

Chronic Wasting Disease in Arkansas



May 16, 2016

What is CWD?

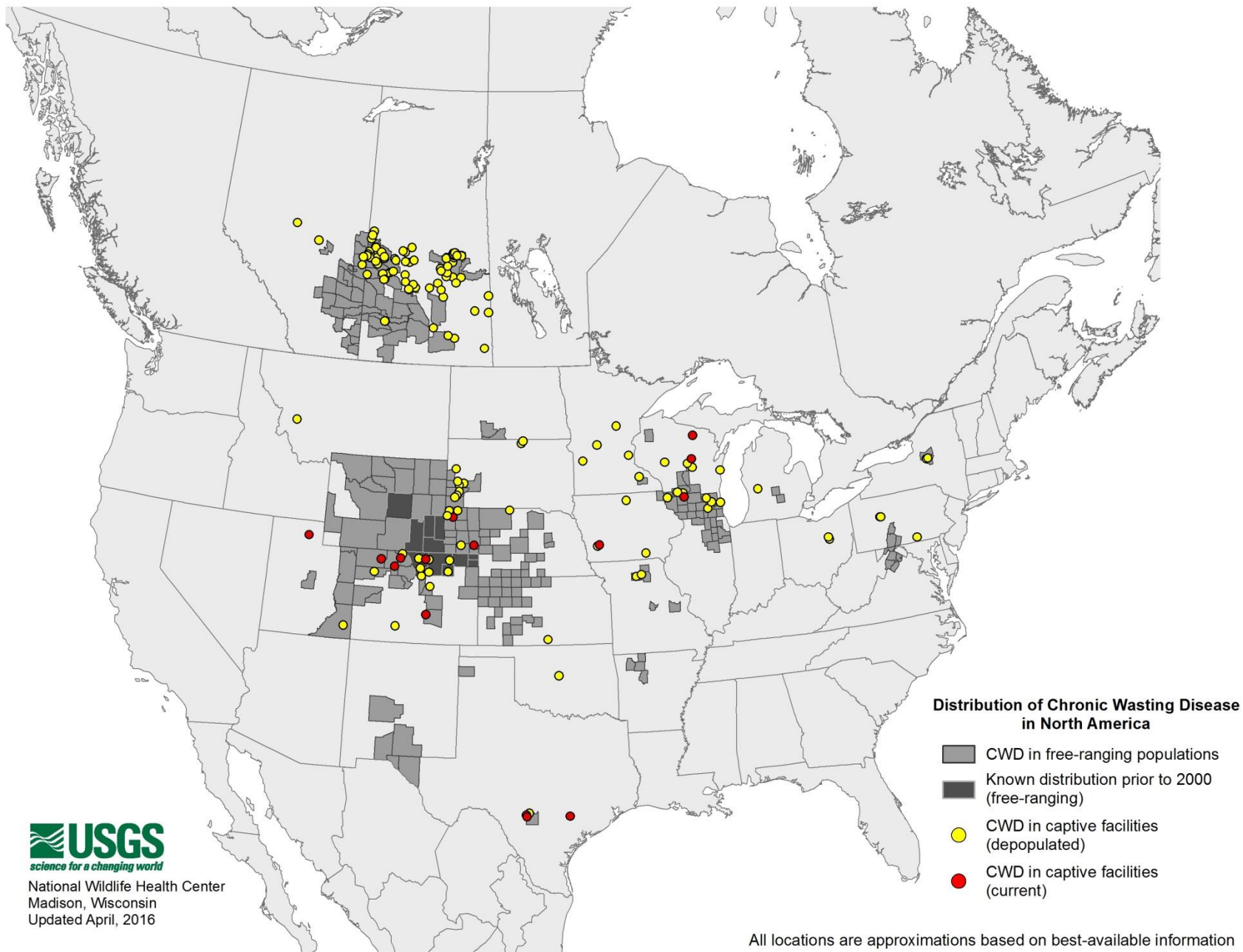
- Contagious, fatal neurodegenerative disease that affects members of the Cervidae Family
 - Always fatal, no cure
- Known as a Transmissible Spongiform Encephalopathy (TSE)
 - Same family as scrapie in sheep and BSE in cattle
 - Creutzfeldt-Jakob disease (CJD) in humans
- Infectious agents are called prions
- Very resilient to enzymes, chemicals, heat, disinfectants, and time
- Infection can occur through ingestion, direct contact of animals, and indirectly through the environment
 - Prion found in saliva, feces, urine, blood, and decaying carcasses
 - Infectious prions can be shed within 6 months of acquiring
 - Long incubation period
 - Clinical symptoms can appear within 18-60 months

Brief History

First recognized in 1967 in captive mule deer in Colorado but not recognized as a TSE until 1978.

Detected in free-ranging elk in 1981, mule deer in 1985, and white-tailed deer in 1990 in CO and WY.

Not detected outside CO and WY until 1996.



