Herpetology Halloween

UNNATURAL OCCURRENCES AT THE MISSOURI / KANSAS BORDER

Introduction

- General Observations
- History of Missouri Herpetology
- Shared Natural Divisions
- Species Maps
- Breaking News!
- Recommendations
- Summary

General Observations

- Missouri has not been thoroughly explored herpetologically.
- Missouri collecting has been concentrated around hotspots:
  - Ozarks
  - Urban centers
  - Favorite field trip locations
- Uncommon species or common species at the edge of their range tend to be over-represented in state collections.

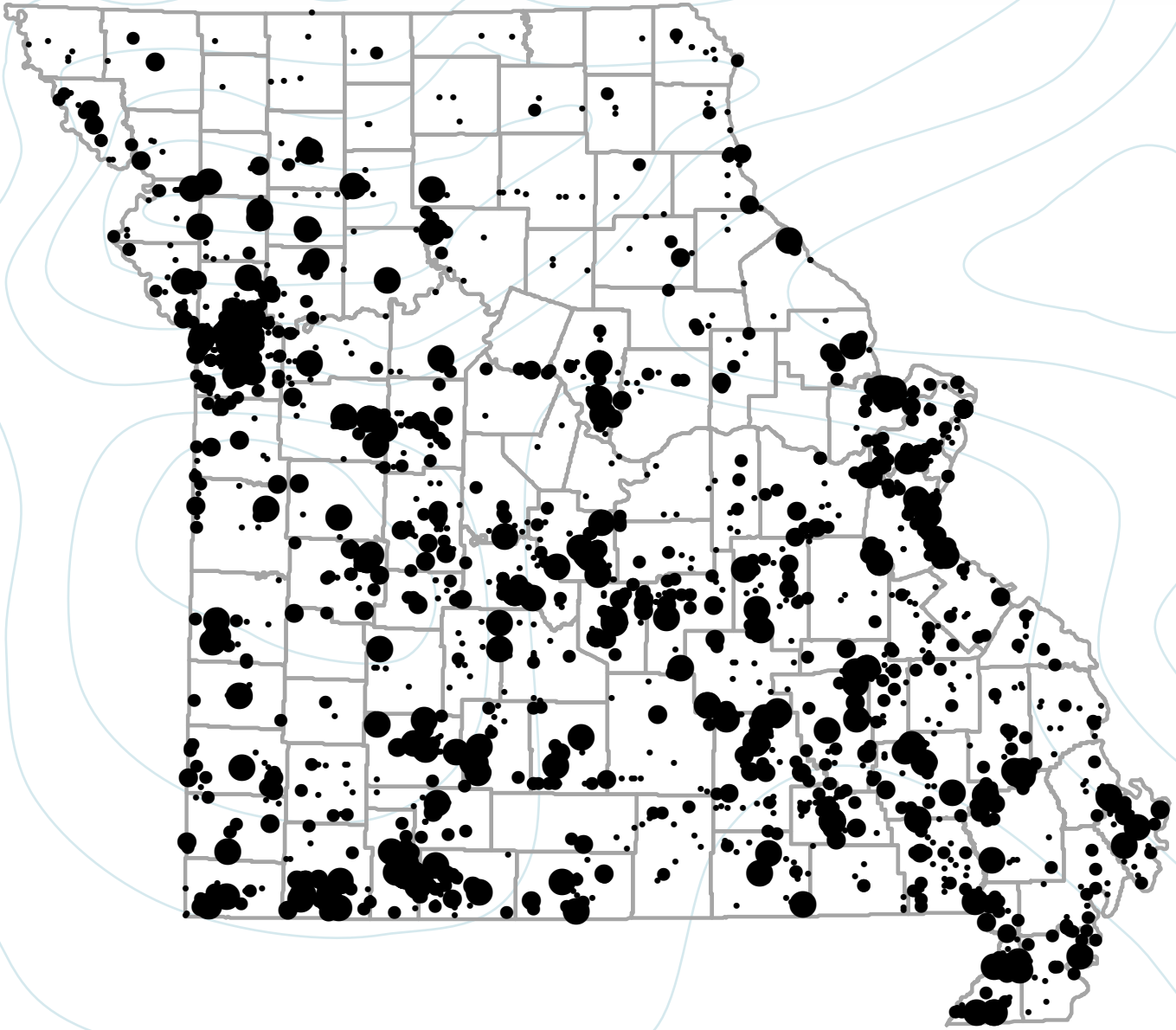
Missouri Herpetology

- History
  - Classic Period (1890 – 1965)
  - Research Period (1966 – 1986)
  - Modern Period (1987 – present)

Classic Period

- Classic Period (1890 – 1965)
  - Starts with earliest collections in the 1800s but these are rare
  - Julius Hurter (1842 – 1916)
  - Paul Anderson (1914 – 1962)
  - Ends with Anderson's *Reptiles of Missouri* (1965)

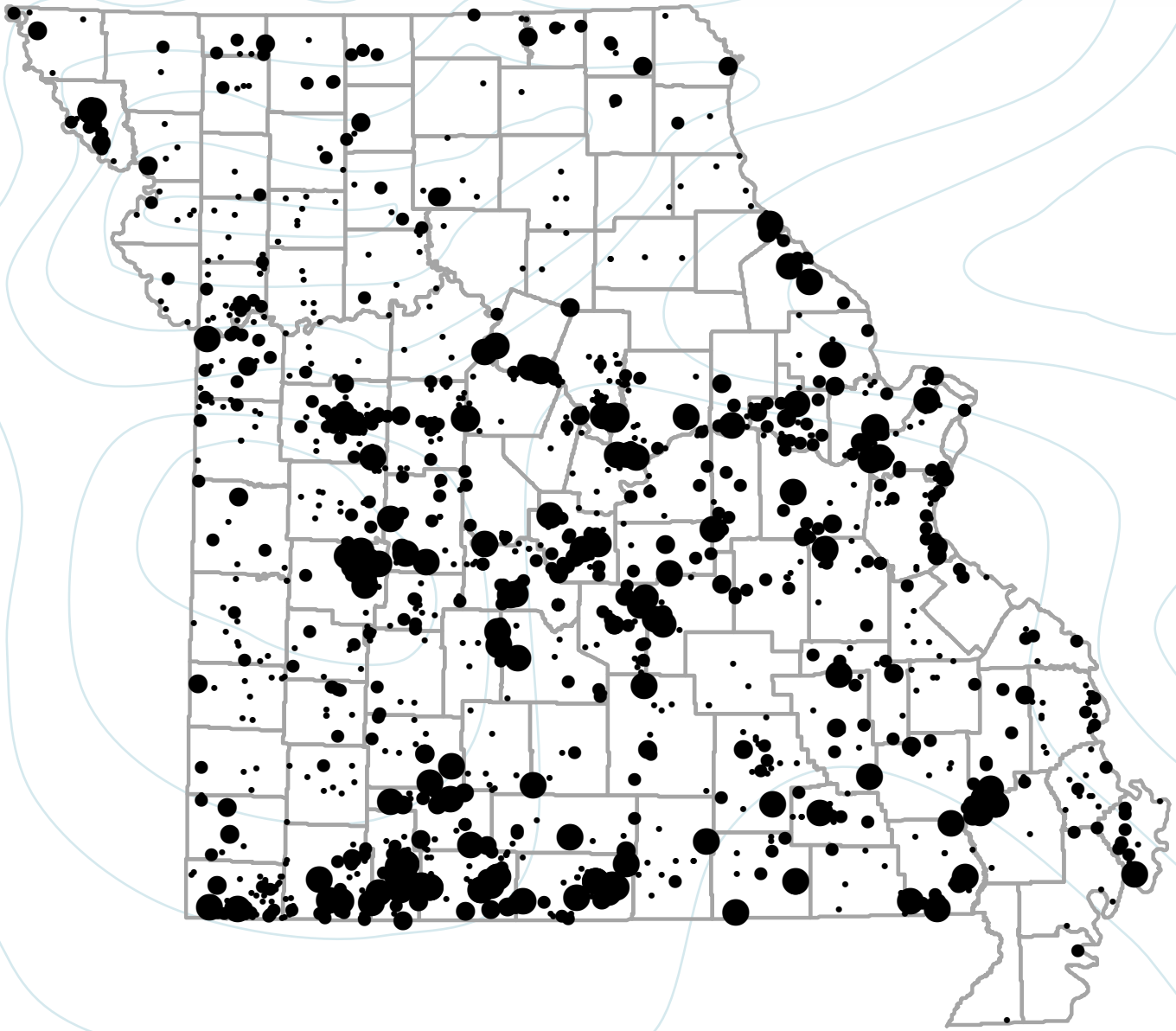
Classic Period



Research Period

- Research Period (1966 – 1986)
  - Many universities involved in active field research around the state but there is little interest in species distributions
  - Universities are building collections at this time but not necessarily for distribution records

