

Oklahoma's State Report

2008 State Public Health Vector Control Conference Fort Collins, CO

Kristy K. Bradley, DVM, MPH

State Epidemiologist & State Public Health Veterinarian

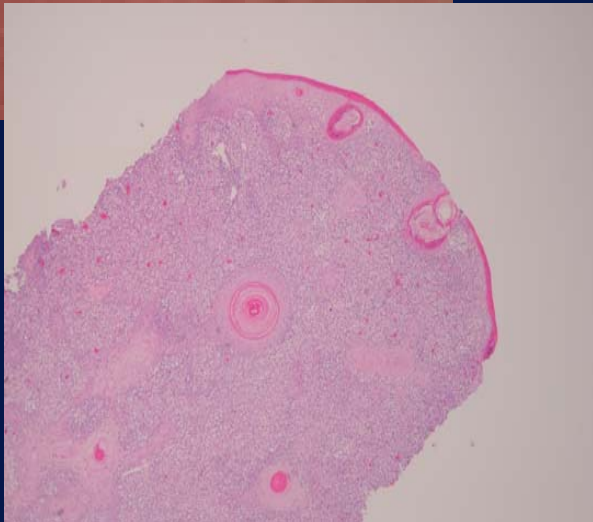
Oklahoma State Department of Health

(405) 271-4060

Kristyb@health.ok.gov



Cutaneous leishmaniasis



- *L. mexicana* most likely Leishmania species in U.S.
- Transmitted by bite of sand fly (*Lutzomyia spp*)
- Zoonosis with woodrats as reservoir host
- Erythematous papule → nodule → crusted ulcer
- Spontaneous healing generally occurs after weeks to months
- Lifelong scarring possible



