

Rabies in Texas, 2013

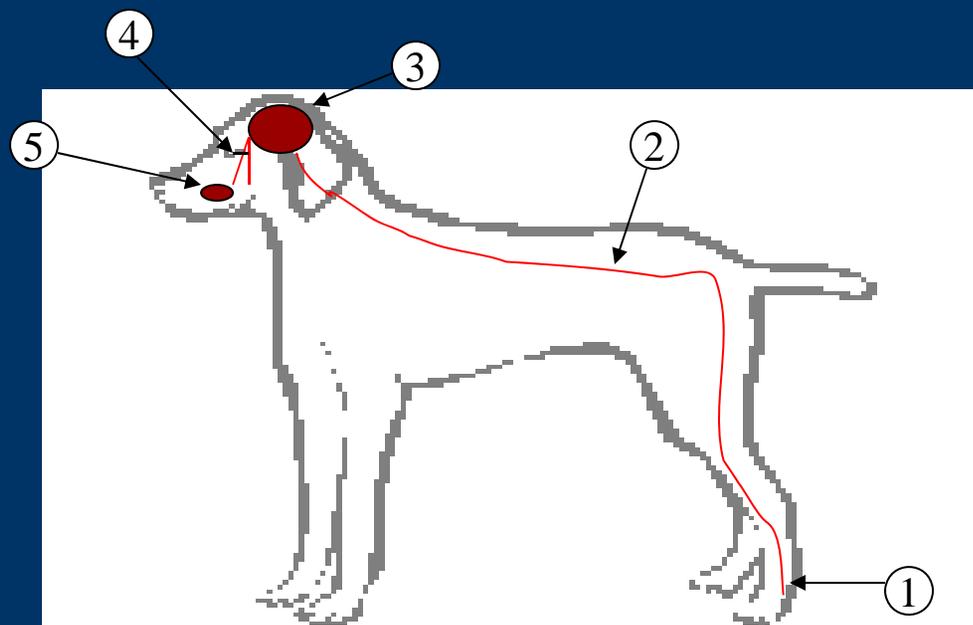


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Transmission

- Rabies virus is inactivated by heat, light, desiccation, soap, disinfectants
- Cannot penetrate unbroken skin
- Bites, scratches and contamination of mucous membranes are possible routes of entry
- Saliva, CSF and nervous tissue are most likely to contain virus
- NOT in blood, urine, feces, skunk spray

Rabies Transmission



Timeline:

① thru ⑤ - weeks to months

③ thru ⑤ - dog may not show rabies symptoms when it bites someone

① Bite site

② Virus migrates up nerves to spinal cord

③ Virus migrates from spinal cord to brain

④ Virus migrates from brain down cranial nerves

⑤ Virus arrives in salivary gland and dog is infectious to others

① - ④ Dog is not infectious during these stages

Clinical Signs of Rabies

- Change in behavior
- Unexplained paralysis
- Other neurologic signs



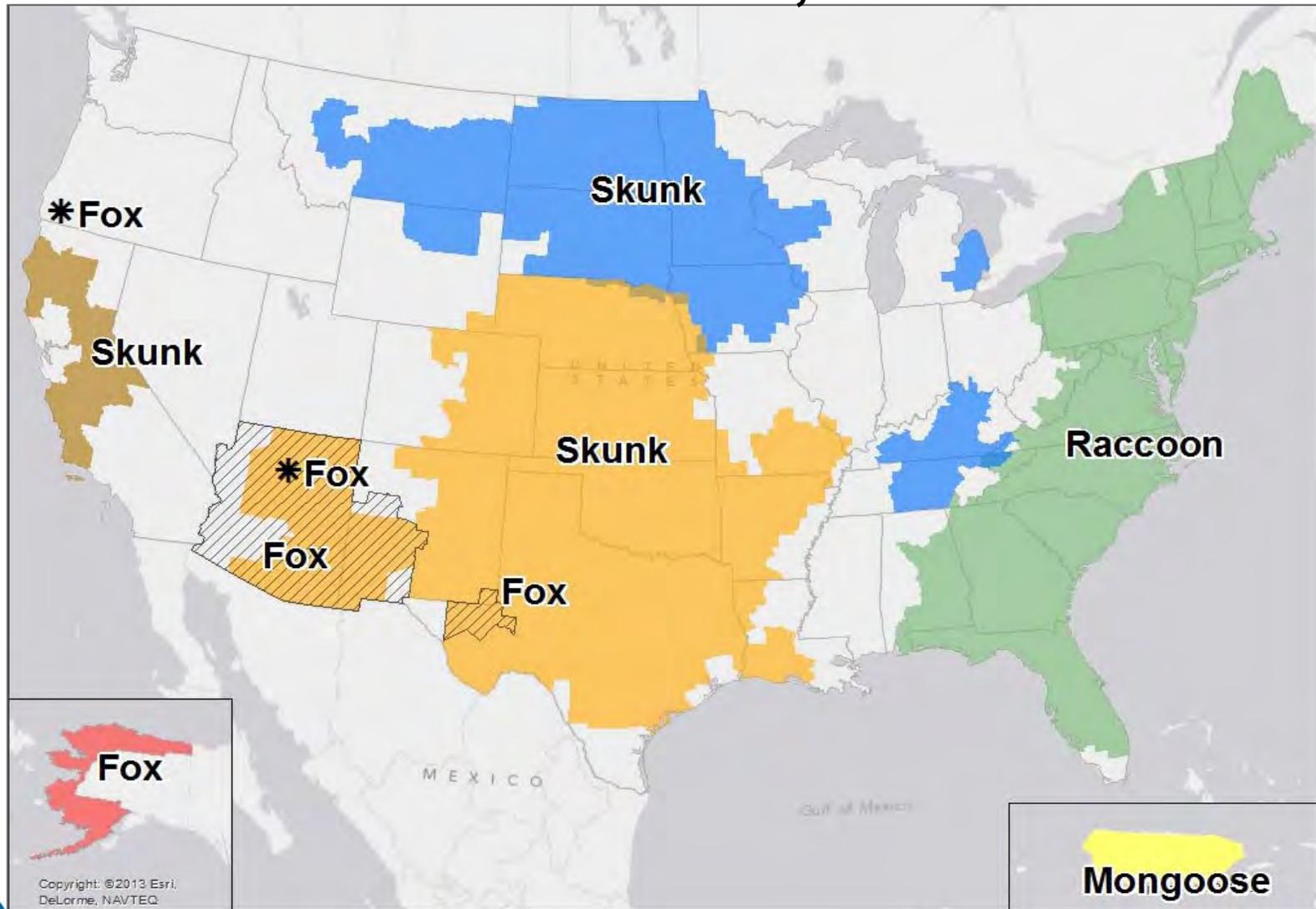
The entire course of clinical rabies in domestic animals **usually** lasts <1 week.

