

**2002 PLAGUE SURVEILLANCE REPORT**  
**(REVISED 10-10-14)**

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Each year Texas Department of Health (TDH) Zoonosis Control personnel, in cooperation with Texas Wildlife Damage Management Service, Texas Parks and Wildlife Department, and other agencies, collect blood samples from Texas wildlife. Samples are collected from animals, primarily carnivores, using Nobuto blood filter strips. Although most carnivores are resistant to plague, they develop antibodies when exposed to the plague organism (*Yersinia pestis*), thereby making them good indicators of local plague activity.

Surveillance for plague activity is important because the organism can cause severe human disease and death and occurs naturally in much of Texas. Early detection of increased plague activity enables TDH to alert physicians and veterinarians to be vigilant for signs of the disease. *Yersinia pestis* is also an organism that can be used as a bioterrorism weapon. Unusual disease activity related to its use as a weapon can be recognized more easily if usual disease occurrence and risk is well known.

Although the last reported human case of plague in Texas occurred in 1993, surveillance results indicate there are still natural reservoirs for the organism in much of the state.

The Texas Department of Health Bureau of Laboratories, Microbiology Services Division, Serology Branch tested 2551 blood samples collected from animals in 99 counties during calendar year 2002. Plague antibodies were found in 4 (0.19%) samples at a titer of 1:32 or greater which indicates probable exposure to plague (Table 1).

| County      | Result | Species |        |          |         | Grand Total |
|-------------|--------|---------|--------|----------|---------|-------------|
|             |        | Bobcat  | Coyote | Gray Fox | Raccoon |             |
| Glasscock   | 1:256  |         |        | 1        |         | 1           |
|             | 1:512  | 1       |        |          | 1       | 2           |
| Gray        | 1:1024 |         | 1      |          |         | 1           |
| Grand Total |        | 1       | 1      | 1        | 1       | 4           |

Table 1. Samples with a Plague Titer of 1:32 or Greater, 2002

## Plague Surveillance in Texas, 2002

The geographic distribution of positive samples and samples collected is illustrated in Figure 1.

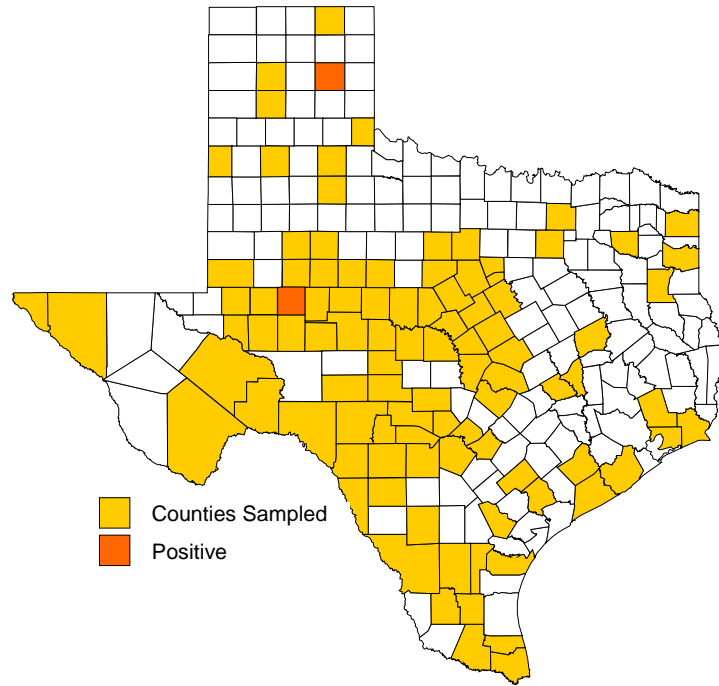


Figure 1. Texas Counties Sampled for Plague, 2002

Comparing the percent of surveillance samples positive for plague during 2002 to the percent positive in previous years indicates a period of low plague activity in Texas (Figure 2). Factors such as climate, changing ecosystems, predator activity, and host populations may all affect the potential for plague transmission within wildlife populations.

