihistamines, corticosteroids, benzocaine or menthol / Or, apply baking soda paste
- Use pain reliever if necessary

YELLOWJACKETS: Yellowjackets are bee-sized social wasps that build paper nests, usually underground. They usually have beelike black and yellow bands on their abdomens, but unlike honeybees, they are not hairy, nor do they collect pollen. Yellowjackets have yellow or white faces. When resting, they usually hold their wings down their back (not spread out). Right before landing, they often fly quickly side to side.

Yellowjacket nests are made of paper like those of paper wasps, but they have multiple parallel layers of comb with downward-facing cells (paper wasps always only have a single layer of cells). Yellowjacket nests are always enclosed in a wood-pulp paper envelope built by the wasps.

Yellowjackets are a significant stinging threat: They nest in colonies and aggressively defend their nest as a group. Individuals can sting repeatedly.

SYMPTOMS

- Capable of Multiple Stings
- Have a Long Stinger

FIRST AID

- Wash wound
- Apply topical cream containing antihistamines, corticosteroids, benzocaine or menthol / Or, apply baking soda paste
- Use pain reliever if necessary

VELVET ANTS: Velvet ants are not true ants. True ants are social insects, while velvet ants are a group of solitary wasps. Female velvet ants are wingless throughout their lives; males are winged. There are many species and several genera of velvet ants; they look like large, furry ants and are usually brightly colored, often in shades of red and orange, with blackish legs. Males look more like "normal" wasps. Velvet ants usually run on the ground quite rapidly.

Don't try to handle them: Velvet ants are not aggressive, but they will sting if held or if stepped on with bare feet. The stinger is extraordinarily long, and the sting is excruciating, hence the popular name "cow killer."

SYMPTOMS

- Females Sting Upon Extreme Provocation

FIRST AID

- Wash wound
- Apply Ice Pack
- Take Analgesic If Necessary

ARACHNIDS: SCORPIONS

Scorpions have existed for 350-400 million years. They were one of the earth's first arthropods.

They are commonly found in deserts, but are present in grasslands, savannahs and certain forests as well. Scorpions have even been found under snow covered mountains. There are approximately 90 different types of scorpions living in the U.S. All but four of these live west of the Mississippi River.

Scorpions are predators. They feed on a wide range of insects, spiders, centipedes and even other scorpions. Larger scorpions can feed on small lizards, snakes and mice.

Scorpions are nocturnal animals, which means they only go out at night.

STRIPED BARK SCORPION: This species is distinguished, among other things, by a dark triangle is on top of the head. Young striped bark scorpions are pale yellowish brown, usually with two broad lengthwise dark stripes on the abdomen (the "back"); older scorpions are uniform dark brown with the stripes faint or lacking.

A scorpion has a pair of eyes in the middle of its back, as well as two to five additional pairs of eyes along the front edge of its body. Even though they have a lot of eyes, scorpions have poor vision. They make up for this by having tiny sensitive hairs on their pinchers that help them detect motion. In addition, scorpions have strange comblike structures called pectines on their undersides, which are unique to scorpions. The pectines are sensitive to touch, to ground vibrations, and perhaps even to sound.

SYMPTOMS

- Multiple Stings
- Local Burning Pain
- Swelling
- Numbness
- Nausea & Vomiting
- Irregular Heart Beat
- Blood Pressure Change
- Blurred Vision
- Difficulty Swallowing

FIRST AID

- Cool Packs
- Topical Medication
- Benadryl® by Mouth

SEEK MEDICAL ATTENTION IMMEDIATELY FOR FACE NUMBNESS OR METALLIC TASTE IN MOUTH

ARACHNIDS: SPIDERS

Spiders are Arachnids, a group that also contains mites, ticks and scorpions. They differ from insects in that they lack antennae and possess wingless bodies with two segments and four pairs of legs. In contrast, insects possess long antennae, bodies with three segments, three pairs of legs, and usually wings. Most spiders have venom to subdue their prey, but they only use it against humans if disturbed. Spiders are beneficial to humans because they feed on pest insects in homes and gardens.

The most common spiders associated with health threats in the United States are the black widow spider (Latrodectus spp.) and the brown recluse spider (Loxosceles spp.).

BLACK WIDOW SPIDER: The glossy, black-bodied female black widow has distinctive red spots on the underside of her abdomen, often described as an "hourglass," because it often looks like two triangles pointing at each other. Sometime there are markings on the back (dorsal) side of the abdomen, too.

Adult female black widow spiders are approximately 1" long and ½" wide. They have bulbous, shiny, jet-black abdomens with reddish, hourglass-shaped marking on their undersides. Adult males are smaller with much longer legs than females. Both immature and adult males have yellow and red bands and spots over their backs. Newly hatched spiders are white to yellow-white and gradually change to black after three to six molts. Immature black widow spiders of both sexes resemble the adult male black widow.

SYMPTOMS

- Pin Prick Bite
- Tingling Sensation
- Muscle & Abdominal Cramping
- Nausea, Vomiting & Weakness
- Difficult Breathing

FIRST AID

SEEK MEDICAL ATTENTION IMMEDIATELY FOR FACE NUMBNESS OR METALLIC TASTE IN MOUTH

BROWN RECLUSE (VIOLIN SPIDER / FIDDLEBACK SPIDER: The name "violin spider or fiddleback spider " describes a characteristic marking on the brown recluse: there is a violin-shaped patch on the broad, almost heart-shaped cephalothorax (the head, as opposed to the abdomen). The overall color is usually a grayish-yellow-brown, the oblong abdomen covered with gray hairs. The legs are darker than the body and are long and slim. Females are larger then males. The webs are small, irregular, and untidy. These spiders are usually seen walking or running around, not in a web.