High Risk Species

- Skunks
- Bats
- Foxes
- Raccoons
- Coyotes

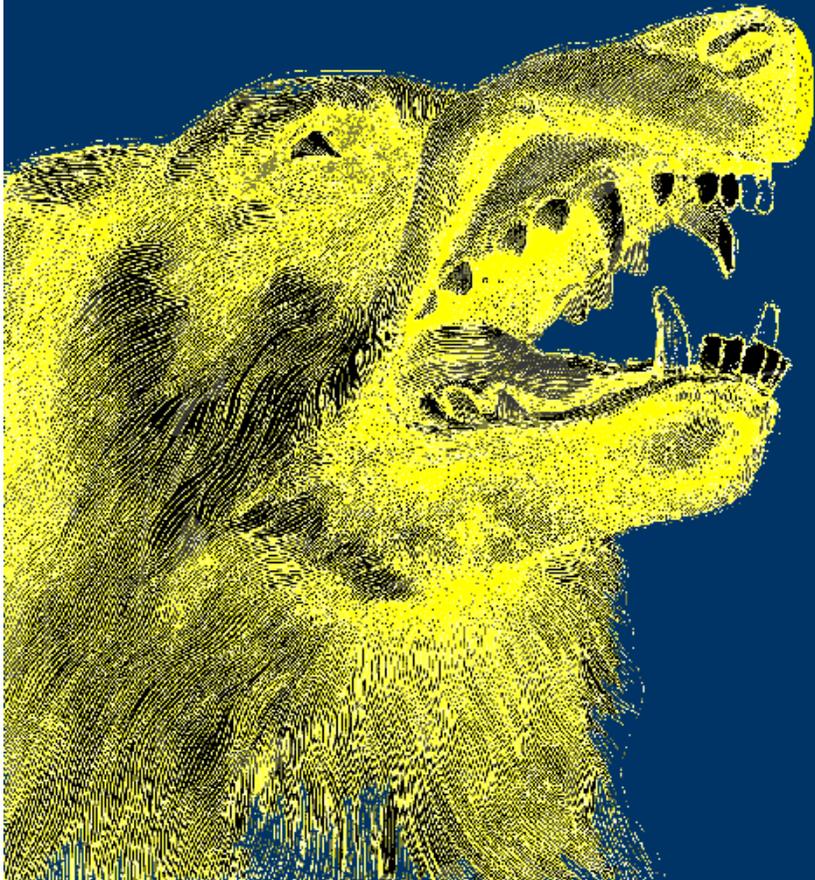


Distribution of major rabies virus variants among mesocarnivore reservoirs in the United States and Puerto Rico, 2008 to 2012.



*Potential host shift event.

Texas Rabies



Surveillance

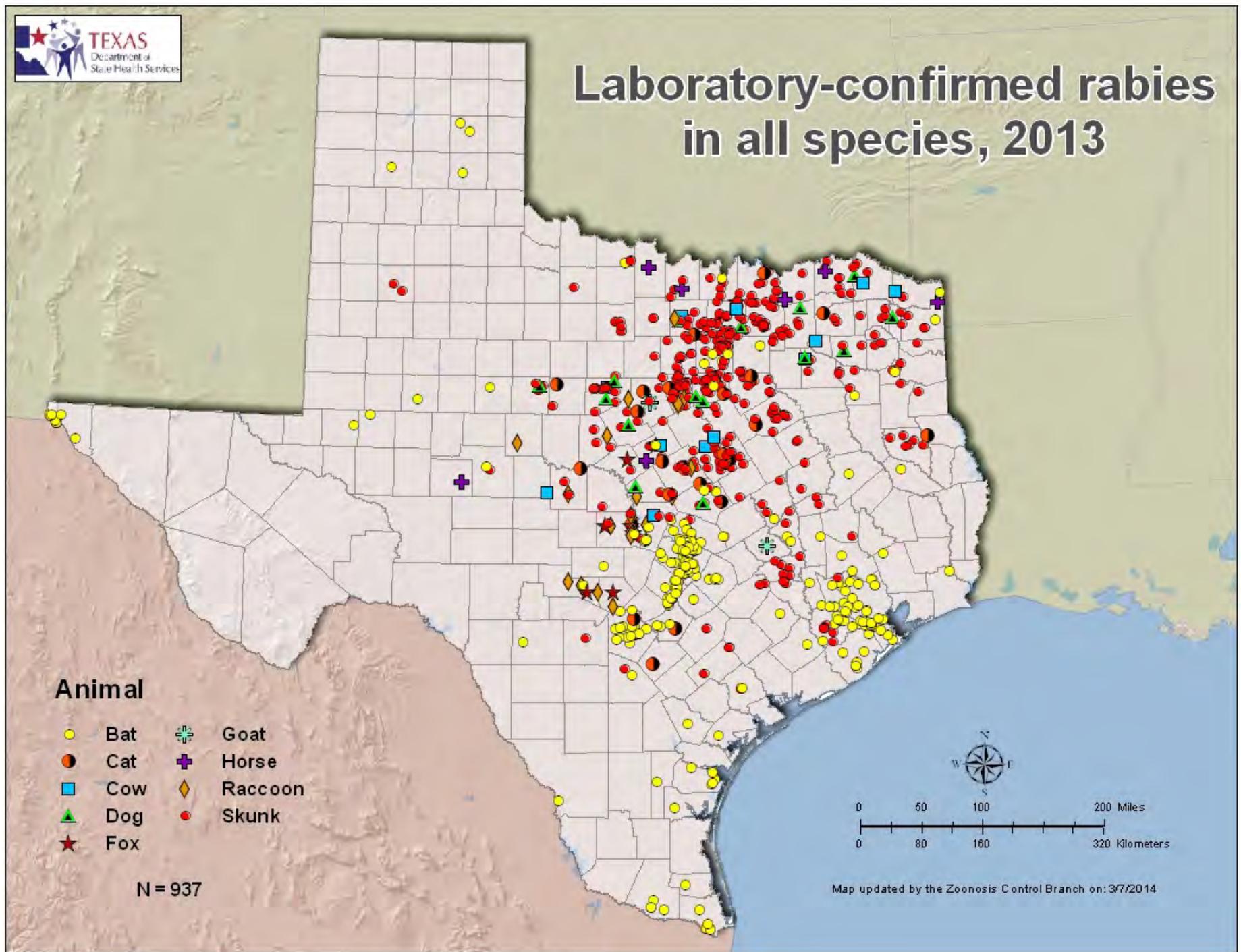
Prevention

Control

Rabies Surveillance

- Passive surveillance: animals suspected to be rabid and/or exposed a human or domestic animal
- Specimens are submitted to the DSHS Laboratory or tested by approved laboratories in local jurisdictions: El Paso, Houston, San Antonio, others
- DSHS Rabies Laboratory also serves as a regional resource for identifying and typing rabies virus variants
- 2013: 12,375 specimens, 12,007 testable
937 (8%) positive