National Wildlife Health Center
Madison, Wisconsin
Updated April, 2016

All locations are approximations based on best-available information



Norway, March 2016

Clinical Signs

- Adults and yearlings affected
- Loss of body condition
- Change in behavior
- May walk repetitive courses
- Wide base stance
- Excessive drowsiness/sleepiness
- Head and ears lowered
- Excessive drinking and urination
- Excessive salivation





Photo courtesy of the NPS.



Photo courtesy of Warden Micheal Hopper,
Kansas Department of Wildlife, Parks, and Tourism.



Photo courtesy of Wisconsin Department of Natural Resources.



Pruitt Elk



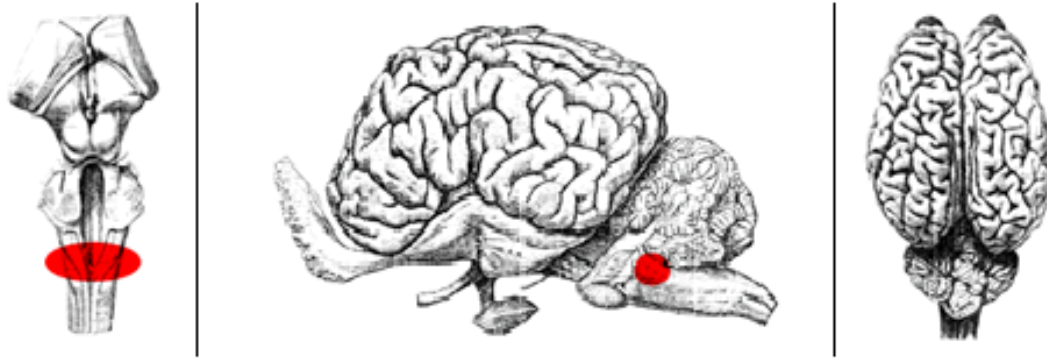
Ponca Deer



Ponca Deer

CWD Testing

The parasympathetic vagal nucleus in the dorsal portion of the medulla oblongata at the obex is the most important site to examine.



Images courtesy of Wyoming Game and Fish Department.

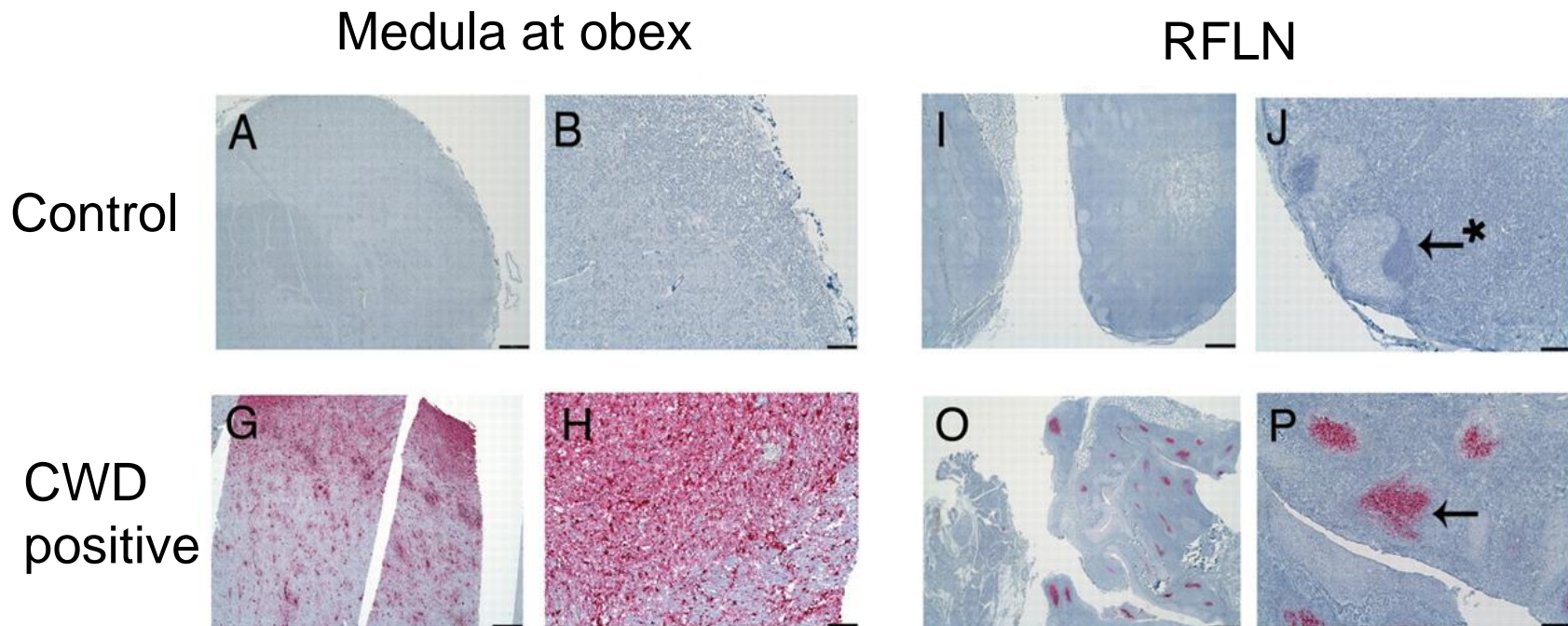


Freeze cranial brainstem

Obex into 10%
formalin

Freeze spinal cord

PrP^{CWD} demonstrated by IHC in medulla oblongata at obex and retropharyngeal lymph node of deer receiving saliva or blood from CWD-infected donors.



