

Rabies in Animals

Rabies is a viral zoonosis affecting the central nervous system of warm-blooded animals. Transmission occurs when saliva containing rabies virus is introduced into an opening in the skin, usually via the bite (or possibly scratch) of a rabid animal. Though rare, transmission can also occur through contamination of mucous membranes. Animals considered to be high risk for transmitting rabies in Texas include bats, skunks, foxes, coyotes, and raccoons; the first four of these wildlife species serve as reservoirs for specific rabies virus variants (types) in Texas. Rabies infection in a species other than the reservoir species for the variant is considered “spillover.” An example of spillover would be a cat infected with a skunk variant of rabies virus.

In 2010, 773 (6%) of 12,630 animal specimens in Texas that were tested (confirmed as positive or negative) were positive for rabies. This was a 7% decrease in cases from the 830 cases confirmed in 2009. In 2010, there were 61 positive rabies cases per 1,000 specimens tested, which was down from 63 positive rabies cases per 1,000 specimens tested in 2009. Yearly totals for 1994 through 2010 are illustrated in Figure 1.

During 2010, the highest monthly number of laboratory-confirmed rabies cases (124) occurred in April with skunks (66) being the predominant rabid species reported; September had the second highest number of cases (90) with bats (70) being the predominant rabid species. Cases of rabies were confirmed in 140 of the 254 Texas counties (Figure 2) compared with 127 counties with reported cases in 2009.

Williamson County had the highest number of reported rabies cases per county statewide with 80 cases in 2010, 78 of which were bats. In 2009, Travis County had the highest number of reported cases with 103 (102 of which were bats).

Rabid wildlife accounted for 724 (94%) of the confirmed cases throughout the state in 2010; in 2009, rabid wildlife accounted for 785 (95%) of the confirmed cases (Table 1). Bats were the primary source of positive cases reported in 2010 (48% of all positive cases). During 2010, 373 bats were positive for rabies compared with 443 (53% of all positive cases) in 2009. Of all bats tested for rabies, 12% were positive in 2010 and 11% were positive in 2009. Rabies in bats is enzootic in Texas; there are numerous bat variants of rabies virus throughout the state. In 2010, there were 3 cases (2 cats and 1 cow) in which there was spillover of a bat rabies virus variant to terrestrial animals. The cow was a feedlot animal imported from Mexico that was infected with a vampire-bat variant of rabies indigenous to Mexico, not Texas.

Skunks had the second highest number of confirmed rabies cases with 322 (42% of all positive cases) in 2010 compared with 313 (38% of all positive cases) in 2009. Of all skunks tested for rabies, 28% were positive in 2010 and in 2009. The south-central skunk variant of rabies virus is the most prevalent skunk variant in Texas. Rabies cases in 2010 in which the south-central skunk variant could be confirmed included 315 skunks, 18 raccoons, 18 cats, 15 dogs, 10 foxes, 7 horses, 4 cows, 1 bobcat, 1 donkey, and 1 goat.

There were 49 reported rabies cases in domestic animals (6% of all positive cases) (Table 2). Rabies in domestic animals continues to be a concern because they are more likely to have contact with humans than are rabid wildlife. Cats (20) represented 3% and dogs (15) represented 2% of all positive cases in 2010. In 2009, there were 45 reported rabies cases in domestic animals (5% of all positive cases); of these rabies cases, 15 were cats and 14 were dogs.

Twenty-one counties have been involved in the South Texas canine rabies epizootic since it began in 1988. Statewide there were no reported cases with the domestic dog/coyote (DDC) variant of the rabies

