Arkansas State Public Health Veterinarian Surveillance Summary

2019 REPORT

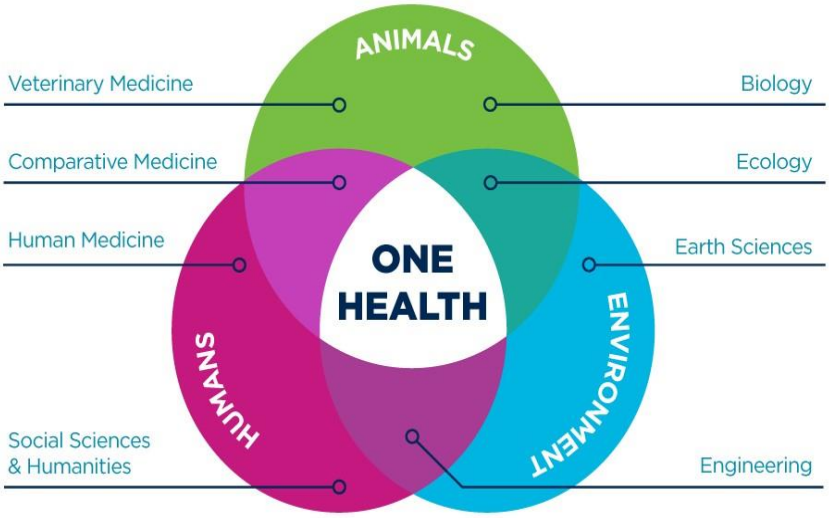
SURVEILLANCE SUMMARY

Zoonotic diseases are diseases that can be transmitted between animals and humans directly or through a vector (mosquitos, ticks, etc.). They can be caused by viruses, bacteria, parasites, and fungi. About 60% of infectious diseases in humans are transmitted from animals and 75% of emerging infectious diseases are zoonotic.

Zoonotic diseases develop and are spread within complex cycles involving people, animals, vectors, and the environment. Thus, it is essential for healthcare providers, veterinarians, public health officials, and environmental scientists to work together in the identification, prevention, treatment, and control of disease.

This collaborative initiative is known as One Health.

This report provides a summary of epidemiologic information for select zoonotic and vector-borne diseases in Arkansas.



ARKANSAS DEPARTMENT OF HEALTH

Zoonotic Diseases in Arkansas 5 Year Table

Disease	2015	2016	2017	2018	2019
Fungal Infections					
Blastomycosis	21	8	12	12	26
Histoplasmosis	60	72	161	85	83
Livestock-Associated					
Q Fever, acute	3	4	3	2	2
Q Fever, chronic	0	1	0	0	0
Mosquito Borne					
Chikungunya virus	4	1	0	0	0
Dengue	1	3	0	2	3
Encephalitis, Eastern Equine	0	0	0	0	0
Encephalitis, St. Louis	0	0	0	0	0
Malaria	9	6	5	2	0
West Nile Virus	18	9	18	8	9
Yellow Fever	0	0	0	0	0
Multi-Mode Zoonoses					
Brucellosis	1	3	1	2	5
Toxoplasmosis	2	11	12	14	22
Tularemia	24	33	32	56	138
Public Health Pest					
American Trypanosomiasis (Chagas Disease)	-	2	-	-	2
Rabies and Animal Bites					
Rabies, Animal	73	23	43	32	26
Tick Borne					
Anaplasma phagocytophilum	16	14	6	8	9
Babesiosis, ***Babesia microti***	0	1	0	2	3
Bourbon Virus	-	-	-	-	1
Ehrlichiosis, ***Ehrlichia chaffeensis***	193	200	198	167	245
Ehrlichiosis, ***Ehrlichia ewingii***	1	4	9	5	6
Heartland Virus	-	-	2	1	1
Lyme Disease	1	7	9	11	23
Rickettsial Disease – Spotted Fever	891	821	1,218	1,066	1,095