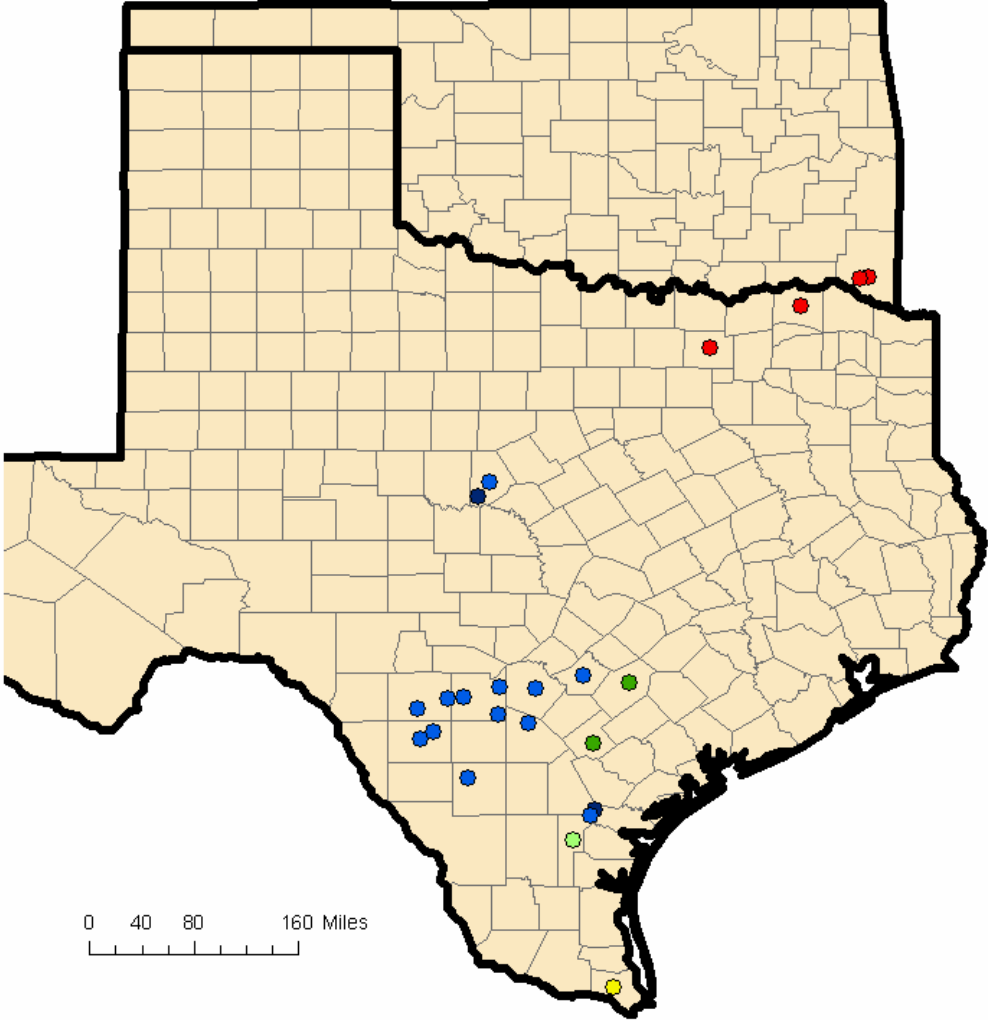
Sand fly Vectors



- *Lutzomyia anthophora* is a nest associate of woodrats.
- *Lu. diabolica* is anthrophilic; may serve as a bridge vector
- *Lu. vexator* collections near cases but considered coincidental; feed on reptiles



Cutaneous Leishmaniasis in the United States, 1903-2006



Year of Onset

- 1900-1910
- 1911-1940
- 1941-1970
- 1971-1990
- 1991-2000
- 2001-2006

0 40 80 160 Miles



Emerging Infectious Disease?

- Two confirmed autochthonous cases in McCurtain County, OK during 2006
 - 26 yo male, nonhealing skin lesion on cheek, December 2003
 - 73 yo male, two eruptive lesions on right forearm, December 2005
- Retrospective review revealing > 18 recent cases in Dallas, TX area



Rat Trappin' with Texans



Epi Field Investigation, June 2006

- ❖ *Lutzomyia anthophora* collected around case residences in southeast OK and northeast Texas
- ❖ Possible factors in expansion of enzootic/endemic range:
 - Introduction of reservoir host (*N. floridana*, *N. albigula*)
 - urbanization in Collin County, TX
 - presence of animals in peridomestic environment
 - prolonged period of drought/heat disturbing woodrat habitat



Conclusions

- Need for heightened awareness, esp among dermatologists and pathologists
- Reportable disease in Texas
- Based on distribution of woodrats, enzootic foci of *L. mexicana* could occur over much of the southern US.
- Distribution of potential sand fly vectors poorly studied.



Oklahoma's WNV Program at a Glance

- Dead wild bird surveillance implemented in 2001; ceased in 2005
- Limited mosquito surveillance: consistent in 4 communities since 2003
- All case reports received by OSDH Communicable Disease Division; case interviews conducted by local HD public health nurses
- Approx 1/3 of ELC grant used to supplement municipal mosquito control programs
- Only 1 health dept (Tulsa) conducts mosquito control



Mosquito Trapping and Testing in Oklahoma

- ⇒ Gravid traps principally used in four communities
- ⇒ OSU entomologists sort and ID; use VecTest® field kit for testing
- ⇒ Trapping conducted from April – Nov
- ⇒ Results shared with municipality



West Nile Virus Experience Oklahoma, 2002-07



	2002	2003	2004	2005	2006	2007
# Human cases	21	79	22	31	48	107
# NAT+ Blood Donors	---	26	8	16	13	18
# Human deaths	2	0	3	1	6	8
# Equine cases	965	169	32	32	2	9
# Positive dead birds	441	401	388	----*	3*	---
# Positive mosquito pools		11	17	42	94	127