Modified from Mathiason et al. 2006. Science 314:133-136.

WVDL 03/03/16
1 PRION PROTOCOL



M16-05421-3-1

※ LOT 40238



WVDL 03/03/16
1 PRION PROTOCOL



M16-05421-2-1

※ LOT 40238



WVDL 03/03/16
1 PRION PROTOCOL



M16-05421-1-1

※ LOT 40238



WVDL 03/03/16
1 PRION PROTOCOL



POS CT Cliff 1
EE-043

※ LOT 40238



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White-tailed Deer CWD Surveillance

- Began in 2003
- Database currently contains 8,296 samples
- 2003-05 – random surveillance by county
- 2006-07 – random to complete counties, road kill, & targets
- 2008-10 – captive cervids, road kill, target, carcass dump sites, and weighted hunter surveillance
- 2011 – weighted point system based on relative deer densities determined by county harvest data
- 2012-15 – captive cervid enclosures & target animals

CWD in Arkansas

CWD found in 2.5-year female elk near Pruitt (harvested 6 Oct. 2015) and 2.5-year female deer (found dead 2 Feb. 2016) in Ponca in Newton County.

AGFC CWD Response Plan.

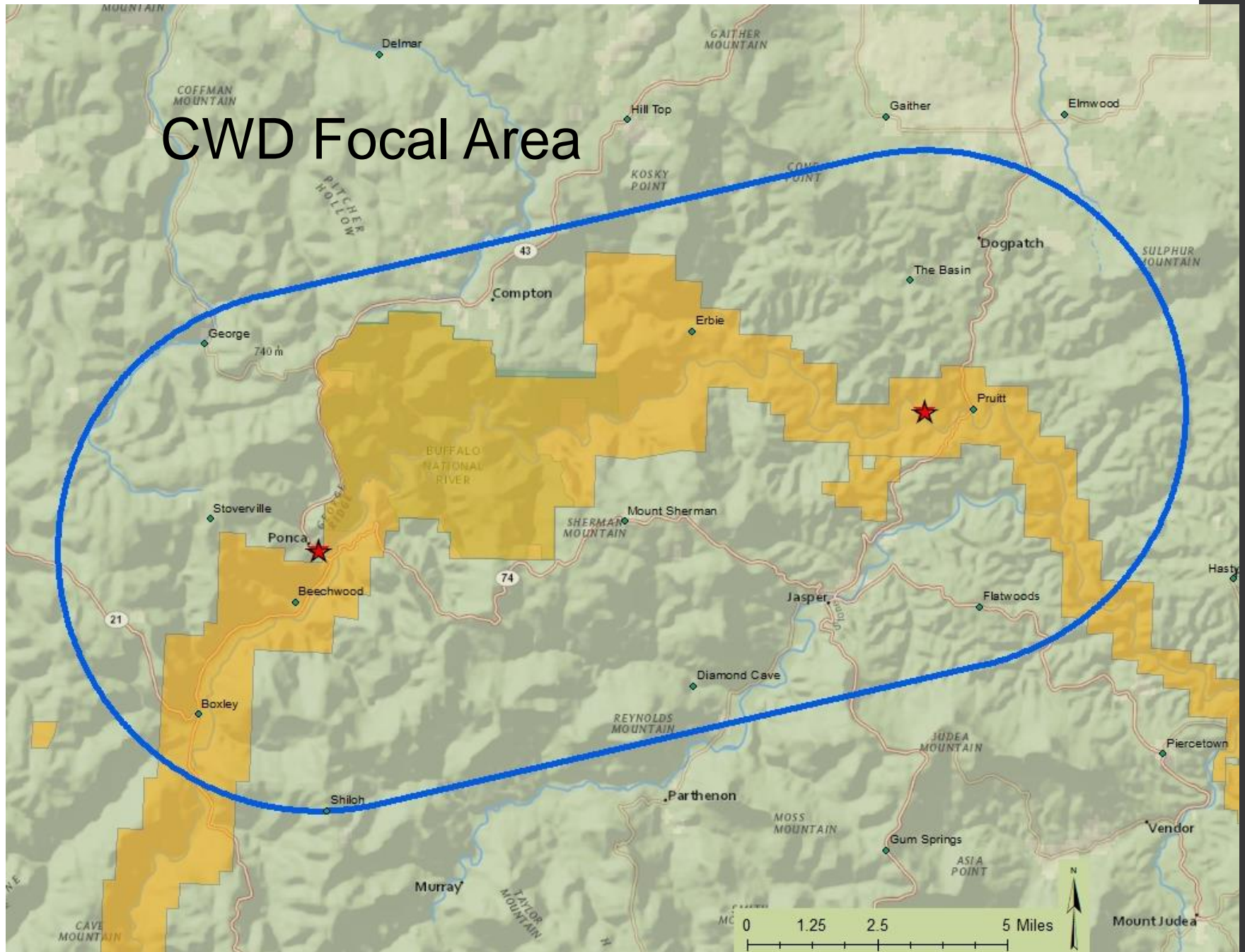
Action

1. Determine prevalence and spatial distribution.
2. Develop and implement management actions to decrease the rate of spread and distribution.
3. Determine the origin of CWD-positive deer and elk.
4. Continue surveillance state-wide to increase the probability of early detection.
5. Provide accurate and relevant information on CWD to AGFC staff, the public, and other stakeholders.
6. To support management of the disease, collect data that could guide research on CWD, including its epidemiology.

CWD Response Plan Implementation

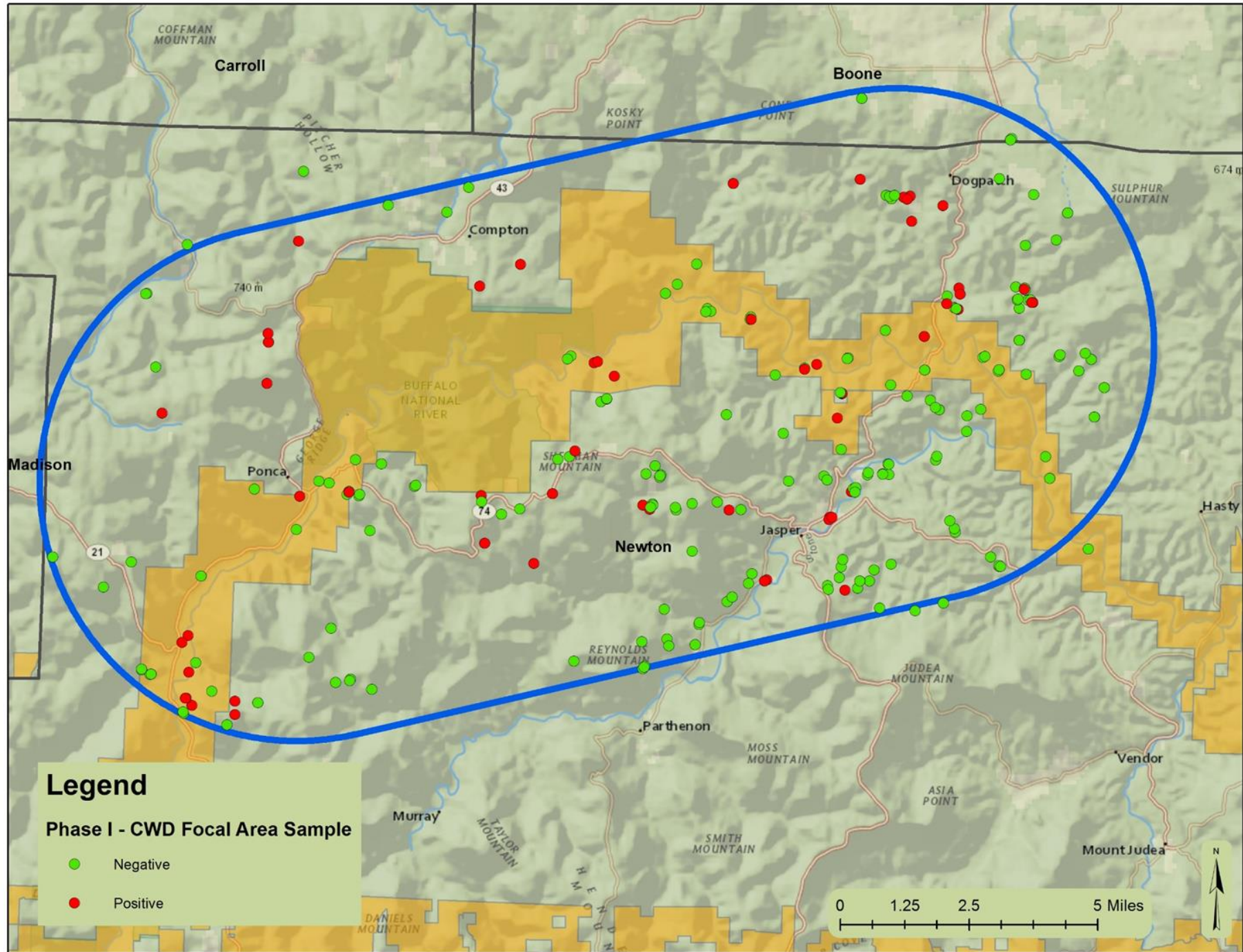
- Phase I
 - Determine Disease Prevalence
 - CWD Focal Area
- Phase II
 - Determine Spatial Distribution
 - Statewide

