



TEXAS

Department of
State Health Services

2003 PLAGUE SURVEILLANCE REPORT

REVISED 10-10-14

Each year the Texas Department of State Health Services (DSHS), in cooperation with Texas Wildlife Damage Management Service, Texas Parks and Wildlife Department, and other agencies, collects blood samples from Texas wildlife. Samples are collected primarily from 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, plus it occurs naturally in Texas. Early detection of increased plague activity enables DSHS 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 DSHS Laboratory Services Section, Laboratory Operations Unit, Microbiology Sciences Branch, Molecular and Serological Analysis Group tested 3,282 blood samples collected from animals in 118 counties during calendar year 2003. Plague antibodies were found in 16 (0.49%) samples at a titer of 1:32 or greater which indicates probable exposure to plague (Table 1).

County	Result	Coyote	Feral Pig	Raccoon	Red Fox	Grand Total
Brazoria	1:256		1			1
Crane	1:128	5				5
Glasscock	1:1024	1				1
	1:256	2				2
	1:128	1			1	2
	1:64			1		1
Hamilton	1:256		1			1
Sterling	1:256			1		1
	1:512	1				1
	1:128	1				1
Grand Total		11	2	2	1	16

Plague Surveillance in Texas, 2003

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

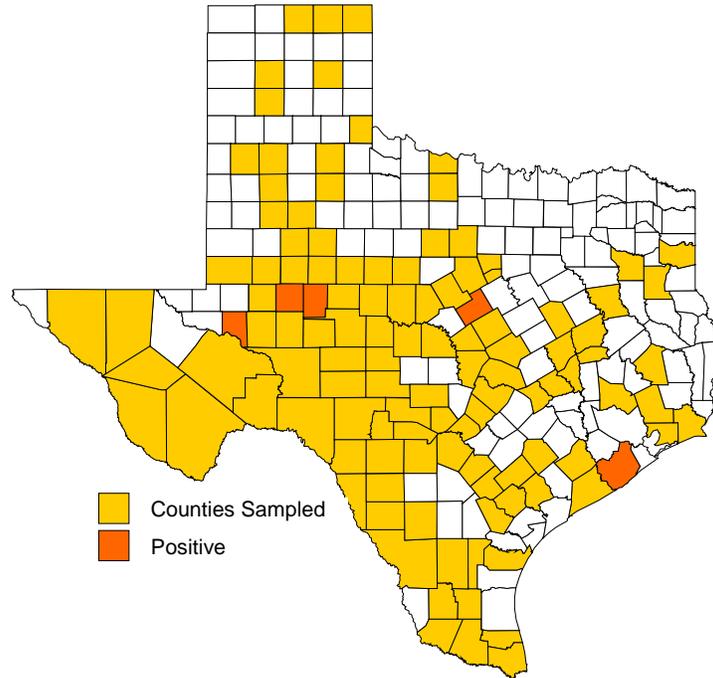


Figure 1. Texas Counties Sampled for Plague and Distribution of Positive Samples, 2003

Comparing the percent of surveillance samples positive for plague during 2003 to the percent positive in previous years indicates a continued period of relatively 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.

