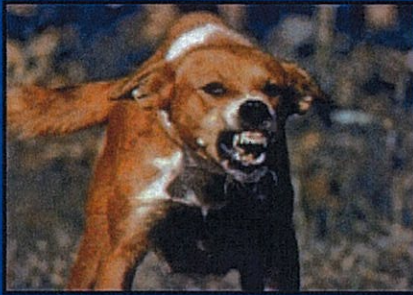


# RABIES



Susan Weinstein, DVM, MPH  
State Public Health Veterinarian  
Arkansas Department of Health



## What is Rabies?



- Virus in the brain
- Highest fatality rate of any infectious disease—virtually 100% fatal
- All mammals susceptible, but only certain species are reservoirs
- Different strains (variants) of the virus identified in lab





## Rabies Variants

- Arkansas
  - Bat and Skunk variants
  - NOT Raccoon
- US
  - Bats, skunks, foxes, raccoons, coyotes
- Can be transmitted to any susceptible mammal (spillover): usually presents as a single case and doesn't continue to spread.



## Transmission

- **\*Introduction of saliva into bite wound\***
- Exposing open wound or mucous membranes (eyes, nose, mouth) to fresh saliva or nerve tissue
- Aerosol transmission—extremely rare
- Organ transplantations





## Incubation Period

- Time interval between exposure to virus and onset of symptoms (from bite to brain)
- Nervous system spread, not blood
- Varies with dose of virus, site of virus deposition, type of animal
- Generally is a long time—weeks to months



## Infectious Period

- Time during which a rabid animal is shedding virus in saliva and able to transmit rabies. *Not same as incubation period!*
- Virus must be in brain before it is in saliva.
- Most rabid animals infectious only few days before onset of very noticeable symptoms and death.
- Hence the 10 day quarantine of biting dogs, cats





# Rabies in United States



## Distribution of Major Terrestrial Reservoirs of Rabies in US

RABID BATS ALL ACROSS THE UNITED STATES (except Hawaii)





## Rabies in US

- Canine (dog) type of rabies has been eliminated from US
- Wild animals most important source of infection for humans and domestic animals
- Most reported cases occur in:
  - Carnivores (raccoons, skunks, foxes)
  - Insectivorous bats
- Nearly all **human rabies** cases in recent years have been caused by variants associated with **bats**



## Bats--trivial bite?

In US most human deaths to rabies due to insectivorous bat bites (very small, < 20 grams, with tiny needle-like teeth).

Trauma alone, from a bat bite, is unlikely to send anyone to an emergency room.

Rabies-positive red bat (*Lasivurus borealis*)

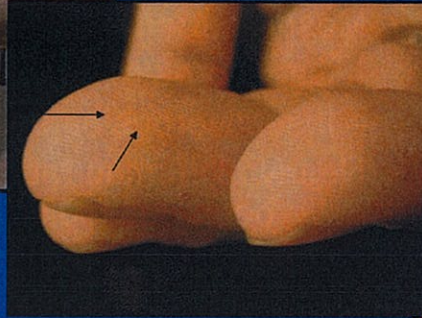
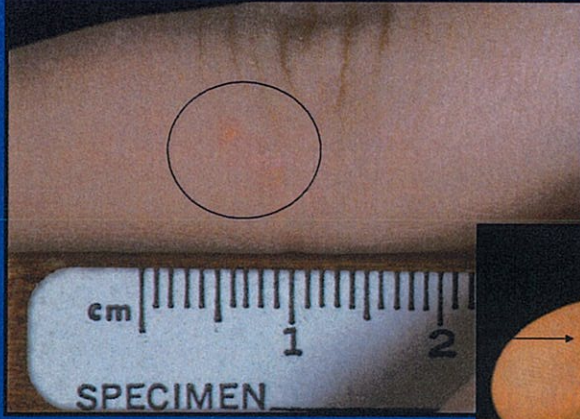


Eastern pipistrelle and Silver-haired bat





## Bat bite on finger



## Rabies in Arkansas





## Positive rabid animals 1990-2013 (24 years)

### Reservoir Species

	Total	Average
• Bats	248	(10.4)
• Skunks	942	(39.4)