Laboratory-confirmed rabies in all species, 2013



Rabies in Texas, 2013

Wild Animal Species

Species	Positive	Tested*	%Pos
Bats	437	3,034	14%
Skunks	402	839	48%
Raccoons	27	910	3%
Foxes	10	147	7%
Coyotes	0	52	-

* "Tested" = confirmed as either positive or negative

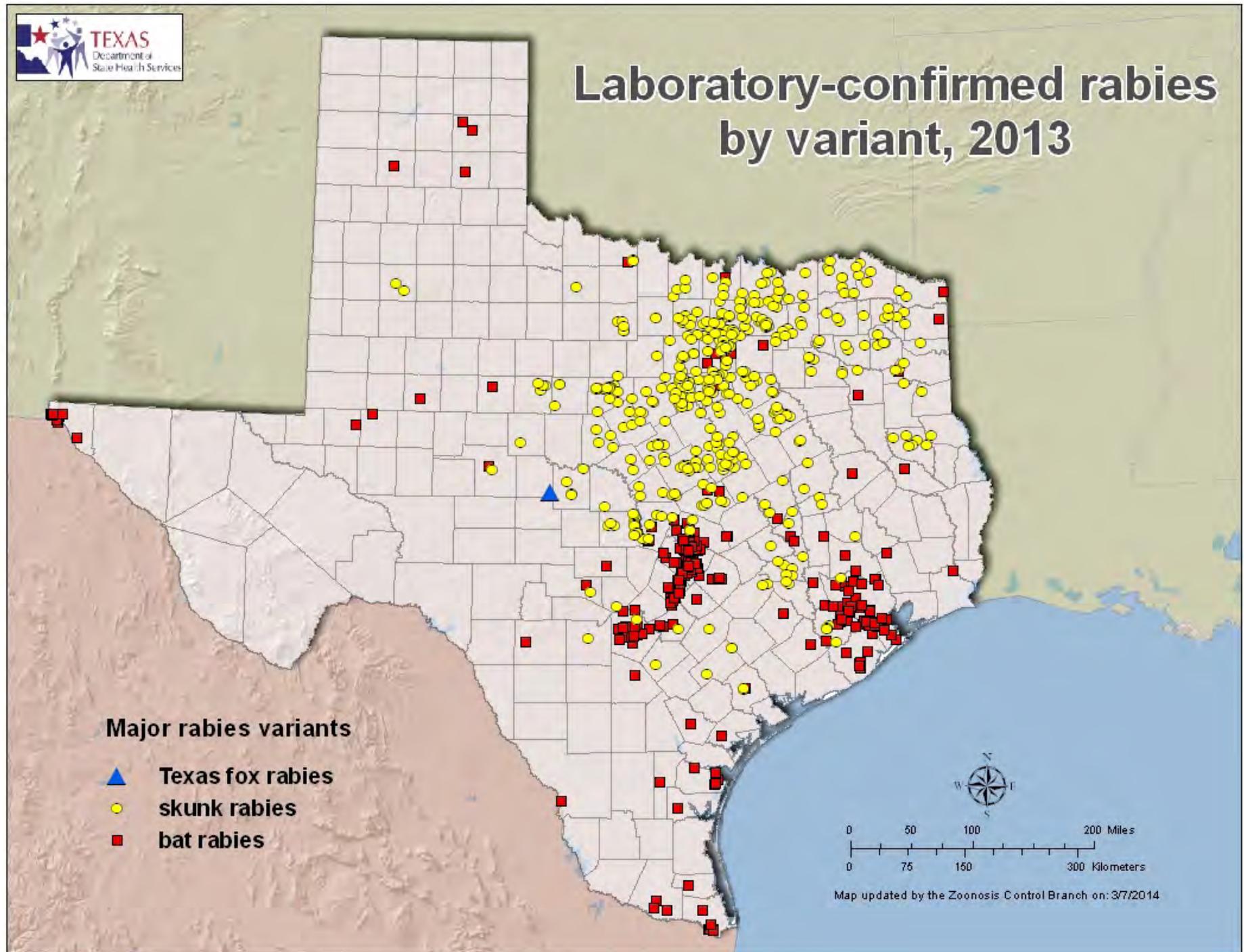
Rabies in Texas, 2013

Domestic Animal Species

Species	Positive	Tested*	%Pos
Cats	23	2,662	1%
Dogs	16	3,866	0.4%
Cattle	13	112	12%
Horses	7	147	5%
Goats	2	38	5%

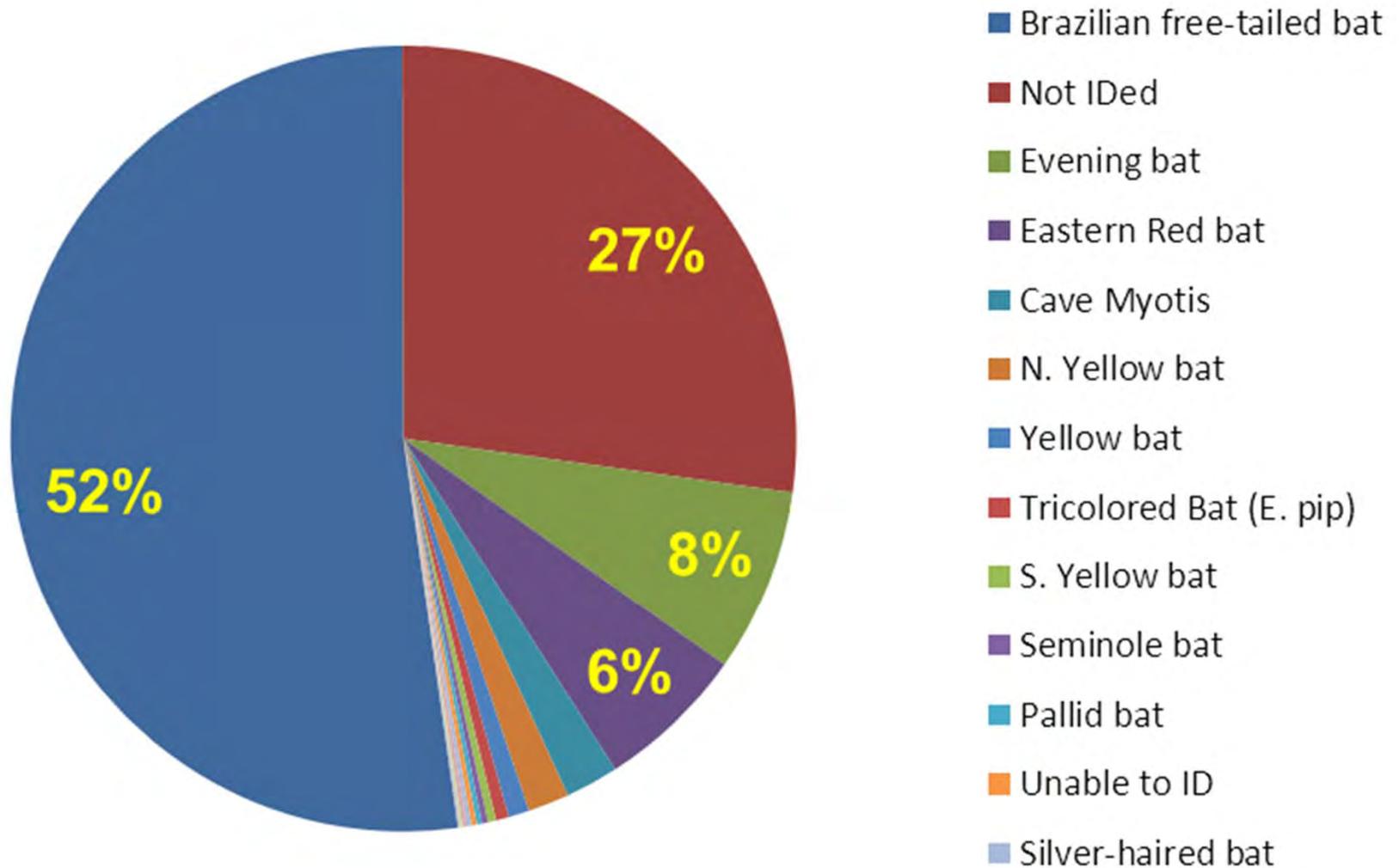
* "Tested" = confirmed as either positive or negative