Adult female and maile brown recluse spiders are yellowish - tan to dark brown with a dark violin or fiddle - shaped marking on their backs, thus giving them the other name of 'fiddleback spiders'. Adult females are 1/4 - 1/2" long and have long, delicate legs with short dark hair. Immature brown recluse spiders closely resemble the adults except for their smaller size and slightly lighter color.

SYMPTOMS

- Stinging Sensation
- Painful Bite Site After 6 - 8 hours
- Pale Circle with Red Spot
- Hot Bite Site
- Fever
- Joint Pain
- Nausea & vomiting
- Possible Tissue Damage

FIRST AID

- Apply Cool Packs

SEEK MEDICAL ATTENTION IMMEDIATELY FOR FACE NUMBNESS OR METALLIC TASTE IN MOUTH

YELLOW SAC SPIDER: These small spiders are 7 to 10 mm long. Their body is pale, greenish, tan or whitish yellow. The abdomen is slightly translucent and may change color depending on what the spider has eaten. It ends with conical, rather than cylindrical, spinnerets.

Their front legs are longer than the others, and all eight legs end in a small pair of claws. On the head, there are two horizontal rows of four similarly sized eyes. The palps and chelicerae are brown.

SYMPTOMS

- Painful Bite
- Swelling
- Tissue Damage

FIRST AID

- Apply Cool Packs
- Benadryl® by Mouth
- Consult a Doctor

MYRIAPODS: CENTIPEDES AND MILLIPEDES

While both millipedes and centipedes belong to the phylum Arthropoda and to the subphylum Myriapoda, millipedes belong to the class Diplopoda and centipedes belong to the class Chilopoda.

CENTIPEDES: Centipedes are long, thin arthropods with one pair of legs per body segment. Despite "centi" in their name, which implies 100 legs, centipedes can have fewer than 20 legs to more than 300 legs, but they always have an odd number of pairs of legs. Centipedes also have a pair of venom claws, which are a modification of the first appendage. Lacking the waxy cuticle of insects and arachnids, centipedes lose body moisture rapidly and therefore reside in moist microhabitats such as soil and leaf litter, underneath stones and dead wood, and inside rotting logs. They are not commonly seen because they are mostly noctural. Many species lack eyes and are only capable of discerning light and dark. In some species, the final pair of legs acts as sense organs similar to antennae, but facing backwards.

MILLIPEDES: Millipedes, however, are commonly seen in the park, and fortunately, unlike centipedes, millipedes do not bite or sting. Millipedes are even longer and thinner than centipedes and have two pairs of legs per segment. Despite "milli" in their name, no millipede has 1,000 legs, but common species have anywhere from 36 to 400 legs. Millipedes move much more slowly than centipedes because their legs are tiny in comparison to centipede legs. Because of their lack of speed and inability to bite or sting, a millipede's primary defense mechanism is to curl into a tight coil, thereby protecting their delicate legs inside their exterior body armor.

GIANT RED - HEADED CENTIPEDE: A long, slender centipede with striking coloration. The body is black, the legs are bright yellow and the head and first body segment are rusty red. They are generally flattened and have 21-23 pairs of legs, with only one pair of legs per leg-bearing segment. They have a confrontational attitude and can bite with their fangs and also pinch with their last pair of legs.

They are found in rocky woodlands under rocks, wood piles or other hiding places.

SYMPTOMS

- Multiple Bites (Very Painful)
- Bite Swelling
- Lymph Node Swelling
- Redness
- Headache
- Irregular Heartbeat
- Nausea & Vomiting
- Anxiety

FIRST AID

- Wash wound
- Apply topical cream containing antihistamines, corticosteroids, benzocaine or menthol / Or, apply baking soda paste
- Use pain reliever if necessary

GARDEN CENTIPEDE: These centipedes range in color from reddish-brown to nearly white and have slender bodies. Often their bodies are flattened top to bottom. They have between 27 and 191 pairs of legs, depending on the species. Centipedes always have an odd number of pairs of legs, and only one pair of legs per leg-bearing body segment. Soil centipedes lack eyes and are sightless.

SYMPTOMS

- Multiple Bites (Very Painful)
- Bite Swelling
- Lymph Node Swelling
- Redness
- Headache
- Irregular Heartbeat
- Nausea & Vomiting
- Anxiety

FIRST AID

- Wash wound
- Apply topical cream containing antihistamines, corticosteroids, benzocaine or menthol / Or, apply baking soda paste
- Use pain reliever if necessary

MILLIPEDES: Millipedes are worm-like, slender, hard-shelled arthropods with rounded body segments. Millipedes differ from centipedes in that they have one pair of short antennae on the head and two pairs of legs on each body segment. An estimated 1,000 species of these slow-moving creatures can be found in the United States. They are commonly called “thousand leggers,” even though they may only have 60 to 400 legs. Millipede species vary in length from one to two or more inches. They also vary in color from reddish-brown to black. When dead or disturbed, millipedes tend to curl themselves into a tight coil. Although harmless, many millipedes have defensive glands that emit a foul-smelling fluid when disturbed or handled.