CWD Focal Area









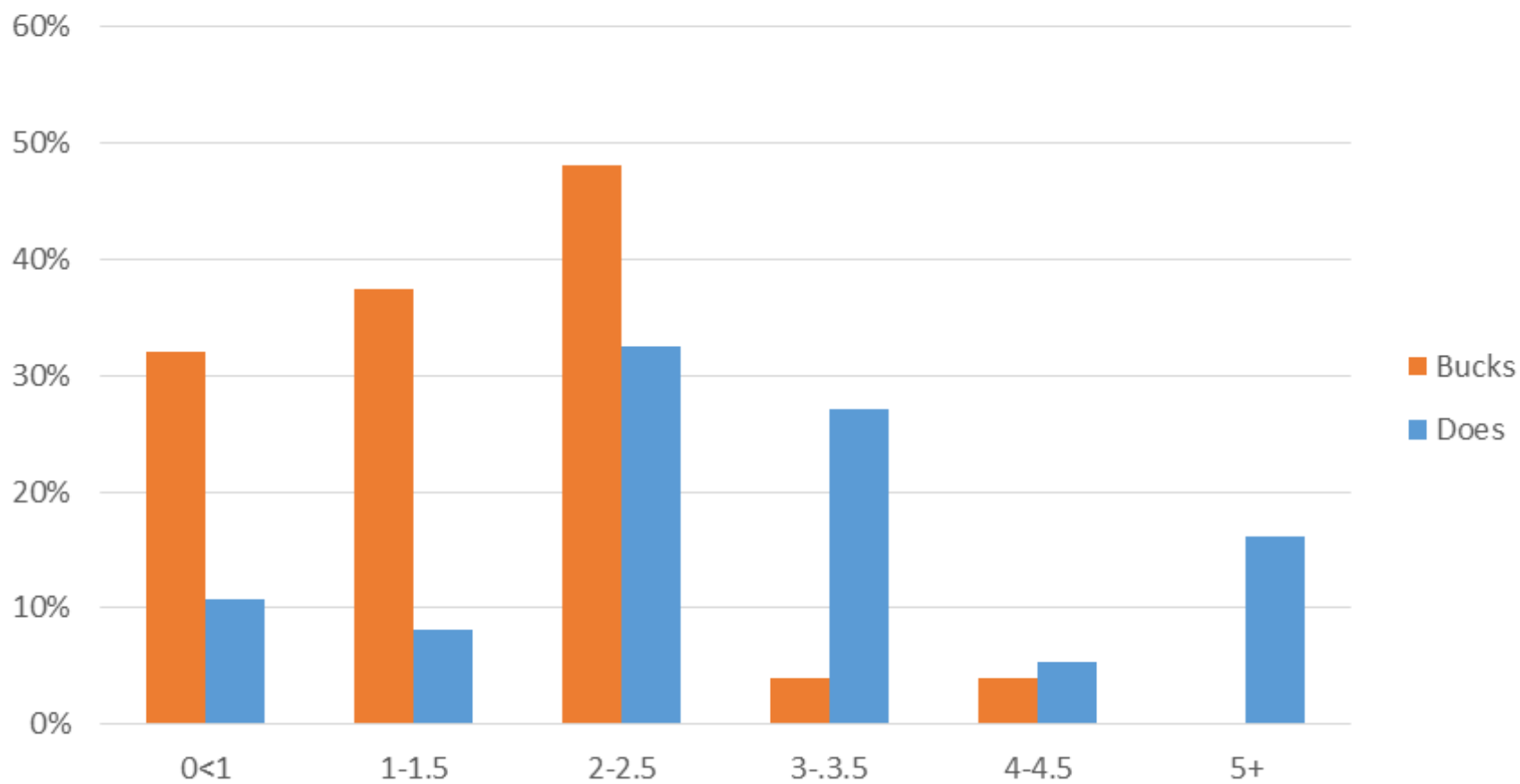
CWD Surveillance in Deer— Phase I

- Determine prevalence in the Focal Area
- Randomly sample 225-300 deer in the Focal Area
- March 14-24, 2016
- 266 total samples
 - 62 – Positive
 - 204 – Not Detected
- Overall observed prevalence rate: 23%
 - Prevalence rate in doe: 20% (37 of 189)
 - Prevalence Rate in bucks: 32% (25 of 77)

