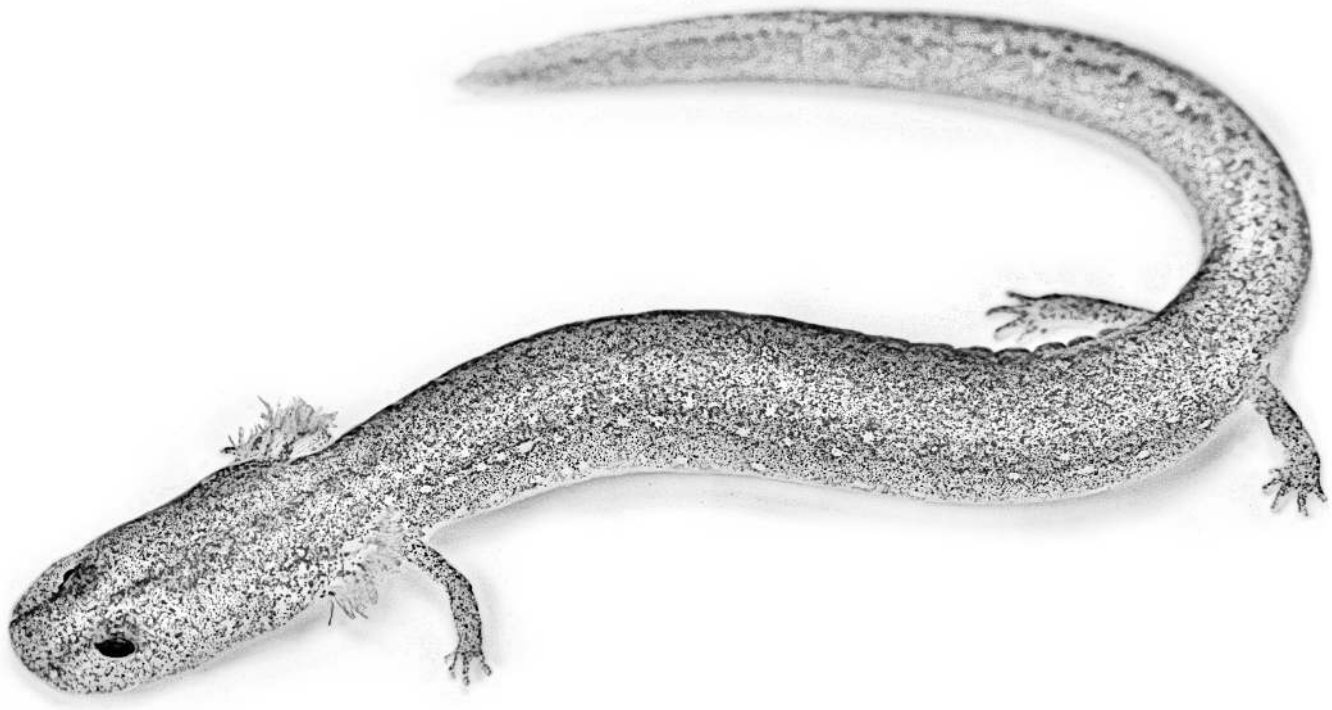
# Arkansas Herpetological Atlas 2019

## *Distributions of Amphibians and Reptiles*

Kory G. Roberts



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# 1. Release Notes


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## 1.1. Goals

The overarching goals of the Arkansas Herpetological Atlas (AHA) are to develop, organize, and provide a comprehensive warehouse of verifiable documented occurrences of amphibians and reptiles in Arkansas for the purposes of conservation, research, and education.

## 1.2. History

The AHA was initiated in early 2010 with the acquisition of a database of known museum voucher records that was produced through an Arkansas Game & Fish Commission grant contract. In establishing an initial framework for organizing the AHA, many key ideas were liberally borrowed from the existing Missouri Herpetological Atlas Project (MOHAP) and later from the Kansas Herpetofaunal Atlas.