SYMPTOMS

- Not Dangerous to Humans
- Secrete Staining Chemical
- Chemical Could Blister Skin

FIRST AID

- Not Needed

(Credit: Thomas A. Hermann. Public domain.)

VENOMOUS CATERPILLARS: Many insects display complete metamorphosis—the four life stages of egg, larva, pupa, and adult. A caterpillar is the larva stage of butterflies and moths. Many species have developed various defense mechanisms such as horns, spines, venomous spines, eversible glands, secretions, and body hairs. Some types have good defenses in camouflage to protect themselves from predators, parasites and man. Others display bright colors as a warning for predators to stay back. Still others imitate the colors or actions of poisonous insects while not being poisonous themselves.

Caterpillars can be foliage feeders on shrubs, trees, grass, ornamentals, vegetable plants or weeds or they can bore into plants or trees. Each caterpillar goes through four or six growth stages or molts where they shed their skin to grow and complete development. This focuses on those which have venomous hairs or spines that can cause a burning sensation when touched, producing a red swollen area and for people allergic to insect stings the possibility of anaphylactic shock and death.

"Stinging" caterpillars have a series of hollow glass-like hairs or spines on the body that contain a chemical venom. When a hair comes in contact with skin, the tip of the hair will break off and the venom inside enters the open wound created by the spine. The venom causes burning and stinging sensation, and the reaction of the human cells to the venom causes the reddening and swelling. Some people are very sensitive to the venom and may require medical attention.

ASP CATERPILLAR

BUCK MOTH CATERPILLAR

HAG MOTH CATERPILLAR

SADDLEBACK CATERPILLAR

IO MOTH CATERPILLAR

SPINY OAK CATERPILLAR

STINGING ROSE CATERPILLAR

SYMPTOMS

LOCAL REACTIONS

- Cold or Numb Feeling
- Severe Body Pain
- Swollen Lymph Nodes
- Red & Swollen Sting Site

SYSTEMIC REACTIONS

- Dizziness & Fainting
- Difficulty Breathing
- Swollen Lymph Nodes in Groin

FIRST AID

- Apply Sticky Tape (Medical Adhesive or Duct Tape) to Sting. Assure Firm Adhesion and Then Pull It Off.
- Apply Topical Cream or Hydrocortisone.
- Oral Benadryl® May Be Taken.

SEEK IMMEDIATE MEDICAL ATTENTION FOR:

- Systemic Reactions
- Extreme Pain
- Inhaled Hairs or Hairs in the Eye

Caterpillar hairs can cause respiratory problems & blindness.

MOSQUITOES: Mosquitos are flying, slender insects that possess long legs and produce aquatic larvae.

Mosquito bites can be more than just annoying and itchy. They can spread viruses that make you sick or, in rare cases, cause death. Although most kinds of mosquitoes are just nuisance mosquitoes, some kinds of mosquitoes in the United States and around the world spread viruses that can cause disease.

Mosquitoes bite during the day and night, live indoors and outdoors, and search for warm places as temperatures begin to drop. Some will hibernate in enclosed spaces, like garages, sheds, and under (or inside) homes to survive cold temperatures. Except for the southernmost states in North America, mosquito season starts in the summer and continues into fall.

Some of the diseases that mosquitos spread are listed below:

ZIKA VIRUS

Zika virus disease (Zika) is caused by the Zika virus and is spread to people primarily from the bite of an infected Aedes species mosquito. These mosquitoes bite most actively in the daytime but also bite at night. There is currently no vaccine to prevent Zika infection.

WEST NILE VIRUS

The most common way the West Nile virus is transmitted to workers is by the bite of a mosquito. Most people infected with West Nile virus will not have any symptoms. About 1 in 5 people who are infected will develop a fever and other symptoms. Less than 1% of those infected develop a serious, sometimes fatal, neurologic illness.

CHIKUNGUNYA VIRUS

Chikungunya (pronunciation: chik-en-gun-ye) virus is transmitted to people by mosquitoes. The most common symptoms of chikungunya virus infection are fever and joint pain. Other symptoms may include headache, muscle pain, joint swelling, or rash. Outbreaks have occurred in countries in Africa, Asia, Europe, and the Indian and Pacific Oceans. In late 2013, Chikungunya virus was found for the first time in the Americas on islands in the Caribbean. There is a risk that the virus will be imported to new areas by infected travelers. There is no vaccine to prevent or medicine to treat Chikungunya virus infection. Travelers can protect themselves by preventing mosquito bites. When traveling to countries with Chikungunya virus, use insect repellent, wear long sleeves and pants, and stay in places with air conditioning or that use window and door screens.

DENGUE

Dengue is caused by any one of four related viruses transmitted by mosquitoes. There are not yet any vaccines to prevent infection with dengue virus and the most effective protective measures are those that avoid mosquito bites. When infected, early recognition and prompt supportive treatment can substantially lower the risk of medical complications and death.

Dengue has emerged as a worldwide problem only since the 1950s. Although dengue rarely occurs in the continental United States, it is endemic in Puerto Rico and in many popular tourist destinations in Latin America, Southeast Asia and the Pacific islands.

MALARIA

Malaria is a disease spread through mosquito bites. Symptoms usually appear with 7 - 30 days but can take up to a year to develop. Symptoms include high fevers, shaking chills, and flu - like illness. Without treatment, malaria can cause severe illness and even death.