**24 Year AVE.: 54.6**

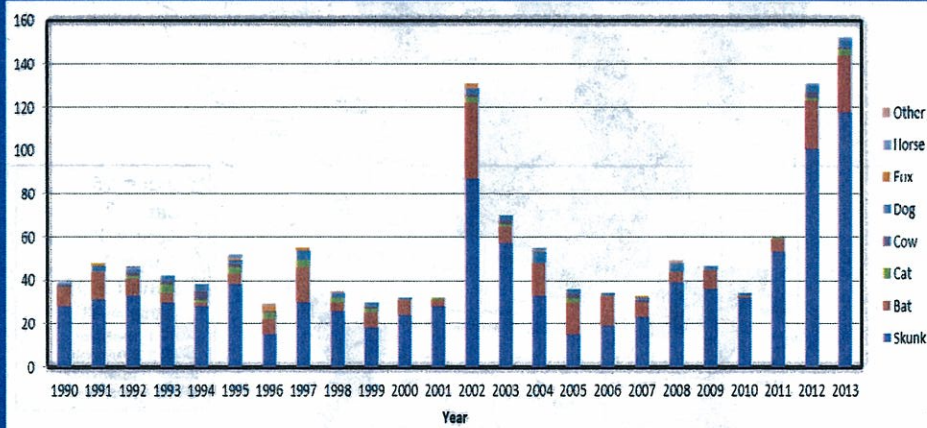
Prior to 2012, ave. = 46.7/yr