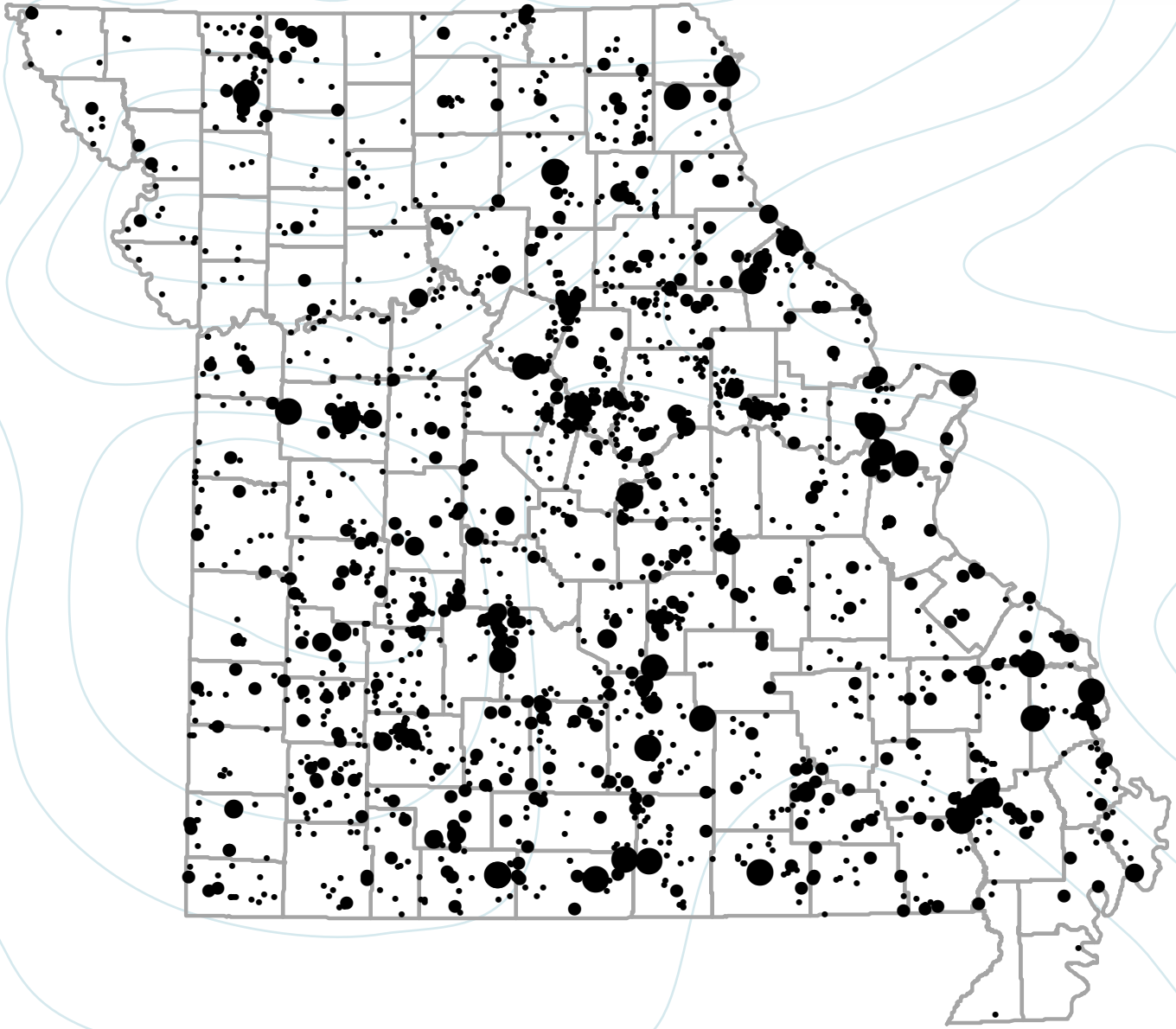
Research Period



Modern Period

- Modern Period (1987 – present)
  - Starts with Johnson's *Amphibians and Reptiles of Missouri* (1987)
  - There is a renewed interest in distribution and a push to fill in "county records"
  - A focus on distribution continues today with annual updates to the *Atlas*

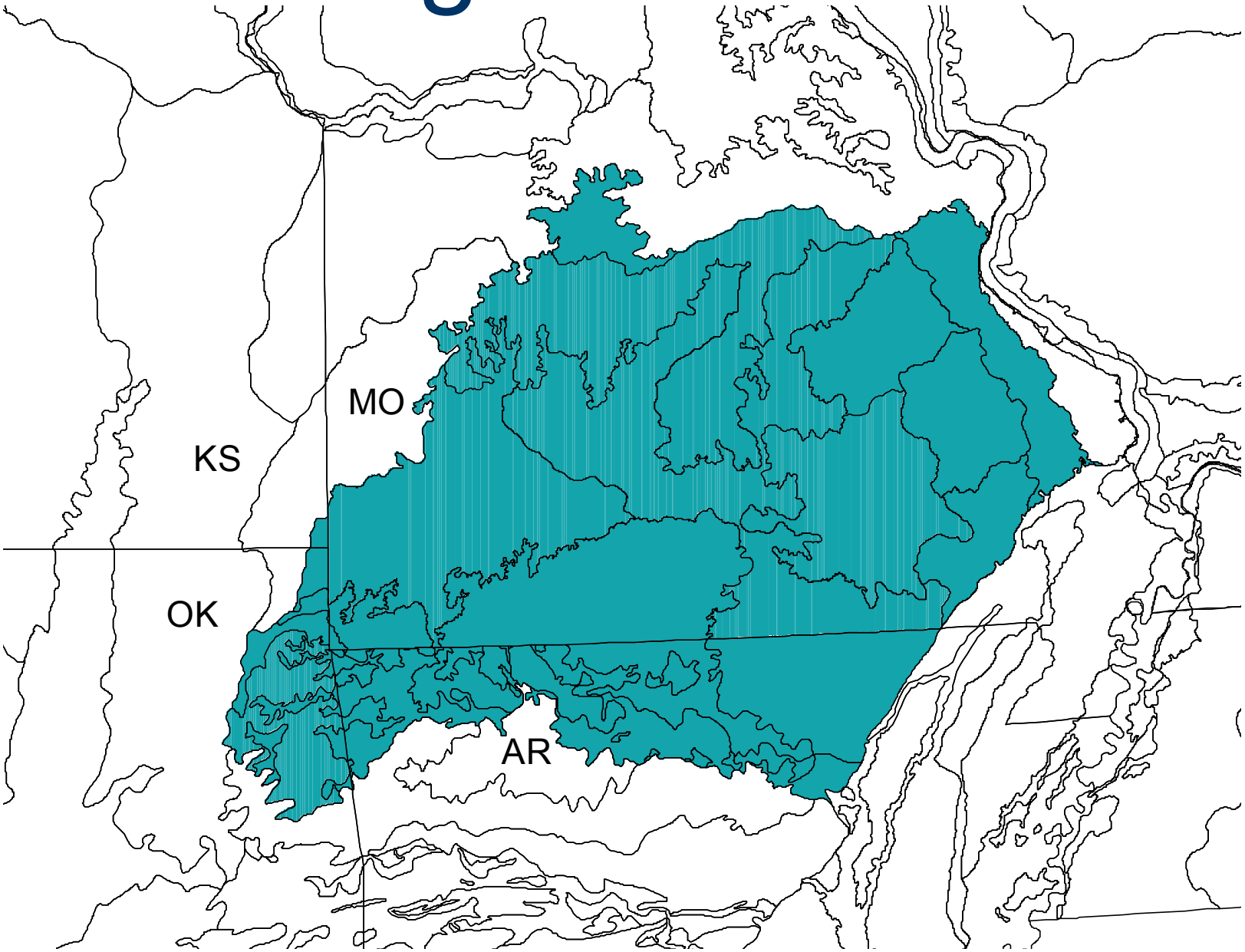
Modern Period



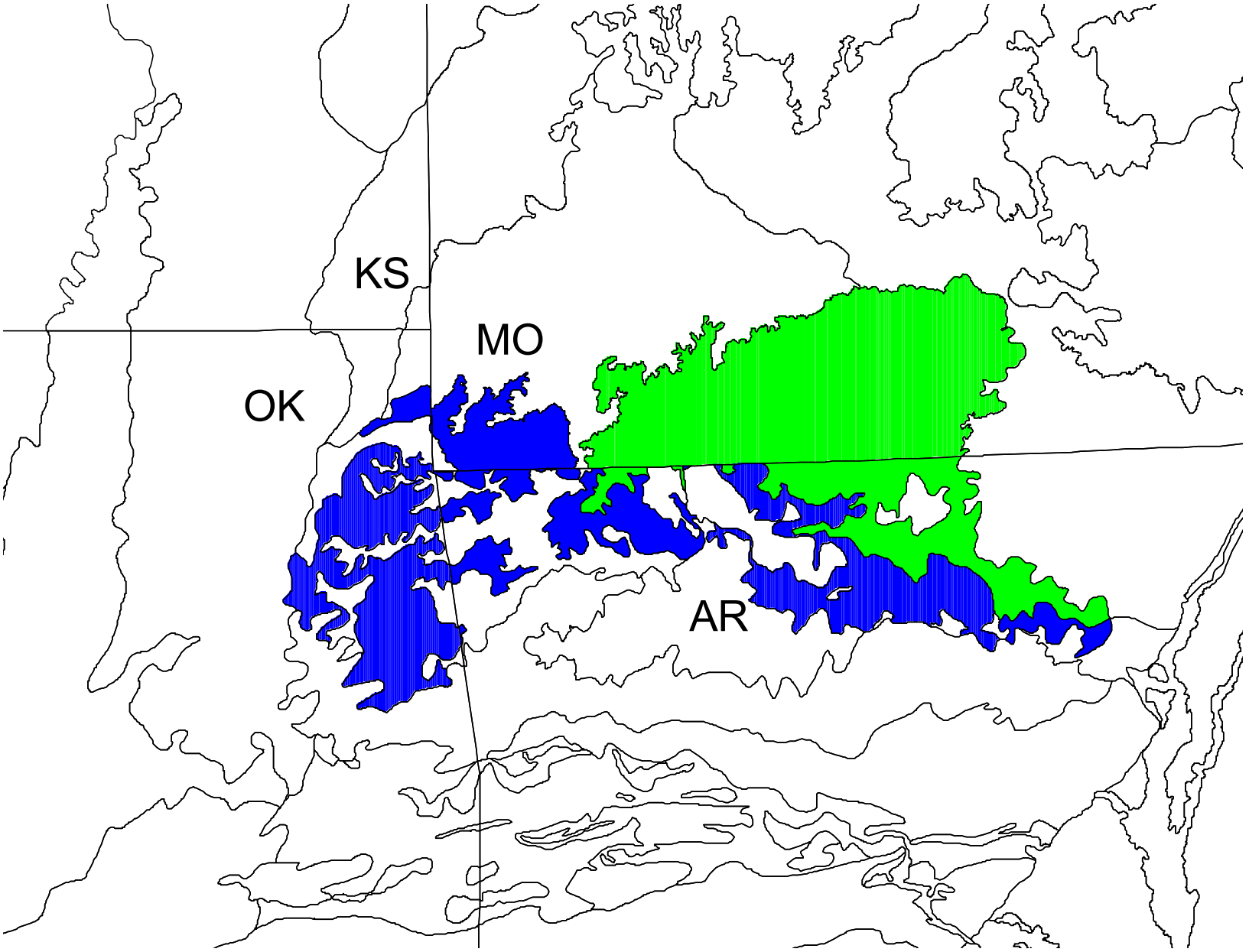
Shared Natural Divisions

- Ozark Highlands
- (Elk / White River Hills)
- Springfield Plateau
- Cherokee Plain
- Osage Plains
- Source: EPA (http://www.epa.gov/wed/pages/ecoregions.htm)