It was determined that a true geospatial database would be required for the project and three options were given serious consideration: MySQL with spatial extensions; PostGIS, a spatial extension of PostgreSQL; and Spatialite, a spatial extension of SQLite. At the time, PostGIS was the most polished and robust, and was the database used by MOHAP, but it introduced additional complexities of setting up and accessing the database through a server system. Spatialite was chosen for its relatively lower learning curve, setup, access, and portability. Base installation only required the SQLite database engine and Spatialite library, with a full database contained in a single disk file. For the geospatial work the industry standard, though commercial and expensive, Esri ArcGIS programs were not realistic options, primarily due to access and cost. While open-source software options were sparse, QGIS was the top choice, as it appeared to be the most fully developed and functional, as well as supported by a robust community of developers and users; it also integrated well with Spatialite (and PostGIS).

In devising a database organizational structure that would serve not only for the initial data, but also be adaptive to future data acquisitions and updates, a key decision was that the AHA should act as a nondestructive annotated index to existing data catalogs. In other words, it would not attempt a one time fix for incoming data to correct mistakes and insert them into a predefined tabular structure, but would rather index key portions–i.e., species, collection date, county, etc.–in a standardized way, while maintaining the existing integrity of the incoming data. Annotations would be added to records for later correction in the source catalogs by their respective curators. While this introduced a lot of extra work on the front-end, it would payoff over time in preserving the integrity of data and allow for scalability of the database.

The related issues of how to manage invalid and duplicated records arose early in development. A *graveyard bin* was established in the database for these records, where they could be revisited and vetted more thoroughly at a later time. A data field also allowed existing records to be tagged as questionable, transplanted, or of unknown/undetermined validity.

With the initial framework and tools in place, work began in earnest to install existing catalog data; seek acquisition of additional catalogs; build a standardized index; review and annotate records; and georeference records. It became clear early on that a large amount of the data was in disarray: from simple misspellings, to clerical entry mistakes (e.g., “S” instead of “5”, “Hwy 90” when it should be “Hwy 80”), to shifting of portions of data, where species and localities no longer matched properly. The greatest and most tedious challenge was in georeferencing the records to a standardized geographic coordinate system (decimal degrees of latitude and longitude, in the WGS84 reference coordinate system). Most of the records provided only minimal, and often vague, locality descriptions (e.g., “10 miles W of Fayetteville”) or were in a historic referencing system (e.g., Public Land Survey System of Township,

Range, and Section). A number of records that contained more than one form of locality information, such as a locality description in conjunction with a TRS designation, were found to have disagreements between them when cross-checked.

Early focus on record reviews and georeferencing involved manual curation of records for less common species, often taken one-at-a-time, and combined with a batch approach for the remainder of records. Initial semi-automated georeferencing efforts utilized the U.S. Board on Geographic Names Geographic Names Information System (GNIS) data for simple pattern-matching against record locality descriptions and updating the respective coordinates (e.g., "10 miles W of Fayetteville" would pattern match and be plotted to Fayetteville, but not "10 miles W").

The first public release of the AHA was in 2012. While the database already contained 60,707 discrete records from 44 museum collections, the document was still essentially a draft. The sections for species notes were only in header/outline form, the georeferencing was only marginally reliable to county level, and the species range maps were roughly determined. A partial changelog has been maintained since this release and is provided in Appendix E.

As a sister to the AHA, the iNaturalist Herps of Arkansas project was created in the summer of 2015, by T. J. Belford. The stated purpose of this project is to facilitate a better understanding of the distribution of amphibians and reptiles in Arkansas, with the goals of promoting citizen science and a better understanding of an often misunderstood group of animals within our state and to provide data for research and conservation purposes.

Much of the intervening work has continued to involve more incremental gains: database refinements; catalog acquisitions, installations, and updates; and georeferencing. A somewhat more sophisticated semi-automated batch georeferencing process, based on a sample R script by N. Rios (2012) that was provided on the GEOLocate website, began being applied to records in early 2018 and was completed just over a year later. Another notable development was in coalescing, organizing, and annotating all known data sources–i.e., museum catalogs, literature sources, etc.–into a single database table, with the inclusion of both queried sources that contained no pertinent records and as yet unqueried data sources.

From mid- to late 2019, major curation efforts were undertaken on the iNaturalist Herps of Arkansas project. Every amphibian and reptile observation record from Arkansas on iNaturalist, whether included in the project or not, was checked to verify the information and identification. Approximately 2,000 personal observation records were contributed by cycling through and uploading old photo files. All suitable records not yet included in the project were added if the user's settings allowed. All users with more protective settings were individually contacted to request that they add their records to the project. By the time data were downloaded for installation into the AHA in early 2020, about 76% of all suitable iNaturalist records were included.

