2011 PLAGUE SURVEILLANCE REPORT (Revised 10-10-14)

Each year the Texas Department of State Health Services (DSHS), in conjunction with Texas AgriLife Extension/Wildlife Services, Texas Parks and Wildlife Department, and other agencies, collects samples from wildlife for plague (the bacterium *Yersinia pestis*) testing. Samples are collected primarily from carnivores using Nobuto blood filter strips in the course of predator control actions 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. 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* is also an organism that can be used as a bioterrorism weapon. Unusual plague activity related to its use as a weapon can be recognized more easily if natural disease occurrence is well known.

Plague in Humans

There were no reported human cases of plague in Texas during 2011.

Plague in Animals

The DSHS Laboratory Services Section received 1,594 animal samples collected during calendar year 2011 from 105 counties, of which 1,587 were tested; 7 samples were not tested due to damage or insufficient quantity. Plague antibodies at a titer of ≥ 1:32, which indicates probable exposure to *Y. pestis*, were reported for 23 samples (1.4% of all samples tested) collected from 10 counties (Table 1); 1,564 samples (98.6% of samples tested) were negative at a titer of <1:32 (Table 2).

Table 1. Animals Positive for Plague by County and Titer, 2011

County	Result	American Badger	Coyote	Gray Fox	Striped Skunk	Total Positive	Number Tested (County, All Species)	Percent Testing Positive (County, All Species)
Borden	1:64		1			1		
	1:256		1			1		
	Borden Total		2			2	73	2.7%
Crane	1:64		2			2	62	3.2%
Culberson	1:32		1			1		
	1:64		1			1		
	Culberson Total		2			2	12	16.7%
Ector	1:128		1			1	3	33.3%
Irion	1:32		1			1	7	14.3%
Midland	1:256		1			1	26	3.8%
Pecos	1:32			2		2	151	1.3%

County	Result	American Badger	Coyote	Gray Fox	Striped Skunk	Total Positive	Number Tested (County, All Species)	Percent Testing Positive (County)
Reeves	1:32		3			3		
	1:64		3			3		
	1:128		1			1		
	1:256		1			1		
	1:512		2			2		
	Reeves Total		10			10	52	19.2%
Scurry	1:64	1				1	3	33.3%
Terrell	1:32				1	1	61	1.6%
Total		1	19	2	1	23	450	5.1%
Number Tested (Statewide)		2	1063	272	24	1361		
Percent Testing Positive		**50.0%**	**1.8%**	**0.7%**	**4.2%**	**1.7%**		

The geographic distribution by county of specimens tested and specimens testing positive for *Yersinia pestis* in 2011 is illustrated in Figure 1. A 20-year comparison of annual percent positivity is illustrated in Figure 2 on the next page.