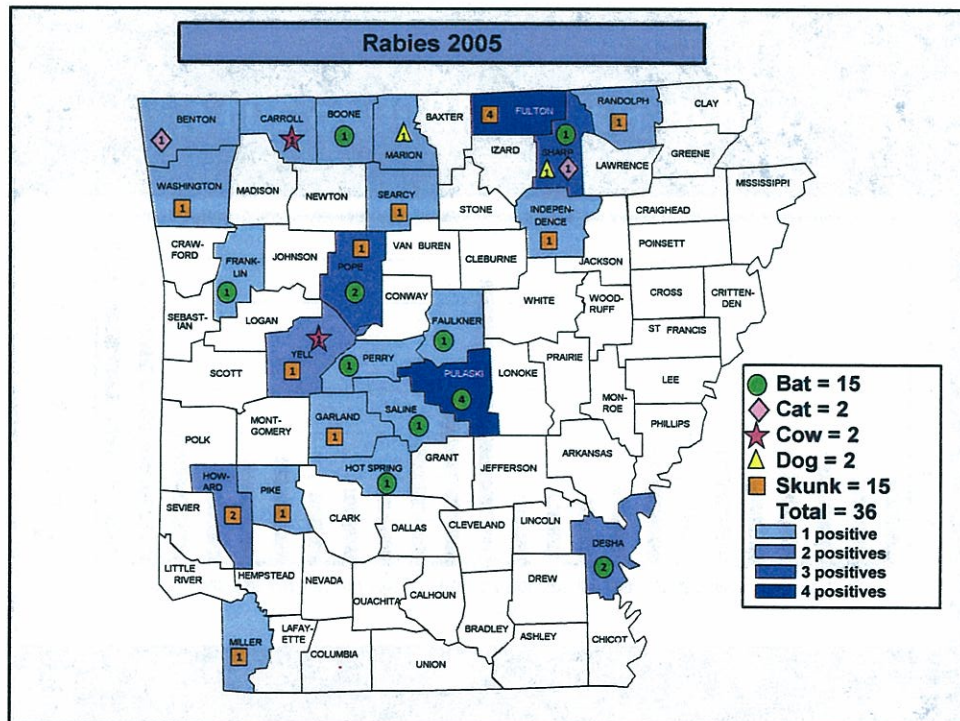
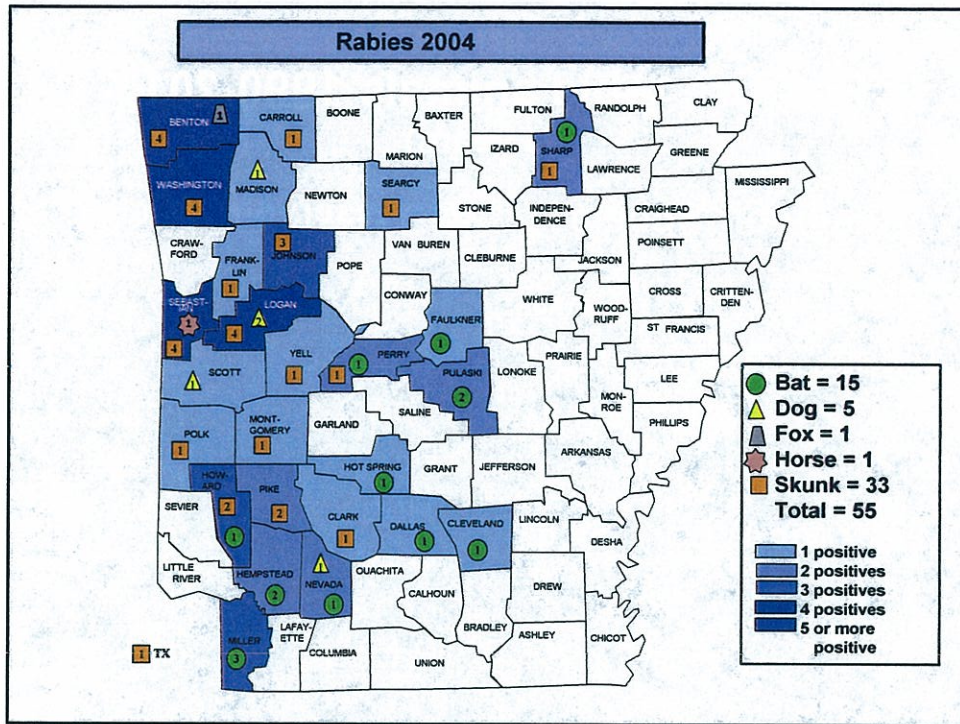
### Non-reservoir Species