Laboratory-confirmed rabies by variant, 2013



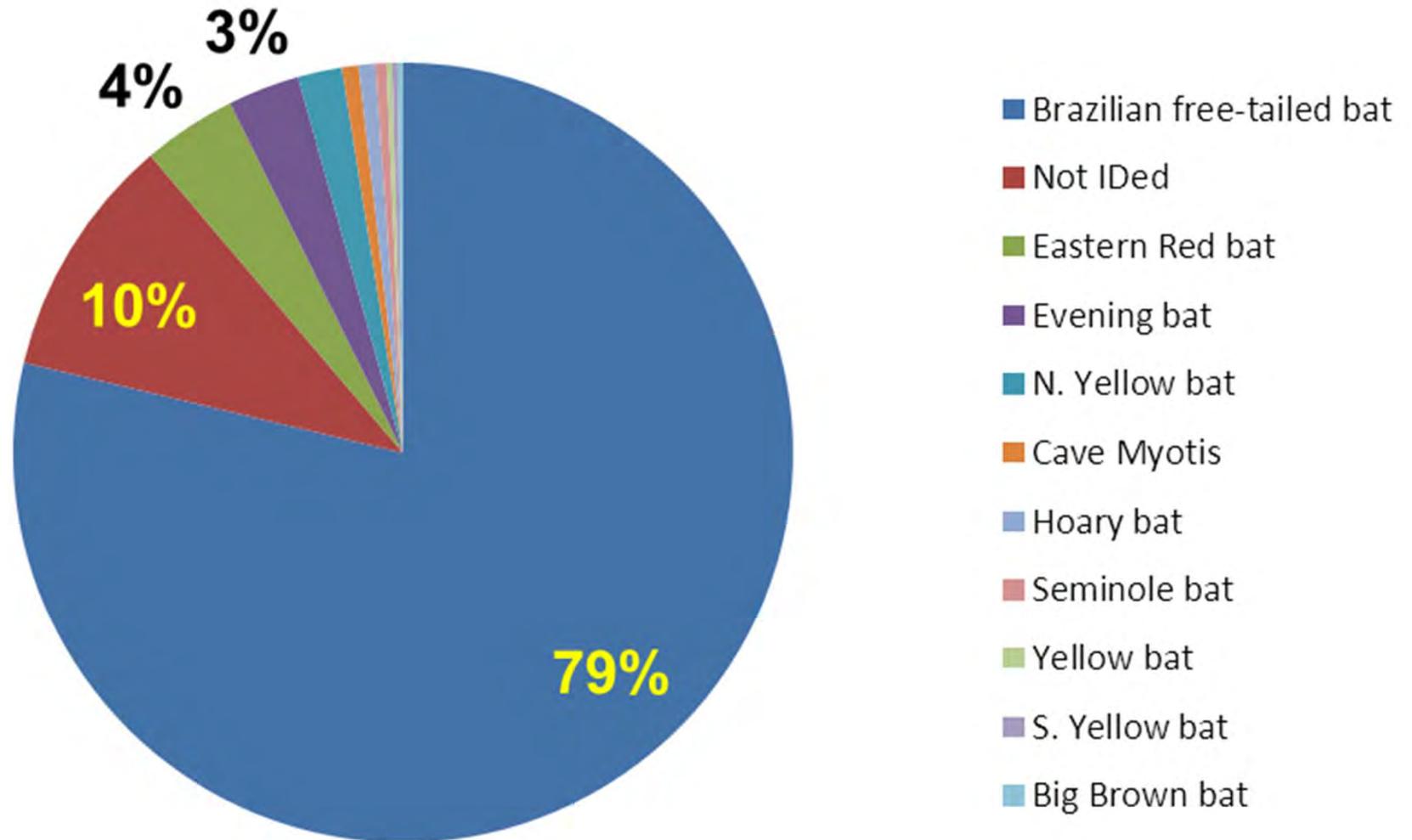
Bats Submitted for Testing, 2013

N = 3,246



Rabies Positive Bats, 2013

N = 437



Rabies Surveillance

- Active Surveillance: wildlife specimens from enhanced rabies surveillance areas
- Specifically for animals which have not potentially exposed humans or animals
- Collaboration between USDA Wildlife Services, local partners and DSHS
- Brainstem samples are tested by DSHS Rabies Laboratory
- Rabies virus variant determined for positive specimens

Rabies Prevention – Humans

Recognition of exposure

Prompt first aid: immediately wash wound with soap and water; apply antiseptic if available