Figure 1. Counties Sampled and Counties Positive for Plague, 2011

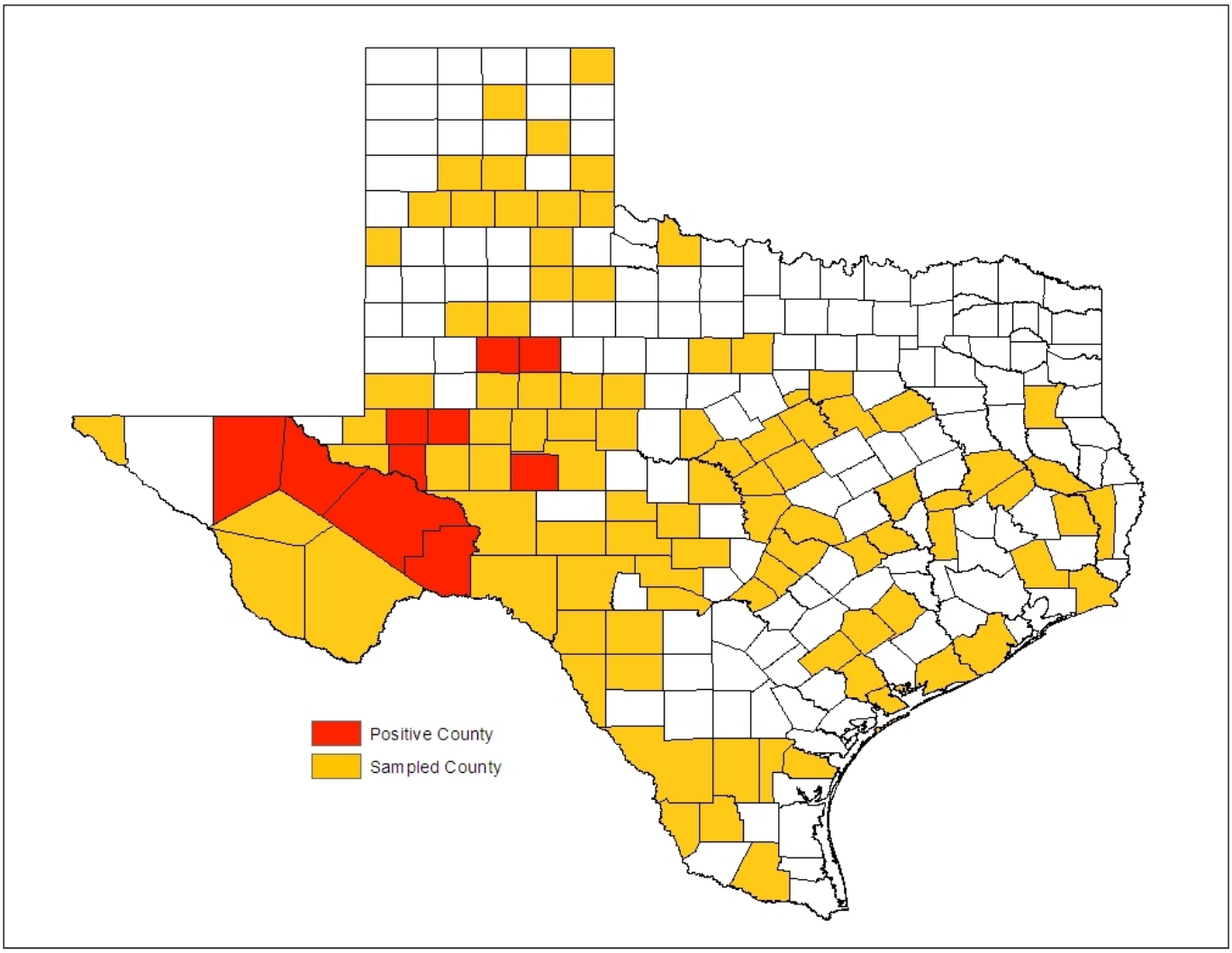