PROTECTING YOURSELF FROM MOSQUITO BITES: Almost everyone in the world has been bitten by a mosquito. Although most kinds of mosquitoes are just nuisance mosquitoes, some kinds of mosquitoes spread viruses that can cause disease. For most viruses spread by mosquitoes, no vaccines or medicines are available. Mosquitoes bite during the day and night, live indoors and outdoors, and search for warm places as temperatures begin to drop. Some will hibernate in enclosed spaces, like garages, sheds, and under (or inside) homes, to survive cold temperatures. Except for the southernmost states in North America, mosquito season starts in the summer and continues into fall..

- **Use insect repellent:** When used as directed, Environmental Protection Agency (EPA)-registered insect repellents are proven safe and effective, even for pregnant and breastfeeding women. Use an (EPA)-registered insect repellent with one of the following active ingredients:
    - **DEET**
    - **Picaridin**
    - **IR3535**
    - **Oil of lemon eucalyptus** (OLE)
    - **Para-menthane-diol** (PMD)
    - **2 - undecanone**
- **Cover up:** Wear long-sleeved shirts and long pants.
- **Keep mosquitoes outside:** Use air conditioning or window and door screens. If you are not able to protect yourself from mosquitoes inside your home or hotel, sleep under a mosquito bed net.

TRAVEL

Make a check list of everything you'll need for an enjoyable vacation and use the following resources to help you prepare.

- Learn about destination-specific health risks and recommendations by visiting CDC Travelers' Health website.
- Pack a travel health kit. Remember to pack insect repellent and use it as directed to prevent mosquito bites.
- See a healthcare provider familiar with travel medicine, ideally 4 to 6 weeks before your trip.
- For most viruses spread by mosquitoes, no vaccines or medicines are available. However, vaccines are available for viruses like Japanese encephalitis and yellow fever. Travelers to areas with risk of those viruses should get vaccinated.

AFTER TRAVELING

- Even if they do not feel sick, travelers should prevent mosquito bites for 3 weeks after their trip so they do not spread viruses like dengue, Zika, or chikungunya to uninfected mosquitoes.
- If you have been travelling and have symptoms including fever, headache, muscle and joint pain, and rash, see your healthcare provider immediately and be sure to share your travel history.

TICKS: Ticks are arachnids that feed off the blood of animals and humans.

In the United States, ticks are responsible for more human disease than any other insect. Tick-borne diseases are also known as zoonotic diseases. A zoonotic disease is an infectious disease that can be transmitted between animals and humans. Ticks are very effective transmitters of disease because most ticks take blood from a large variety of small and large mammals, reptiles and even birds. In general, ticks must ingest a blood meal before they can molt and move to the next stage in their life cycle. Ticks become infected with a disease-causing agent by feeding on infected mammals or birds. For example, a tick can pick up Lyme disease from a field mouse, and later in its life transmit bacteria to a deer, dog or human.

Tick-borne diseases are a type of emerging disease, many of them first recognized in the last 30 years. Human case numbers per year for tick-borne diseases are generally on the rise. This upward trend is due to better recognition and disease reporting, but is also a reflection of changes in the environment that fosters increased exposure and transmission to humans. Fortunately, not all ticks are infected, so a tick bite does not necessarily mean you will get a disease.

Some of the tick - borne diseases are listed below:

ANAPLASMOSIS

Severe and life-threatening illness is less common with anaplasmosis compared to other rickettsial diseases, such as Rocky Mountain spotted fever (RMSF) or E. chaffeensis ehrlichiosis. While the case-fatality rate among patients who seek care for the illness is <1%, predictors of a more severe course include advanced age, immunosuppression, comorbid medical conditions, and delay in diagnosis and treatment.

BABESIOSIS

Babesiosis is caused by parasites that infect red blood cells. Most U.S. cases are caused by B. microti, which is transmitted by Ixodes scapularis ticks, primarily in the Northeast and Upper Midwest. Babesia parasites also can be transmitted via transfusion, anywhere, at any time of the year. In March 2018, FDA approved the first B. microti blood donor screening tests. Congenital transmission has also been reported.

Babesia infection can range from asymptomatic to life threatening. Risk factors for severe babesiosis include asplenia, advanced age, and impaired immune function. Severe cases can be associated with marked thrombocytopenia, disseminated intravascular coagulation, hemodynamic instability, acute respiratory distress, renal failure, hepatic compromise, altered mental status, and death.

EHRLICHIOSIS

Ehrlichiosis can cause fatal illness, whereas no deaths have been reported for E. ewingii or E. muris euclairensis ehrlichiosis.

Incidence of E. chaffeensis enhrlichiosis generally increases with age, however, case-fatality rates are highest among children aged <10 years and adults aged ≥70 years.

LYME DISEASE

Lyme disease is caused by the bacterium Borrelia burgdorferi and is transmitted to humans through the bite of infected blacklegged ticks. Typical symptoms include fever, headache, fatigue, and a characteristic skin rash called erythema migrans. If left untreated, infection can spread to

joints, the heart, and the nervous system. Lyme disease is diagnosed based on symptoms, physical findings (e.g., rash), and the possibility of exposure to infected ticks. Laboratory testing is helpful if used correctly and performed with validated methods. Most cases of Lyme disease can be treated successfully with a few weeks of antibiotics. Steps to prevent Lyme disease include using insect repellent, removing ticks promptly, applying pesticides, and reducing tick habitat. The ticks that transmit Lyme disease can occasionally transmit other tickborne diseases as well.