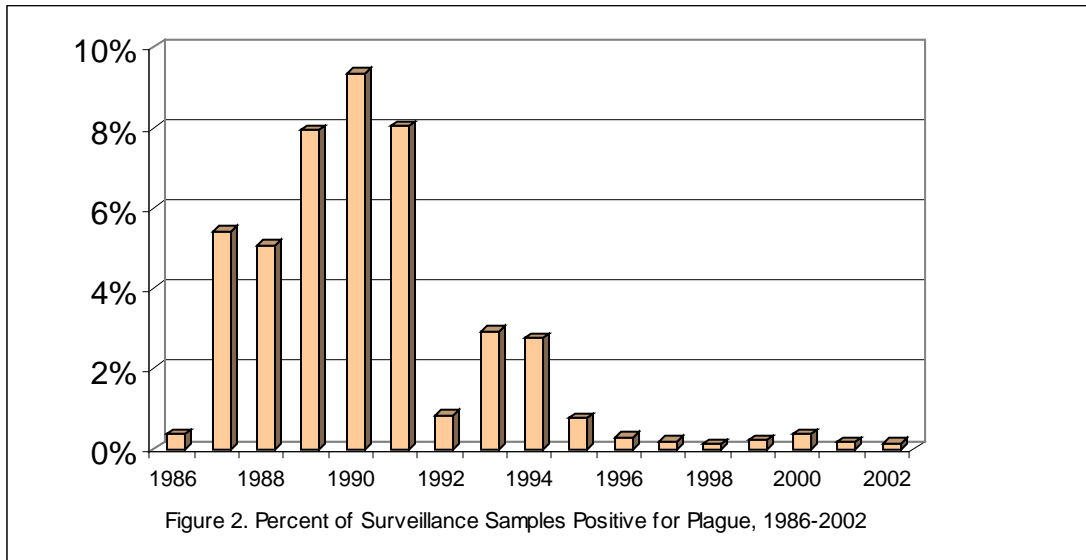
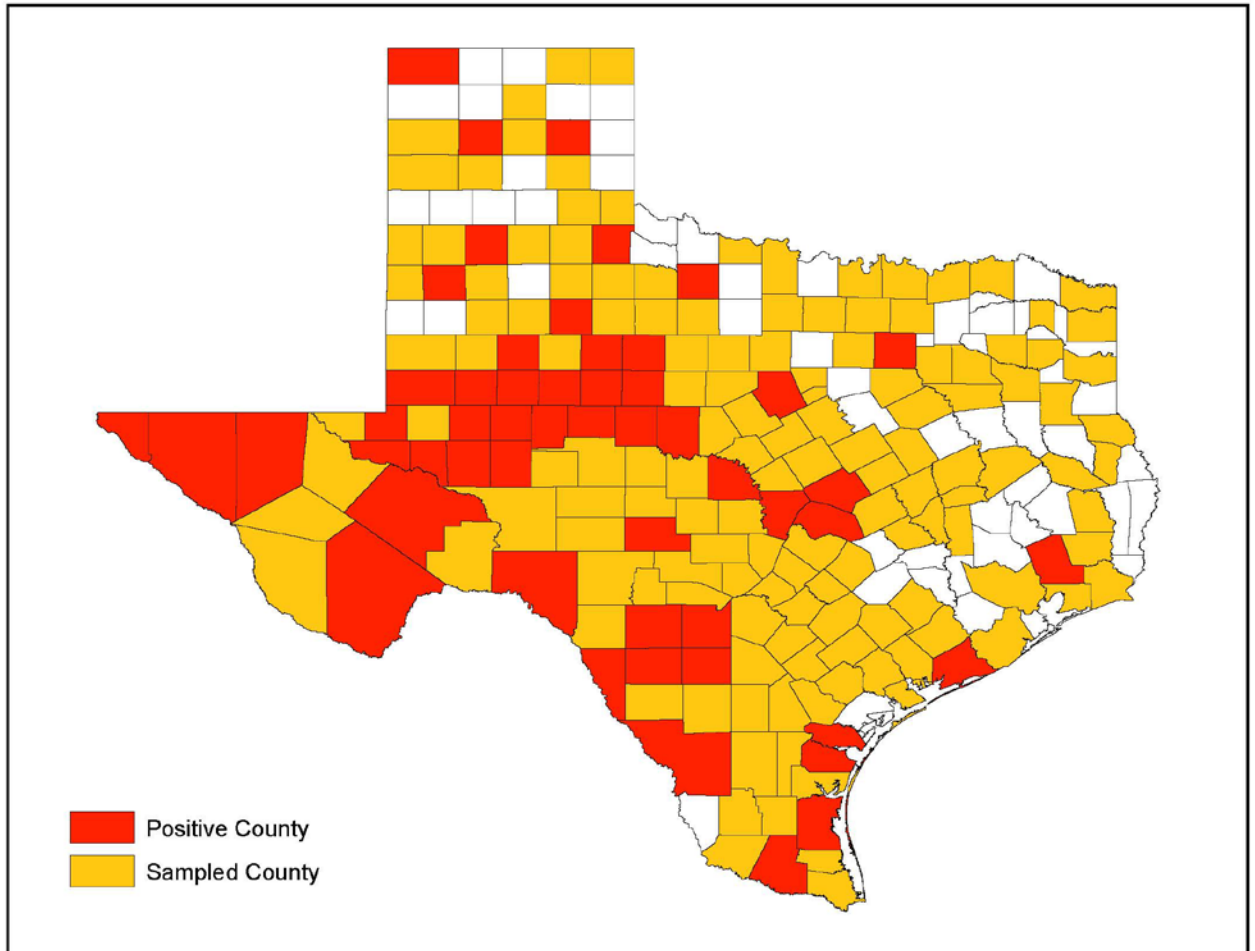