* Bird surveillance discontinued

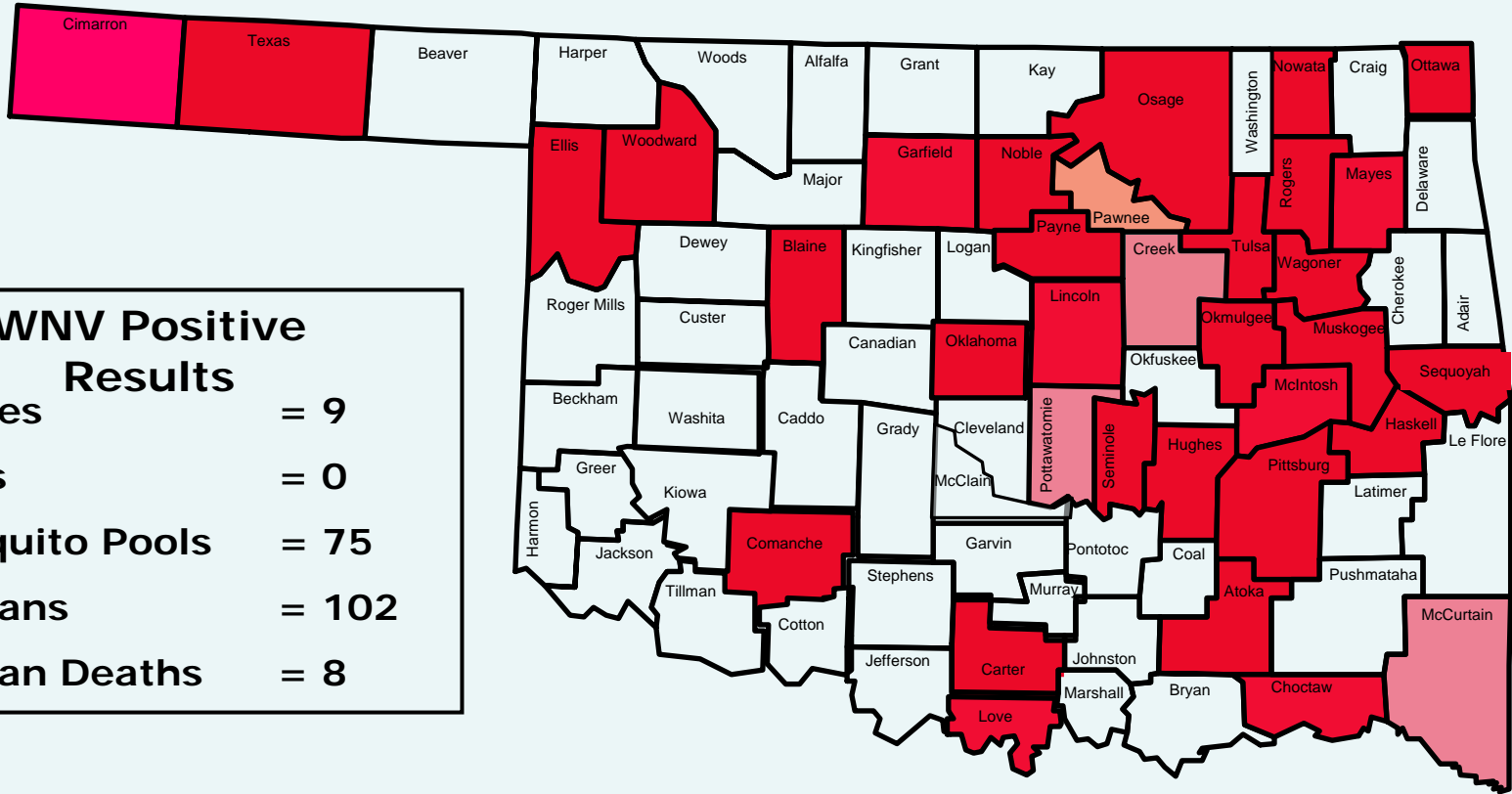
WNV: What I thought I knew...

- A season of drought coupled with above average mean temps will translate to a “worse” WNV season.
 - Record rainfall and flooding in June and July ‘07 preceded Oklahoma’s highest # of reported WNV cases