ROCKY MOUNTAIN SPOTTED FEVER

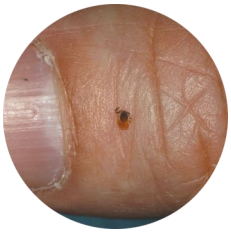
RMSF is most often transmitted by the American dog tick in the Eastern, Central and Western United States; by the Rocky Mountain wood tick in the Rocky Mountain states; and by the brown dog tick in the Southwestern United States, along the U.S.-Mexico border. RMSF can be rapidly fatal if not treated within the first 5 days of symptoms. Before tetracycline antibiotics were available, case fatality rates ranged from 20–80%.

TICK BITE PREVENTION: Ticks are generally found near the ground, in brushy or wooded areas. They can't jump or fly. Instead, they climb tall grasses or shrubs and wait for a potential host to brush against them. When this happens, they climb onto the host and seek a site for attachment.

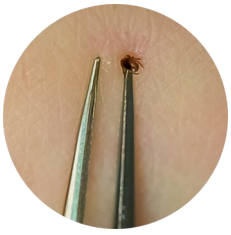
- Use Environmental Protection Agency (EPA)-registered insect repellents containing DEET, picaridin, IR3535, oil of lemon eucalyptus, para-menthane-diol, or 2-undecanone. Treat clothing and gear, such as boots, pants, socks and tents with products containing 0.5% permethrin. Additional repellent options are available. EPA's repellent search tool can help find the product that best suits your needs
- Treat dogs and cats for ticks as recommended by a veterinarian.
- Check for ticks daily, especially under the arms, in and around the ears, inside the belly button, behind the knees, between the legs, around the waist, and on the hairline and scalp.
- Shower soon after being outdoors.
- Learn more about landscaping techniques that can help reduce blacklegged tick populations in the yard.

TICK REMOVAL

- Use fine-tipped tweezers to grasp the tick as close to the skin's surface as possible. The key is to remove the tick as soon as possible. Avoid folklore remedies such as using nail polish, petroleum jelly, or heat to make the tick detach from the skin.
- Pull upward with steady, even pressure. Don't twist or jerk the tick; this can cause the mouth-parts to break off and remain in the skin. If this happens, remove the mouth-parts with clean tweezers. If you are unable to remove the mouth parts easily, leave them alone and let the skin heal.
- After removing the tick, thoroughly clean the bite area and your hands with rubbing alcohol, an iodine scrub, or soap and water.



EMBEDED TICK



STEP 1

STEP 2

TICKS THAT COMMONLY BITE HUMAN

Blacklegged Tick (Ixodes scapularis)

Adult Female

Adult Male

Nymph

Larva

Lone Star Tick (Amblyomma americanum)

Dog Tick (Dermacentor variabilis)

NOTE: Relative sizes of several ticks at different life stages.

Engorged femal blacklegged tick. Color may vary.

SNAKES

Snakes are reptiles - a group that also includes lizards, crocodiles, and turtles. Reptiles in general are covered with scales, are the same temperature as their surroundings, and have been around for millions of years. Snakes and lizards are closely related. Snakes are legless, have no external ear opening, and are not slimy. About half of our snakes lay eggs, and half give birth to completely developed young. As they grow, snakes shed their outer skins three to five times a year. All snakes can swim. The internal organs of snakes are elongated, which allows them to fit into the tubular body cavity. Most species have an elongated right lung and no left lung.

All snakes eat other animals and are classified as carnivorous. They play an important role in controlling rodent populations, and they also serve as a food source for other wildlife, such as hawks, owls, mink, skunks, and herons. Some snakes even eat other snakes. Kingsnakes, which are immune to the venom of our venomous snakes, will kill and consume them if given the opportunity. Although many of our harmless snakes will bite to defend themselves, usually their bite produces nothing more than simple scratches. Many kinds of snakes, both venomous or nonvenomous, will vibrate their tails when alarmed or threatened.

HOW TO TELL VENOMOUS FROM NONVENOMOUS SNAKES

VENOMOUS SNAKES

All venomous snakes but one species in this guide are members of the pit viper family. Pit vipers have a characteristic pit located between the eye and nostril on each side of the head. They also have a pair of well-developed fangs.

Note the shape of the pupil. The pupils of venomous snakes appear as vertical slits within the iris.

Most venomous species all have a single row of scales along the underside of the tail.

NONVENOMOUS SNAKES

Harmless snakes have round pupils and a double row of scales along the undersides of their tails.

A triangle-shaped head doesn't necessarily mean danger. Although the venomous snakes have a somewhat triangle-shaped head, several harmless species, such as watersnakes, gartersnakes, and hog-nosed snakes, can and do flatten their heads, which can cause them to appear triangular.

PREVENTING SNAKE BITES

Watch where you step, put your hands, or sit down. Venomous snakes live on or near the ground. They lay on rocks, wood piles and other spots for a place to sun and a place to hide. Snakes will do all they can to avoid you, but will definitely bite if stepped on or feel threatened or trapped. Most bites happen around the ankle and about 99% of all bites occur below the knee, except when someone accidentally picks up or falls on a snake.

The fangs of venomous snakes are long and sharp but they break easily. These fangs usually don’t penetrate canvas tennis shoes and almost never penetrate leather shoes or boots. So watch carefully where you step in tall grass and make sure to wear boots. If you are bitten, you need to go to the hospital immediately.

Snakes are not something to be feared, but rather a creature to be respected as a fascinating and helpful member of the out-doors.