	Total
• Dog	47
• Cat	31
• Cow	23
• Fox	9
• Horse	7
• Goat	1
• Ferret	1
• Raccoon	1

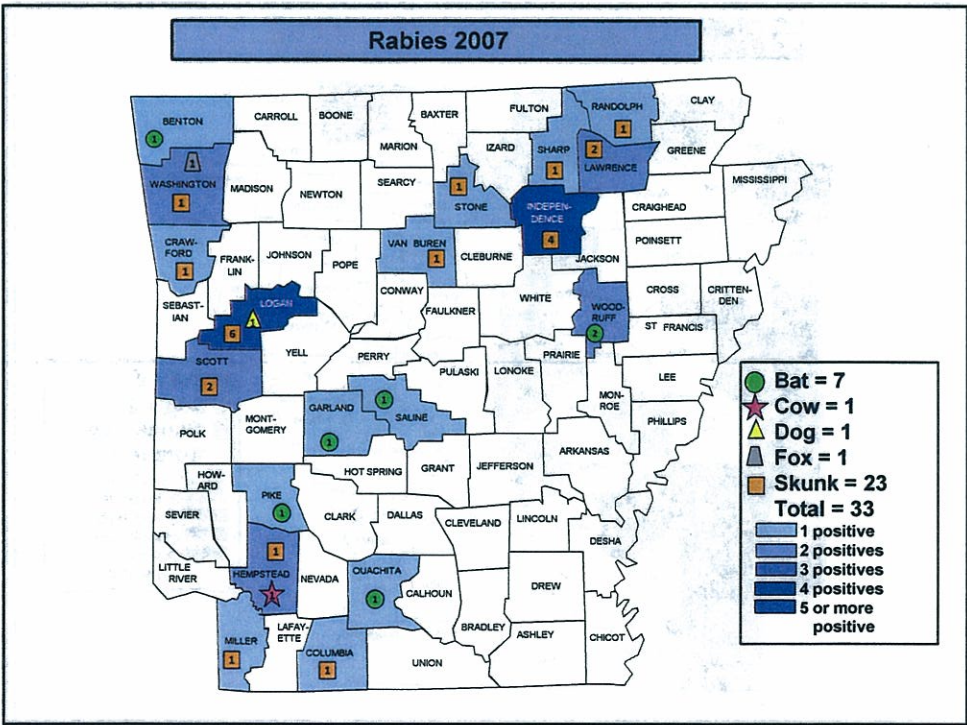
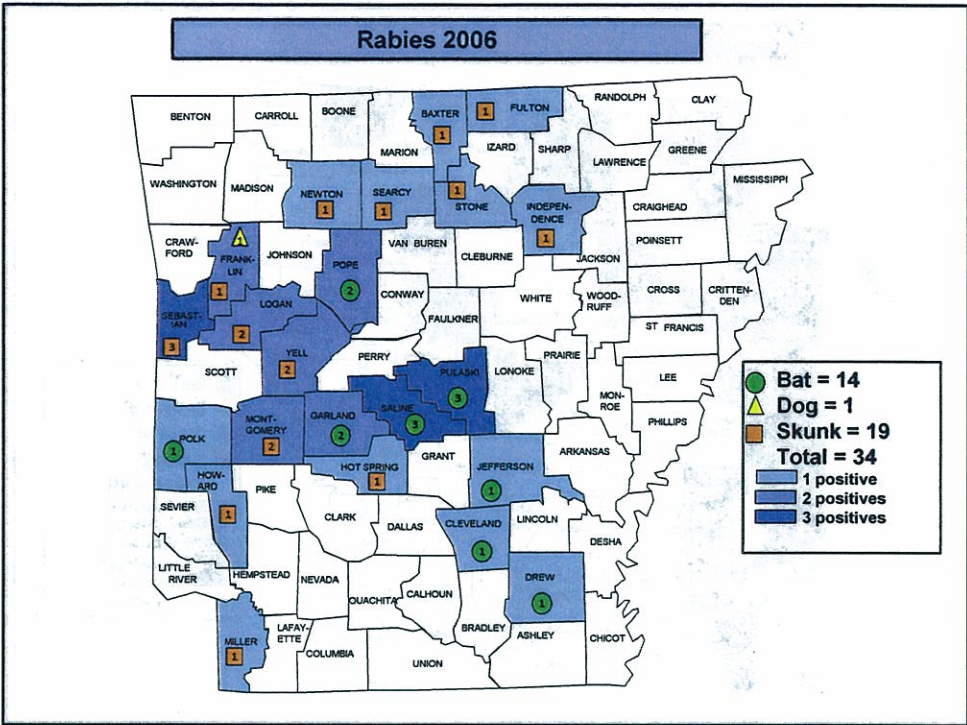