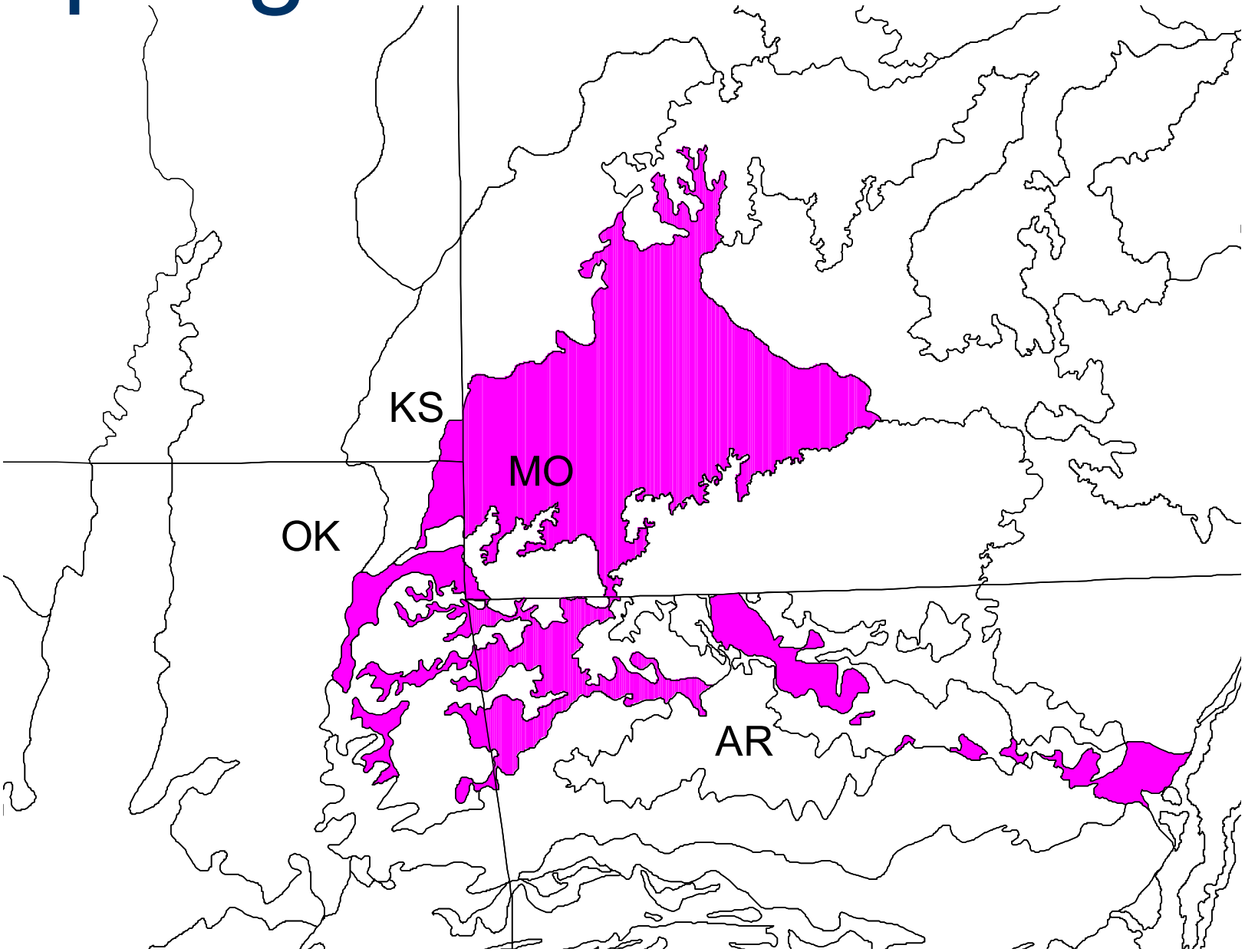
Ozark Highlands



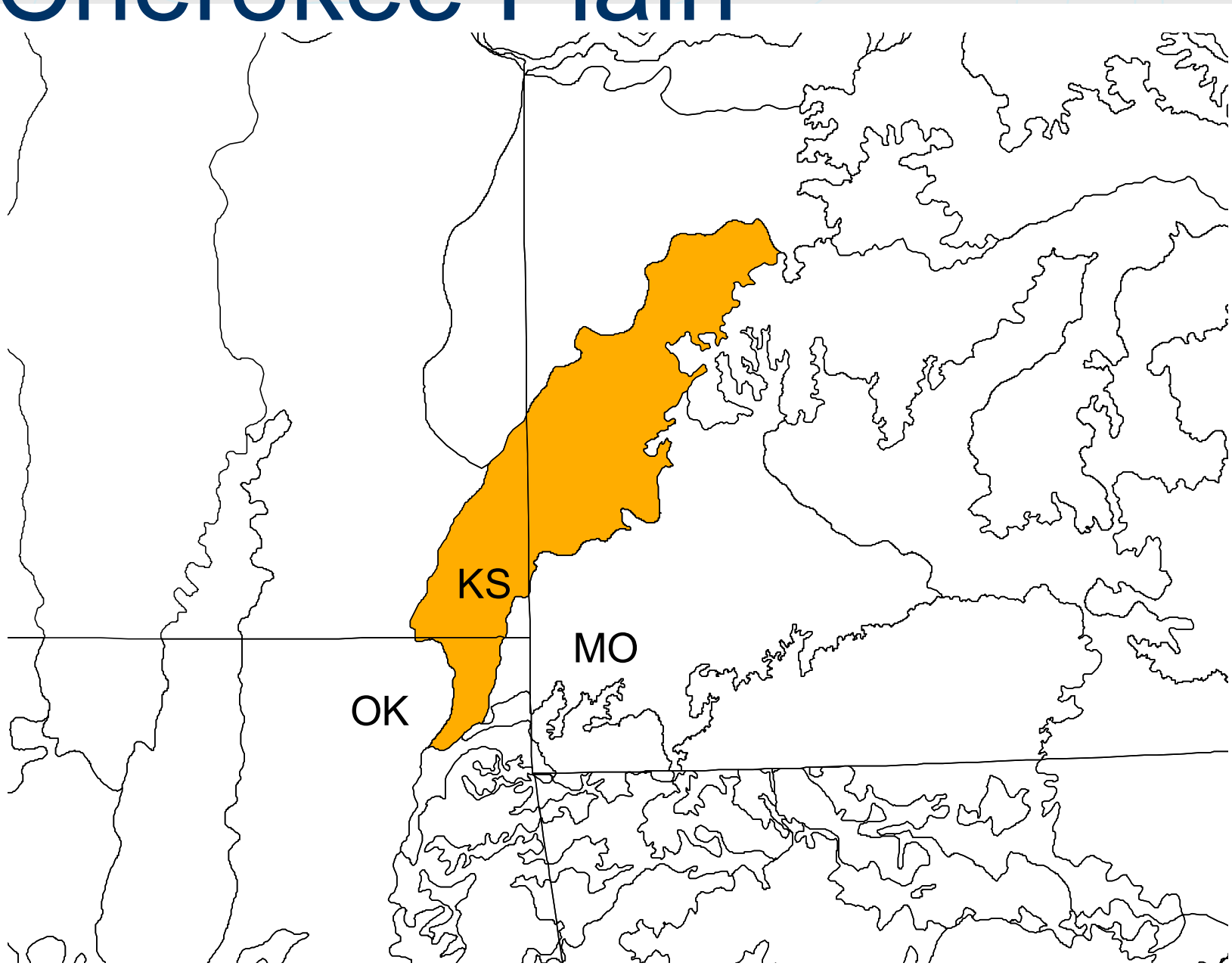
Elk / White River Hills



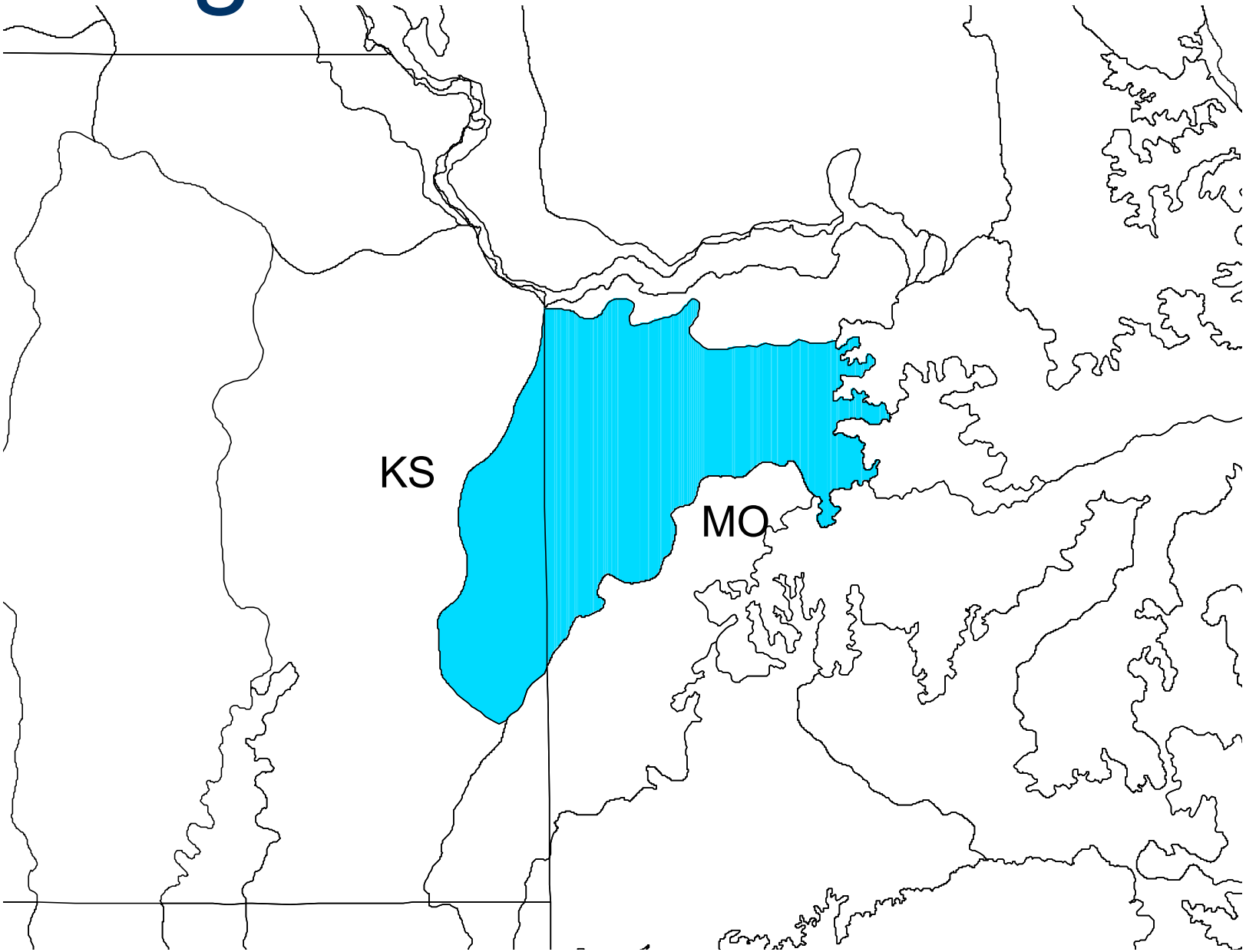
Springfield Plateau



Cherokee Plain