Reported Cases in People

TICKBORNE DISEASES

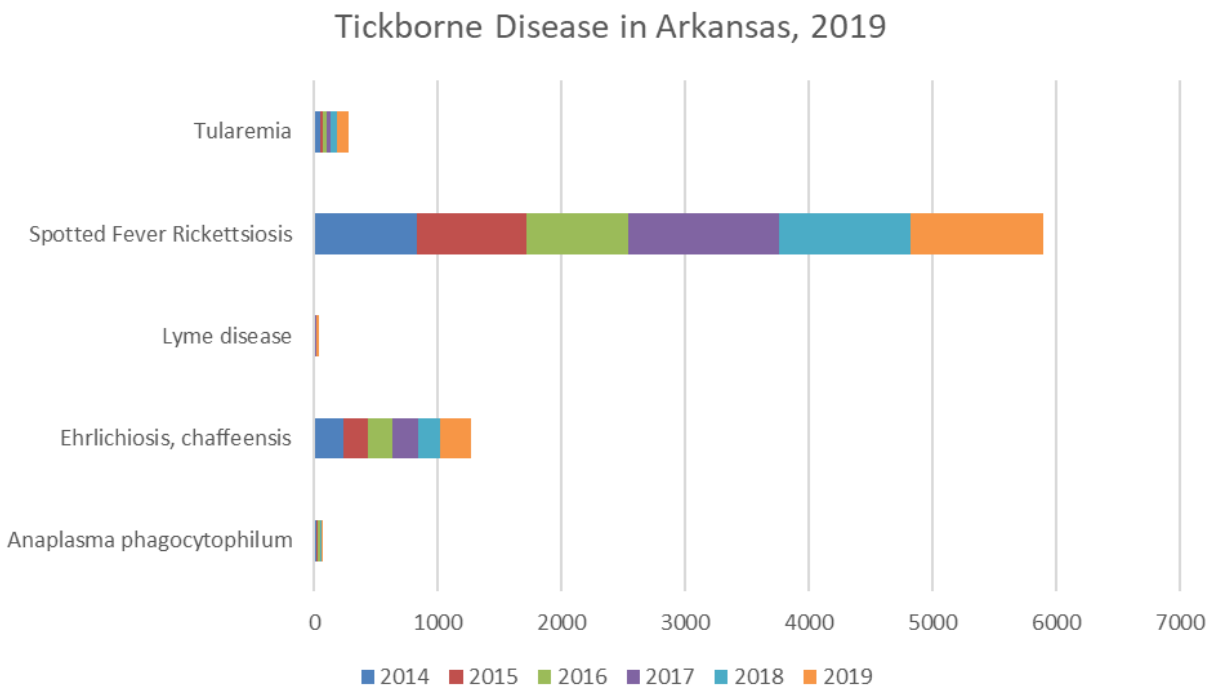
Tickborne Disease (TBD) is a type of zoonotic disease (an infectious disease transmitted between animals and humans) that is transmitted by ticks, a member of the arachnid family. In Arkansas, ticks are responsible for more human disease than any other arthropod vector, but not all ticks transmit disease. Of the many different tick species found in Arkansas, only a select few bite and transmit disease to humans.

The tickborne rickettsial disease (TBRD), including Rocky Mountain Spotted Fever (RMSF), Ehrlichioses (HME), and Anaplasmosis (HGA) are caused by Rickettsia rickettsii, Ehrlichia chaffeensis, and Anaplasma phagocytophilum, respectively.

These pathogens are maintained in nature by interactions of wild mammals with hard-bodied (ixodid) tick and are the most frequently reported diseases among the zoonotic disease found in Arkansas

1,415

confirmed/probable cases of tickborne disease in Arkansas in 2019



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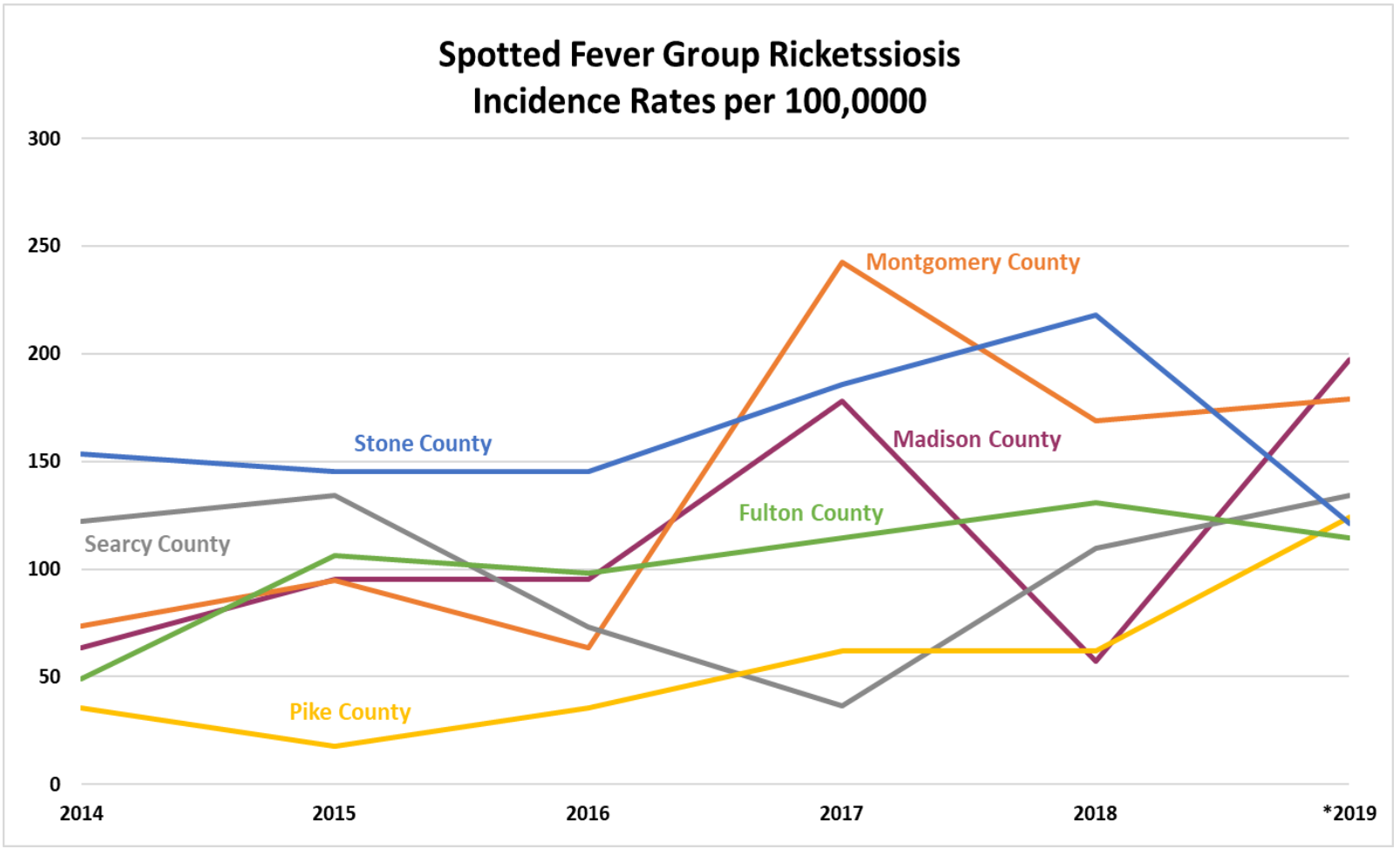


