

Commonly Encountered Field Hazards in California

Ecological Studies Branch, DES

Stinging Insects



Bees sting and inject venom only once and usually die within minutes, but a pheromone “marks” the victim and attracts more bees to attack and sting. Honey bees and bumble bees are not overly aggressive, but Africanized honey bees (also known as killer bees) are extremely aggressive and can sting in large swarms. They are nearly identical to honey bees but are only found south of Fresno County.

Hornets can sting multiple times and are some of the most aggressive stinging insects. A colony can be identified by their gray, rounded, paper-like nests high above ground.



Wasps can sting multiple times but are not as aggressive as hornets or yellow jackets. A colony can be identified by their paper-like nests with a circular, umbrella shaped comb of cells that open towards the bottom.



Yellow jackets can sting multiple times but are often mistaken for bees. They build nests underground and are generally attracted to garbage, particularly meats and sweets.



Anaphylaxis

Those who are allergic to an insect sting will develop symptoms quickly, including:

- Hives (raised red bumps on the skin)
- Difficulty breathing
- Swelling of the face, throat, or mouth

An anaphylactic reaction can occur the first time, every time, or after being stung several times. It can lead to cardiac arrest in 10 minutes or less.

Avoidance

- Wear long-sleeved shirts and pants tucked into boots or socks
- Use insect repellents with DEET
- Inspect the area around you for nests

If you know you are allergic, consider asking your doctor for an epinephrine auto-injector (EpiPen) and always carry it with you. Let others around you know that you are allergic and what to do if you are stung.

Ticks

There are 47 species of ticks in California but only 6 regularly attach to humans. The western black-legged tick (*Ixodes pacificus*) attaches to humans most frequently and is the only tick in California that transmits Lyme disease.



Ticks have 4 life stages: egg, larva, nymph, and adult. In California, only the nymph and adult female of the western black-legged tick are important in transmitting Lyme disease. Nymphs are usually found in leaf litter or on logs, tree trunks, or fallen branches and are most active in spring and early summer. Adults are usually found on the tips of grasses or shrubs and are most active from fall through early spring. They do not jump or fly.

Actual size of the western black-legged tick
Nymph Adult Male Adult Female Engorged Female



Lyme Disease

Early symptoms (7-10 days after a bite):

- Flu-like symptoms
 - Paralyzed muscles of the face
 - A painless rash that expands over a 1-2 week period and then disappears (not to be confused with an allergic reaction that occurs less than 24 hours after a tick bite)
- Late symptoms (months or years after a bite):
- Arthritis, especially in the knees
 - Numbness, tingling, or pain of the muscles
 - Difficulties with memory, concentration, learning, or speech

Lyme disease can be successfully treated with antibiotics, especially in the early stages.

Avoidance

- Wear light colored long-sleeved shirts and pants tucked into boots or socks
- Use repellents with DEET on exposed skin
- Check your skin and clothes after working outdoors and shower as soon as possible
- Wash and dry your clothes in a hot dryer

If you find an attached tick, remove it immediately. Use fine-tipped tweezers to grasp it as close to the skin as possible and slowly pull straight up with steady pressure. After removing, clean the bite area with soap and water.

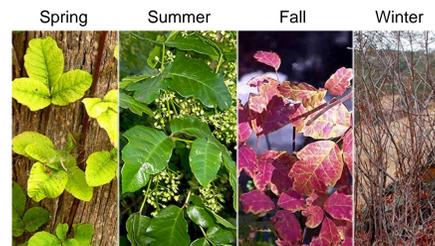


Poison Oak

Western poison oak (*Toxicodendron diversilobum*) is native to western North America. It grows as a shrub in open areas under full sunlight, and as a climbing vine in shaded areas.

Leaves normally consist of 3 leaflets that resemble oak leaves (smooth with lobed edges). The surface can be glossy or dull and sometimes even hairy.

Poison oak thrives along roadsides and other areas where established plants are disturbed, but it usually isn't found above an elevation of 5,000 feet.