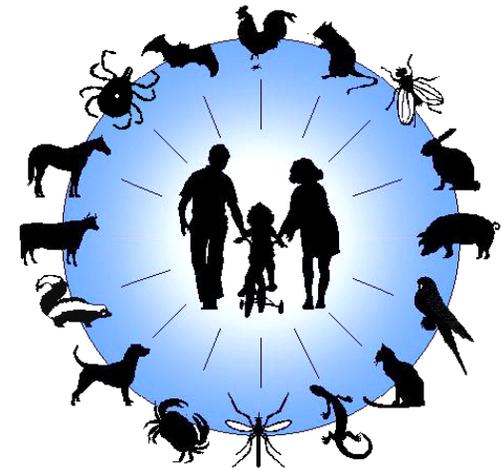
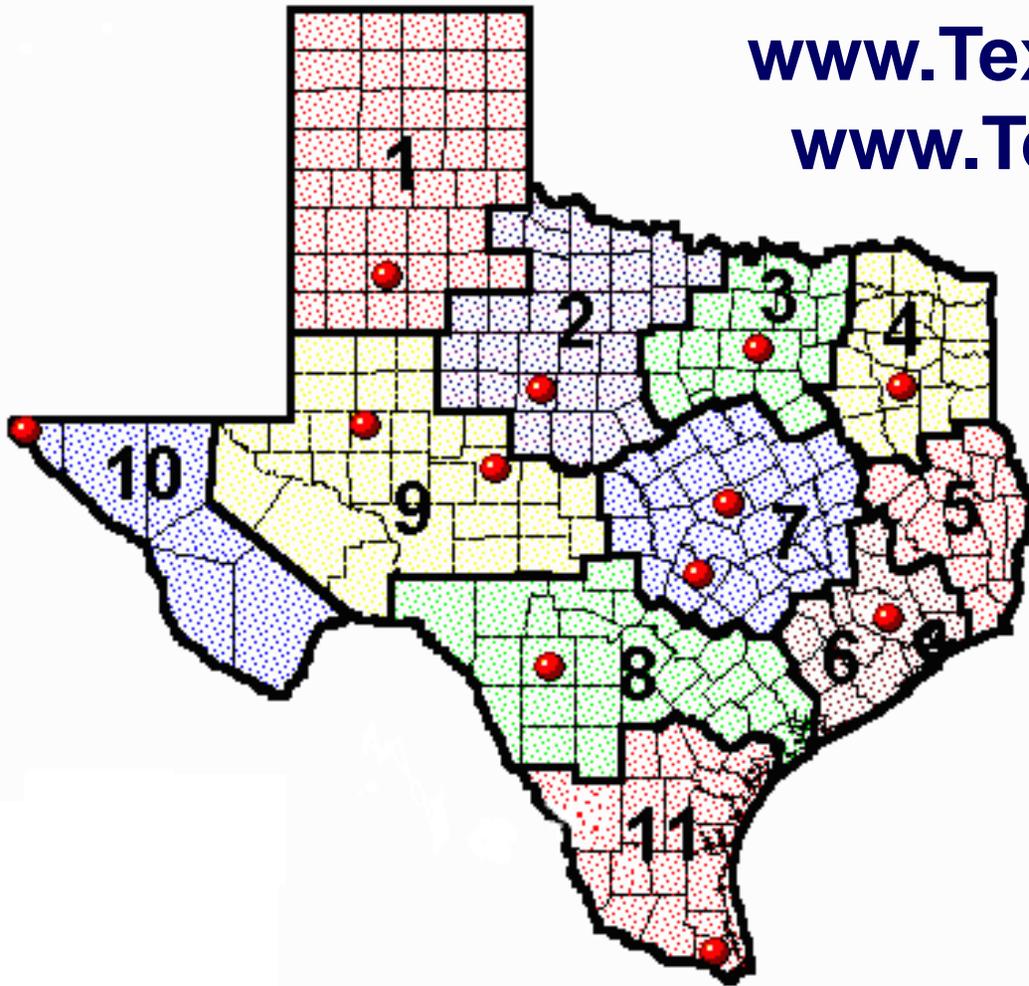
Evaluate need for post-exposure treatment

Rabies Prevention

Zoonosis Control Offices

www.TexasZoonosis.org

www.TexasRabies.org



Human Rabies in Texas*

YEAR	COUNTY	VIRUS STRAIN
2009	Bexar?	bat? <i>Survived</i>
2006	Harris	bat
2004 – 3 cases (also OK, AL)	Northcentral Texas	bat (via AR resident organs)
1997	Harris	SH bat
1994	Hidalgo	Canine
1993	Bowie	SH bat
1991	Starr	Canine
1990	Hidalgo	MFT bat

* One imported case was reported June 2013 in a Guatemalan man.

References

Rabies Prevention in Texas –
www.texasrabies.org, Information, Prevention

RABIES PREVENTION IN TEXAS



[Texas Department of State Health Services](#)
[Zoonosis Control](#)

Stock No 6-108
Revised 4/10/14

Prevention - Animals

Domestic Animals:

- **Stray animal control**
- **Preventive vaccination**
- **Post-exposure vaccination/isolation**

Texas Health and Safety Code

- **Requires vaccination of all dogs and cats**
- **Requires local jurisdictions to appoint Local Rabies Control Authority to investigate animal bites and potential rabies exposures**

Rabies Vaccination

- **ALL dogs and cats are required to be currently vaccinated against rabies by 16 weeks (4 months) of age – THERE ARE NO EXCEPTIONS TO THIS STATUTE!**
- **Booster vaccination required one year after initial vaccination.**
- **Depending upon local ordinances, vaccination periods may be one year, two years or three years based upon the type of vaccine used.**
- **Horses and livestock should also be vaccinated.**



Prevention - Animals

Wild Animals:

- Oral rabies vaccination with vaccinia-rabies glycoprotein recombinant: coyotes, foxes, ?skunks?

Texas Health and Safety Code

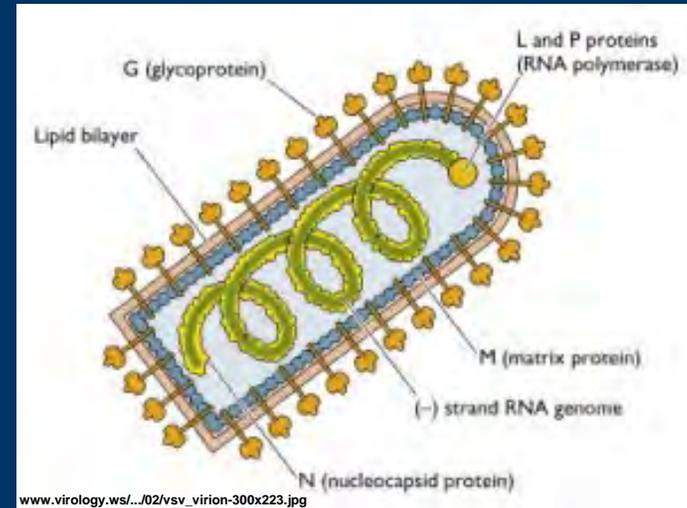
- Area Rabies Quarantine prohibits the transport of raccoons, coyotes, foxes and skunks from, to or within the State

V-RG – Vaccinia-Rabies Glycoprotein

- V-RG is a recombinant vaccine made from a live, weakened **vaccinia (V) virus** that carries the rabies antigen in the form of **rabies glycoprotein (RG)**.
- **RG** is the protective sheath that surrounds the rabies virus and elicits an immune response when swallowed by raccoons, gray foxes, coyotes, and other animals.