*2019 preliminary data

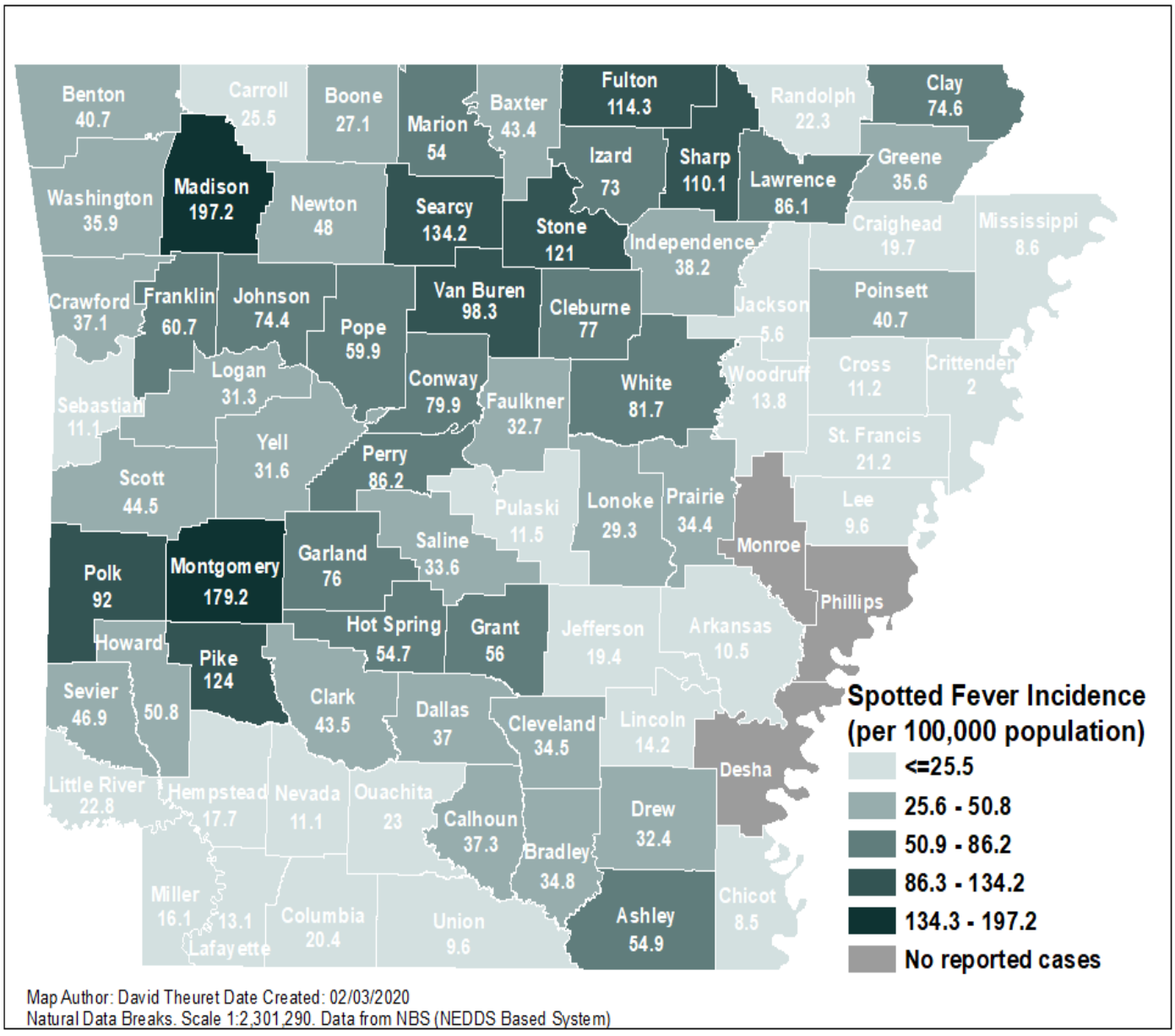
TICKBORNE DISEASES

2019 Spotted Fever Rickettsiosis

Rocky Mountain Spotted Fever
1,063
Cases in 2019

Rocky Mountain spotted fever (RMSF) is the most common tickborne disease in Arkansas. RMSF is caused by the bacterium *Rickettsia rickettsii*. This bacterium is carried mostly by the American dog tick, *Dermacentor variabilis*[1], but also by the brown dog tick, *Rhipicephalus sanguineus*

In addition to *Rickettsia rickettsii*, the agent of Rocky Mountain spotted fever (RMSF), several other tick-borne species of Rickettsia, broadly grouped under the heading "Spotted Fever group Rickettsia (SFGR)" been shown to cause human infections.