Human and Nonhuman West Nile Virus Activity Map

Oklahoma, 2007



Human WNV Case

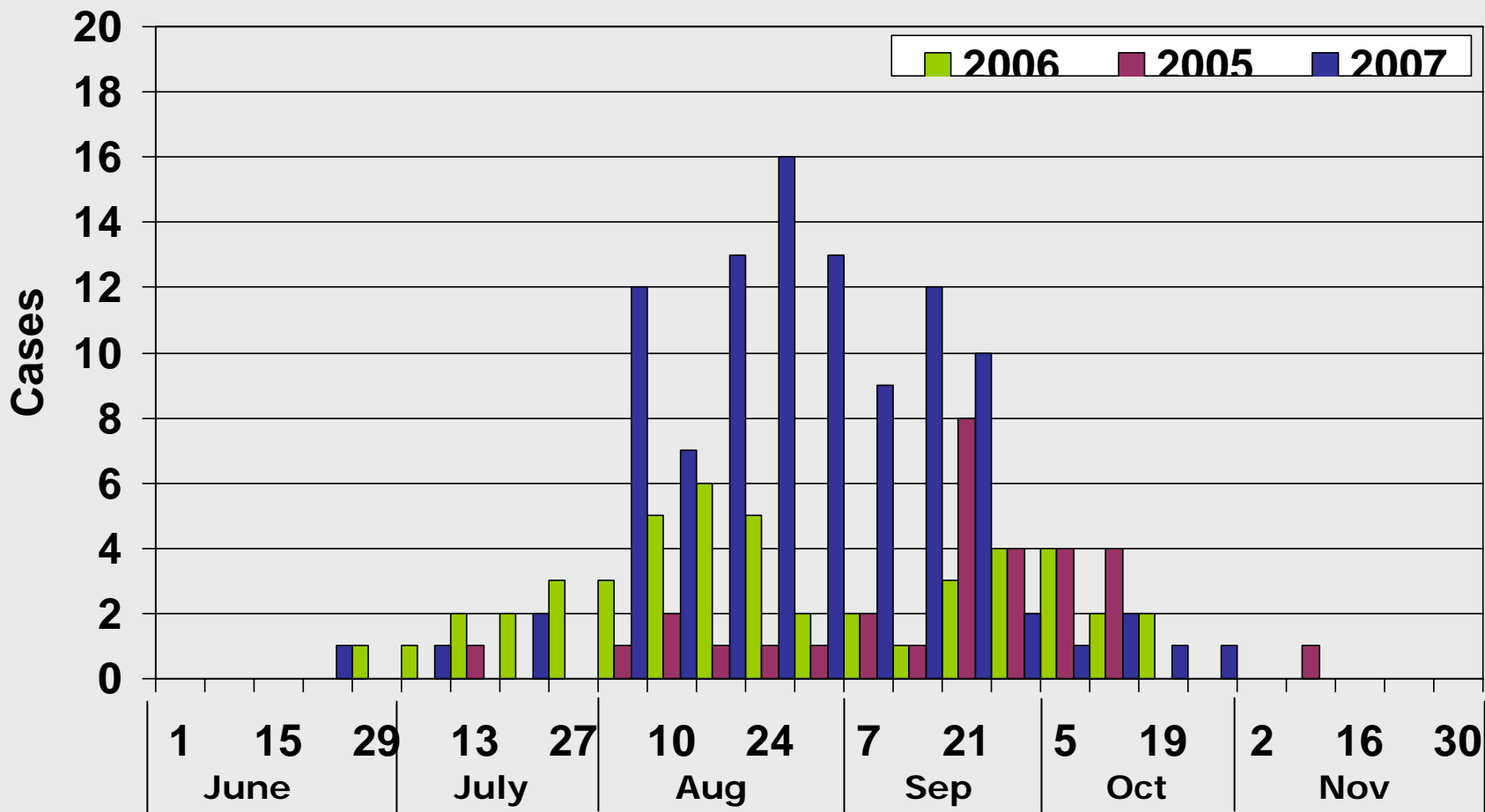


Nonhuman WNV Infection

Week Ending November 25, 2007

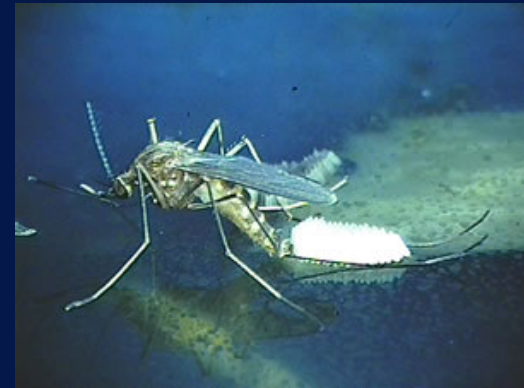


Cases of Human West Nile Disease by Week of Onset, Oklahoma 2005 - 2007



■ "With deep cuts in federal funding (ELC grant), what level of WNV surveillance is sustainable?"

"What level of PH Lab capability is necessary and cost-effective?"