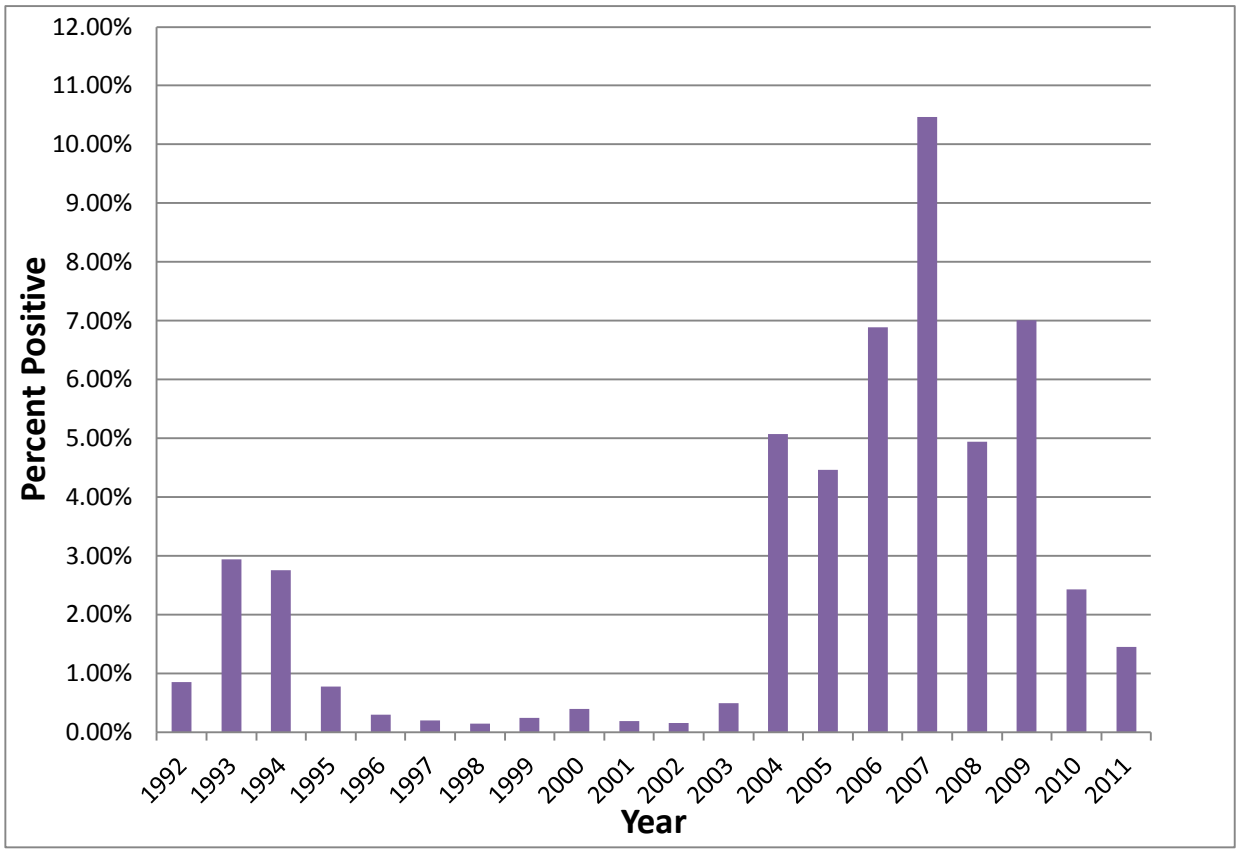
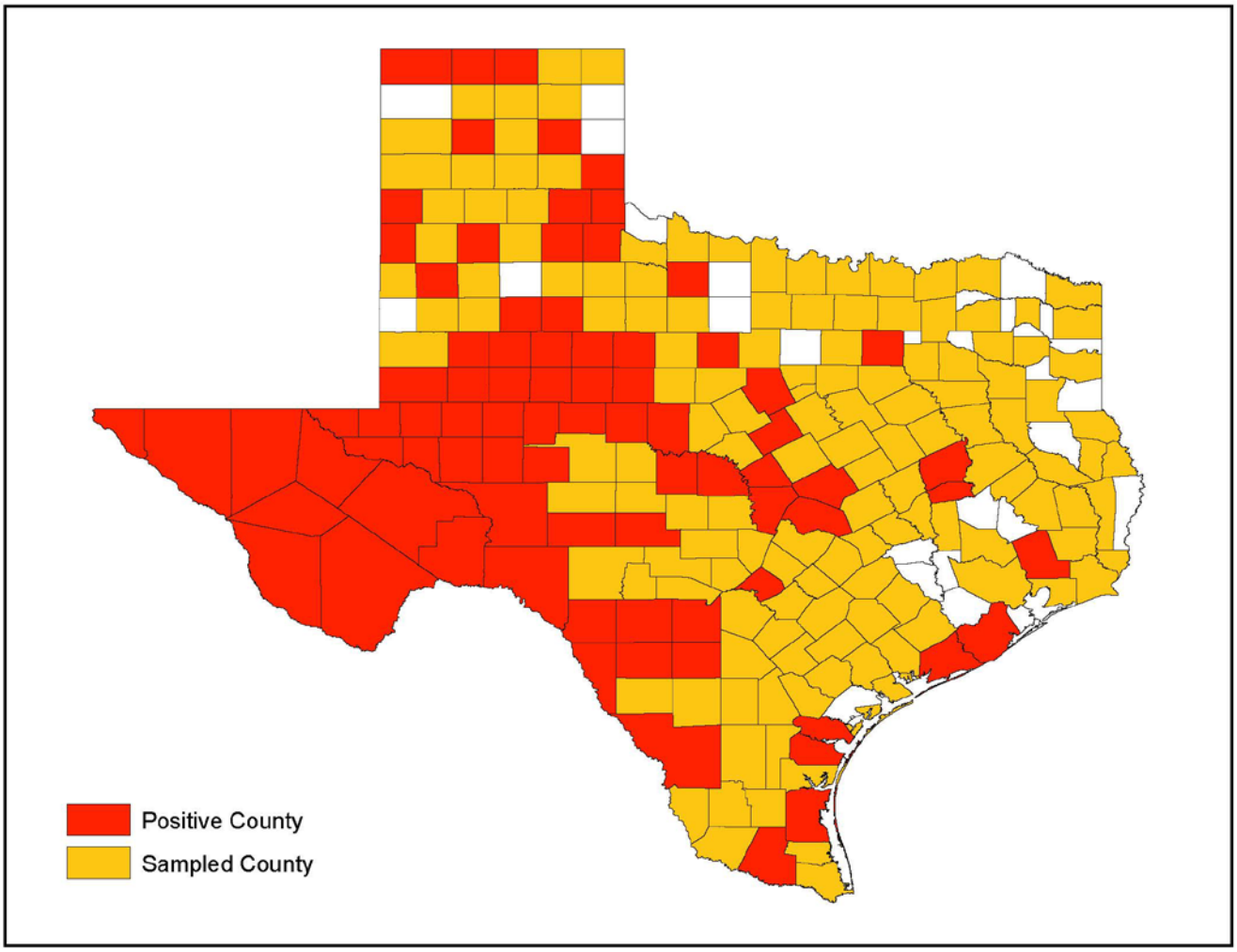