By 2020, manually-checked georeferencing was completed on all existing AHA records, including those that had been previously plotted by the semi-automated process. Initial efforts were put toward identifying AHA records that appeared to be sources for the point localities presented in The Amphibians and Reptiles of Arkansas (Trauth et al., 2004). Ranges were revised and updated, taking a more conservative approach (i.e., constrained to verified record localities), with added attention given to known records and ranges from neighboring states. Final preparations in layout design, map and statistical exports, and writing were initiated in anticipation of the next public release.

During the spring and summer of 2020, the public release document underwent a thorough review process. Many additional citations were added to the species notes and an untold number of corrections and tweaks were applied. During these efforts, the entire document was reconstructed in LaTeX, which provided a cleaner format, inclusion of internal links, and more robust underlying structure for future releases.

## 1.3. Current Status

This public release of the AHA represents the greatest undertaking in cataloging and mapping the herpetofauna of Arkansas since The Amphibians and Reptiles of Arkansas (Trauth et al., 2004). However, it also presents a snapshot of the project very much still in development and gives space for evolving understandings:

In regard to taxonomic nomenclature, most subspecies des-

ignations have been retained, even as the entire concept has historically been applied inconsistently and has fallen into disfavor in recent years. The primary argument for retention is that these variations may be indicators of underlying taxonomic structures, yet to be revealed by more contemporary phylogenetic analyses. Admittedly, recent studies have offered something of a mixed bag in alignment and many existing subspecies designations are likely to be poor predictors of cryptic species complexes (e.g., *Diadophis punctatus* ssp.). Nevertheless, researchers may take notice of range distributions for these historically-recognized variations as a guide for sampling purposes.

In regard to species range maps, these are shaded more closely to verified record localities than previously presented. It is expected this will prompt submissions of evidences to expand and refine certain species ranges.

In regard to Trauth et al. (2004) locality points, these continue to pose many difficulties, but isolated, unsourced points are retained in this release to allow for additional vetting. It is expected that future releases of the AHA will drop all locality points without a verified source.

In regard to questionable museum records, these are addressed in the individual species notes. It will largely be up to the requisite museum curators to properly vet these and make necessary corrections.

In regard to anecdotal evidences, these are largely avoided and not used as a basis for locality points. However, more reliable unvouchered observations, particularly those with accompanying photographic evidence, are occasionally mentioned in the species notes and sometimes applied to minor range adjustments. These may offer insights for future sampling efforts and, perhaps, as prompts for proper vouchering.

The AHA continues to be a work-in-progress. Some specific issues, such as how to handle vague or confusing historical records, are likely to never be fully resolved. Several major decisions, such as transitioning taxonomies to full species attributions and removing all Trauth et al. (2004) locality points that remain unsourced, have been purposefully deferred to a later time. By intention, this public release presents the atlas in an incomplete state and it will be contingent upon the wider herpetological community to offer feedback and support toward improving the project.

## 1.4. Future Developments

In the near term, the annotated data will start being shared back to respective museum curators for them to correct identified errors if they so choose, and an opportunity to incorporate the georeferenced information into their collection catalogs. Data will also be shared back to a select group of collectors for record and georeferencing verification. A number of problematic and questionable records of particular interest have been addressed in the species notes of this document, which may require some coordinated efforts among interested parties to resolve, such as borrowing museum specimens to confirm identifications. Additional collaborative efforts are needed in resolving an array of other issues, such as tracking down localities based on obscure descriptions (e.g., “Cartwright farm ponds”).

Much work remains in resolving discrepancies between AHA data and point localities presented in Trauth et al. (2004). One area of deficiency is that only a small fraction of historical literature records have been incorporated into the AHA. Also, there exists a significant number of historical records from southeast Arkansas, housed in the collection at the University of Arkansas at Monticello, that have not been obtained. Based on previous inquiries, this collection was not organized for ease of access and lacked a digitized specimen catalog. Other minor discrepancies are known to exist for records plotted very closely to county boundaries, where the AHA and Trauth et al. (2004) locality points likely reference the same source, but are attributed to different counties. Other discrepancies are likely the result of differing interpretations of extremely vague locality descriptions. Despite direct requests to obtain the underlying library used by Trauth et al. (2004) in constructing their dot locality maps, these requests have not been fulfilled. Ultimately, localities plotted by Trauth et al. (2004) that cannot be traced to a verifiable source will be removed from future versions of the AHA.

