

Vampire Bats in Texas:

Ecology, Signs, and Managing Damage to Livestock

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The common vampire bat, *Desmodus rotundus*, previously restricted to areas outside the southern US border, has recently begun to expand its range northward toward the Lower Rio Grande Valley of Texas. In Mexico and regions farther south, this species damages livestock and is a source of rabies (Fig. 1).

Because researchers expect vampire bats to expand their range to southern Texas, livestock producers need to be aware of the ecology of the species, its habits, potential impacts on livestock, and how to recognize the signs of vampire bat feeding and rabies in livestock.

Ecology of Vampire Bats

Three species of vampire bats feed exclusively on the blood of other animals: the common vampire bat, *Desmodus rotundus*; the hairy-legged vampire bat, *Diphylla ecaudata*; and the white-winged vampire bat, *Diaemus youngi*. These bats are restricted to the New World, especially South and Central America as well as parts of Mexico (Fig. 2). Of these species, the common vampire bat is enlarging its range, most likely because temperatures are increasingly warmer and areas farther north are becoming suitable habitat for them. Climate models suggest that the bats can exist only as far north as south Texas.



Figure 1. The common vampire bat. Source: A vampire bat hangs from a tree branch in Mexico. Photo by Luis Lecuna, USDA APHIS, International Services, Mexico by U.S. Department of Agriculture. (CC BY 2.0)

Although many bat species are social and live together in communal roost sites, the vampire bat is one of the most social, with dominant males defending groups of females. While a colony may number in the hundreds or thousands, individual groups within the colony are made up of a single male and up to 20 females. Non-dominant males live at the fringes of the group and try to steal females from the dominant males.

Vampire bats will roost with other bat species but exclude them from the vampire bat group. Roost sites include caves, tunnels, abandoned buildings, and hollow trees, and bats will range between 2 to 5 miles from their roost sites.

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Figure 2. Range of the common vampire bat. Source: *Geographical distribution of Desmodus rotundus according to Greenhall & Al., 1983 by A proietti. (CC BY SA 3.0)*

The vampire bat is roughly the length of the palm of an adult's hand (3 to 4 inches) and its wingspan about twice that size (Fig. 3). They weigh a mere 2 ounces but, after feeding, can weigh much more.

Vampire bats consume roughly 4 teaspoons of blood daily, but evidence suggests that they might consume this amount several times in a day. Bites on sleeping animals usually occur on the shoulders, neck, base of the horns or ears, snout, elbows, legs, tail, vulva, and anus. Bats usually bite swine on the ears, nose, and teats.



Figure 3. A vampire bat is about the size of the palm of an adult's hand. Source: *A vampire bat is held in a protective glove in Mexico. Photo by Luis Lecuna, USDA APHIS, International Services, Mexico by U.S. Department of Agriculture. (CC BY 2.0)*

Because the cut is surgically precise, the animals do not feel pain from the bites. If an animal does feel the bite or the presence of the bat, the bat retreats until the animal is once again calm and then continues.

In some cases, livestock will notice painful bites. Some biologists believe that these painful bites are the result of either inexperienced, juvenile bats or rabid bats unable to feed efficiently due to the detrimental effects of the disease on their nervous system.

Potential Impacts to Livestock

Vampire bats generally feed in the dark of night, avoiding bright moonlight. They attack sleeping livestock (cattle, equines, goats, sheep, and swine), poultry, and, occasionally, humans. Bats also feed on wild animals, but these preferences are not well documented.

On livestock, bats usually bite an area near a vein, using their incisors to make a clean bite and deepening the wound with their tongue. Anticoagulants in the saliva allow the blood to flow uninterrupted as the bat laps up its blood meal (Fig. 4).

A single bat will feed between 10 and 40 minutes on a single site, depending on the blood flow. Afterwards, the wound bleeds for a considerably longer time. In some cases, multiple bats will use a single wound in succession. Another scenario is for several bats to make multiple incisions into the animal at once.

Vampire bat feeding can cause significant blood loss, particularly on smaller livestock, adding the risk of infection to wounds as well as other health-related issues. The potential for disease transmission, particularly rabies, is a concern to livestock raisers. While not all vampire bats have rabies, the interaction of great numbers of cattle and sizable bat populations produces an environment where rabies could become prevalent.

Signs of Feeding

Vampire bat bites are small and hard to see. The anticoagulant in the bat's saliva can cause the wound to continue to bleed for an hour or more after the bat has left the animal. The main symptom of vampire bat bites on livestock is free-flowing or dried blood originating from a wound along the spine, neck, ears, or hooves. Even close examination may not detect the wound itself, but the blood will drain for several inches down the animal's side.



Figure 4. A vampire bat feeds from a cow. Source: *A vampire bat feeds on a cow in Mexico. The cow later died of rabies. Photo by Luis Lecuna, USDA APHIS, International Services, Mexico by U.S. Department of Agriculture. (CC BY 2.0)*

While blood loss can make animals lethargic, livestock with rabies is usually the first indication that vampire bats are in the area. Vampire-bat-vec-tored rabies is often detected in an area several years before the first bat is captured.

Rabid livestock progressively lose neurological ability. In the early stages, they walk erratically, display rear leg weakness, and bump into objects. In later stages, they will lie on their side and move their feet as though they are running.

Rabies is always fatal in livestock. When investi-gating potentially rabid livestock, veterinarians and livestock producers should protect themselves from exposure by wearing protective equipment, such as rubber gloves and safety glasses, and avoiding contact with fluids, such as saliva and blood, as well as nervous system tissue, including the brain and spinal chord.

Damage Management

Bat roost removal: Because vampire bats are highly adaptable, removing roosts is rarely effec-tive in managing bat populations. Exceptions may include removing abandoned buildings or livestock shelters that vampire bats are known to use. While

roost removal may move the vampire bats, it also negatively impacts other bat species also using those roosts—bats that help control insect pests and pol-linate native plants and crops, providing a valuable service to agricultural producers. Do not attempt to remove a roost without professional advice.

Bat toxicants: In the United States, there are no legal toxicants for bats. In Mexico and other Latin American countries, one toxicant used to control vampire bats as pests is mixed into a gel and spread on the bat, which is then released to return to the roost. The bat and others in the colony ingest the tox-icant when grooming. Using toxicants does not man-age the potential impact of rabies, but does control numbers in areas where the bat is well established.

Livestock vaccination: When administered properly, vaccinating livestock against rabies is 100 percent effective at preventing the disease and is the most desirable option for reducing potential economic impacts from vampire bats. To determine if vaccination is cost-effective for your livestock operation, see the USDA Wildlife Services tool at https://www.aphis.usda.gov/aphis/ourfocus/wildlifedamage/programs/nwrc/research-areas/sa_economics/ct_three-step_calculator_english or consult your veterinarian.

Consider vaccinating other domestic and wild-life species in areas with a confirmed presence of vampire bats and incidents of rabies in livestock.

Summary

Vampire bats are a relatively new species in the United States. A potential nuisance animal for live-stock raisers, it is critical that those living near the US–Mexico border in the Lower Rio Grande Valley of Texas become aware of the signs of vampire bat damage and the potential options to mitigate losses.

References

https://www.aphis.usda.gov/aphis/ourfocus/wildlifedamage/programs/nwrc/research-areas/sa_economics/ct_three-step_calculator_english

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