2023 TEXAS PLAGUE SURVEILLANCE REPORT

Each year the Texas Department of State Health Services (DSHS), in conjunction with Texas AgriLife Extension/Wildlife Services and occasionally other agencies, collects samples from wildlife for plague (the bacterium *Yersinia pestis*) testing. Samples are collected primarily from carnivores using Nobuto blood filter strips during predator-control activities or as part of targeted surveillance efforts for plague and other zoonotic diseases. Although most carnivores are resistant to plague, they develop antibodies when exposed to *Y. pestis*, thereby making them good indicators of plague activity within their territories. Animal and arthropod surveillance results indicate that there are natural reservoirs for the plague organism in much of the state.

Plague, which occurs naturally in Texas, can cause severe human disease and death. Clinically- or laboratory-confirmed cases in animals or humans are reportable to DSHS. Surveillance for plague enables DSHS to alert physicians and veterinarians to be vigilant for signs of the disease in their patients when increased plague activity is detected in wildlife. *Y. pestis* can be used as a bioterrorism weapon and unusual plague activity related to its use as a weapon can be recognized more easily if natural disease occurrence is well characterized.

Plague in Humans

There were no reported human cases of plague in Texas during 2023.

Plague in Animals

In calendar year 2023, samples from 27 mammals collected from 20 counties (7.9% of Texas counties) were submitted for plague testing. The DSHS Laboratory Services Section tested 24 (88.9%) of the samples from 17 counties (6.7% of Texas counties); 3 (11.1%) of the samples from 3 counties (1.2% of Texas counties) were not tested due to insufficient specimen quantity, quality, or limited laboratory capacity.

Of the 24 samples tested for plague antibodies, all 24 were negative at a titer of <1:32. Table 1 shows the complete listing, by county and species, of samples that tested negative for plague in 2023.

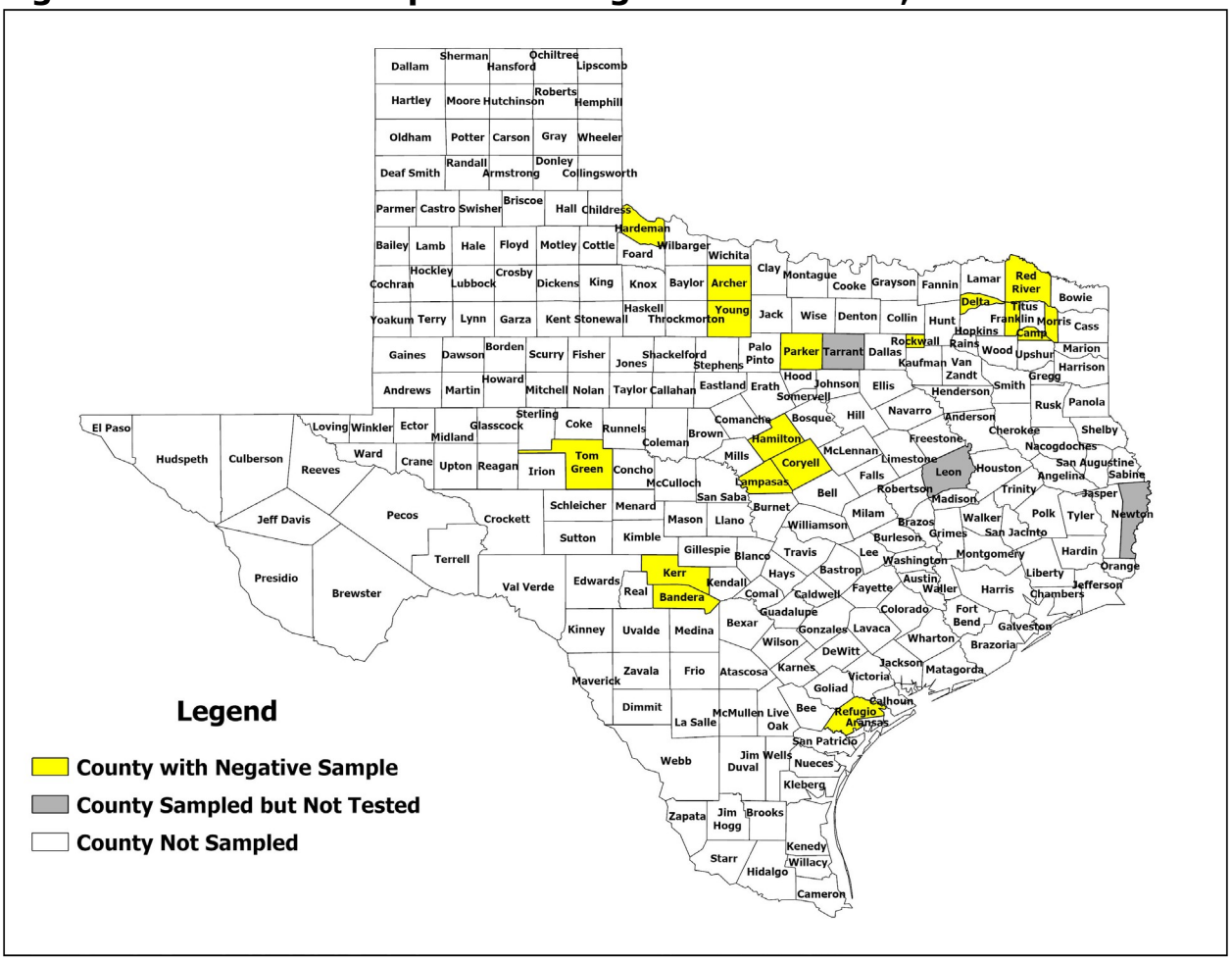
None of the samples were positive for plague antibodies.