Dermatitis

All parts of this plant (leaves, stems, and roots) contain urushiol, an oily sap that can trigger an allergic reaction when it comes into contact with skin. Exposure can happen directly or by touching objects that have come into contact with the sap. However, sensitivity varies from person to person, and up to 15% of Americans are completely resistant.

Symptoms (1-3 days after exposure):

- Redness and itching of the skin
 - A rash, often in streaks or patches
 - Blisters that may leak fluid
- Symptoms are usually mild and last 5-12 days. In severe cases they can last for 30 days or longer.

Avoidance

The saying “leaves of three, let them be” can help you remember and identify poison oak out in the field. If you suspect you have come in contact with the plant:

- Wash the contaminated area with soap and water as soon as possible
- Wash all clothes and objects that may have become contaminated

If symptoms appear use self-care: cool compresses for blisters, calamine lotion for itching, and over-the-counter antihistamines.

Rodents & Fleas



The drought in California is forcing more rodents to search for food and water indoors. However, hantavirus is only found in deer mice (*Peromyscus maniculatus*) in California.

The drought has also created conditions that has allowed fleas to thrive. However, rodents with fleas found in urban areas don't usually carry the plague.



Hantavirus

Although rare, about a third of the hantavirus cases reported in California have been fatal. Infection is caused by breathing air with microscopic particles from the urine or droppings of a rodent that is infected. There is no specific treatment, but early medical attention can increase the chance of survival.

Symptoms (1-2 weeks after exposure):

- Flu-like (fever, headache, muscle aches)
- 2-7 days after the first symptoms begin, the lungs will begin to fill with fluid and cause breathing problems

Plague

Although rare, the most recent case of plague in California was reported in August 2015. It is carried by squirrels, chipmunks, and other wild rodents and their fleas. It can be treated with antibiotics if diagnosed early.

Symptoms (2-6 days after exposure):

- Fever, chills, nausea, weakness, headache
- Bubonic plague is characterized by swollen and tender lymph nodes
- Septicemic plague can cause high fever, fatigue, and bleeding disorders
- Pneumonic plague can cause difficulty breathing and coughing up blood

Avoidance

- Use caution and wear gloves if you have to handle wild or dead rodents
- If you find an area indoors contaminated by rodents, open doors and windows and allow it to air out for 2 hours before cleaning
- DO NOT VACUUM OR SWEEP THE AREA
- Spray the contaminated area with a bleach solution (1.5 cups of bleach per gallon of water) and let sit for 15 minutes before cleaning up with a mop or sponge



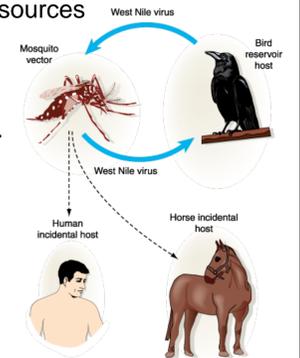
Mosquitoes

Mosquitoes have 4 life stages: egg, larva, pupa, and adult. Some species go through their entire life cycle in as little as 4 days or as long as a month.

All mosquitoes must have water to complete their life cycle. Eggs float on the surface and can hatch within 48 hours of coming into contact with water. The larvae and pupae live in water until they emerge as adults.

Only the adult female bites. They can become carriers of West Nile Virus when they bite an infected bird. The drought in California may be making things worse as diminishing sources

of water bring birds and mosquitoes closer together. And hotter summers can extend the mosquito season from 2-3 months to 5 months.



West Nile Virus

The first human death in California due to West Nile Virus in 2015 was confirmed in July. People 50 years of age and older have a higher chance of getting sick and are more likely to develop complications.

Most people that are infected (80%) will not have any symptoms. Some people (20%) will develop mild flu-like symptoms 3-14 days after a bite. Very few people (less than 1%) will develop serious symptoms such as tremors, convulsions, vision loss, paralysis, and coma. These symptoms may last several weeks and neurological effects may be permanent. There is no specific treatment, but mild cases will pass on their own.

Avoidance

- If possible, stay indoors at dawn and dusk when mosquitoes are most active
- Fix torn screens on windows and doors to keep them from getting indoors
- Wear long-sleeved shirts and pants
- Use insect repellents with DEET
- Dump or drain water that has been standing for more than 3 days