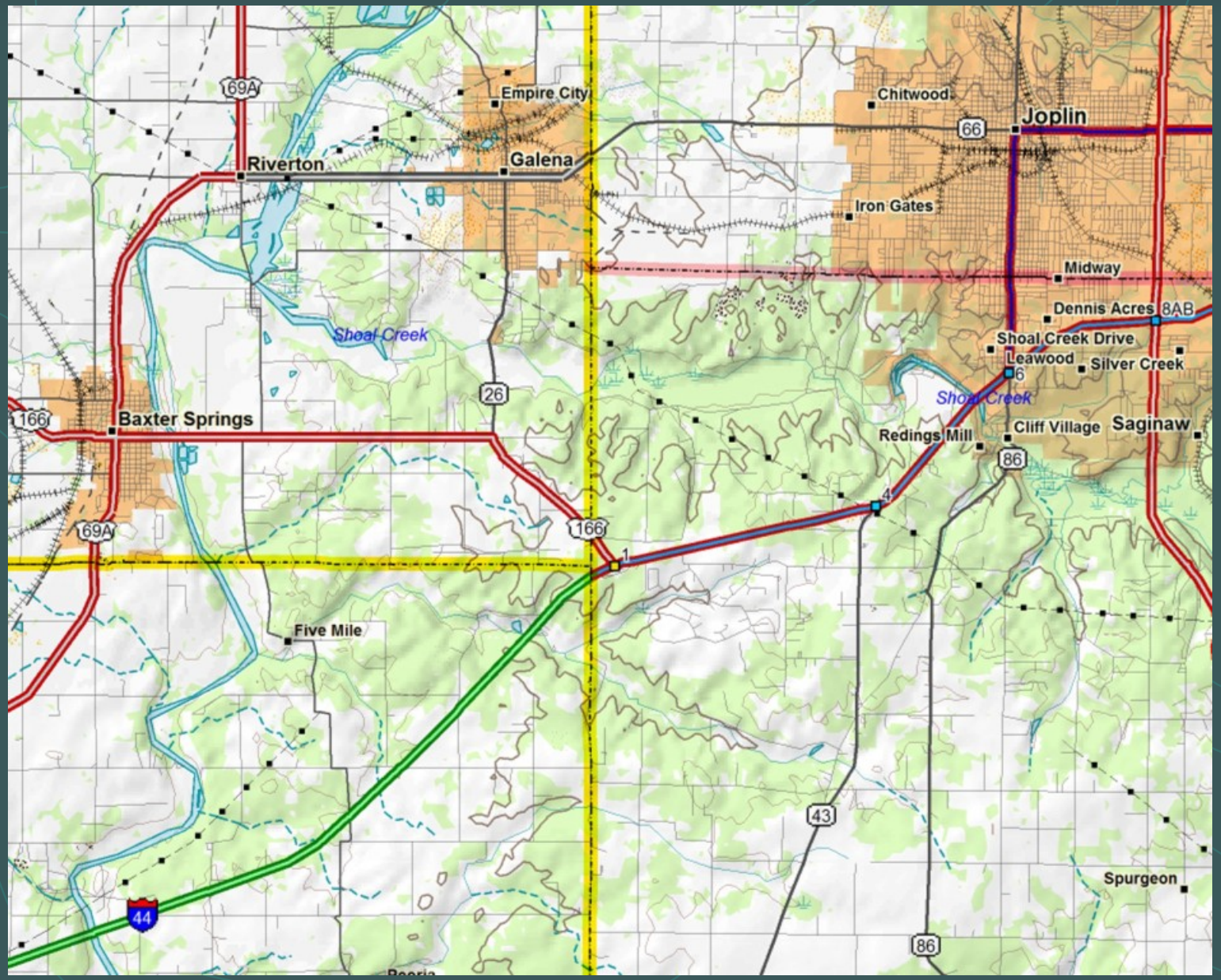
Osage Plains



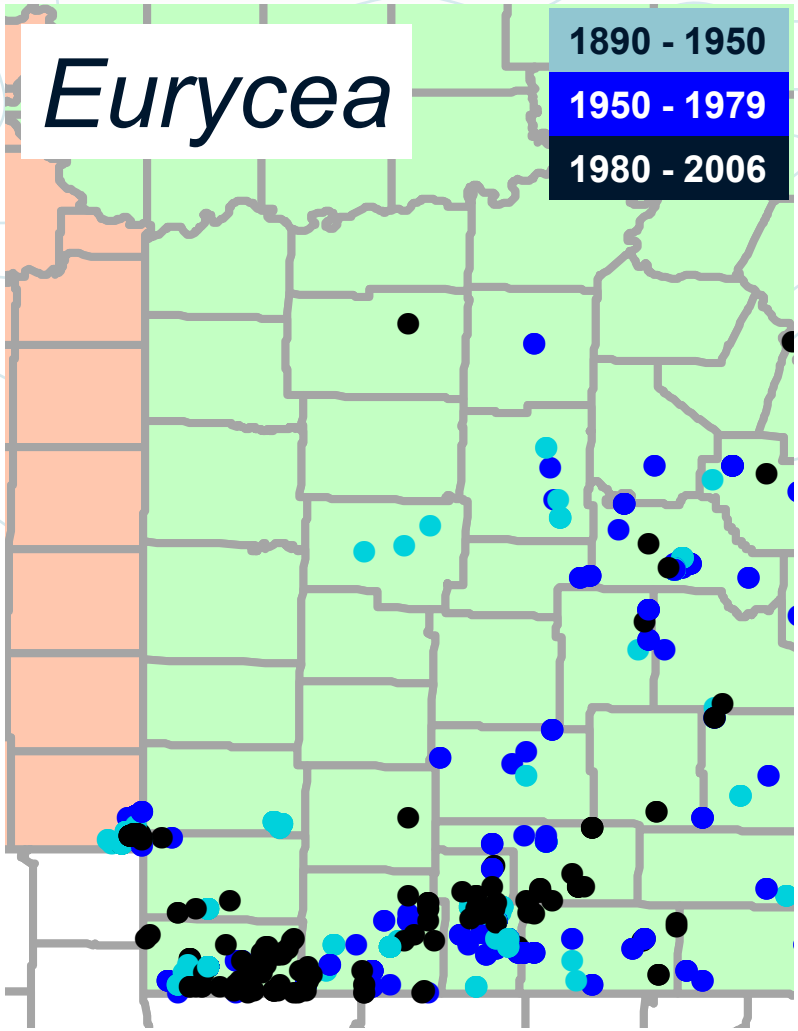
Species Maps

- Ozark species
- Northern species
- Border oddities
- Disjunct populations
- Northern prairie relicts