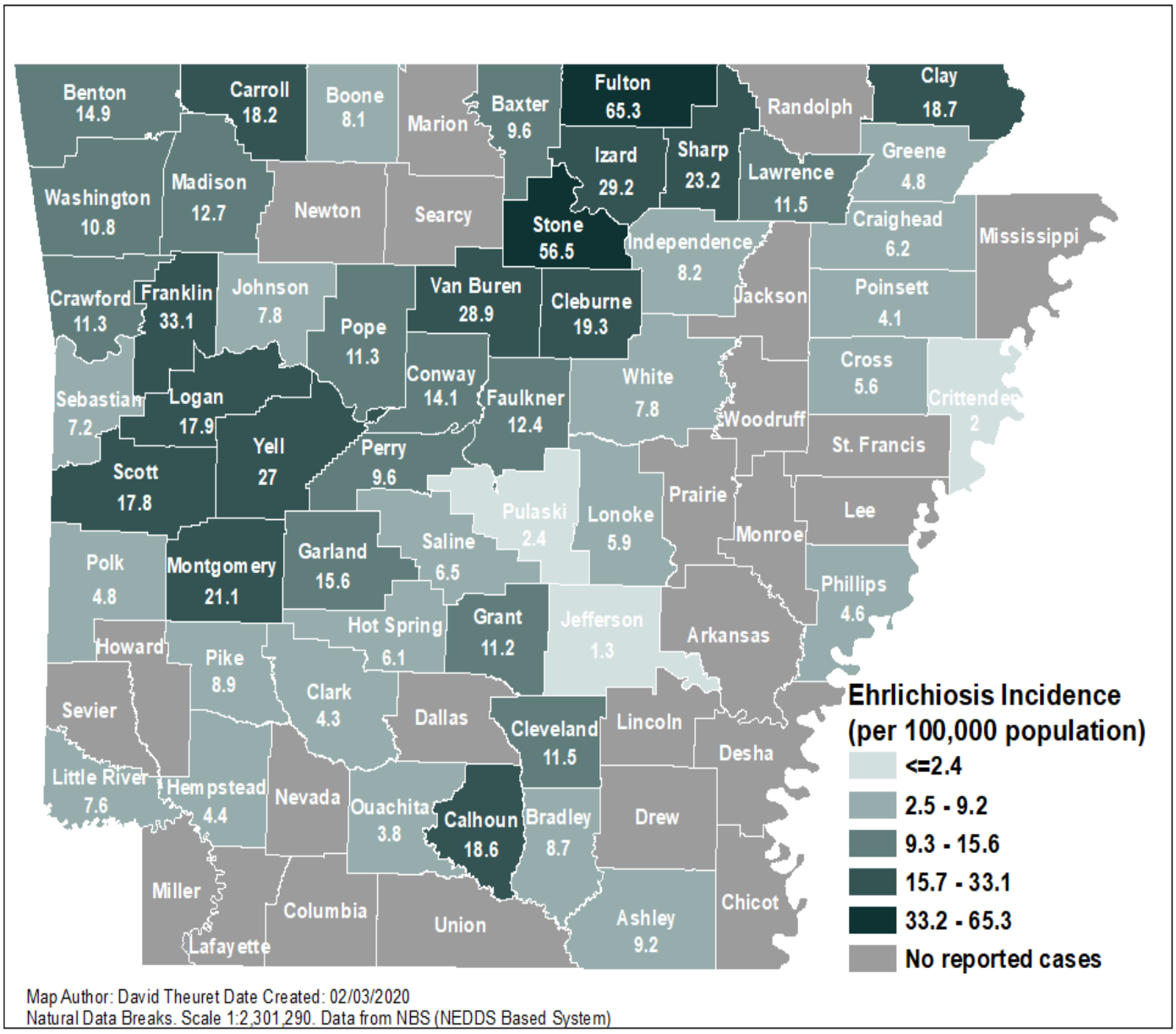
TICKBORNE DISEASES

2019 Ehrlichiosis

Ehrlichiosis is the general name used to describe several bacterial diseases that affect animals and humans. Human ehrlichiosisis is a disease caused by at least three different ehrlichial species in the United States: *Ehrlichia chaffeensis, Ehrlichia ewingii,* and a third Ehrlichia species provisionally called *Ehrlichia muris-like* (EML).

Ehrlichosis
242
Cases in 2019

The ADH investigated 367 reports of Ehrlichiosis in 2019, resulting in 242 confirmed/probable cases (six cases of *E. ewingii* and 236 cases of *E. chaffeensis*). There was one reported death associated with Ehrlichiosis in 2016.