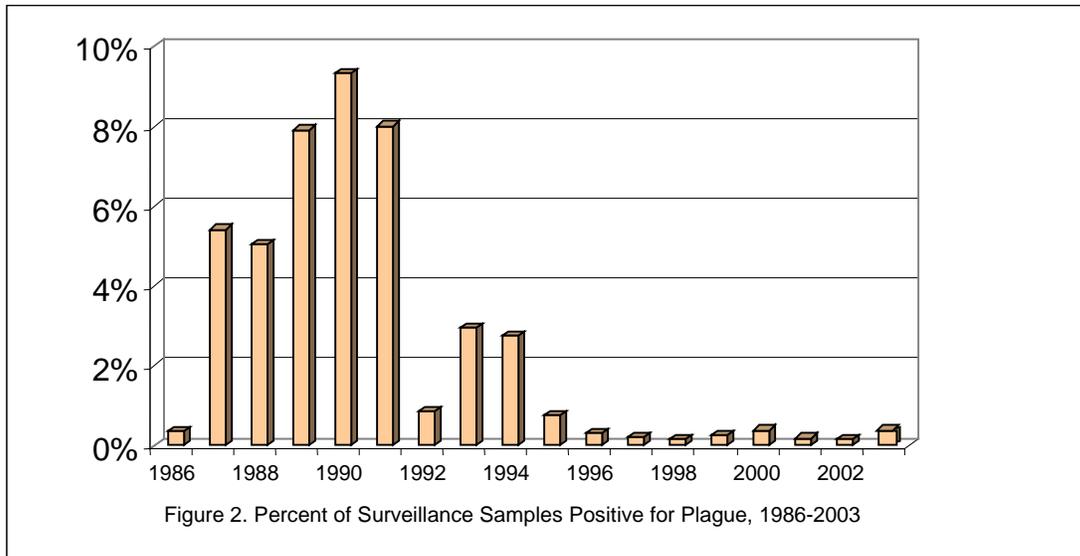
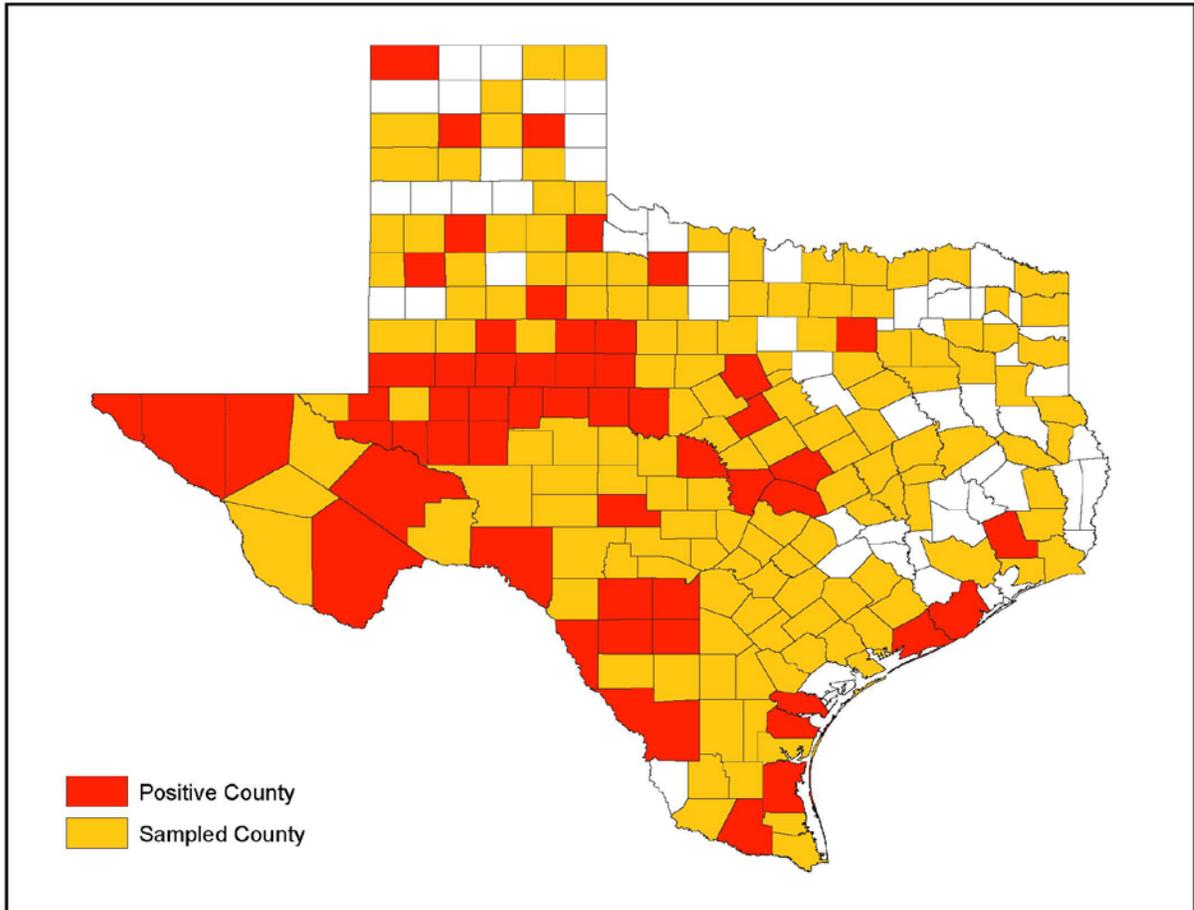


Figure 2. Percent of Surveillance Samples Positive for Plague, 1986-2003

Plague Surveillance in Texas, 2003

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, 1976-2003



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 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, 2003