Since the first public release of the AHA eight years ago, and 16 years since the publication of The Amphibians and Reptiles of Arkansas (Trauth et al., 2004), it would seem like a reasonable time to reassess county records, including the identification of new county records. Many of these records are based solely on photographic evidence, largely from iNaturalist, so it would be worthwhile to pursue deposition of these into curated museum collections, as proper photo vouchers. A number of key records

(e.g., *Tropidoclonion lineatum*), have yet to be formally published.

The installment of historical literature records in the AHA has been limited. A number of relevant publications have been acquired, but the pertinent data still needs transcribed into a digitized tabular format before they can be integrated into the AHA. Some source documents for a few AHA records, specifically those referenced in the catalog supplied by the Arkansas Natural Heritage Commission (ANHC), have yet to be obtained. The ANHC is known to be in possession of some of these documents, but access permission from respective source agencies has not been granted. A side project that would be very useful would be the development of a comprehensive annotated and cross-referenced database of the scientific literature citing Arkansas herpetofauna. The Kansas Herpetofaunal Atlas may offer a model for such future pursuits, although Wikindx, a virtual research environment (an online bibliographic and quotations/notes management and article authoring system), looks like an interesting alternative.

Serious pursuits for adding additional data have not been a recent priority, with the exception of iNaturalist Herps of Arkansas project records, so a number of major museum collections should be requeried to account for new records and cross-checked for corrections of existing records. A sizable list of identified collections remain to be queried for any Arkansas specimens, including those who never responded to inquiries in the fall of 2017: CMNH[1], IMNH[2], MNHC[3], NYSM[4], and SIUC[5]. In addition, MSB was also contacted around the same time, due to localities provided only as "contact collection", but did not respond. Just prior to public release of this document, the BU[6] collection was identified as likely housing many historical Arkansas specimens collected by John K. Strecker, including additional *Regina septemvittata* records from Hot Springs, Garland County, and efforts to obtain these data have been initiated.

[1]Cleveland Museum of Natural History, Vertebrate Zoology, Cleveland, OH

[2]Idaho State University, Idaho Museum of Natural History, Pocatello, ID

[3]University of Massachusetts, Natural History Collections, Amherst, MA

[4]New York State Museum, Albany, NY

[5]Southern Illinois University at Carbondale, Department of Zoology, Carbondale, IL

[6]Baylor University, Mayborn Museum Complex, Waco, TX

## 1.5. Data Disclosures & Requests

There are currently no plans to make the AHA raw data publicly accessible beyond the dot locality maps, summary statistics, and species notes. Some of the data were obtained with an agreement of nondisclosure. There is an expectation to protect precise localities, particularly for habitats and species sensitive to human disturbance and exploitation. Albeit, many institutions now have their entire collection data fully accessible online, either directly through their own websites or through one of several biodata portals, such as GBIF. The level of detail disclosed in the AHA was reviewed and approved by personnel from the Arkansas Game & Fish Commission and Arkansas Natural Heritage Commission before public release.

All requests for AHA data should be directed to the administrative manager: K. J. Irwin. See the cover page for full contact information.

## 1.6. Contributing to the Atlas

A number of opportunities for contributing to the AHA are discussed in the Future Developments section. If you wish to offer constructive feedback or corrections regarding this public release, please contact the project manager: K. G. Roberts. See the cover page for full contact information.

In order to establish locality point records in the AHA, verifiable records–either museum voucher specimens or photographic records–must be deposited in a publicly accessible museum collection. Specimen collection is not recommended for most people, as this requires scientific collection permits and expertise in preservation techniques. However, if a specimen of a rare species is found dead, such as road-killed, you may wish to contact one of the AHA managers for assistance. While major museum collections that house Arkansas specimens are queried periodically, you are invited to email the project manager records of your own recent specimen depositions, so long as these also include museum numbers.

The more straightforward way to make contributions is to submit photographic (or audio) observations to the iNaturalist Herps of Arkansas project. This citizen science project was established to make it easier for anyone to contribute scientifically useful data. Please note that only

records added to and curated by the Herps of Arkansas project are fed into the AHA; records simply added to iNaturalist, but not included in the project, are not added. At the time of this release, a getting started tutorial was available as one of the project journal posts.