Map Author: David Theuret Date Created: 02/03/2020
Natural Data Breaks. Scale 1:2,301,290. Data from NBS (NEDDS Based System)

TICKBORNE DISEASES

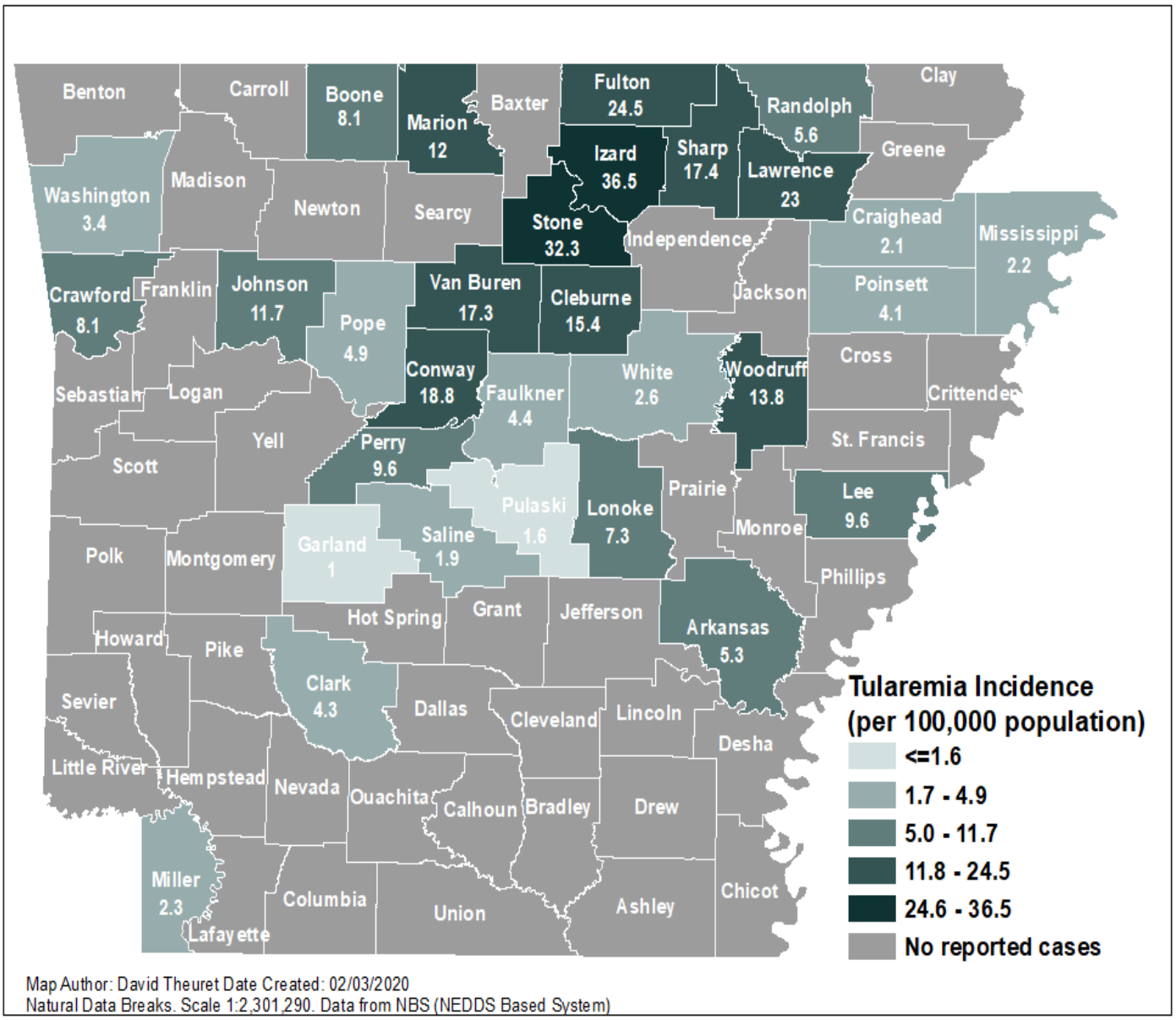
2019 Tularemia

Tularemia
85
Cases in 2019

Tularemia is a rare but potentially serious bacterial zoonosis that has been reported from all U.S. states except Hawaii. The etiologic agent,

Francisella tularensis, is highly infectious and can be transmitted through arthropod bites, direct contact with infected animal tissue, inhalation of contaminated aerosols, and ingestion of contaminated food or water.

The ADH investigated 228 reports of Tularemia in 2019, resulting in 85 confirmed/probable cases.