Rabies virus structure



The vaccine **cannot cause rabies.**
Why?

- It contains only the non-infective surface proteins of the virus.
- The virus needs its nuclear material to replicate and cause infection.



Oral Rabies Vaccination Program 1995-2002



1995



1996



1997



1998



1999



2000



2001



2002

-  Gray Fox Vaccination Zone
-  Coyote Vaccination Zone



Oral Rabies Vaccination Program 2003 - 2010



2003



2004



2005



2006



2007



2008



2009



2010

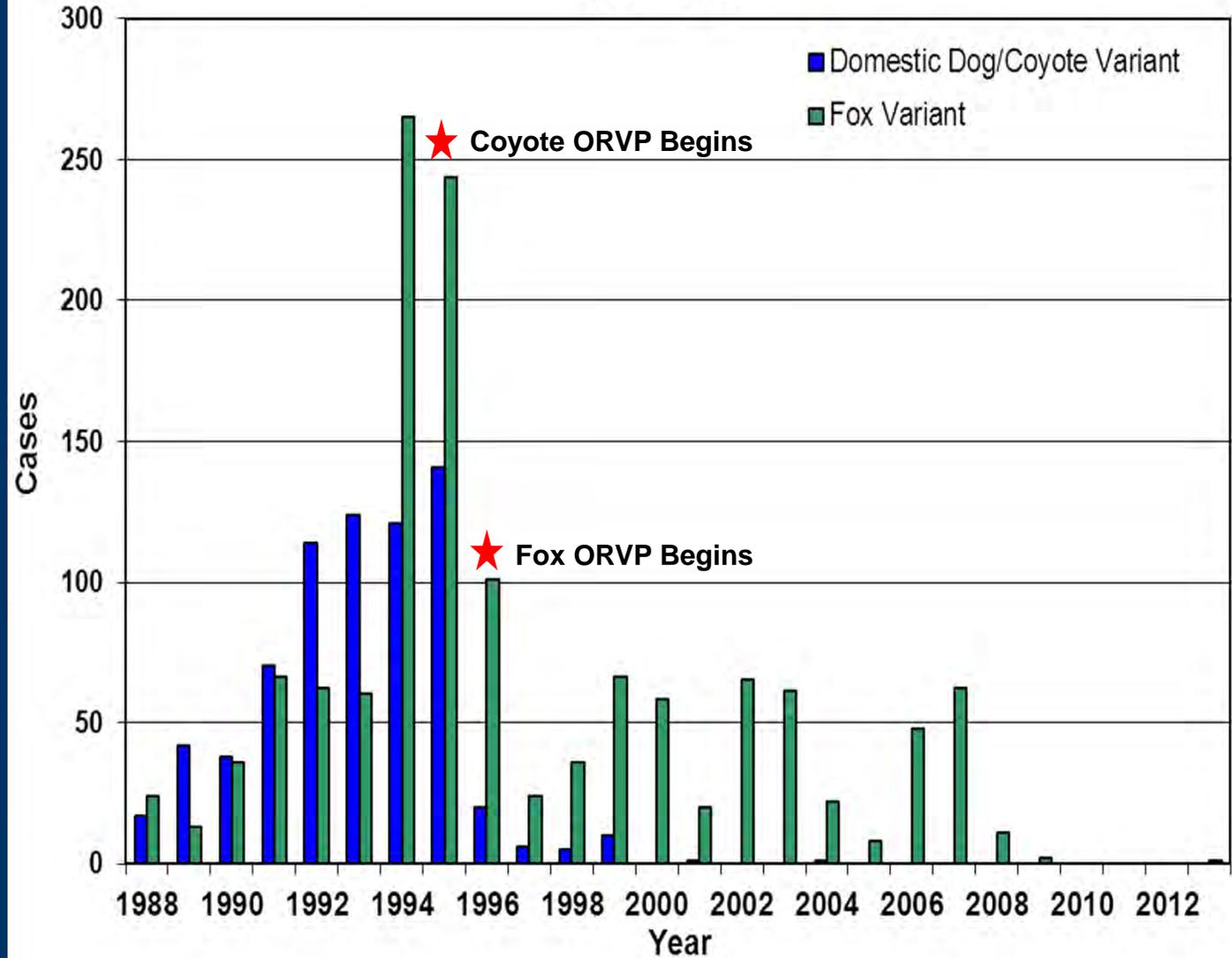
-  Gray Fox Vaccination Zone
-  Coyote Vaccination Zone