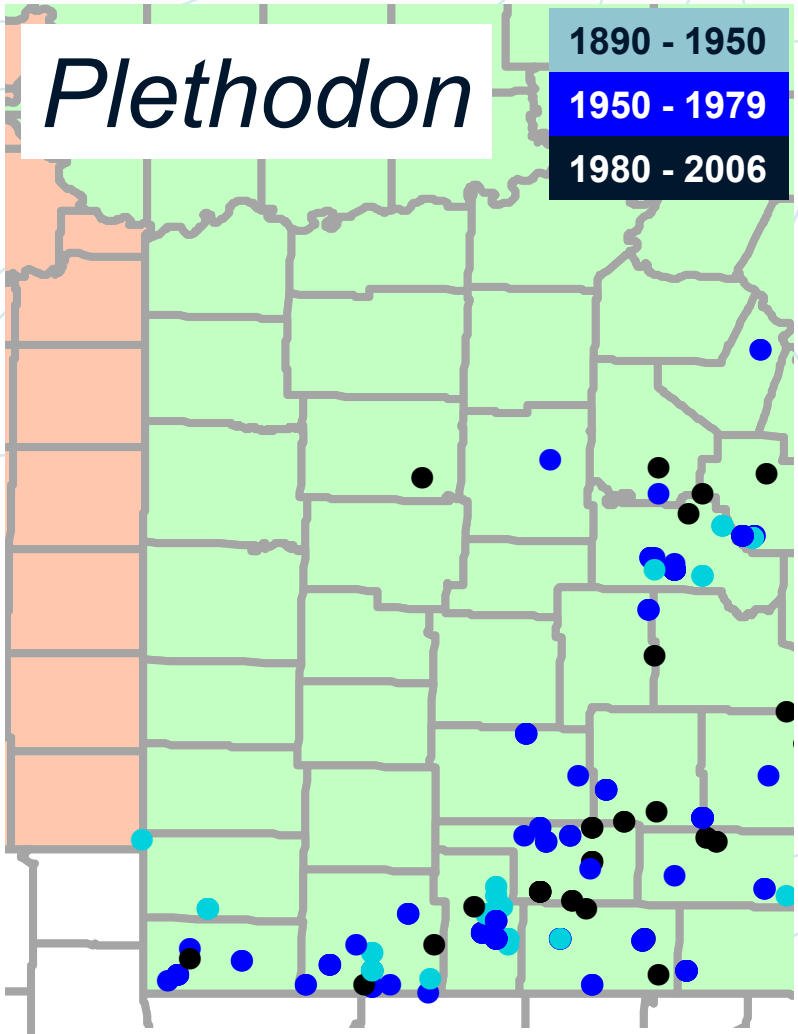
Cherokee Co KS Ozarks



Ozark plethodontids

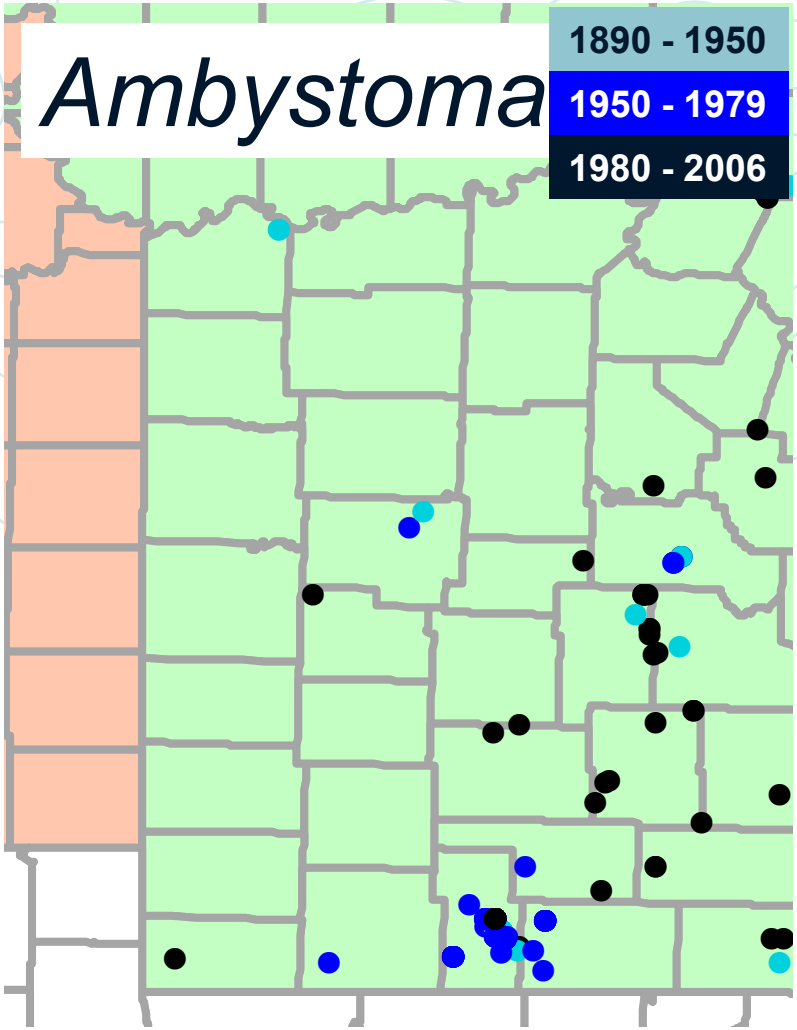


Eurycea longicauda, Eurycea lucifuga, Eurycea spelaea, Eurycea tynerensis

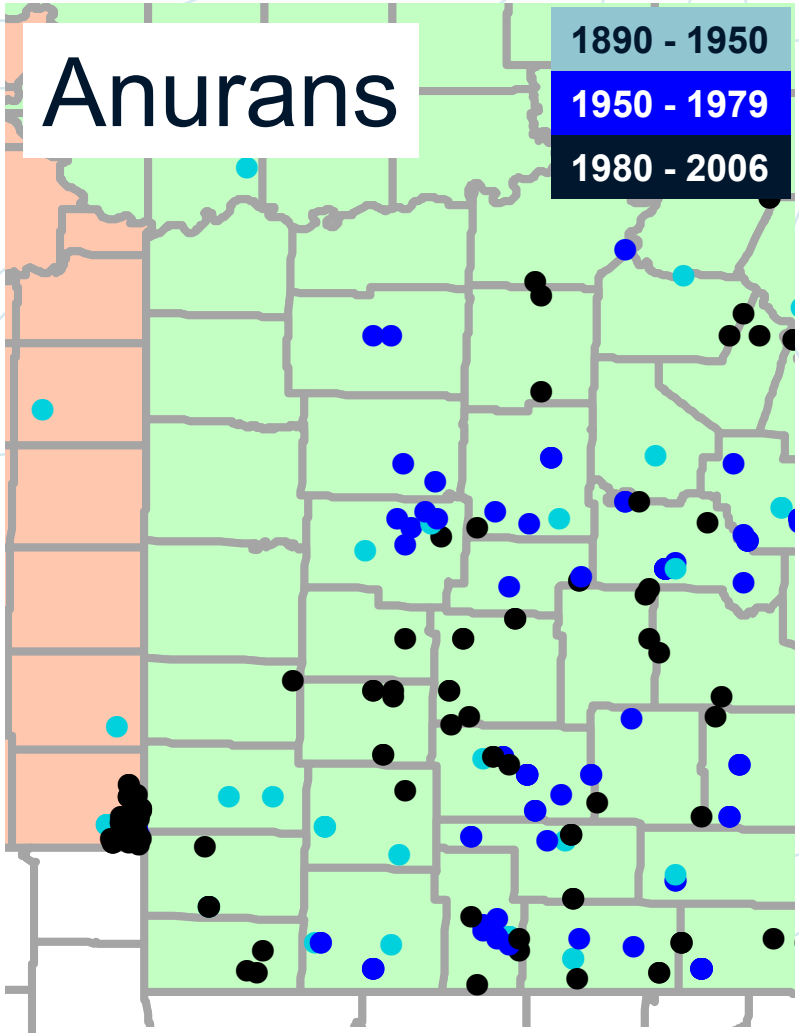


Plethodon albagula, Plethodon angusticlavius, Plethodon serratus

Ozark pond amphibians

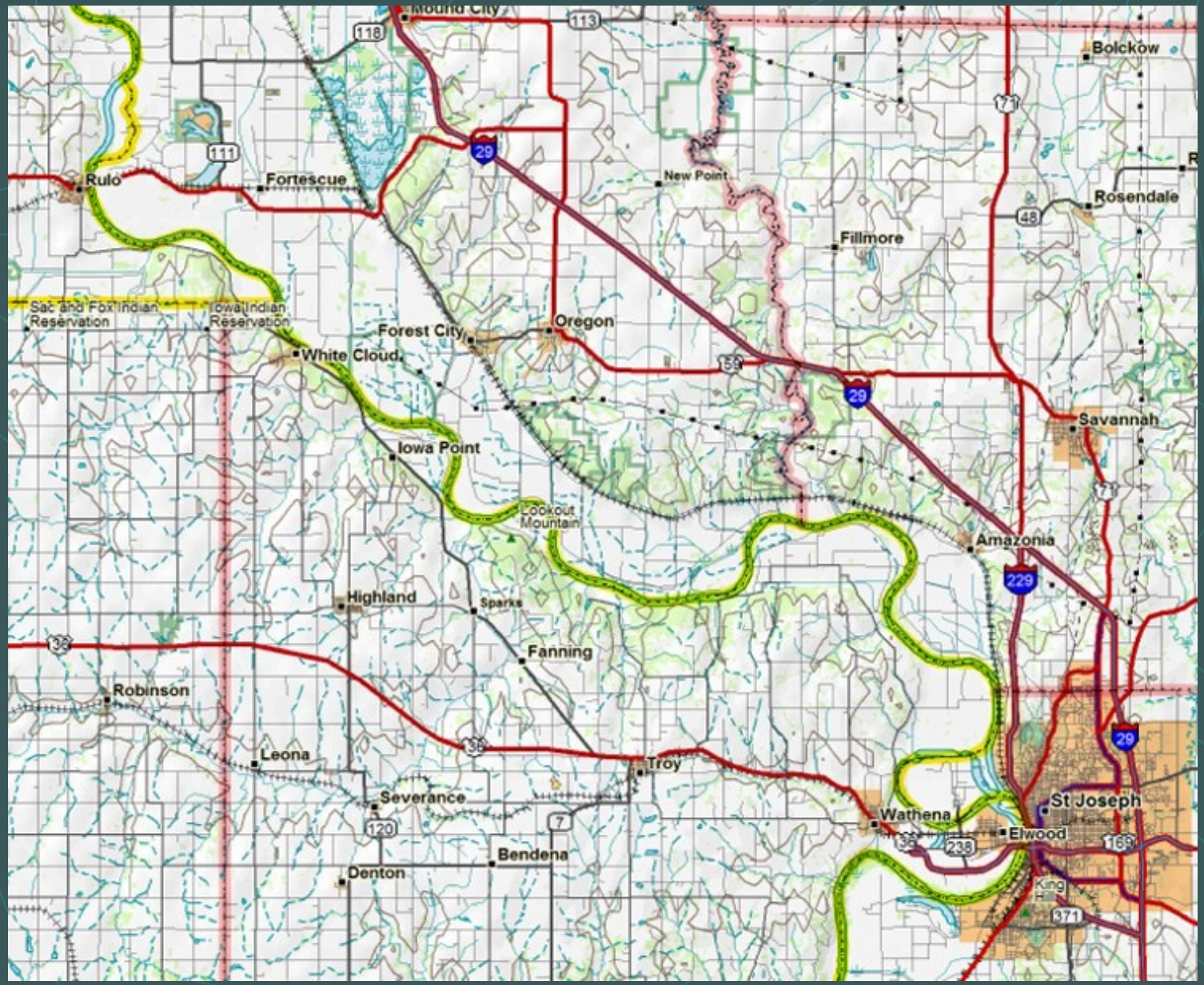