Figure 2. Percent of Surveillance Samples Positive for Plague, 1986-2002

## Plague Surveillance in Texas, 2002

The historic distribution of plague surveillance in Texas is shown in Figure 3. While plague is considered endemic in far west Texas, the surveillance results demonstrate that there may be naturally occurring risk in all but the extreme eastern part of the state.

**Figure 3. Counties Sampled and Counties Positive for Plague, 1976-2002**



By using educational materials, news releases, a public access website, and conference presentations, TDH personnel keep veterinarians, physicians, and the general 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 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.

Table 2 shows the complete County listing, by species, of samples that tested negative at a titer of less than 1:32.

**Plague Surveillance in Texas, 2002**

| Table 2. Negative Plague Samples by County and Species, 2002 |         |        |                         |                          |        |     |        |     |        |           |          |               |                       |           |         |         |          |          |               |                  |                   |   |
|--|---------|--------|-------------------------|--------------------------|--------|-----|--------|-----|--------|-----------|----------|---------------|-----------------------|-----------|---------|---------|----------|----------|---------------|------------------|-------------------|---|
| County   | Unknown | Badger | Black-tailed Jackrabbit | Black-tailed Prairie Dog | Bobcat | Cat | Coyote | Dog | Falcon | Feral Pig | Gray Fox | Mountain Lion | Nine-banded Armadillo | Porcupine | Raccoon | Red Fox | Ringtail | Roof Rat | Striped Skunk | Virginia Opossum | White-tailed Deer |   |
| Andrews  |         |        |                         |                          |        |     | 5      |     |        |           |          |               |                       |           |         |         |          |          |               |                  |                   |   |
| Bailey   |         |        |                         |                          |        |     | 1      |     |        |           |          |               |                       |           |         |         |          |          |               |                  |                   |   |
| Bandera  |         |        |                         |                          |        |     |        |     |        |           |          |               |                       |           |         | 1       |          |          |               | 1                |                   |   |
| Bee  |         |        |                         |                          |        |     | 3      |     |        |           |          |               |                       |           |         |         |          |          |               |                  |                   |   |
| Bell   |         |        |                         |                          |        |     | 1      |     |        |           |          |               |                       |           |         |         |          |          |               |                  |                   |   |
| Bexar  |         |        |                         |                          |        |     | 1      |     |        |           | 1        |               |                       |           |         | 15      |          |          |               | 15               |                   | 9 |
| Borden   |         | 1      | 4                       | 1                        | 17     |     | 47     | 1   |        | 4         | 1        |               |                       |           | 2       | 5       |          |          |               | 1                |                   |   |
| Bosque   |         |        |                         |                          |        |     | 5      |     |        |           |          |               |                       |           |         | 1       |          |          |               |                  |                   |   |
| Brazoria   |         |        |                         |                          |        |     | 7      |     |        |           |          |               |                       |           |         |         |          |          |               |                  |                   |   |
| Brazos   |         |        |                         |                          |        |     | 1      |     |        |           |          |               |                       |           |         |         |          |          |               |                  |                   |   |
| Brewster   |         |        |                         |                          |        | 2   | 6      | 1   |        |           | 2        |               |                       |           |         |         |          |          |               | 2                |                   |   |
| Brooks   |         |        | 1                       |                          | 2      |     | 18     |     |        |           | 2        |               |                       |           |         | 6       |          |          |               |                  |                   |   |
| Brown  |         |        |                         |                          |        |     | 5      |     |        |           | 2        |               |                       |           |         |         | 2        |          |               |                  | 1                 |   |
| Burleson   |         |        |                         |                          |        |     | 20     | 1   |        |           |          |               |                       |           |         | 2       |          |          |               |                  | 1                 |   |
| Burnet   |         |        |                         |                          |        |     | 3      |     |        | 1         |          |               |                       |           |         |         |          |          |               |                  |                   |   |
| Cameron  |         |        |                         |                          |        |     | 14     |     |        | 1         |          |               |                       |           |         | 4       |          |          |               | 4                |                   | 2 |
| Cass   |         |        |                         |                          |        |     | 1      |     |        |           |          |               |                       |           |         |         |          |          |               |                  |                   |   |
| Chambers   | 1       |        |                         |                          | 1      |     | 8      |     |        | 4         |          |               |                       |           |         |         |          |          |               |                  |                   |   |