Figure 2. Percent of Surveillance Samples Positive for Plague, 1992-2011



The historic distribution of plague surveillance and detection in Texas is shown in Figure 3, on the following page. While plague is considered endemic in far west Texas and the Panhandle region, 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, 1976-2011



By using educational materials, news releases, a public-access website, and conference presentations, DSHS 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-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.

Table 2, beginning on the next page, shows the complete listing by county and species of samples that tested negative for plague in 2011.

Table 2. Animals Negative for Plague by County, 2011

County	Badger	Bobcat	Cottontail Rabbit	Coyote	Dog	Feral Pig	Flea	Gray Fox	Jackrabbit	Mountain Lion	Porcupine	Raccoon	Red Fox	Ringtail	Striped Skunk	Opossum	Total
Andrews				3													**3**
Angelina															2		**2**
Armstrong				1													**1**
Bailey				4													**4**
Bandera								2									**2**
Borden		2		63		2						3			1		**71**
Bosque				4													**4**
Brazoria				9													**9**
Brewster		1		18				32									**51**
Briscoe				1													**1**
Brown				3		5											**8**
Burleson				9													**9**
Burnet				12				2									**14**
Calhoun		1		6													**7**
Castro				2													**2**
Childress				3													**3**
Coke				6				5				3					**14**
Collingsworth				3													**3**
Colorado				2													**2**
Comal				6				1				3					**10**
Coryell				9													**9**
Crane				56				4									**60**
Crockett				2		1		12				5					**20**
Culberson				10													**10**
De Witt		1		9													**10**
Dickens				2													**2**
Duval				2													**2**
Ector				2													**2**
Edwards		5		2				4				4					**15**
El Paso				16											2		**18**

County	Badger	Bobcat	Cottontail Rabbit	Coyote	Dog	Feral Pig	Flea	Gray Fox	Jackrabbit	Mountain Lion	Porcupine	Raccoon	Red Fox	Ringtail	Striped Skunk	Opossum	Total
Garza				9		5											**14**
Gillespie				3				2									**5**
Glasscock		1		20													**21**
Gray		1		3													**4**
Grimes															1		**1**
Hall				5													**5**
Hamilton				5													**5**
Hays		1		18													**19**
Hidalgo				2													**2**
Hill				2		4											**6**
Houston				1													**1**
Howard				4				1									**5**
Hutchinson				2													**2**
Irion		1		5													**6**
Jasper				1													**1**
Jeff Davis				8				5				2					**15**
Jefferson				16													**16**
Jim Hogg				19													**19**
Jim Wells		2		9													**11**
Johnson						1											**1**
Kerr				1													**1**
Kimble		1		9				1				15					**26**
King				1													**1**
Kinney		3		10				8				9			2		**32**
Lampasas		1		39				5				7	1			1	**54**
Lavaca				11													**11**
Lee												1					**1**
Liberty				7													**7**
Lipscomb				1													**1**
Lynn				9		2	2										**13**
Madison				8													**8**
Mason												7					**7**

County	Badger	Bobcat	Cottontail Rabbit	Coyote	Dog	Feral Pig	Flea	Gray Fox	Jackrabbit	Mountain Lion	Porcupine	Raccoon	Red Fox	Ringtail	Striped Skunk	Opossum	Total
Matagorda				33													**33**
Maverick				1													**1**
Menard				1													**1**
Midland		1		21				2		1							**25**
Mills				11		3		1									**15**
Mitchell				10													**10**
Motley				18													**18**
Navarro				1													**1**
Nolan		1		12								2					**15**
Nueces												1					**1**
Palo Pinto				1													**1**
Pecos		14		52	1			44		1		30			7		**149**
Presidio								9									**9**
Randall				4					1			1					**6**
Reagan		6		29				3				4	1				**43**
Reeves				42													**42**
Robertson				3													**3**
Runnels				39				1									**40**
Rusk						4											**4**
San Saba				18		5		1				1					**25**
Scurry				1				1									**2**
Somervell				1		1											**2**
Stephens				8		1											**9**
Sterling		4		29				3				9	1				**46**
Sutton				4				6				3	1				**14**
Swisher			1														**1**
Taylor		1		6													**7**
Terrell	1	1		4				41			1	4		1	7		**60**
Tom Green				3				2									**5**
Travis												1					**1**
Trinity				3													**3**
Tyler				4													**4**

County	Badger	Bobcat	Cottontail Rabbit	Coyote	Dog	Feral Pig	Flea	Gray Fox	Jackrabbit	Mountain Lion	Porcupine	Raccoon	Red Fox	Ringtail	Striped Skunk	Opossum	Total
Upton		6		21				29				1			1		**58**
Uvalde				3													**3**
Val Verde		5		5				38				1					**49**
Victoria				4													**4**
Ward				28													**28**
Webb				105													**105**
Wilbarger				5													**5**
Williamson				11													**11**
Winkler				1				5									**6**
Zapata				2													**2**
Zavala		1		7													**8**
Total Negative	**1**	**61**	**1**	**1044**	**1**	**34**	**2**	**270**	**1**	**2**	**1**	**117**	**4**	**1**	**23**	**1**	**1564**