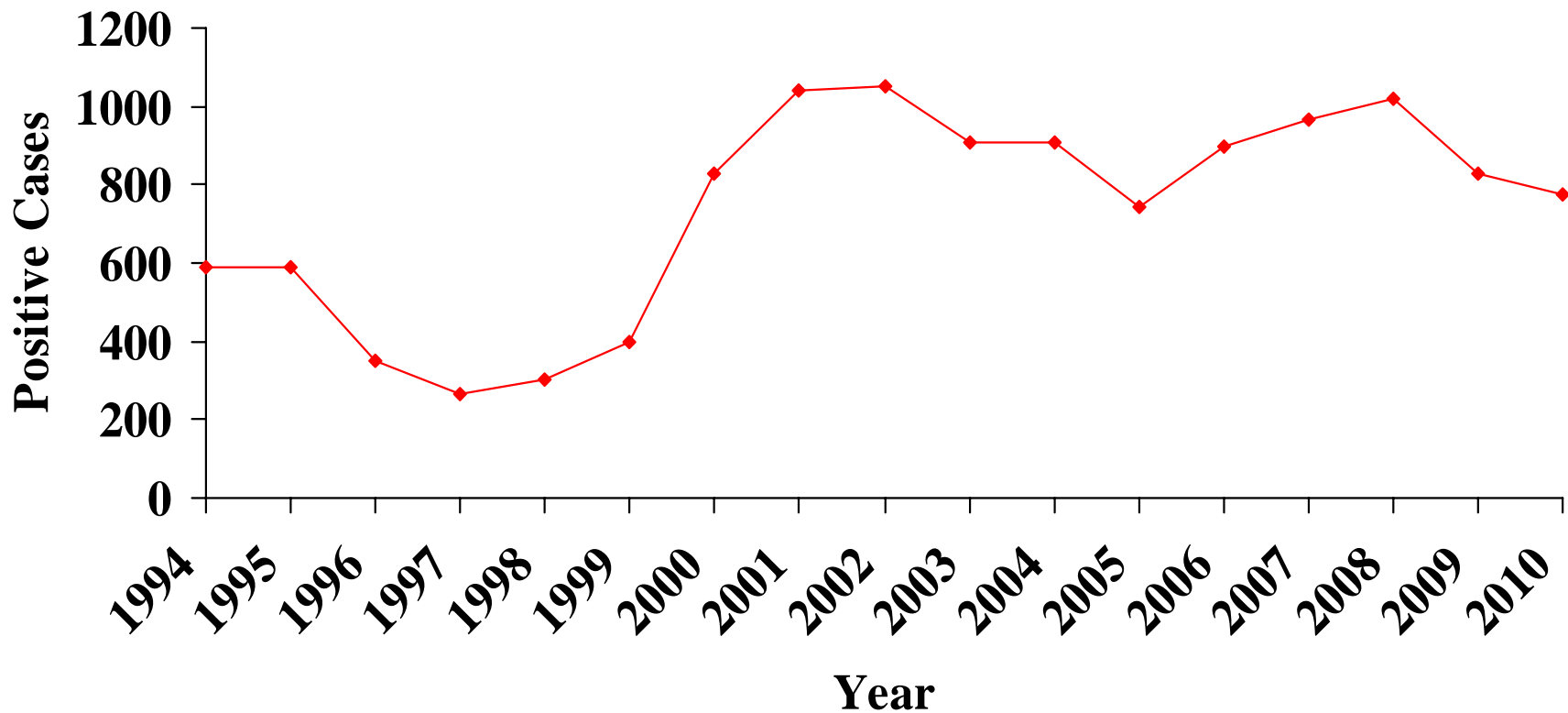
virus in 2010. The last reported case with the DDC rabies virus variant was in March 2004.

Fifty-three counties have been involved in the West-Central Texas gray fox rabies epizootic since it began in 1988. There were no recorded cases of the Texas fox (TF) variant of the rabies virus in 2010; 2 counties reported cases in 2009. Of all positive cases statewide in 2009, 2 (0.2%) were infected with the TF variant of the rabies virus; the 2 rabies cases with the TF variant in 2009 included 1 coyote and 1 dog. The last reported case with the gray fox rabies virus variant was in May 2009.

In response to the canine and gray fox rabies epizootics, the Oral Rabies Vaccination Program (ORVP) for coyotes in South Texas was initiated in February 1995, and the ORVP for gray foxes in West-Central Texas was initiated in January 1996; the programs have continued annually. These programs target reservoir species for the DDC and TF variants of the rabies virus, specifically coyotes and gray foxes, respectively. The coyote-to-coyote propagation of the TF variant seemingly occurring in 2007 and 2008 continues to be suspected, as the only two cases documented in 2009 were in a dog that had been observed in a fight with a coyote and in a coyote. Immunization is accomplished by aerial distribution of an edible bait containing oral rabies vaccine. The goal of the ORVP has been to create zones of vaccinated coyotes and gray foxes across the epizootic areas or, at a minimum, along the leading edges of the areas where these rabies variants are located in order to eventually eliminate the epizootics. With the elimination of the DDC variant from Texas, the ORVP in South Texas now serves as an ongoing barrier to prevent reintroduction from Mexico.

During the 5-year period from 1995 through 1999, the average number of skunks that were confirmed positive for rabies was 110 cases per year with a range of 69 to 192; for 2000 through 2010, the average number of confirmed cases of rabies in skunks per year was 487 with a range of 313 to 778. Currently, there are no oral or parenteral rabies vaccines approved for use in skunks to address the ongoing skunk rabies epizootic, which began in 2000.

Figure 1. Positive Animal Rabies Cases:
Texas 1994 - 2010



◆ No. of Positive Cases

**Table 1. Confirmed Cases of Rabies in Wild Animal Species:
Texas 2009 and 2010**

Species	2009	2010
Bats	443	373
Bobcats	3	1
Coyotes	3	0
Foxes	2	10
Raccoons	20	18
Skunks	313	322
Squirrel	1	0
Total	785	724

**Table 2. Confirmed Cases of Rabies in Domestic Animal Species:
Texas 2009 and 2010**

Species	2009	2010
Cats	15	20
Cattle	9	5
Dogs	14	15
Donkey	0	1
Goat	0	1
Horses	7	7
Total	45	49