Oral Rabies Vaccination Program 2011-2013



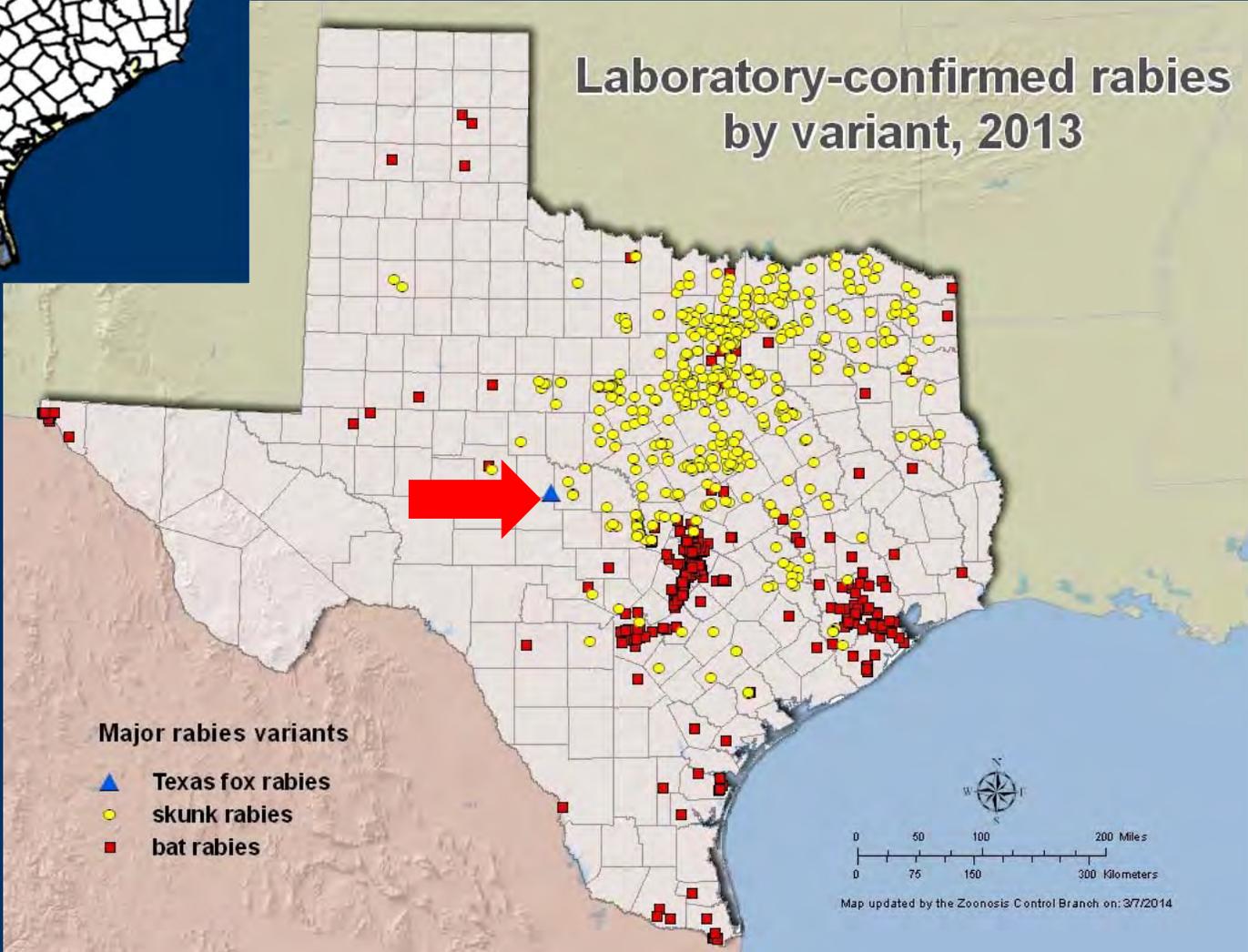
Domestic Dog/Coyote and Gray Fox Rabies Variants in Texas
1988 - 2013