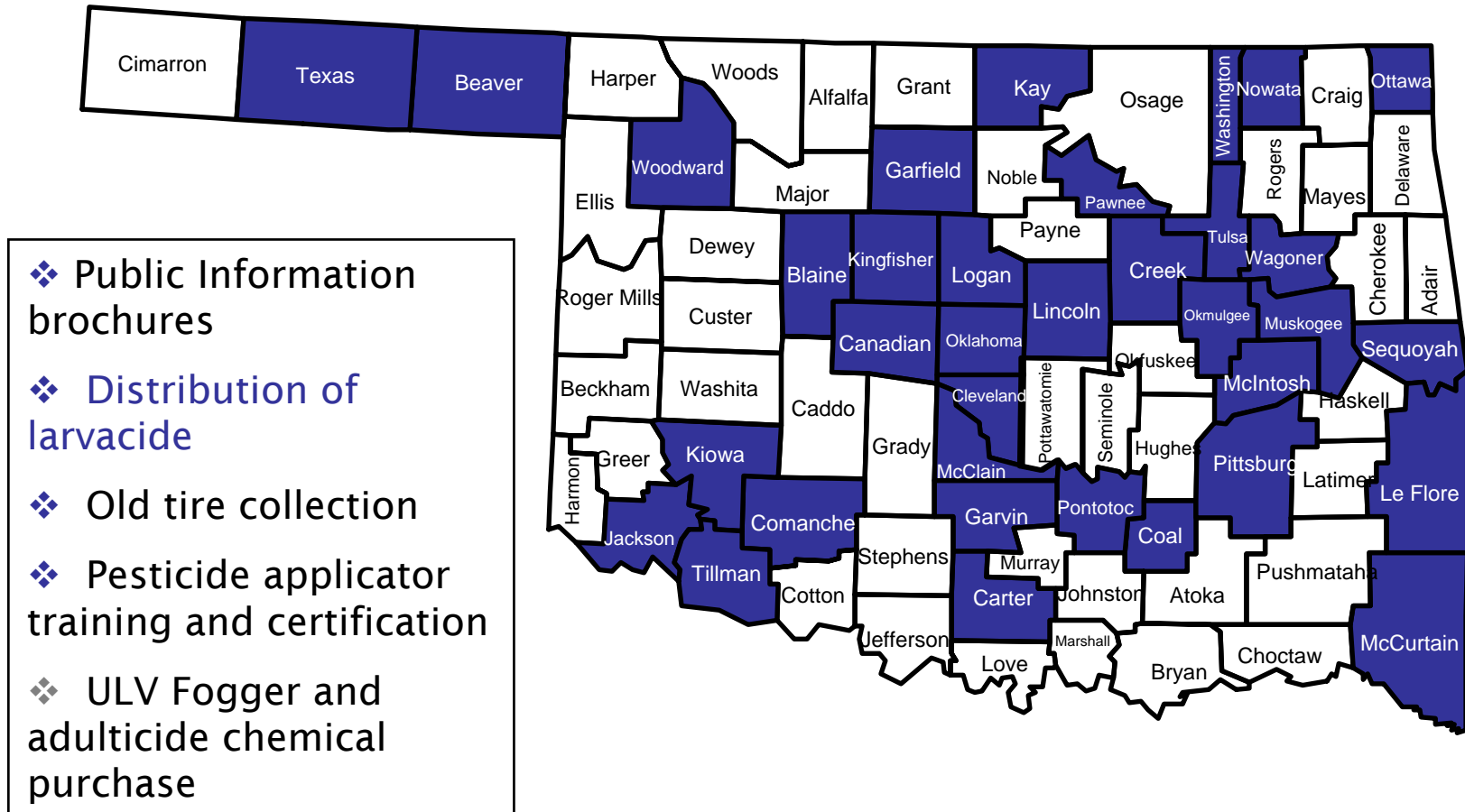


PHL Diagnostic Capacity

- Antibody testing (SLE & WNV)
 - IgM-capture ELISA (Focus Technologies base/Microimmunobead Assay)
 - Serum or CSF
 - Volume of testing decreasing concordant with test availability at commercial labs
 - Feasibility of expanding panel?



Oklahoma Counties Receiving Federal Grant Funding for Local West Nile Virus Prevention & Control Programs*



4 D's of West Nile Defense

- 1) Drain standing water
- 2) Dress to prevent mosquito bites
- 3) Avoid outdoors between dusk and dawn
- 4) Apply DEET-containing mosquito repellent

How much of a “dent” in WN infections does this result in?





How effective can public health really be in reducing the incidence of West Nile disease in the absence of a human vaccine?