Prevalence Rates by Sex and Age

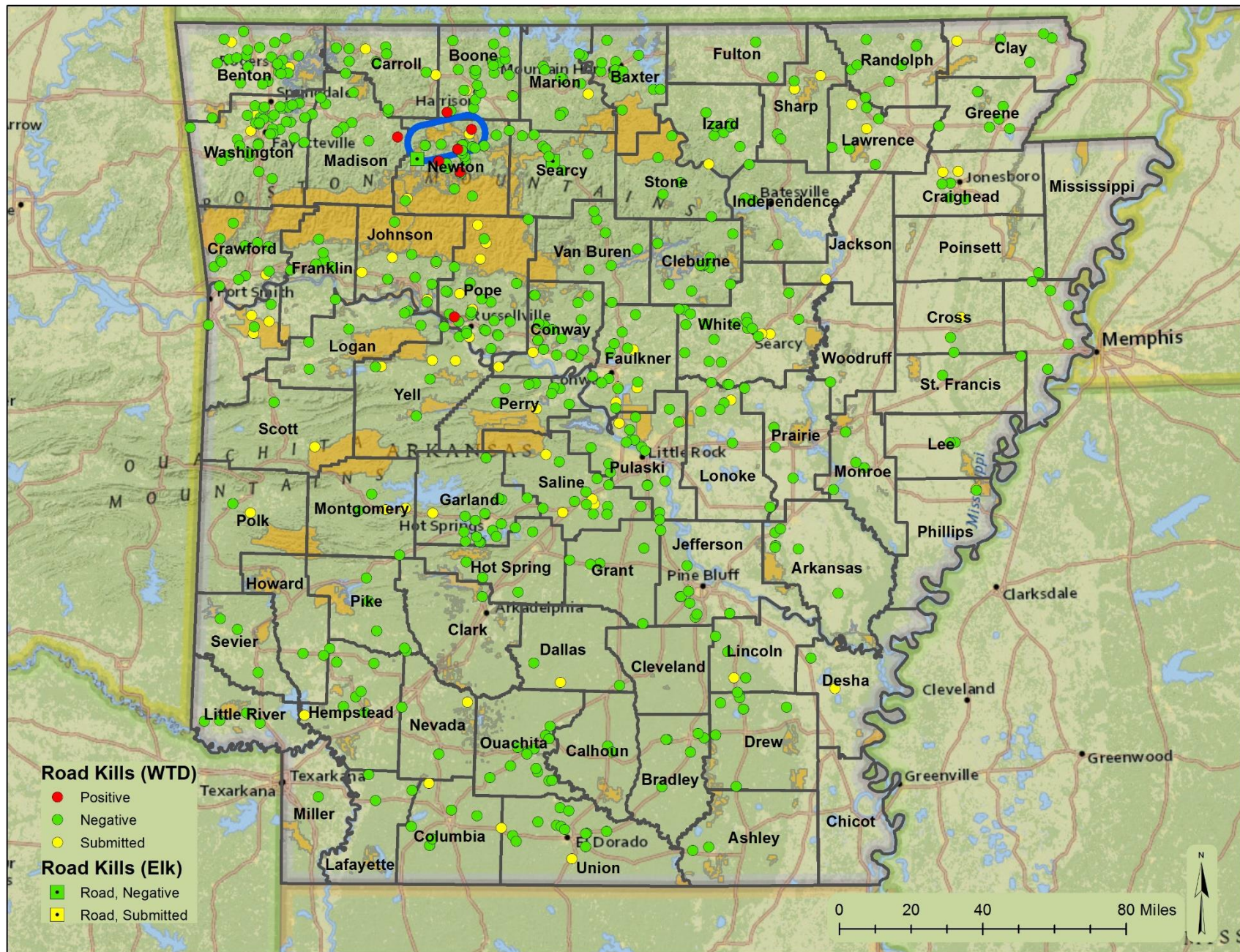
	Not Detected	POSITIVE	Totals	Prevalance
Doe	152	37	189	20%
1-1.5	13	3	16	19%
2-2.5	52	12	64	19%
3-3.5	22	10	32	31%
4-4.5	16	2	18	11%
5-5.5	33	6	39	15%
Fawn	16	4	20	20%
Bucks	52	25	77	32%
1-1.5	9	3	12	25%
2-2.5	16	12	28	43%
3-3.5	6	1	7	14%
4-4.5	1	1	2	50%
Fawn	20	8	28	29%
Grand Total	204	62	266	23%

Positive WTD by Sex by Age (% of Total)



WTD CWD Surveillance – Phase II

- Determine spatial distribution of CWD throughout the state
- Sample road kill and target deer statewide
- March 25-May 20, 2016
- Results as of 5/13/16:
 - 731 road kill and 97 target deer have been sampled
 - Preliminary results indicate CWD is in Boone, Carroll, Madison, Newton and Pope counties