2013 ORVP



Laboratory-confirmed rabies by variant, 2013



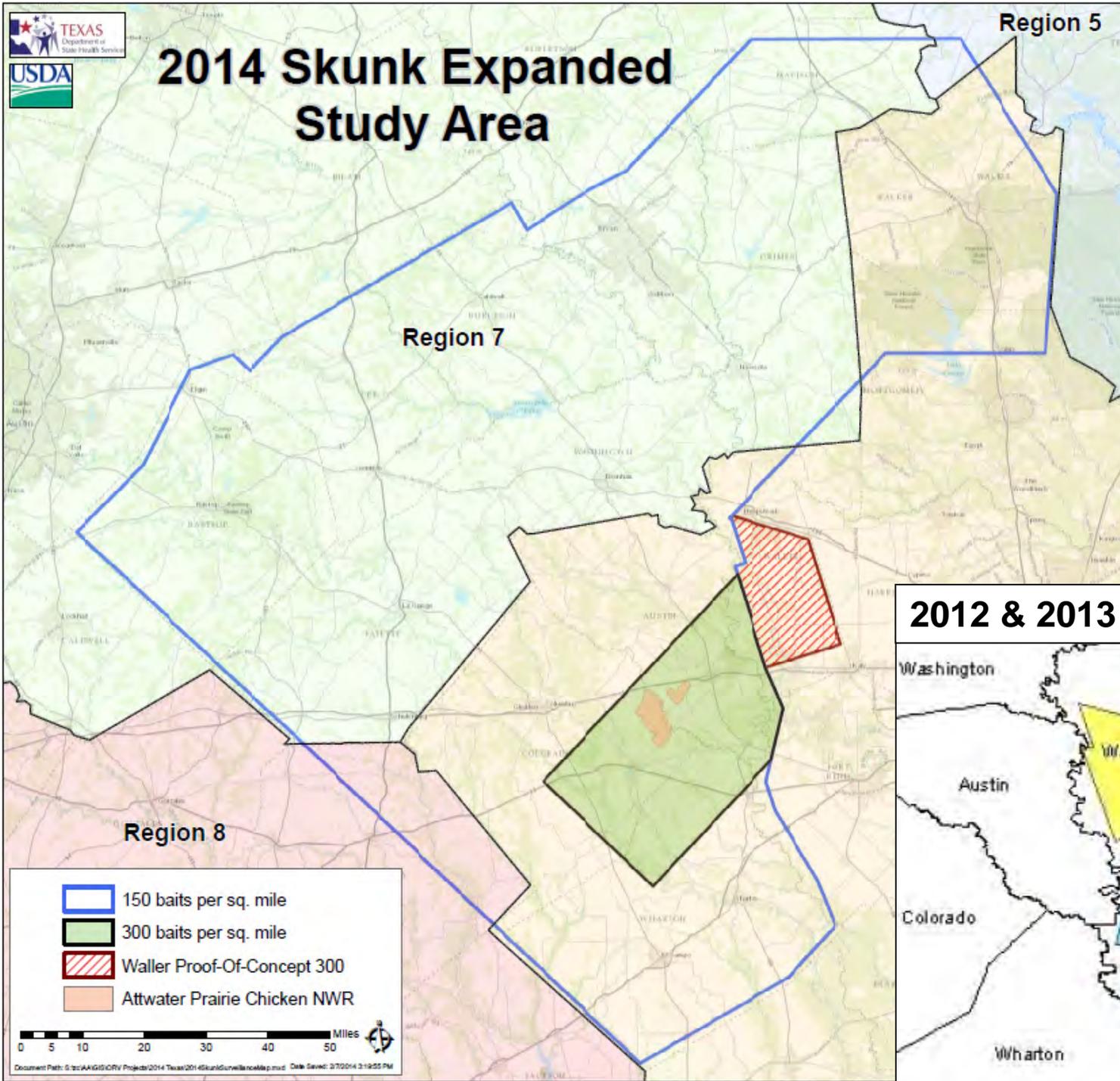
Major rabies variants

- ▲ Texas fox rabies
- skunk rabies
- bat rabies

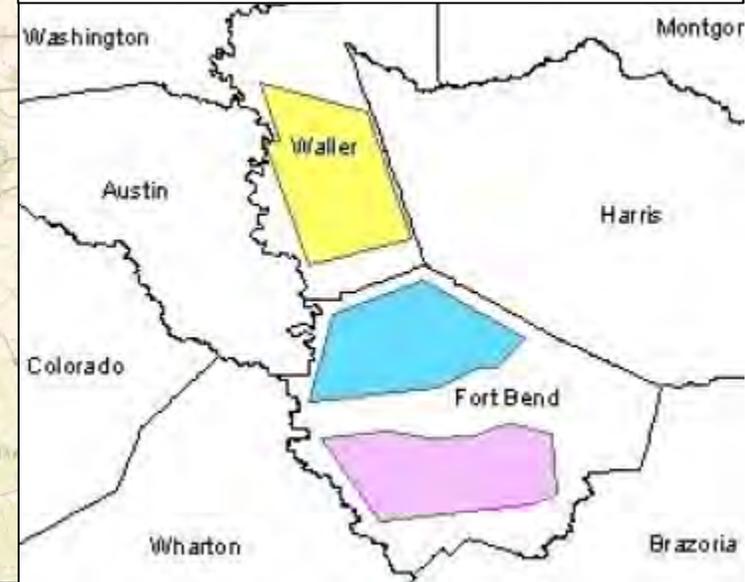
0 50 100 200 Miles
0 75 150 300 Kilometers
Map updated by the Zoonosis Control Branch on: 3/7/2014



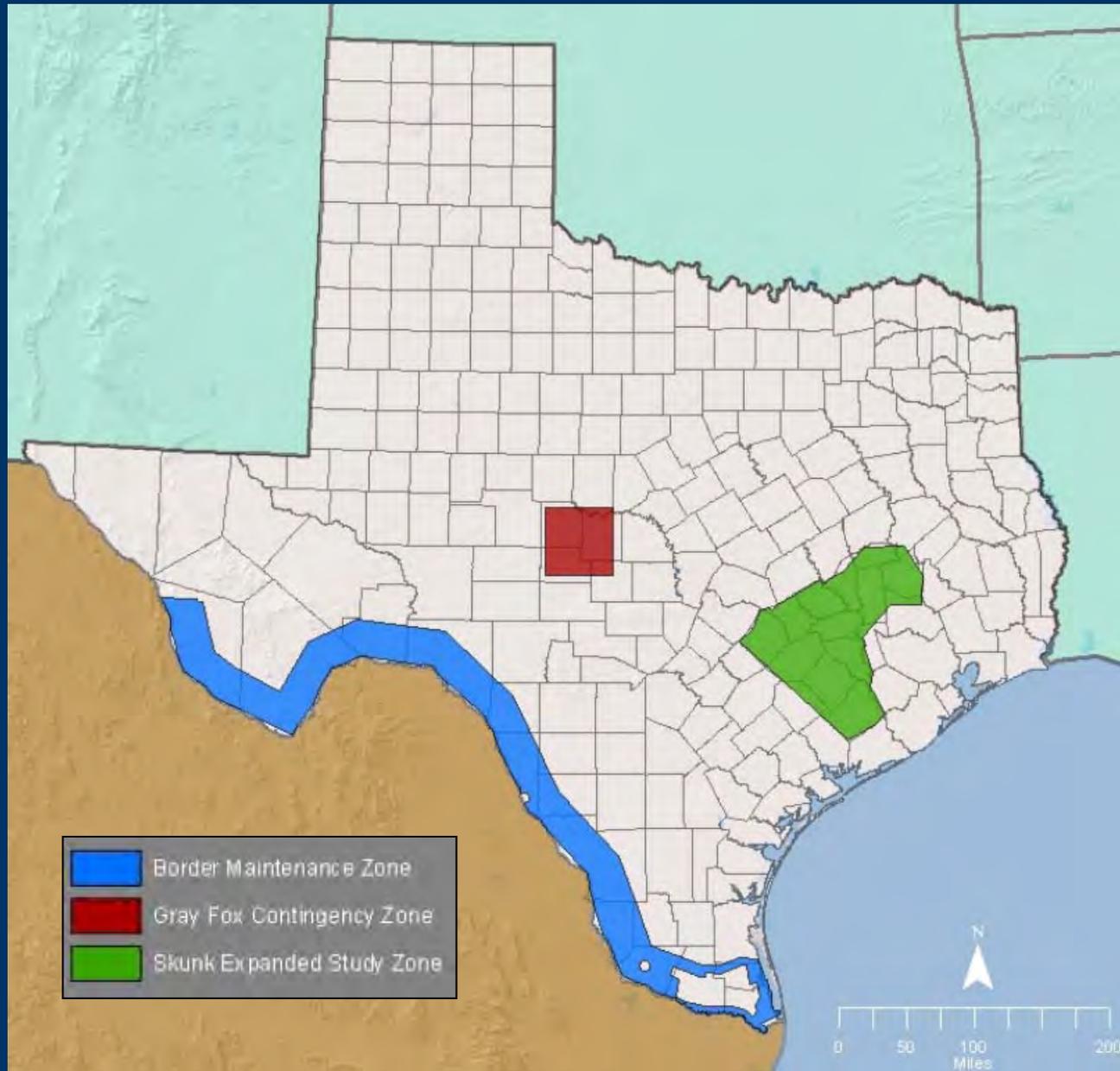
2014 Skunk Expanded Study Area



2012 & 2013 Proof of Concept



2014 Oral Rabies Vaccination

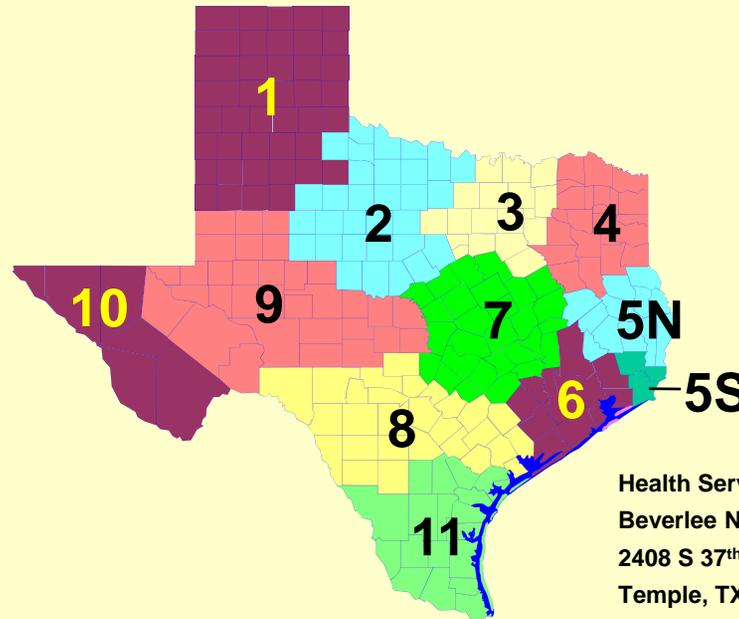


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Questions?

www.TexasZoonosis.org

www.TexasRabies.org

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