Table 2. Negative Plague Samples by County and Species, 2003																															
County	Arthropod Collections	Axis Deer	Badger	Beaver	Black-tailed Jackrabbit	Black-tailed Prairie Dog	Bobcat	Brazilian Free-tailed Bat	Cat	Coyote	Dog	Eastern Cottontail	Eastern Fox Squirrel	Eastern Gray Squirrel	Feral Pig	Gray Fox	Hog-nosed Skunk	Mountain Lion	Porcupine	Raccoon	Red Fox	Ringtail	Striped Skunk	Texas Antelope Squirrel	Texas Pocket Gopher	Unknown	Virginia Opossum	White-tailed Deer	White-throated Woodrat		
Anderson						2				11					4					2											
Andrews										3																					
Bandera										3					13	1				9											
Bee										1																					
Bell										12					1																
Bexar										1					1					10			10					8			
Borden					4		9			64	1				5				2	2		3		1			1		1		
Brazoria										1											3										
Brazos										2										2											
Brewster							8			18					10			3					2								
Brooks			3				3			15											4		1					5			
Brown									1	5						9	1				11										
Burleson							1			6																					
Burnet										27					4	3					3		2								
Callahan										2					1																
Cameron							3			4					1						3							2			
Chambers										35											1										
Childress										4																					
Coke							42			10						44	1				2	2	1	2							
Coleman										10												1									
Colorado							2			9					2						22							12			
Comal										25																					
Comanche										13																					
Concho																						1									
Coryell										13												1									
Cottle															1																
Crane							1			74					1																
Crockett							6			1					1	7				1	7	2		2							
Culberson										6																					
Dallas																					49										
De Witt										10																					
Dickens															2																
Dimmit										30																					
Duval							1			7																					
Edwards							23			6					68	21		1	1	161	3						1				
Erath										6																					
Frio										1																					
Garza										1																					
Gillespie										10					1	7						1		1							
Glasscock							9			41						4					1	7		4							
Goliad										18					1																
Gray										10																					
Hale										2																					
Hamilton										12					3																
Hansford	1					1																									
Hays										23					1	1					1		6					1			
Hidalgo							3			68											2							6			
Howard															2								2								
Hudspeth										4											2										
Irion							12			1						10					5	5									
Jeff Davis										4																					
Jefferson										100													1								
Jim Hogg										9	1					28															

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Jim Wells										5																				
Karnes										1																				
Kerr										15					5	5					3		1							
Kimble							3			8	1				6	6					7									
Kinney			2				6			12					20	18					15	2	6							
La Salle										1																				
Lamb										1																				
Lampasas							1			25	1					3					11	1	6							
Lavaca										13																				
Lee										5											3								2	
Leon										10	1			1	11						8		16					2	1	
Liberty				1						7	1				3						2					1		2		
Limestone										1											9		2					5		
Lipscomb										2																				
Lubbock													6																	
Lynn										1																				
Madison										2											2									
Martin										3													1							
Matagorda							3			27					5														1	
Maverick										8																				
McCulloch							1			21						4					1									
Medina										5											1									
Menard							3			14					10	4					4	1								
Midland							7			47	1					3						1	1							
Mitchell							1			17						3														
Montgomery							1														2	1								
Motley						1				15	1				3					1	1		1				1			
Nolan							2			5					2						2									
Nueces								1													7		9						19	
Ochiltree																					13								4	
Palo Pinto										7																				
Pecos			1				15			45	1					25				1	15		4							
Polk										1																				
Potter										9																				
Presidio							5			8						6			1											
Randall	1									4		1																		
Reagan										2						1					2		1							
Real							5			3					32	3						1	1							
Robertson										1																				
Runnels							1			20													1							
Rusk															2															
San Saba										10						6							1	1				2		
Schleicher										2												7								
Scurry			1				3		1	27					1					1	4		3						4	
Smith																						1								
Somervell										1																				
Starr										1																				
Stephens							1			64																				
Sterling			3				20			32					2	10		1			54	4	22					5		
Sutton							1			1					3	1					5	1								
Taylor										7						2							1							
Terrell							17			8						10					6									
Tom Green							8			1						4						1								
Travis					11		1			16						1					1		16				1		3	

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Unknown										6					2	1														
Upton							7			11						4						4		1						
Uvalde				2			9			22					1	7				1				1			1			
Val Verde				5			108		1	4					4	70	1			60				1				2		
Victoria				1						14						1														
Webb										6																				
Wharton		1								5	1				12					5				1					2	
Wichita																								1						
Willacy							1																							
Williamson										35					14	2				3			1					2		
Wilson										3																				
Zavala										20																				