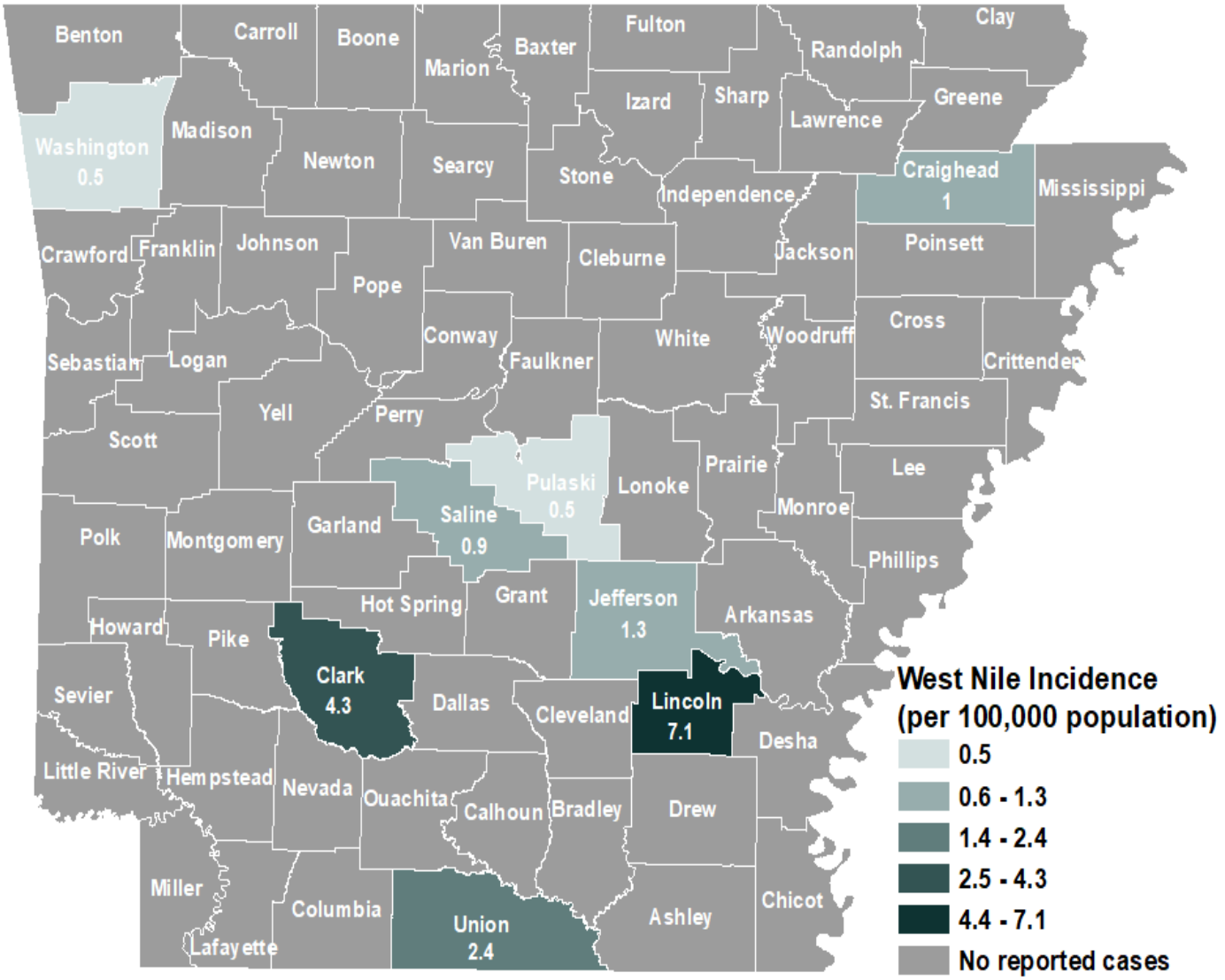
MOSQUITO-BORNE DISEASES

West Nile Virus

West Nile Virus (WNV) is a potentially serious mosquito-borne disease is transmitted to humans most often by the bite of an infected mosquito. Other modes of WNV transmission have been described, including organ transplant, blood transfusions, breastfeeding and intrauterine transmission.

West Nile Virus
9
Cases in 2019

More than 30,000 people in the U.S. have been infected with WNV since 1999. In 2019, Arkansas reported nine cases of WNV, including seven cases of neuroinvasive (e.g., meningitis, encephalitis) disease with two associated deaths, and two cases of non-neuroinvasive disease.



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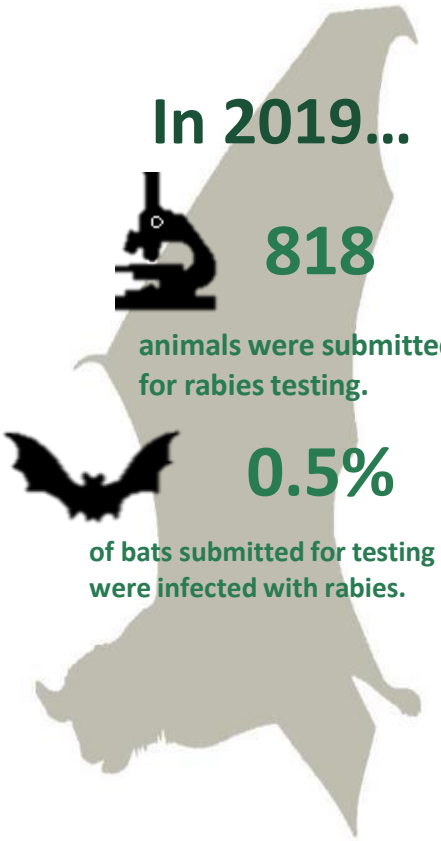
RABIES

2
horse tested positive for rabies.

Rabies is a deadly but preventable viral disease of mammals most often transmitted through a bite from an infected animal. The rabies virus is transmitted when saliva from an infected animal is exposed to broken skin or mucous membranes. Rabies infects the central nervous system, which causes disease in the brain and death in almost 100% of symptomatic cases.

In Arkansas, the State Public Health Veterinarian and the Zoonotic Epidemiologists coordinate positive animal rabies follow-up, including the quarantines for domestic animals and the risk assessments of people exposed to rabid animals.