PIT VIPERS: RATTLESNAKES

There are many species of rattlesnakes in the United States. Rattlesnakes are the largest of the venomous snakes in the United States. They can accurately strike at up to one-third their body length. Rattlesnakes use their rattles or tails as a warning when they feel threatened. Rattlesnakes may be found sunning themselves near logs, boulders, or open areas. These snakes may be found in most work habitats including the mountains, prairies, deserts, and beaches.

Rattlesnakes typically vibrate their tails, causing a sharp buzzing sound, when alarmed. Do not rely on a rattle sound for identification, though; remember that snakes' tails are occasionally injured or cut off, and that a surprised snake may not have time to sound its rattle.

MOJAVE RATTLESNAKE: The Mojave rattlesnake is primarily nocturnal, avoiding the heat of the day. Females are live-bearing, and give birth to as many as seventeen young during late summer. Mojave rattlesnakes eat a variety of small mammals (such as kangaroo rats, rabbits, and mice), as well as lizards and occasionally other snakes. Individuals are greenish, brownish, or yellowish in color, with well-defined darker colored patches of diamonds, ovals, or hexagons running down their backs.

These snakes can primarily be found in the barren desert and desert shrub habitats.

THIS SNAKE POSSESSES A NEUROTOXIC VENOM

TIMBER RATTLESNAKE: Generally tan or yellowish tan, the timber rattlesnake has markings along the back that are dark brown and change from blotches on the neck to bands near the tail. Often, a dark line extends from the eye along the angle of the jaw, and there is a rust-colored stripe down the back. It has a large rattle at the end of its tail. These rattlesnakes, like all others, have a hole between the nostril and the eye, and the pupils, in daylight, are vertical, like a cat's.

This snake, like many others, uses camouflage to avoid being seen; however, it will bite if harassed. It is dangerously venomous, and medical attention must be sought immediately if someone is bitten. There are only a few cases of rattlesnake bites in Missouri. **THIS SNAKE POSSESSES A NEUROTOXIC VENOM**

BANDED ROCK RATTLESNAKE: The banded rock rattlesnake is a venomous species. It is light gray with dark, gray-black bands along the length of its body. This species is sexually dichromatic, meaning males and females differ in coloration. This snake's color variations are also dictated by subspecies and geographic location.

Banded rock rattlesnakes are a small- to medium-sized species, typically reaching 60 to 70 centimeters (23 to 27 inches) in length, though some males may exceed 80 centimeters (31 inches). Males tend to be larger than females.

DESERT MASSASAUGA: This is a relatively short, heavy-bodied snake with a total adult length of 51-82 cm (20-32 in). Massasaugas possess large, distinct, saddle-shaped or oblong blotches along their backs, sometimes outlined with a thin white or yellowish margin, and smaller blotches between the large blotches along their sides. The blotches are typically dark brown to blackish, occasionally light chocolate or reddish brown, and overlaid on a light gray background. The head is heavily patterned, with thick brown bands running from the eye to the back corner of the mouth and heat sensing pits between the eye and nostril. Juvenile massasaugas look similar to adults, but have a yellow or green tipped tail and may only have one rattle segment called a button. Scales are keeled, the anal plate is undivided, and like most snake species, males have relatively longer tails than females. This snake's tail is tipped with an obvious rattle, and its pupils are elliptical.

MOTTLED ROCK RATTLESNAKE: Similar to the Banded Rock Rattlesnake, these snakes reach a Length of 16-28 in. The background color can vary greatly and frequently resembles the surrounding rocks. Color ranges include various shades of grey, tan, rust, and pink. The narrow somewhat serrated crossbands are usually brown, grey or black and extend the length of the body to the tail. There is a variable amount of dark speckling between the crossbands.

NORTHERN BLACKTAIL RATTLESNAKE: The Northern Blacktail is gray to olive green with dark blotches along the back and a black tail. Averaging a length of 3-1/2 feet, it is found from Central Texas throughout most of West Texas in bushes and on rocky ledges.

PRAIRIE RATTLESNAKE: Adults have a triangular head, blunt nose, narrow neck, and stout body; they range in length from 15 to 60 inches. The background color above varies from pale green to brown; a series of brown or black blotches edged with a dark and then a light line extends the length of the body. The blotches often merge into rings on the tail. There are also blotches on the sides. The belly is pale yellow to white and lacks blotches.

WESTERN DIAMONDBACK: Most wildlife species generally hide in the presence of a human or animal larger than themselves. The western diamondback rattlesnake (Crotalus atrox) is an exception to this. Instead of hiding, the diamondback will stand its ground, rattling fearsomely. It is not rattling to protect itself, but to warn intruders of its presence. The diamondback has all the reasons to stand its ground too. Being near the top of the food chain is one, but having one of the most deadly bites in the world gives the snake all the reason to act fearsome.

The western diamondback, despite its very obvious rattle on the tip of its tail, ranges in colors from brown to gray to pinkish, depending on the shade of its habitat. Its spade shaped head is distinguished by two dark stripes, one on each side of its face, which run diagonally, like Zorro's mask, from its eyes to its jaws. The tail is circled by several alternating black and white bands, like the pattern of a raccoon's tail. These characteristics are very distinct in young snakes, but fade in older snakes.

Living in various habitats ranging from desert flats to river bottoms, the western diamondback spans across most of the southwest part of the United States, including most of Oklahoma. The diamondback takes up residence anywhere small mammals such as prairie dogs, rabbits, gophers, ground squirrels, mice and rats can be found..