## Positive Rabies 1990 to 2013

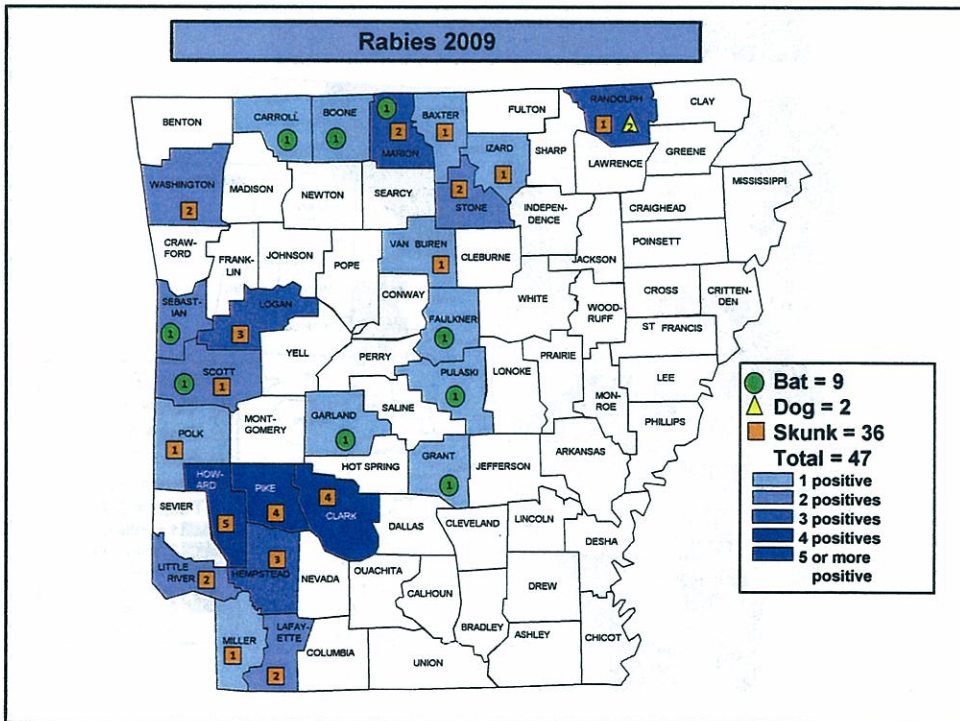
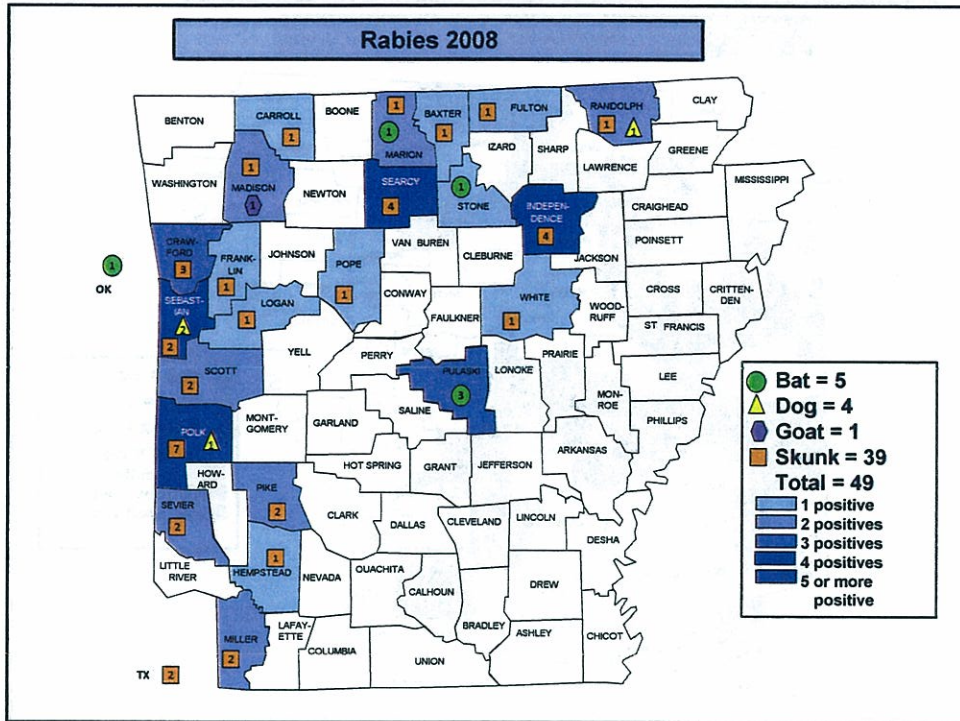