Ambystoma annulatum, Ambystoma maculatum, Ambystoma opacum

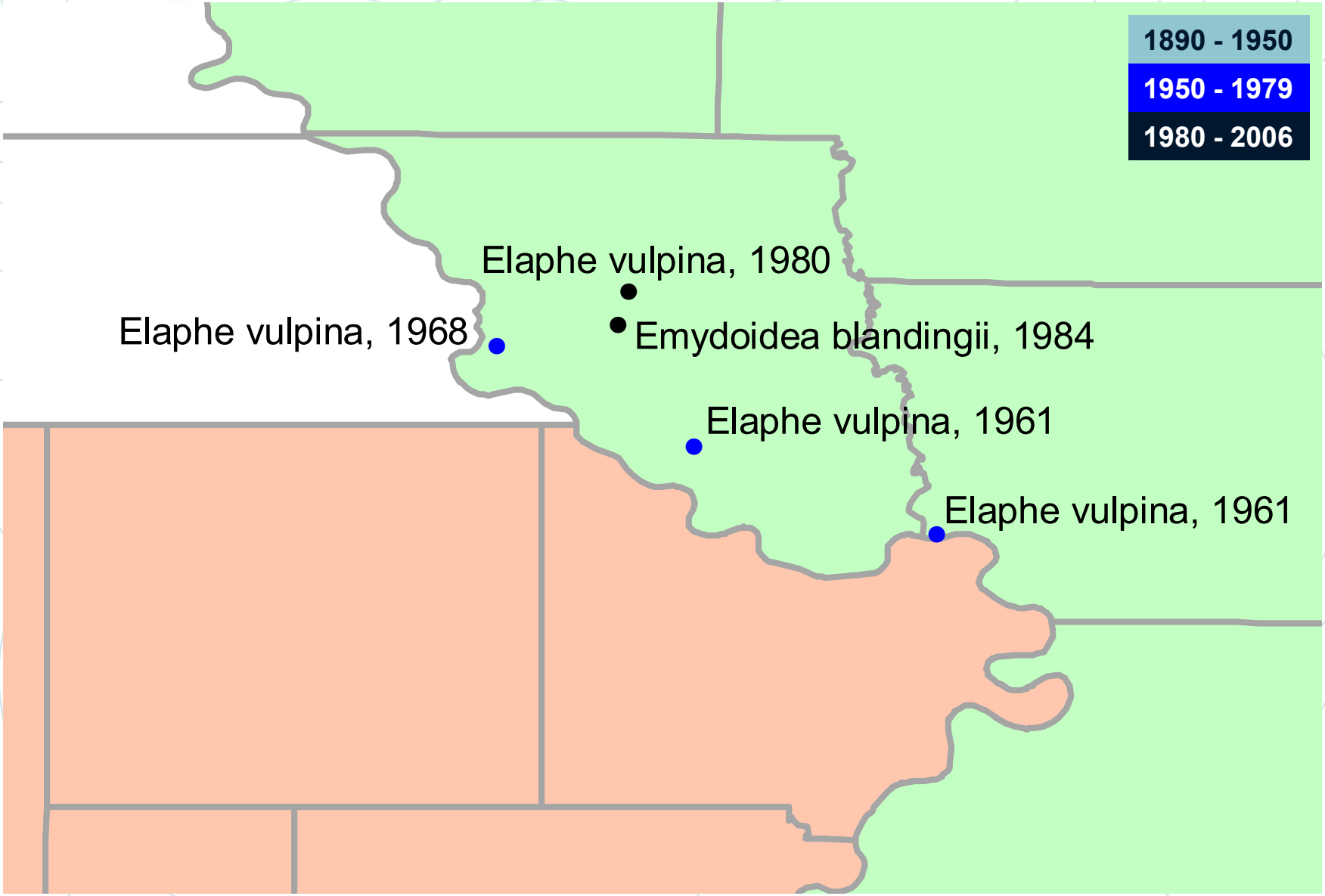


Rana clamitans, Rana palustris, Gastrophryne carolinensis

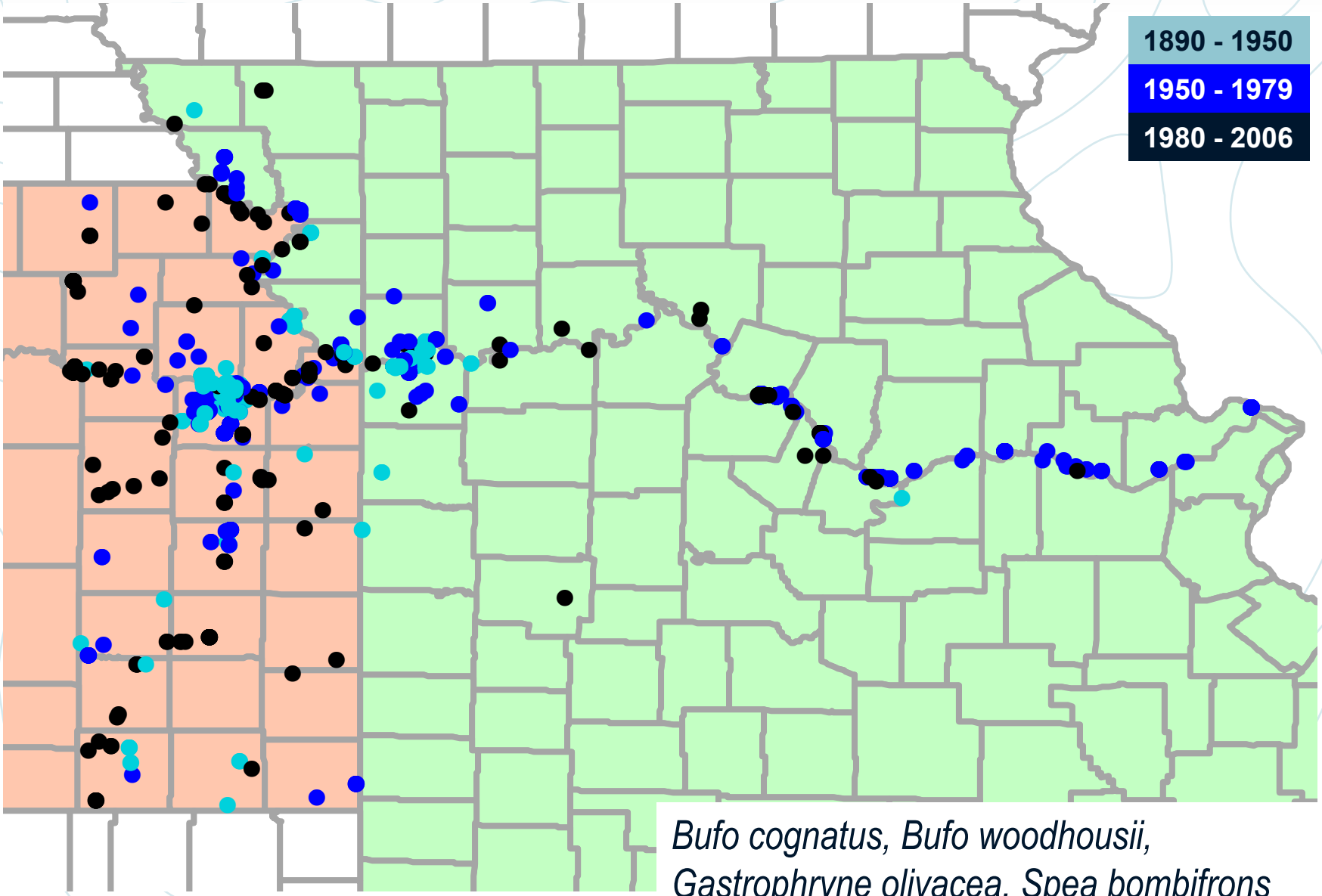
Missouri River



Northern species

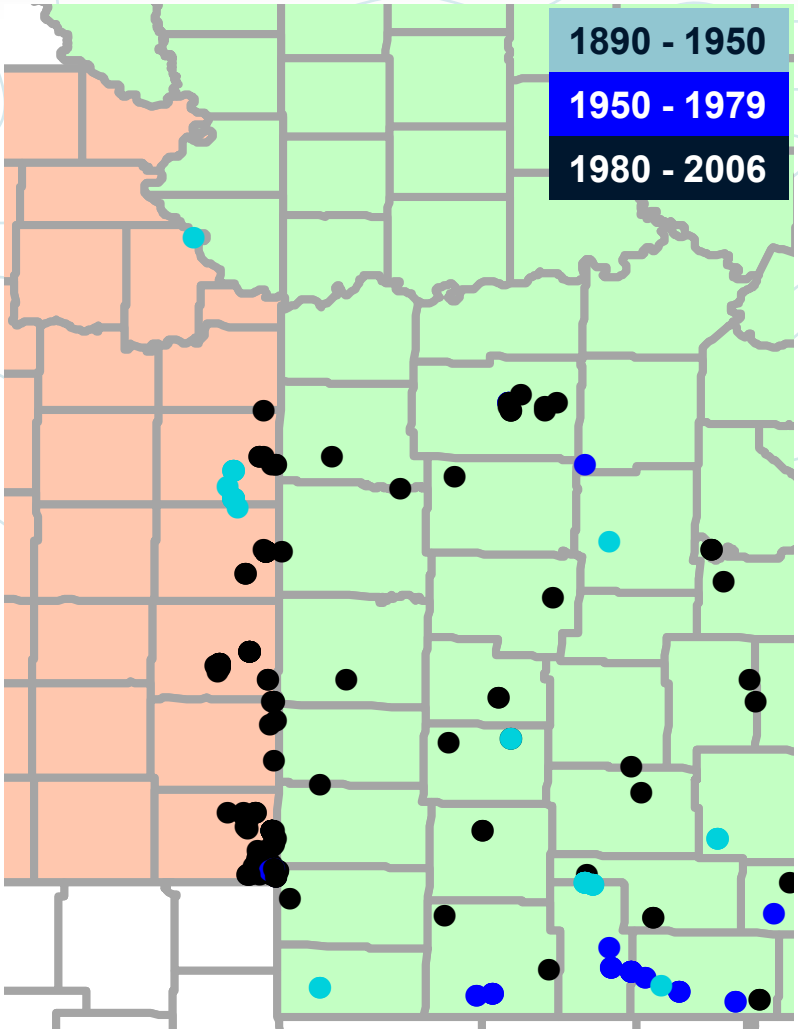


Great Plains Toads

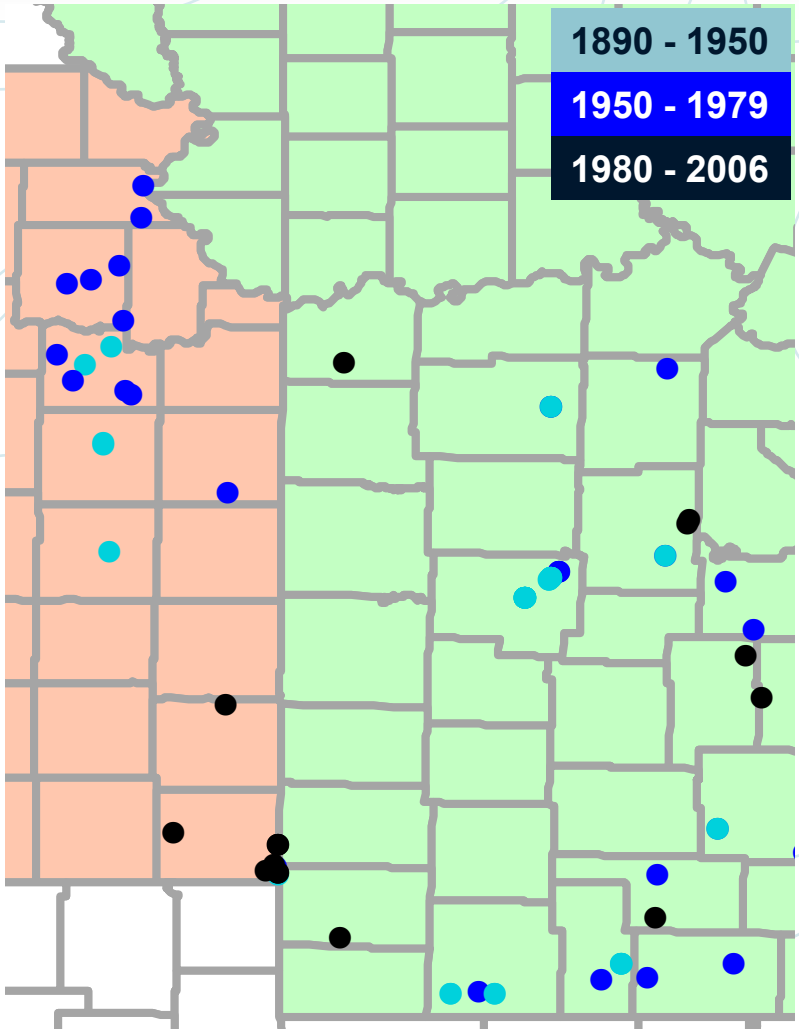


Bufo cognatus, Bufo woodhousii, Gastrophryne olivacea, Spea bombifrons