WESTERN MASSASAUGA: Massasaugas range from 24 to 30 inches. Their body is a grayish color with a series of dark-brown, irregularly shaped blotches along the top of the back. Along the sides of the body are two to three rows of smaller, more rounded spots. Massasaugas are pit vipers, which means there is a heat-sensing pit on the side of the head between the eye and nostril. Massasaugas have vertically elliptical pupils and a single row of scales on the underside of the tail. The body is very stout compared to the length.

WESTERN PYGMY RATTLESNAKE: The western pygmy rattlesnake is a small, colorful rattlesnake with a slender tail and tiny rattle. General color is light brownish gray, with a row of small, dark brown spots on the back and similar spots on each side. Most specimens also have a rust-colored stripe down the back. The belly is usually gray or dusky cream-colored, with numerous irregularly spaced bars. The head has a distinct black stripe that angles from the eye to the corner of the mouth, and a sensory pit located between each nostril and eye. The tail is thin and has a tiny rattle. Like other venomous snakes, they have "pits" on the sides of their heads, and the pupils are diamond-shaped in daylight (not round).

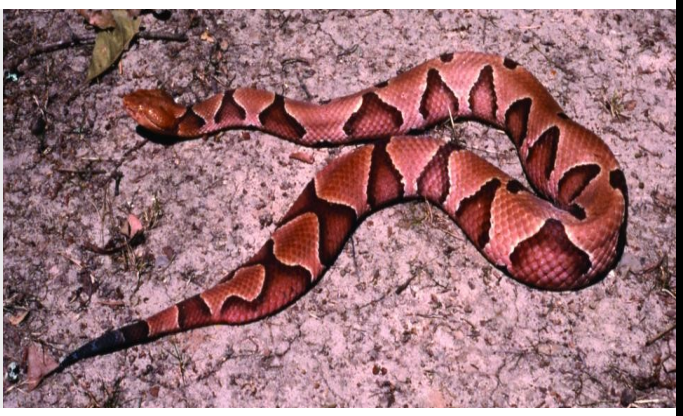
The disposition of this rattlesnake varies from individual to individual. Some will try to defend themselves vigorously by coiling, sounding their rattles, jerking their head, and striking at any movement. Others remain motionless and try to escape only when touched by a stick or snake hook. The sound of the vibrating rattle is a faint buzz, like the sound of a grasshopper, and can be heard for only about a yard away.

PIT VIPERS: COPPERHEADS

Copperheads have chestnut or reddish-brown crossbands on a lighter colored body. These snakes are found in rocky areas and wooded bottomlands and are rare in dry areas. In the spring they can be found along streams and rivers, as well as in weed-covered vacant lots.

BROAD - BANDED COPPERHEAD: The broad-banded copperhead which has been described in the western areas of the United States ranging from the southern regions of Kansas and Oklahoma to North Texas. The snake is found in riverbanks of natural courses of water like creeks or banks that are exposed to water flow only during sporadic high water stages and thus maintaining sparse vegetation. They are also found in small habitats such as a cluster of meadows or spaces between gravel, decomposed wood, collections of leaves, and rotting flora. It is not common to find them near human residences; thus human bites are very rare.

SOUTHERN COPPERHEAD: Southern copperheads reach an adult length of 24 to 26 inches (60 to 66 cm). They have a pale brown to light tan body, often with a pinkish tint. Their yellow eyes have elliptical or cat-like pupils. Its body, covered with rough scales, is patterned with dark, hour glass-shaped cross bands, wider at their base and narrow across the back.



TRANS - PECOS COPPERHEAD: This subspecies is the western most ranging copperhead, living in isolated populations in desert oases. Generally occurring near wet canyons and permanent springs, they can occasionally be found in the desert during the rainy season.

PIT VIPERS: COTTONMOUTHS (WATER MOCCASINS)

Cottonmouths are venomous and highly aquatic snakes. They inhabit swamps, streams, floodplains, and other wetland habitats. The name “cottonmouth” is from the whitish lining of its mouth. When alarmed, it opens its mouth widely, showing the cotton-white lining. The body is black with little or no pattern, or dark brown with darker bands on the back. The belly is dark brown or black. Young cottonmouths are patterned something like a copperhead and usually have a yellowish-green tail. Like all pit vipers, cottonmouths have a hole between the nostril and the eye, and the pupils are vertical, like a cat’s.

WESTERN COTTONMOUTH: The cottonmouth is a dark, stout, thick-bodied venomous snake. When frightened, the cottonmouth will pop its mouth open. The skin inside its mouth is bright white-and the reason it is called "cottonmouth." Most adults average 30-42 inches (76-106.7 cm) long. They are dark, grayish-brown with little or no markings. Very old cottonmouths may be entirely black. Its broad, flat head distinctly wider than its neck, and it has an elliptical (cat-like) pupil. By day the pupil appears as a narrow slit; at night the pupil is wide and may even look round.

When swimming, the cottonmouth holds its head above water with most of its body barely touching the surface. Cottonmouths are nocturnal, most active at night. The young wiggle their tails so that the tip appears to be a small worm. When small frogs and lizards see the wriggling tail, they think it's something to eat and rush forward to eat it, only to be eaten by the baby cottonmouth. Cottonmouths eat other snakes, including their own kind. The only time more than one cottonmouth would be in the same place at the same time is: 1) mating season, 2) female giving birth, or 3) one cottonmouth is eating another.