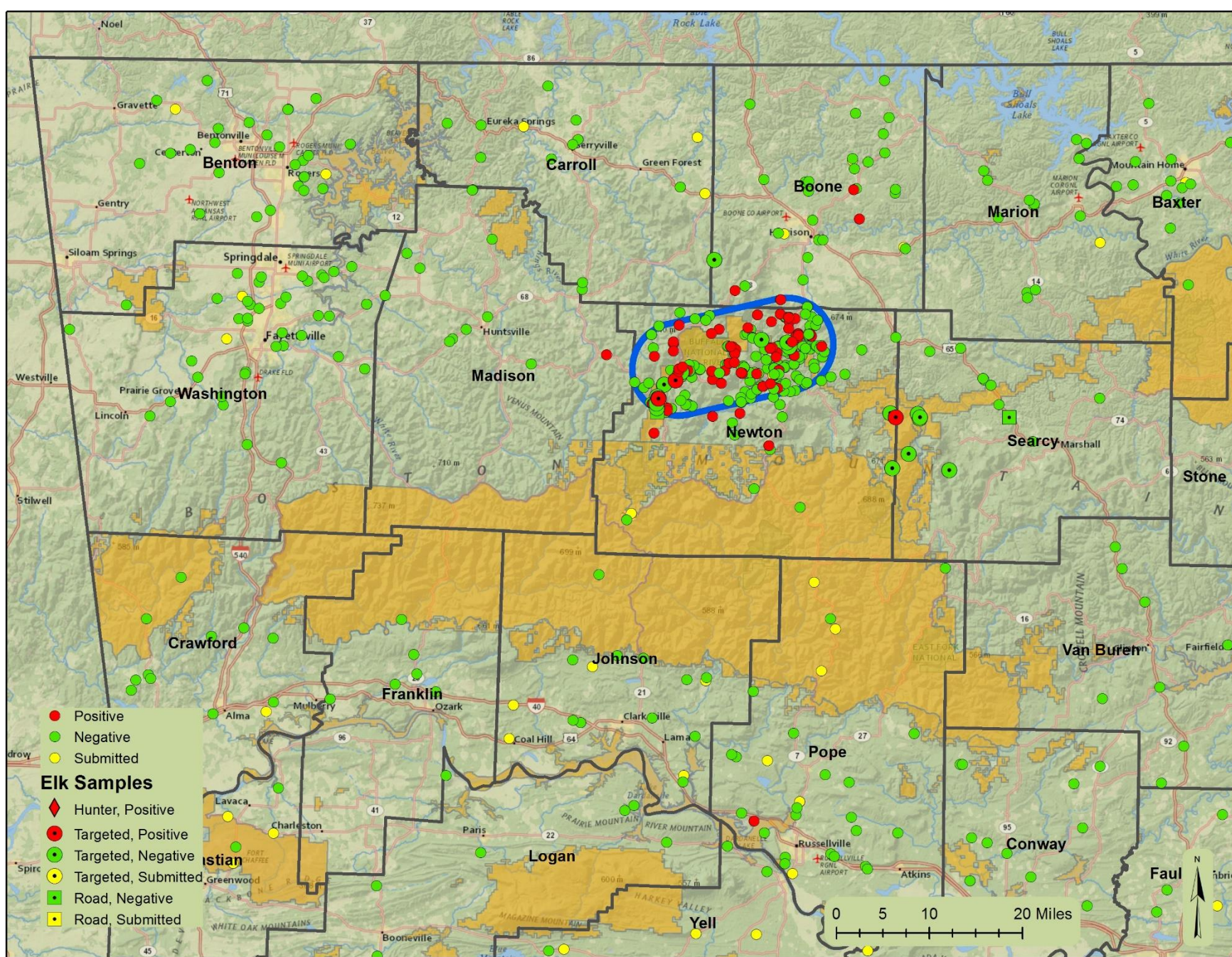


Author: slane Date: 5/10/2016 Time: 9:45:32 AM Document Path: Y:\GISProjects\WMD\Programs\Deer\2016CWMDMeetingDrMiller\MXD\20160510_DR_Miller_Meeting_Request_NWARZoom.mxd

Road Kill - Phase II Sampling as of May 10, 2016

Surveillance Results as of 5/13/16

Type	# Samples	# Positive	# Not Detected
Hunter Kill	9	1	8
Road Kill	731	8	544
Herd Health Surveillance	7	0	6
Captive Kill	35	0	33
Targeted Kill	97	18	71
CWD Focal Area Sample	266	62	204
Grand Totals	1,145	89	866