Collecting bias

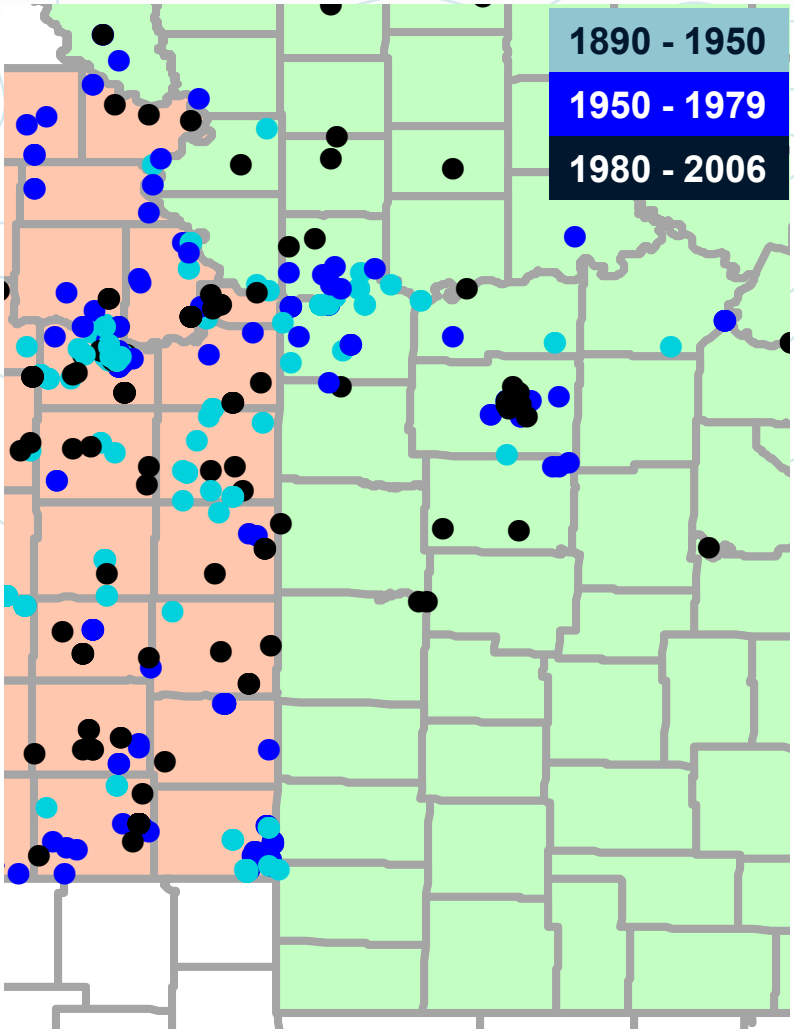


Spring Peeper (*Pseudacris crucifer*)

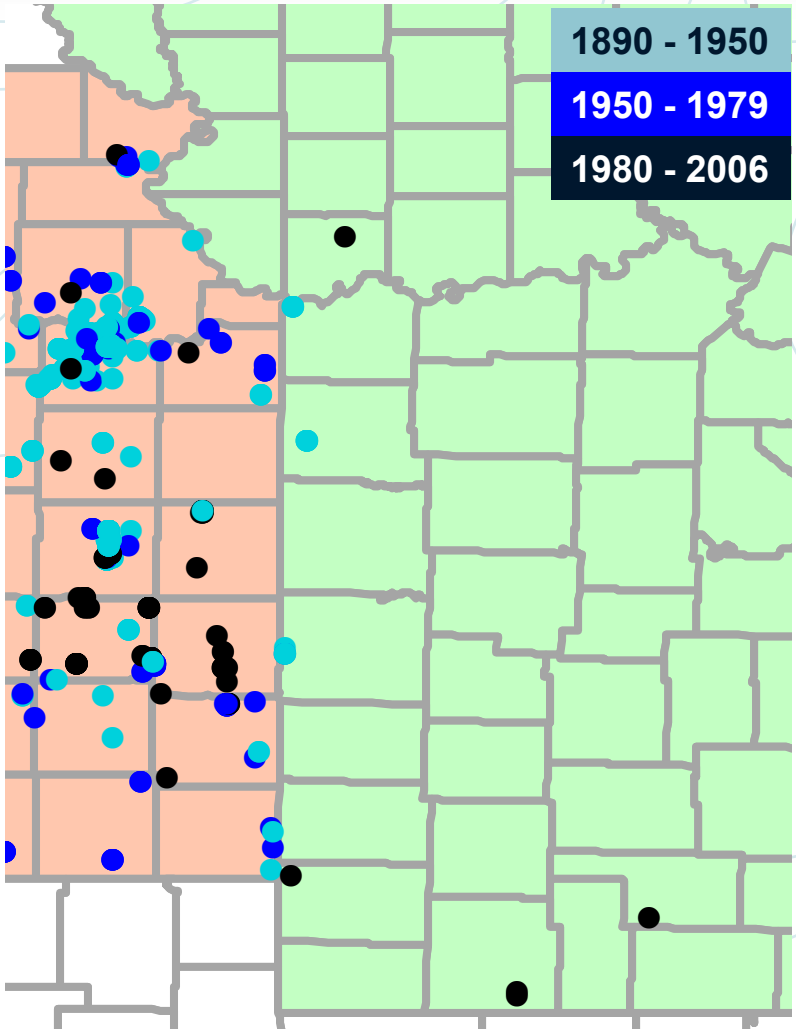


Redbelly Snake (*Storeria occipitomaculata*)

Unnatural occurrences!

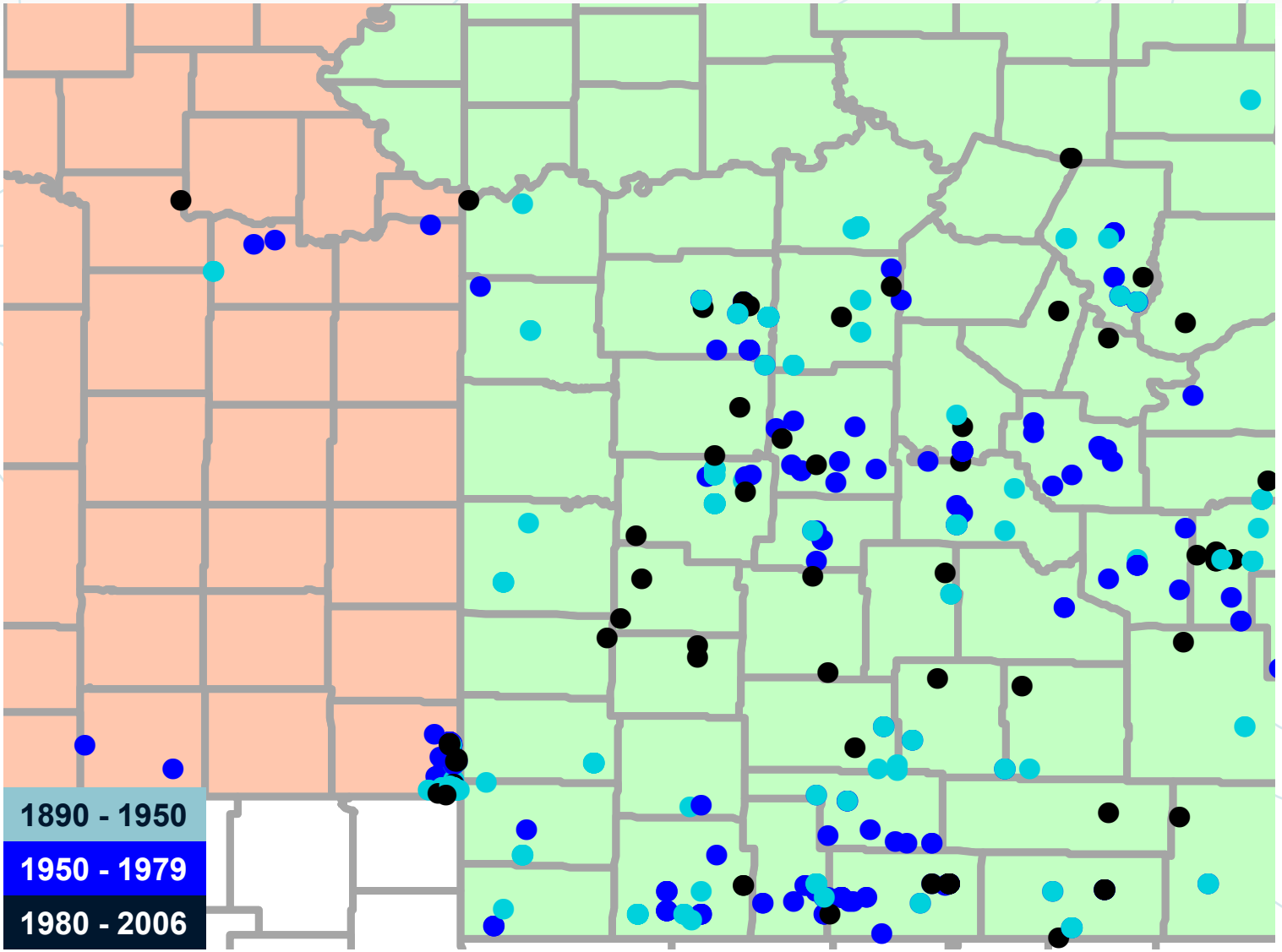


Plains Leopard Frog
(*Rana blairi*)



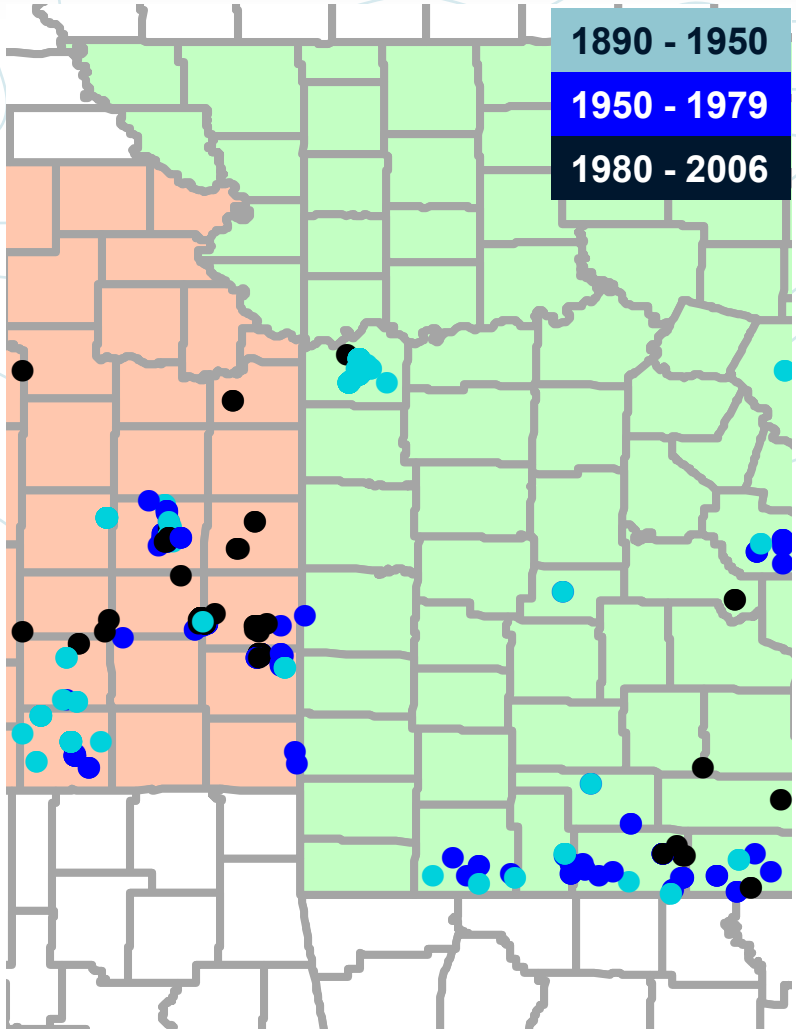
Great Plains Skink
(*Eumeces obsoletus*)