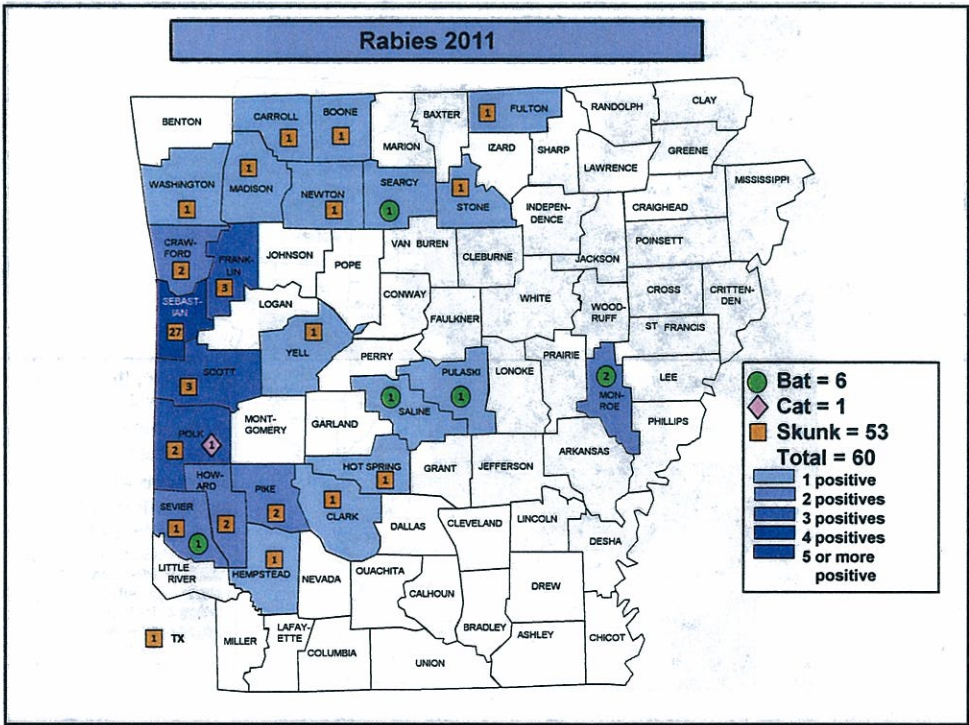
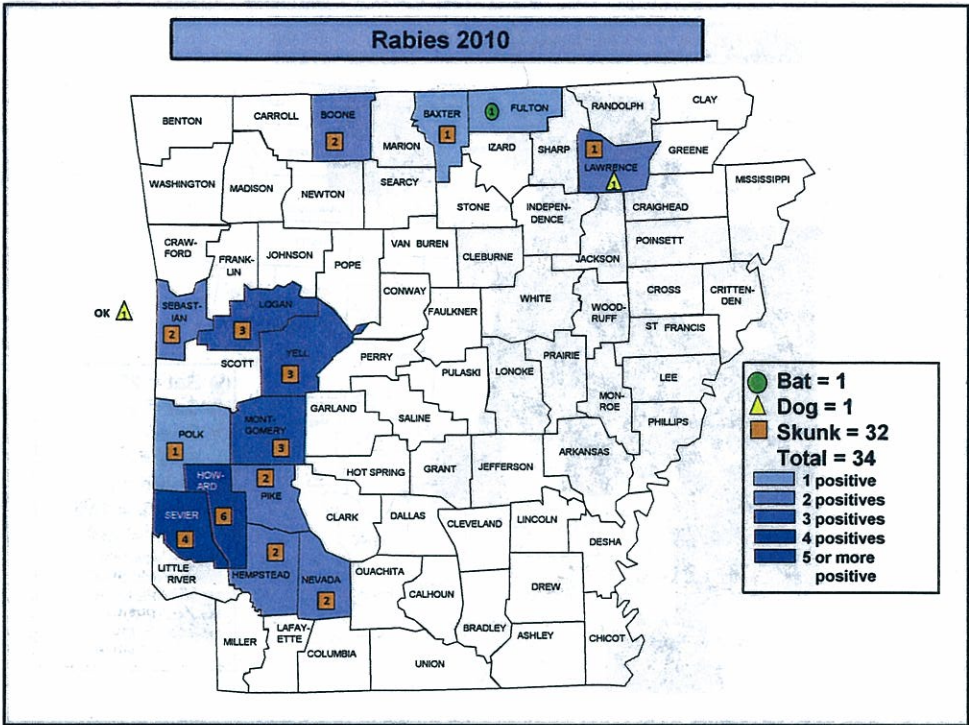