| Childress  |         |        |                         |                          |        |     | 3      |     |        | 3         |          |               |                       |           |         | 1       |          |          |               |                  |                   |   |
| Coke   |         |        |                         |                          | 5      |     | 2      |     |        |           | 3        |               |                       |           |         | 2       |          |          |               |                  |                   |   |
| Coleman  |         |        |                         |                          |        |     | 9      |     |        |           |          |               |                       |           |         |         |          |          |               |                  |                   |   |
| Collin   |         |        |                         |                          |        |     | 3      |     |        |           |          |               |                       |           |         |         |          |          |               |                  |                   |   |
| Comal  |         |        |                         |                          |        |     | 11     |     |        |           |          |               |                       |           |         |         |          |          |               |                  |                   |   |
| Comanche   |         |        |                         |                          |        |     | 6      |     |        |           |          |               |                       |           |         |         |          |          |               |                  | 1                 |   |
| Concho   |         |        |                         |                          |        |     | 2      |     |        |           |          |               |                       |           |         |         |          |          |               |                  |                   |   |
| Coryell  |         |        |                         |                          |        |     | 15     | 1   |        | 6         | 3        |               |                       |           |         | 5       |          |          |               |                  |                   | 4 |
| Crane  |         |        |                         |                          |        |     | 7      |     |        |           |          |               |                       |           |         |         |          |          |               |                  |                   |   |
| Dallas   |         |        |                         |                          |        |     | 4      |     |        |           | 1        |               |                       |           |         | 57      |          |          |               |                  |                   |   |
| De Witt  |         |        |                         |                          |        |     | 2      |     |        |           |          |               |                       |           |         | 3       |          |          |               |                  |                   |   |
| Dickens  |         |        |                         |                          |        |     | 1      |     |        | 1         |          |               |                       |           |         |         |          |          |               |                  |                   |   |
| Duval  |         | 1      |                         |                          |        |     | 17     |     |        |           |          |               |                       |           |         | 1       |          |          |               |                  |                   |   |
| Eastland   |         |        |                         |                          |        |     | 1      |     |        |           |          |               |                       |           |         |         |          |          |               |                  |                   |   |
| Ector  |         |        |                         |                          |        | 1   | 2      |     |        |           |          |               |                       |           |         |         |          |          |               |                  |                   |   |
| Edwards  |         |        |                         |                          | 20     | 1   | 4      |     |        | 65        | 18       |               |                       |           |         | 155     | 3        | 1        |               |                  |                   |   |
| El Paso  |         |        |                         |                          |        |     | 1      |     |        |           |          |               |                       |           |         |         |          |          |               |                  |                   |   |
| Erath  |         |        |                         |                          |        |     | 1      |     |        |           |          |               |                       |           |         |         |          |          |               |                  |                   |   |
| Gillespie  |         |        |                         |                          |        |     | 3      |     |        |           | 2        |               |                       |           |         |         |          |          |               |                  |                   |   |
| Glasscock  |         |        |                         |                          | 3      | 1   | 21     | 3   |        |           | 6        |               |                       |           |         | 6       | 14       |          |               | 2                |                   |   |
| Gray   |         |        |                         |                          |        |     | 6      |     |        |           |          |               |                       |           |         |         |          |          |               |                  |                   |   |
| Guadalupe  |         |        |                         |                          |        |     | 1      |     |        |           |          |               |                       |           |         |         |          |          |               |                  |                   |   |
| Hale   |         |        |                         |                          |        |     | 5      |     |        |           |          |               |                       |           |         |         |          |          |               |                  |                   |   |
| Hamilton   |         |        |                         |                          |        |     | 9      |     |        | 8         |          |               |                       |           |         |         | 3        |          |               |                  |                   |   |