Table 1. Animals Negative for Plague by County, 2023

County	Coyote	Nine-Banded Armadillo	Virginia Opossum	Striped Skunk	Raccoon	Fox Squirrel	Wild Boar	Eastern Cottontail	Gray Fox	Total County Samples (%)
Archer				1						**1 (4%)**
Bandera									1	**1 (4%)**
Camp					1					**1 (4%)**
Coryell	4									**4 (17%)**
Delta		1								**1 (4%)**
Franklin			1							**1 (4%)**
Hamilton	1									**1 (4%)**
Hardeman					1					**1 (4%)**
Kerr					1					**1 (4%)**
Lampasas	1									**1 (4%)**
Morris						1				**1 (4%)**
Newton						2				**2 (8%)**
Parker								1		**1 (4%)**
Red River				1	1					**2 (8%)**
Refugio						1				**1 (4%)**
Rockwall						1				**1 (4%)**
Tom Green	1									**1 (4%)**
Young							2			**2 (8%)**
Total Species Samples (%)	**7 (29%)**	**1 (4%)**	**1 (4%)**	**2 (8%)**	**4 (17%)**	**5 (21%)**	**2 (8%)**	**1 (4%)**	**1 (4%)**	**24**

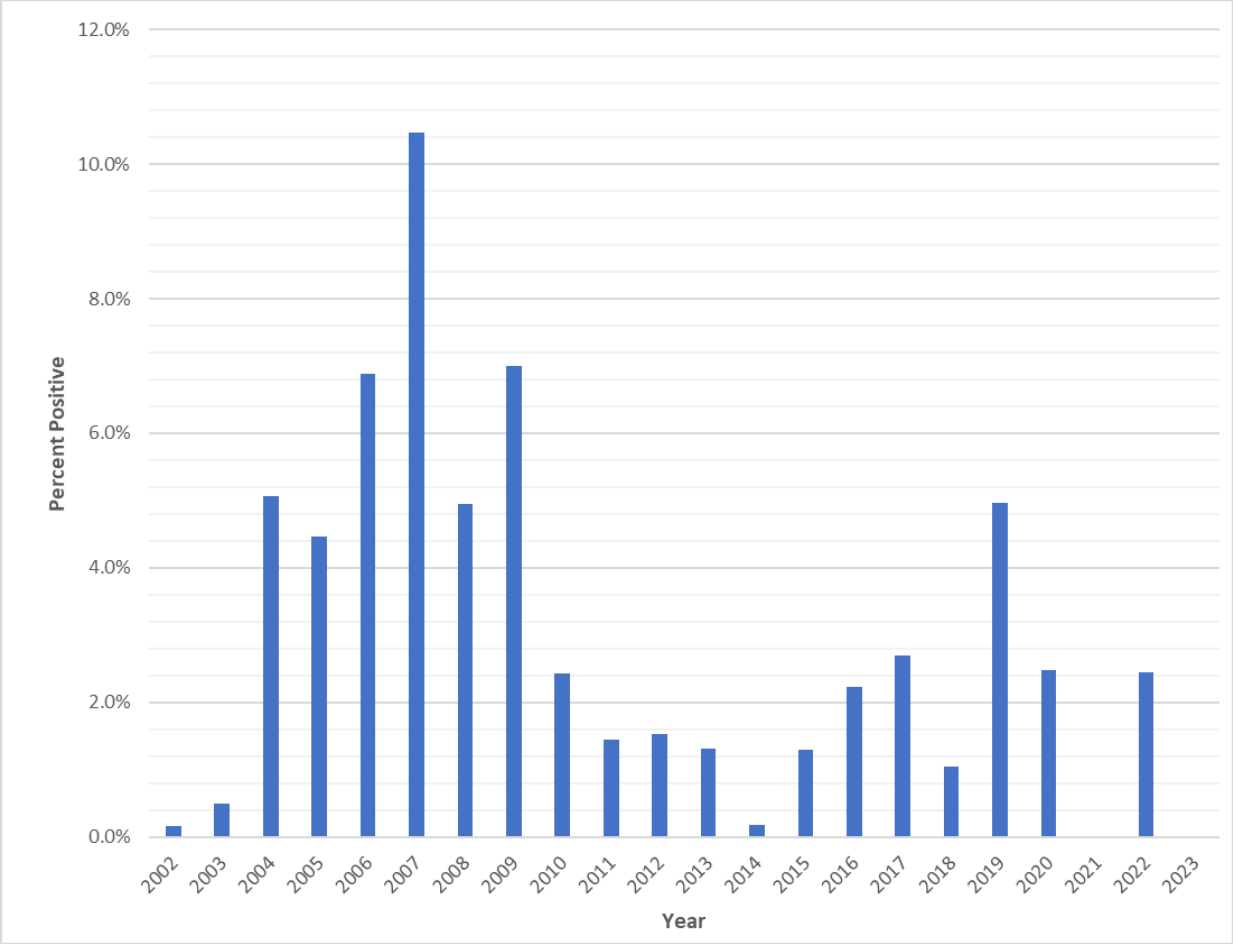
By using educational materials, news releases, a website, and conference presentations, DSHS personnel keep veterinarians, physicians, and the public aware of the plague risk in Texas. Even in areas with historically low plague activity, infections may occur in hunters or campers who visit plague-endemic areas or in pets and wildlife transported from those areas. There is also a risk that new areas of infection may be established by moving animals across the state. Higher-risk areas are noted in red in Figures 1 and 3, below.

Figure 1. Counties Sampled for Plague Surveillance, 2023



A comparison of the percent of surveillance samples positive for plague during 2023 to the percent positive in the previous 20 years indicates an overall lower level of detected plague activity from 2010-2023, as compared to 2004-2009 (Figure 2). Factors such as climate, changing ecosystems, predator activity, and host and flea population size and dynamics may affect the magnitude of plague transmission within wildlife populations. Differences in sampling rates and the species and locations sampled may also affect the detection of plague activity within wildlife populations.

Figure 2. Percent of Surveillance Samples Positive for Plague, 2002-2023



While plague is considered endemic in far west Texas and the Panhandle region, statewide surveillance demonstrates that there may be naturally occurring risk in all but the extreme eastern part of the state (Figure 3).

Figure 3. Counties Sampled for Plague Surveillance, 1976-2023