Additionally, the State Public Health Veterinarian coordinates the recommendation for Post- Exposure Prophylaxis (PEP) for all animal bites and exposures, whether the rabies status is known or not. Arkansas Department of Health (ADH) Environmental Health Specialists (EHS) conduct quarantine monitoring in instances of animal exposures throughout the year.



The data collected on rabies is from a passive surveillance system. The Data is dependent on informed veterinarians, animal control officers, and citizens submitting specimens of suspect animals. Surveillance is incomplete, and the incidence of rabies is likely to be underestimated.

In Arkansas, most rabies cases occur in wild animals such as bats and skunks. In 2019, 818 animals were tested for rabies. Twenty-six animals tested positive, including 15 skunks, 7 bats, 2 horses, 2 cats and 1 cow.

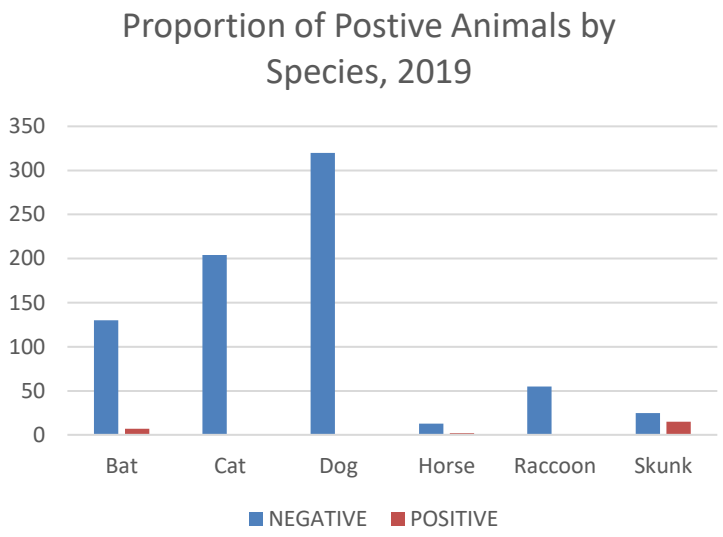
15
Skunks tested positive for rabies in 2019

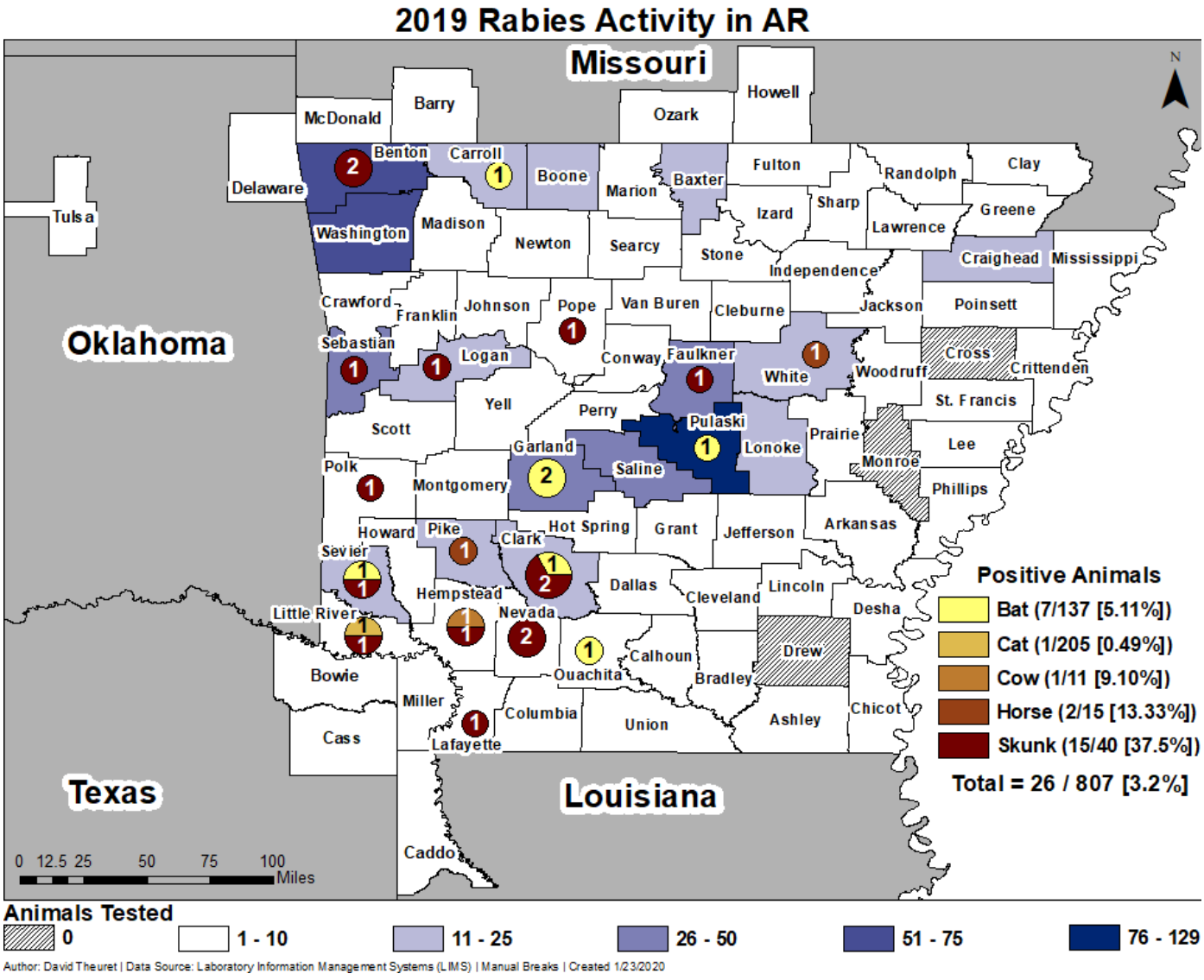
58%
of the skunks tested for rabies were positive