Fence Lizard

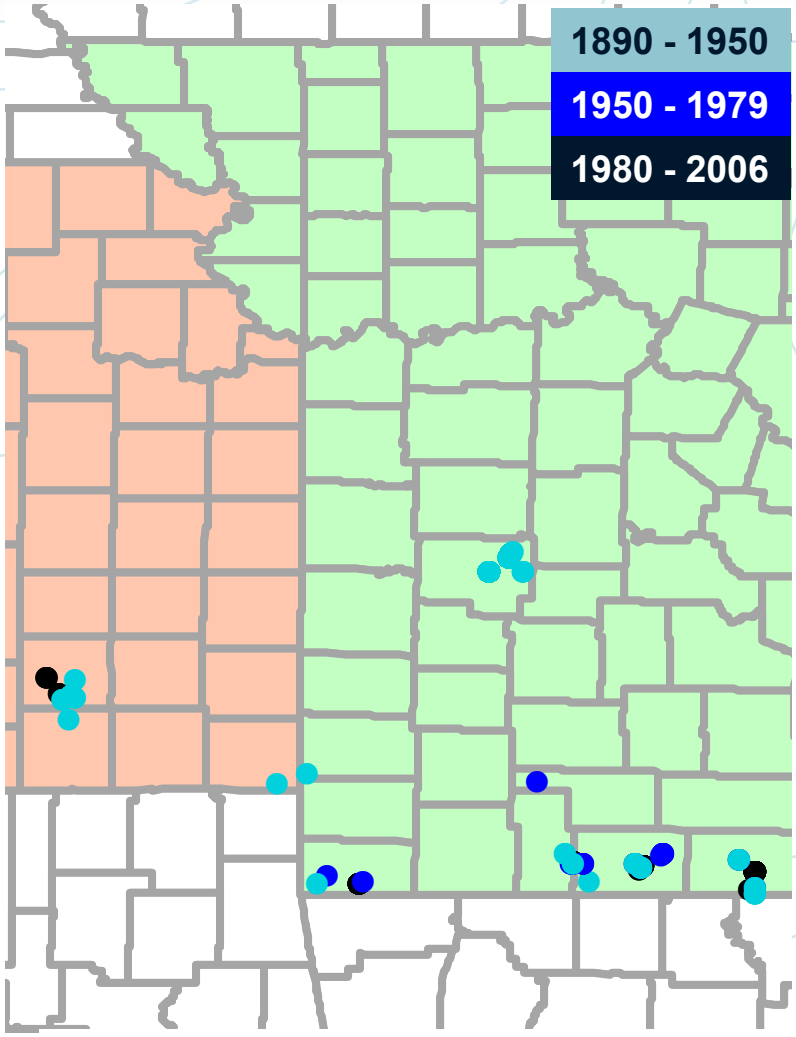


Fence Lizard (*Sceloporus consobrinus*)

Disjunct populations

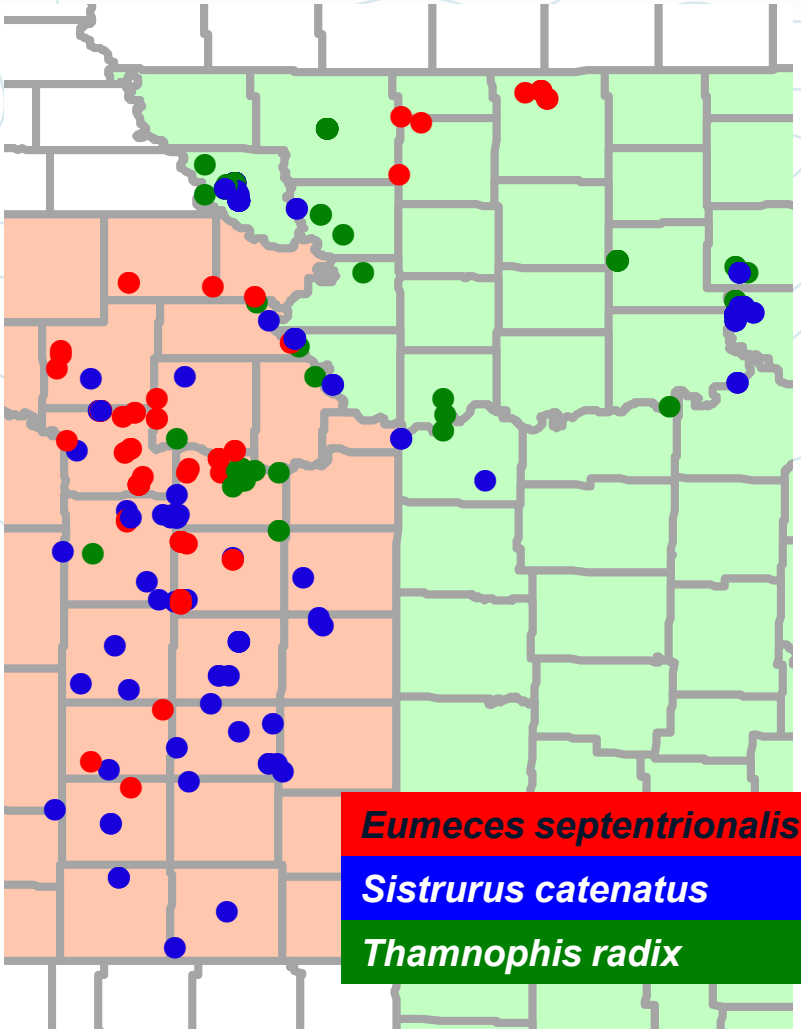


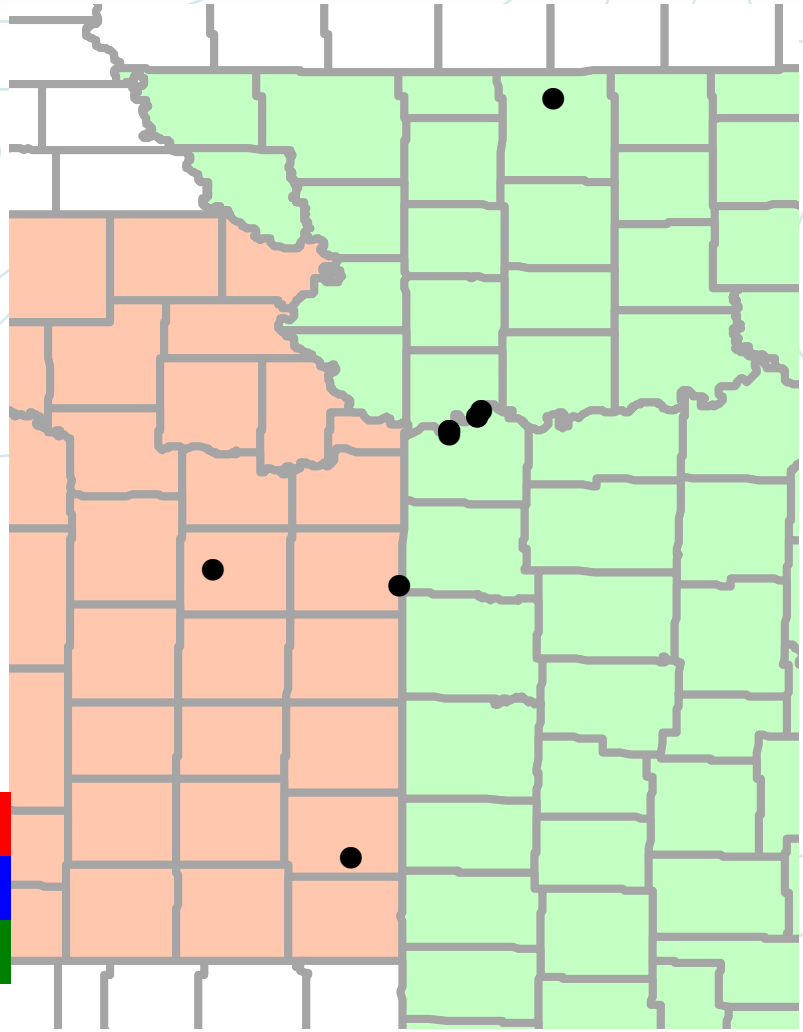
Collared Lizard
(*Crotaphytus collaris*)



Ground Snake
(*Sonora semiannulata*)

Northern Prairie relicts





Three “northern prairie” species

Smooth Green Snake (*Liochlorophis vernalis*)

Breaking News!

- Scarlet Snake (*Cemophora coccinea*)
  - Newton Co MO record (New!)
- Western Hognose (*Heterodon nasicus*)
  - New area north of Kansas City
- Common Garter Snake (*Thamnophis sirtalis*)
  - Odd color morph from SW MO

Common Garter Snake

- Webster Co MO, 2005
- Similar to Texas Garter Snake (*Thamnophis sirtalis annectans*)

Recommendations

- Missouri researchers should spend more time collecting the western prairie region of the state!
- Cherokee Co KS should be searched for more Ozark species.
- Fox snakes (*Elaphe vulpina*) are a likely find in NE KS.

Summary

- Missouri has not been thoroughly explored herpetologically.
- All Ozarks are not created equally!
- Definite distribution anomalies exist at the Missouri / Kansas border.
- Many (not all) can be explained by collecting history in both states.
- There are still surprises left for Kansas and Missouri herpetologists!

References

- *Atlas of Missouri Amphibians and Reptiles* (Daniel and Edmond 2006)
- *Amphibians and Reptiles in Kansas* (Collins 1993)
- Census Bureau (http://www.census.gov/) for maps
- EPA (http://www.epa.gov/) for ecoregions
- *Kansas Herpetofaunal Atlas* (Taggart 2006)
- *The Amphibians and Reptiles of Missouri* (Johnson 1987, 2000)
- *The Reptiles of Missouri* (Anderson 1965)