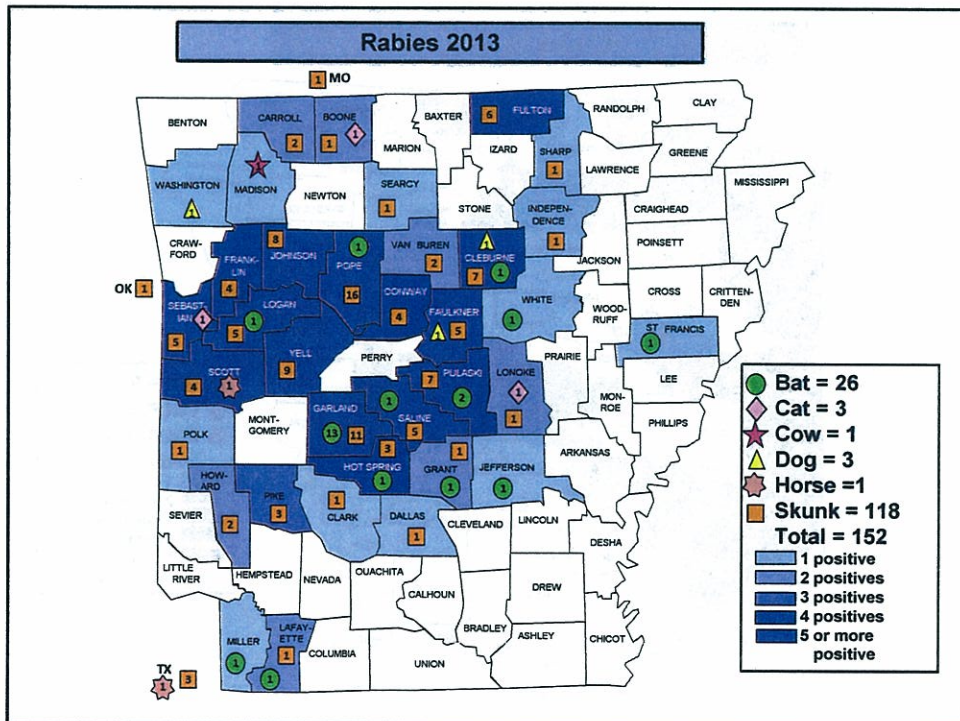
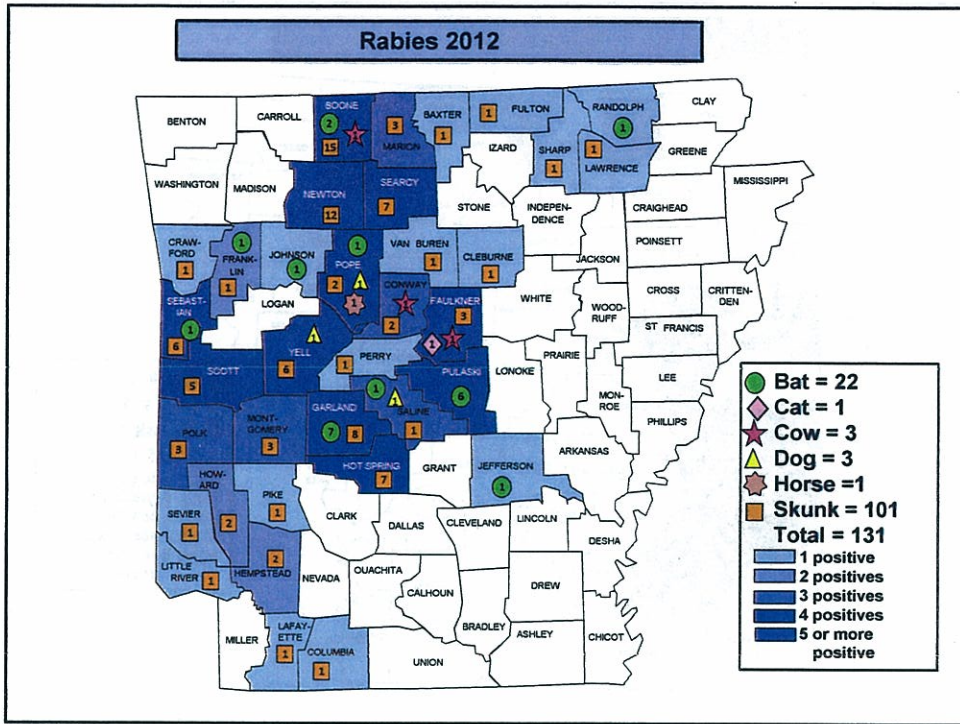