## Plague Surveillance in Texas, 2002

| Table 2. Negative Plague Samples by County and Species, 2002 |         |        |                         |                          |        |     |        |     |        |           |          |               |                       |           |         |         |          |          |               |                  |                   |
|--|---------|--------|-------------------------|--------------------------|--------|-----|--------|-----|--------|-----------|----------|---------------|-----------------------|-----------|---------|---------|----------|----------|---------------|------------------|-------------------|
| County   | Unknown | Badger | Black-tailed Jackrabbit | Black-tailed Prairie Dog | Bobcat | Cat | Coyote | Dog | Falcon | Feral Pig | Gray Fox | Mountain Lion | Nine-banded Armadillo | Porcupine | Raccoon | Red Fox | Ringtail | Roof Rat | Striped Skunk | Virginia Opossum | White-tailed Deer |
| Harrison   |         |        |                         |                          |        |     | 5      |     |        | 1         |          |               |                       |           |         |         |          |          |               |                  |                   |
| Hidalgo  |         | 3      |                         |                          |        |     | 43     | 10  |        |           | 1        |               |                       |           |         | 4       |          |          |               | 2                | 4                 |
| Hood   |         |        |                         |                          |        |     | 4      |     |        |           |          |               |                       |           | 2       |         |          |          |               |                  |                   |
| Howard   |         |        |                         |                          |        |     | 1      |     |        |           | 2        |               |                       |           |         |         |          |          |               |                  |                   |
| Hudspeth   |         |        |                         |                          |        |     | 1      |     |        |           |          |               |                       |           |         |         |          |          |               |                  |                   |
| Irion  |         |        |                         |                          |        |     |        |     |        |           | 8        |               |                       |           |         |         |          |          |               |                  |                   |
| Jefferson  |         |        |                         |                          | 1      |     | 53     |     |        | 1         |          |               |                       |           |         |         |          |          |               |                  |                   |
| Jim Hogg   |         |        |                         |                          | 1      |     | 6      |     |        | 13        |          |               |                       |           |         |         |          |          |               |                  |                   |
| Jim Wells  |         |        |                         |                          |        |     | 7      |     |        |           |          |               |                       |           |         |         |          |          |               |                  |                   |
| Kendall  |         |        |                         |                          |        |     | 1      |     |        |           | 2        |               |                       |           | 1       |         |          |          |               |                  |                   |
| Kerr   |         |        |                         |                          |        |     | 6      |     |        | 1         | 5        |               |                       |           | 2       | 1       |          |          |               |                  |                   |
| Kimble   |         |        |                         |                          | 1      |     | 14     | 1   |        | 2         | 2        |               |                       |           | 2       | 1       |          |          |               |                  |                   |
| Kinney   |         | 2      |                         |                          | 17     | 23  | 33     | 1   | 1      | 34        | 15       |               |                       |           | 61      |         |          |          | 8             |                  | 6                 |
| La Salle   |         |        |                         |                          | 1      |     | 8      | 1   |        |           |          |               |                       |           |         |         |          |          |               |                  |                   |
| Lampasas   |         |        |                         |                          |        |     | 7      | 1   |        |           |          |               |                       |           |         |         |          |          |               |                  |                   |
| Leon   |         |        |                         |                          |        |     | 10     |     |        | 17        |          |               |                       |           |         |         |          |          |               |                  |                   |
| Liberty  |         |        |                         |                          |        | 7   | 11     | 1   |        | 1         |          |               |                       |           | 2       | 1       |          |          |               |                  |                   |
| Matagorda  |         |        |                         |                          |        |     | 12     |     |        | 3         |          |               |                       |           |         |         |          |          |               | 1                |                   |
| Maverick   |         |        |                         |                          |        |     | 10     |     |        | 1         |          |               |                       |           |         |         |          |          |               |                  |                   |
| McCulloch  |         |        |                         |                          | 1      |     | 24     |     |        |           |          |               |                       |           |         |         |          |          |               |                  |                   |
| Medina   |         |        |                         |                          |        |     | 6      |     |        |           |          |               |                       |           |         |         |          |          |               |                  |                   |