Cottonmouths CAN bite underwater, but their prey is fish. If they could not bite underwater, they would starve. Cottonmouths avoid contact with humans or any other possible predator. (All those stories about swarming cottonmouths attacking people are myths!) But like any animal, when threatened, cottonmouths will attack to protect themselves. In some places, especially around woodland ponds, you can find western cottonmouths every few yards. Sometimes, you can smell their musky odor in the air. Heat sensors on either side of the snake's face detect heat and help the cottonmouth to find food.

ELAPID SNAKES (NORTH AMERICAN COBRAS): CORAL SNAKES

Although pit vipers are by far the most common family of venomous snakes found in the United States, elapid snakes do exist in the United States as well. The main difference between pit vipers and elapids are the structure of the venom delivery apparatus, as well as the nature of the venom itself. Elapids have what is referred to as a proteroglyphic detention, which means fixed front fangs.

All elapid snakes are venomous, but many are very small and do not pose danger to humans. The King Cobra is the longest venomous snake and can reach over 5m. Most terrestrial species lay eggs, but some are viviparous.

There are two subfamilies: Elapinae (which contains about 220 terrestrial species) and Hydrophilidae (about 70 species of sea snakes). Snakes of the former subfamily range from southern North America through South America, Africa (except from Madagascar), southern Asia, Indoaustralian subcontinent and many Pacific Islands. Sea snakes are restricted to the Indian Ocean and southwest Pacific Ocean. One species occurs across the Pacific to the coasts of Central and South America.

TEXAS CORAL SNAKE: **Coral snakes exist in the southern range of many temperate regions of the United States. They can be found in pine and scrub oak habitats in parts of their range, but sometimes inhabit hardwood areas and pine flat woods that undergo seasonal flooding.They like to live under logs, in leaf litter, and in moist rotted wood and mulch. Coral snakes feed on other smaller snakes, both harmless and venomous. They also eat lizards, especially small skinks. They are also known to be cannibalistic, occasionally feeding on other coral snakes. The coral snake is mainly nocturnal, but can sometimes be seen in the early morning hours.**

Coral snakes are non aggressive. They actually are very shy and secretive. They account for less than 1% of snake bites in America. Their venom is a neurotoxin, which paralyzes the nerves. Coral snakes must chew on their prey to introduce venom into a victim's system due to their small teeth. When threatened, a coral snake will curl the tip of its tail to confuse its attacker as to which end is its head. Coral snakes are often confused with milk snakes, which look very similar. One good rule to remember is "red on black, venom lack. Red touches yellow, kill a fellow".

THIS SNAKE POSSESSES A NEUROTOXIC VENOM

CORAL SNAKE

MILK SNAKE

SNAKE BITE SYMPTOMS

MILD ENVENOMATION

- Fang marks, usually paired but not always
- Mild to severe pain
- Mild inflammation and swelling
- No systemic symptoms

MODERATE ENVENOMATION

- **Fang marks with swelling**
- **Immediate pain at bite site & spreading to surrounding tissue**
- **Blood and/or serum may ooze from fang punctures**
- **Vomiting, metallic taste in mouth**
- **Muscle twitches or tremors**

SEVERE ENVENOMATION

- Immediate, severe pain at bite site
- Oozing of serum & blood from fang punctures
- Rapid swelling, some bruising
- Metallic taste, numbness of lips, nose, or tongue
- Blurred vision, altered mental state
- Shock, diffuse, or life-threatening internal bleeding
- Respiratory difficulty
- Kidney failure

Symptoms of Coral Snake bites may be delayed for 10 - 12 hours. If it is likely that the bite is from a coral snake, the victim should be taken to a hospital for observation and treatment.

SNAKE BITE FIRST AID

- Seek medical attention immediately for treatment.
- Remain calm.
- Remove any rings or constricting items because the affected area may swell.
- If possible, wash the bite with soap and water and cover with a clean cloth or dressing.
- Immobilize the bitten area.
- Keep the bitten limb level with the heart.

- **NEVER cut the skin.**
- **NEVER attempt to suck the venom out.**
- **NEVER use ice.**
- **NEVER use a tourniquet.**
- **NEVER use aspirin, anti-inflammatory drugs or alcohol.**
- **NEVER use electric shock**
- **NEVER try to capture the snake.**

Call the Poison Center at 1-800-222-1222 for more instructions.

GLOSSARY

ANAPHYLACTIC SHOCK

Severe and sometimes fatal systemic reaction upon a second exposure to a specific antigen (as wasp venom or penicillin) after previous episode characterized by respiratory symptoms, fainting, itching and hives.

ANTIHISTAMINE

Medicines that oppose the actions of histamine and are used especially for treating allergic reactions, cold symptoms and motion sickness.

ANALGESIC

A drug or medication given to reduce pain without resulting in loss of consciousness.

BENZOCAINE

Local anesthetic.

CORTICOSTERIODS

Any of the steroid hormones made by the outer layer of the adrenal gland; e.g. Cortisol.

ENVENOMATION

The injection of a poisonous material by sting, spine, bite or other similar means.

NEUROTOXIC

Toxic to the nerves or nervous tissue.

SYSTEMIC REACTION

Affecting the body generally; dizziness, fainting, difficulty breathing, swollen lymph nodes.

TOURNIQUET

A device, typically a tightly encircling bandage, used to check bleeding by temporarily stopping the flow of blood through a large artery in a limb.

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