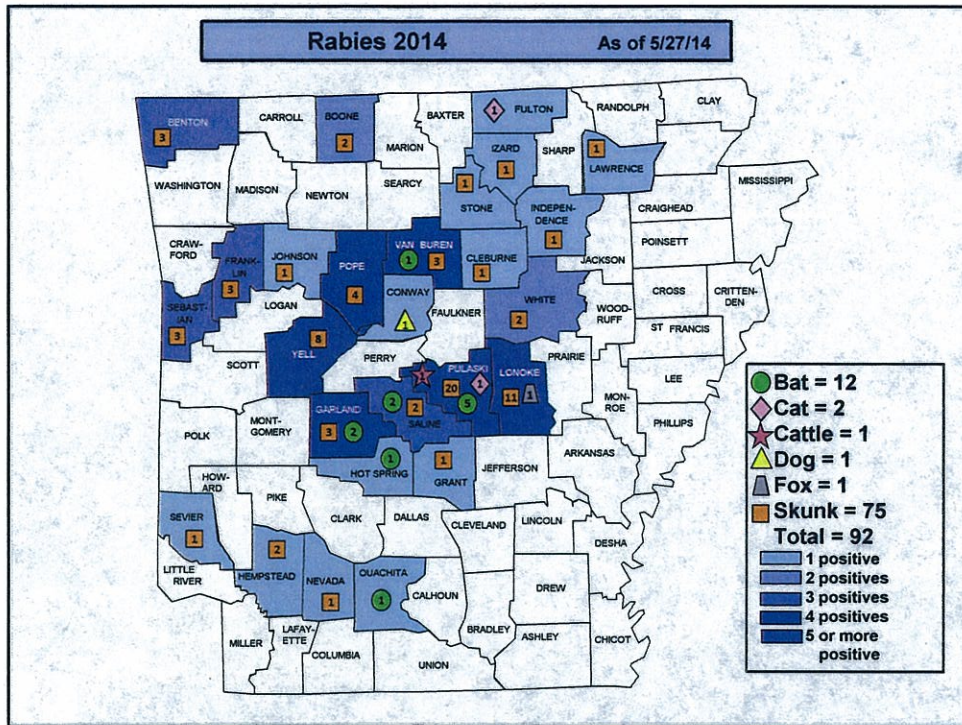












## Why the increase in 2012, 2013 and 2014?

- Natural cycle ---waxes and wanes in nature?
- Drought?
- Unseasonably warm winter?
- Public awareness?





## 2012 Cases

- 142 dogs and 75+ cats exposed to rabid animals (primarily skunks)
  - 32.4% dogs, 4% cats current
- Quarantines at 60 different sites monitored by EHSs
- 1 rabid cat, 3 rabid cows, 1 rabid horse
- 3 rabid dogs:
  - Saline —19 got PEP
  - Yell —1 or 2 got PEP
  - Pope — 6 getting PEP



## 2013 Cases

- 220 dogs and 16 cats exposed to rabid animals (primarily skunks)
  - 20.0% dogs current
  - 33.6% dogs previous vaccine or OTC
  - 46.4% dogs never vaccinated
  - 19% cats previous vaccines but not current
  - 81% cats never vaccinated
- Quarantines at 76 different sites monitored by EHSs







Dr. Susan Weinstein, State Public Health Veterinarian  
Email: [Susan.Weinstein@Arkansas.gov](mailto:Susan.Weinstein@Arkansas.gov)  
Office Phone: 501-280-4136