| Menard   |         |        |                         |                          | 1      |     | 4      | 1   |        |           |          |               |                       |           | 2       | 1       |          |          |               |                  |                   |
| Midland  |         |        |                         |                          | 6      |     | 45     | 2   |        | 1         | 4        |               |                       |           | 3       | 1       |          |          |               |                  |                   |
| Mills  |         |        |                         |                          |        |     |        |     |        |           | 2        |               |                       |           |         |         |          |          |               | 1                |                   |
| Mitchell   |         |        |                         |                          | 1      |     | 13     |     |        |           | 4        |               |                       |           | 1       |         |          |          |               | 2                |                   |
| Motley   |         |        |                         |                          | 1      |     | 12     |     |        | 10        |          |               |                       |           | 1       |         |          |          |               |                  |                   |
| Nolan  |         |        |                         |                          |        |     | 15     | 1   |        |           | 2        |               |                       |           | 1       |         |          |          |               |                  |                   |
| Nueces   |         |        |                         |                          |        |     |        |     |        |           |          |               |                       |           | 15      |         |          | 1        | 8             |                  | 16                |
| Ochiltree  |         |        |                         |                          |        |     | 1      |     |        |           |          |               |                       |           |         |         |          |          |               |                  |                   |
| Palo Pinto   |         |        |                         |                          |        |     | 2      |     |        |           |          |               |                       |           | 2       |         |          |          |               |                  |                   |
| Pecos  | 1       | 3      |                         |                          | 30     |     | 36     | 2   |        |           | 35       | 2             |                       | 1         | 7       |         |          |          |               |                  |                   |
| Potter   |         |        |                         |                          |        |     | 11     |     |        |           | 1        |               |                       |           |         |         |          |          |               |                  |                   |
| Randall  |         |        |                         |                          |        |     | 5      |     |        |           |          |               |                       |           |         |         |          |          |               |                  |                   |
| Reagan   |         |        |                         |                          | 1      |     | 1      |     |        |           |          |               |                       |           | 2       |         |          |          |               |                  |                   |
| Real   |         |        |                         |                          | 4      |     | 5      |     |        | 21        | 3        |               |                       |           | 3       |         |          |          |               |                  |                   |
| Runnels  |         |        |                         |                          |        |     | 5      |     |        |           |          |               |                       |           |         |         |          |          |               |                  |                   |
| Rusk   |         |        |                         |                          |        |     | 2      |     |        |           |          |               |                       |           |         |         |          |          |               |                  |                   |
| San Saba   |         |        |                         |                          | 1      |     | 12     |     |        | 5         | 13       |               |                       |           | 7       |         |          |          |               | 1                |                   |
| Scurry   |         |        |                         |                          |        |     | 12     |     |        |           |          |               |                       |           |         |         |          |          |               |                  |                   |
| Somervell  |         |        |                         |                          |        |     | 2      |     |        |           |          |               |                       |           |         |         |          |          |               |                  |                   |
| Stephens   |         |        |                         |                          |        |     | 101    | 2   |        | 1         |          |               |                       |           |         |         |          |          |               |                  |                   |
| Sterling   |         |        |                         |                          | 4      |     | 14     |     |        |           | 3        |               |                       |           | 2       | 1       |          |          |               |                  |                   |
| Sutton   |         |        |                         |                          | 4      |     |        |     |        | 12        | 4        | 1             |                       |           | 4       | 1       |          |          |               |                  |                   |
| Taylor   |         |        |                         |                          | 2      |     | 11     |     |        |           | 1        |               |                       |           | 1       |         |          |          |               | 1                |                   |
| Terrell  |         | 1      |                         |                          | 15     |     | 5      |     |        |           | 5        |               |                       |           | 6       |         |          |          |               |                  |                   |