RABIES

75%

of the rabies positive animals were wild



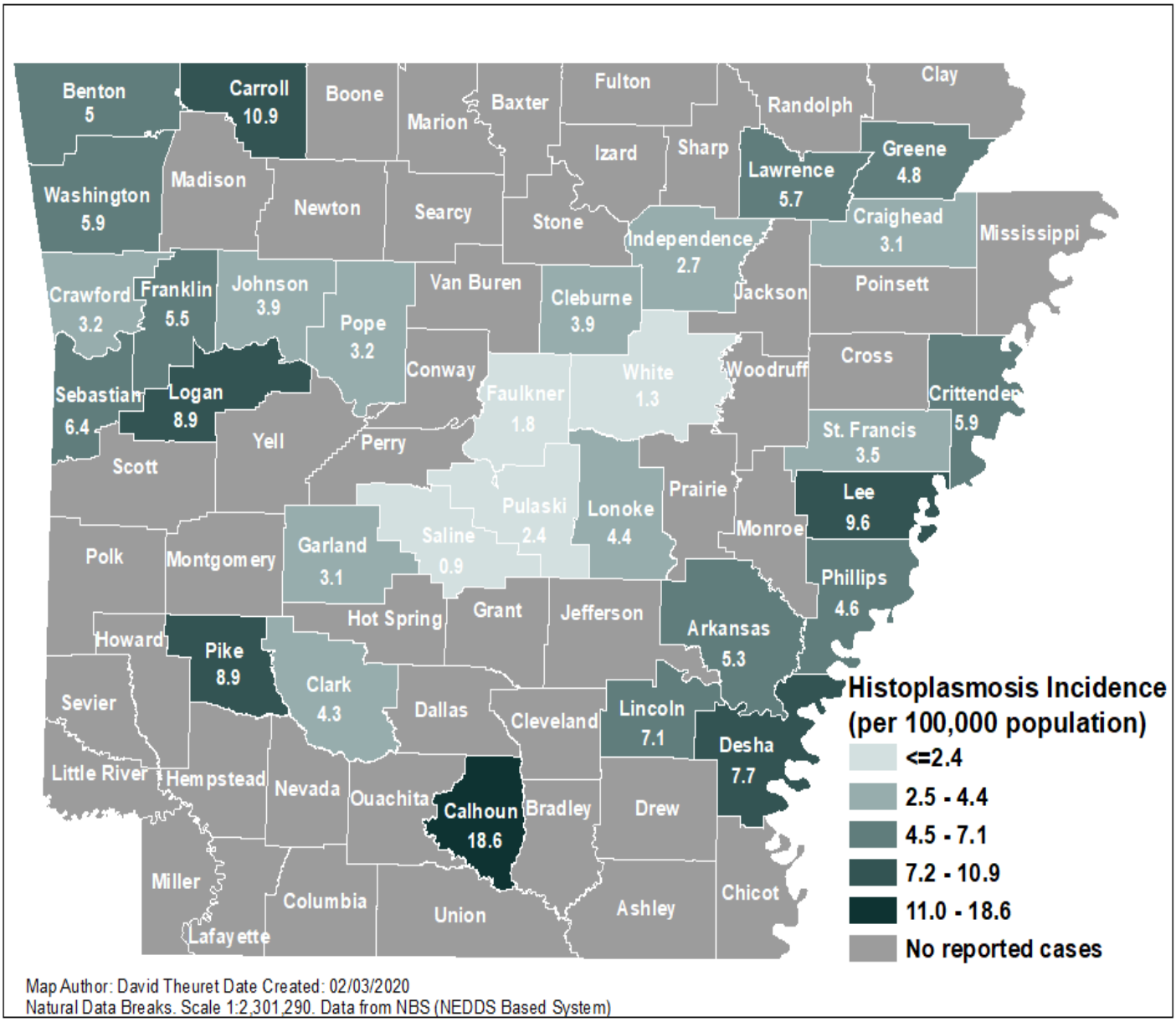


FUNGAL DISEASES

Histoplasmosis and blastomycosocis are both endemic in Arkansas, and are on Arkansas's reportable disease list, however, the Arkansas Department of Health receives no State funding for surveillance and/or control of these diseases. Coccidioidomycosis, while not known to be endemic in Arkansas, is also on Arkansas's reportable disease.

Histoplasmosis
81
Cases in 2019

The ADH investigated 189 reports of Histoplasmosis and 60 reports of Blastomycosis in 2019, resulting in 81 and 26 confirmed/probable cases, respectively.



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