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Sampling as of May 10, 2016

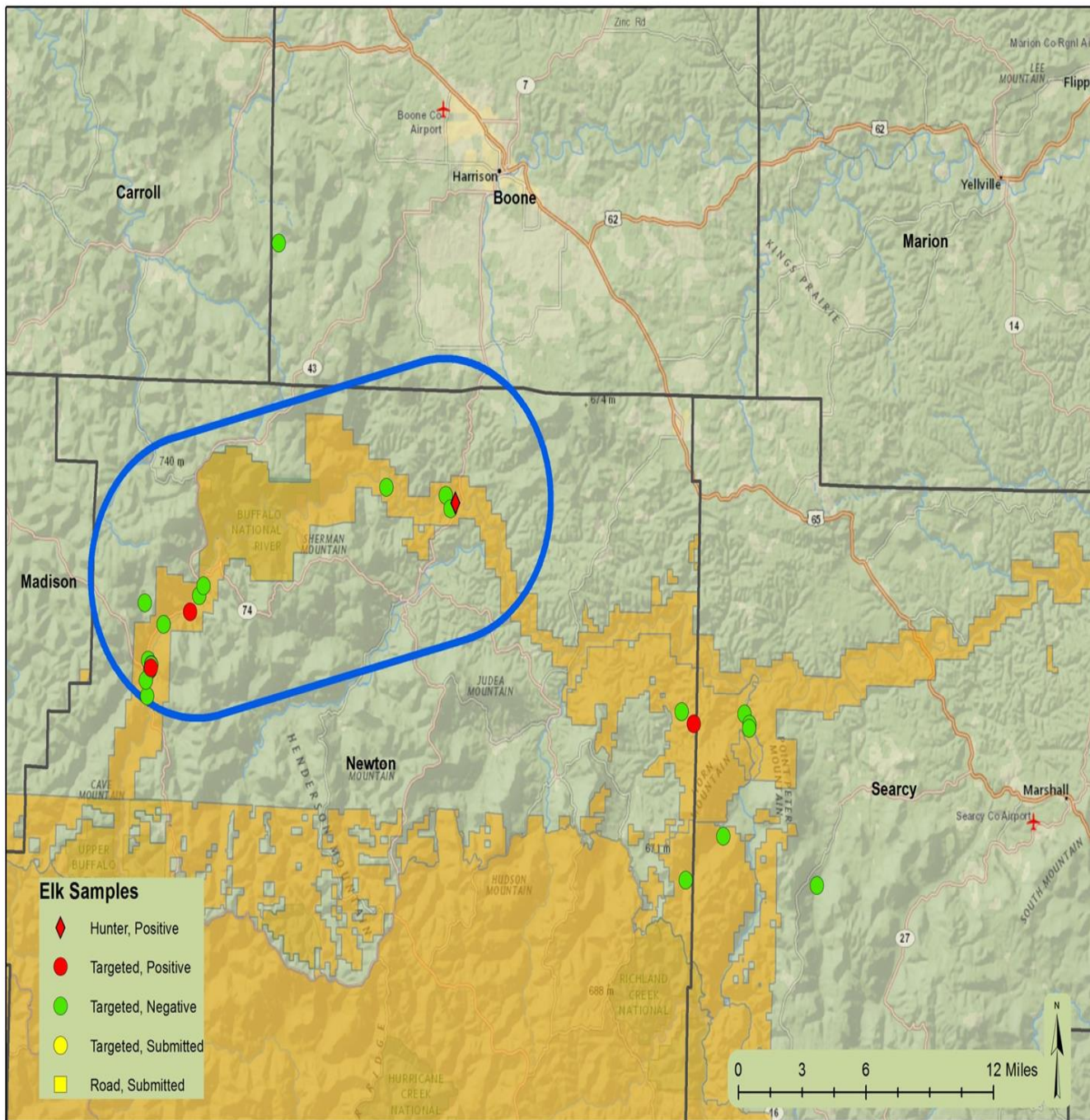
Elk CWD Surveillance History

- Began in 1997
- Since that time, a total of 232 samples have been collected
- Randomly collected from hunter-harvested elk
- Target elk



Elk Surveillance

- 28 elk sampled since February 12, 2016
 - 26 – targets
 - 2 – road kill
- County Totals:
 - 21 Newton
 - 6 Searcy
 - 1 Boone
- Results:
 - 24 – Not Detected
 - 1 – Submitted and awaiting results
 - 4 positives
 - 3 cow elk
 - 1 – hunter harvested at Pruitt
 - 2 – targets from Boxley Valley
 - 1 bull
 - Target animal from Gene Rush WMA



Human Health and Safety Considerations

For the General Public

No evidence CWD is transmissible to humans.

Health organizations (CDC and WHO) recommend that individuals not consume meat from any sick deer or elk, including known CWD positive animals.

Human Health and Safety Considerations

For Hunters

- Do not harvest animals exhibiting clinical signs of CWD or any other disease.
- Wear gloves and avoid contact with tissues of the nervous system.
- Don't consume brain or organ meats, especially lymph nodes from the head.
- Bone out meat.
- Dispose of all non-consumable parts in an approved landfill or bury.
- Soak knives and other processing implements in a 40% household bleach solution for 1 hour.
- Given limited health risks to humans, cleaning hands and arms with hot soapy water is sufficient.
- Using a clean cloth, wipe down processing surfaces with bleach solution followed by hot soapy water.

If You Observe a Deer or Elk Displaying Signs of CWD

Contact AGFC radio room at 1.800.482.9262
Email: cwdinfo@agfc.ar.gov.

Questions?