**Plague Surveillance in Texas, 2002**

| Table 2. Negative Plague Samples by County and Species, 2002 |         |        |                         |                          |        |     |        |     |        |           |          |               |                       |           |         |         |          |          |               |                  |                   |   |
|--|---------|--------|-------------------------|--------------------------|--------|-----|--------|-----|--------|-----------|----------|---------------|-----------------------|-----------|---------|---------|----------|----------|---------------|------------------|-------------------|---|
| County   | Unknown | Badger | Black-tailed Jackrabbit | Black-tailed Prairie Dog | Bobcat | Cat | Coyote | Dog | Falcon | Feral Pig | Gray Fox | Mountain Lion | Nine-banded Armadillo | Porcupine | Raccoon | Red Fox | Ringtail | Roof Rat | Striped Skunk | Virginia Opossum | White-tailed Deer |   |
| Tom Green  |         |        |                         |                          | 7      |     | 1      |     |        |           | 24       |               |                       |           |         |         |          |          |               |                  |                   |   |
| Travis   |         |        |                         |                          |        |     |        |     |        |           |          |               |                       |           | 3       |         |          |          | 1             |                  | 3                 |   |
| Upton  |         |        |                         |                          | 6      |     | 10     |     |        |           | 6        |               |                       |           |         |         | 3        |          |               |                  |                   |   |
| Uvalde   |         |        |                         |                          | 3      |     | 18     | 1   |        | 1         | 6        |               |                       |           | 6       |         |          |          |               |                  |                   |   |
| Val Verde  |         | 2      |                         |                          | 136    | 2   | 19     | 1   |        | 3         | 52       |               | 1                     |           | 61      |         | 1        |          |               |                  | 2                 |   |
| Victoria   |         |        |                         |                          |        |     | 8      |     |        |           |          |               |                       |           |         | 4       |          |          |               |                  |                   |   |
| Webb   | 1       |        | 3                       |                          | 3      |     | 32     |     |        |           |          |               |                       |           |         | 8       |          |          |               |                  |                   |   |
| Wharton  |         |        |                         |                          | 2      |     | 2      | 1   |        | 13        |          |               |                       |           |         | 4       |          |          |               | 2                | 1                 | 2 |
| Willacy  |         |        |                         |                          |        |     | 4      |     |        |           |          |               |                       |           |         |         |          |          |               |                  |                   |   |
| Williamson   |         |        |                         |                          |        |     | 5      |     |        | 17        |          |               |                       | 1         |         | 3       |          |          |               |                  |                   |   |
| Wood   |         |        |                         |                          |        |     | 2      |     |        |           |          |               |                       |           |         |         |          |          |               |                  |                   |   |
| Zavala   |         | 1      |                         |                          | 4      |     | 28     |     |        | 1         | 2        |               |                       |           |         |         |          |          |               |                  |                   |   |
| Unknown  | 1       |        |                         |                          | 2      |     | 21     | 1   |        | 3         | 3        |               |                       |           |         | 2       |          |          |               | 1                |                   |   |