The AHA does not directly accept record submissions of any kind. In particular, anecdotal accounts–whether personal, hearsay, or shared on social media–are not alone sufficient to establish locality point records in the AHA.

## 1.7. Technical Details

All major technology-related aspects of the AHA are built from and supported by open-source software run on Linux Mint.

The core of the project is a Spatialite database, a library extended version of SQLite that offers geospatial functionality. Much of the visualizing, editing, and analysis of AHA data is performed using QGIS, a professional GIS application, including the plugin providers GDAL and SAGA. Additional database support comes from Spatialite GUI and SQLiteStudio.

This public release document was initially designed using Scribus, a desktop publishing application. However, it has now been completely reconstructed in LaTeX, a high-quality typesetting system designed for the production of technical and scientific documentation, using the Komascript "article" class (scrartcl) and following packages: babel, bookmark, booktabs, csquotes, datetime, etoc, fancyhdr, fix-cm, fontspec, geometry, graphicx, hyperref, libertine, ltablex, mdframed, microtype, multicol, natbib with CBE bibliography style, paracol, needspace, siunitx, tabularx, threeparttablex, tikz, titlesec, url, wrapfig, and xcolor. Editing took place primarily within Texstudio, an integrated writing environment for creating LaTeX documents, compiled using the LuaLaTeX engine, and exported in PDF[7]. File size was then reduced using Ghostscript, a high-performance Postscript and PDF interpreter and rendering engine, set with the "ebook" parameter. (Conversion to a web format in CSS/HTML may be possible in the future, but has not been thoroughly explored.) Portions of the document pulled fresh data from the underlying database in a semi-automated way using scripts written in Python 3, an interpreted, high-level, general-purpose programming language, with use of the sqlite3 library.

Auxiliary support includes Geany, a lightweight programmer's text editor; GIMP (GNU Image Manipulation Program); Inkscape, a professional quality vector graphics editor; JabRef, a free reference manager; LibreOffice, a free office suite; Meld, a visual diff and merge tool; and R, a statistical computing and graphics software.

Most of the base map features were acquired from the Arkansas GIS Office repositories: Arkansas Highway and Transportation Department County Boundaries, 2000, for county boundaries; National Hydrography Dataset Flowline Feature, Medium Resolution, for waterways; National Hydrography Dataset Waterbody Feature, Medium Resolution, for waterbodies; U.S. Environmental Protection Agency Ecoregions Level III and IV, 2004, for ecoregions; and U.S. Geological Survey National Elevation Dataset, 1999, for elevation hillshading. Additional features were acquired from the U.S. Census Bureau: TIGER/Line Shapefile, 2015, for state boundaries.

Scientific and common names conform to the Society for the Study of Amphibians and Reptiles checklist: Standard English and Scientific Names of Amphibians and Reptiles, Crother (Commitee Chair) 2017.

A number of resources from surrounding states were instrumental in recent revisions of species ranges: Amphibians & Reptiles of Louisiana (Boundy and Carr, 2017); Atlas of Amphibians in Tennessee (Redmond and Scott, 1996); Atlas of Reptiles in Tennessee (Scott and Redmond, 2019); Herps of Texas, a partial online representation of the Amphibians and Reptiles of Texas (Dixon, 2013); Kansas Herpetofaunal Atlas (Taggart, 2020); Missouri Herpetological Atlas Project (Daniel and Edmond, 2020); and Oklahoma Herpetofaunal Atlas (Sievert and Taggart, 2020), *in development.*

## 1.8. About the Maps

The biodiversity heatmaps were produced by first running the SAGA polygon self-intersection module in QGIS for the respective species ranges. Each resultant polygon was then ranked according to the total number of intersecting

[7] PDF was developed as a propriety format by Adobe, but released as an open standard in 2008.

range polygons and assigned to a graduated style class for graphical representation, with a higher rank set to a darker green and lower rank set to a lighter green. The mode (e.g., quantile, natural breaks, etc.), number of classes, and blur effect were then adjusted until a visually pleasing result was achieved.

The records heatmaps were produced by applying a heatmap style to point localities in QGIS. The radius and color ramp, with higher concentration areas set to a darker green and lower concentration areas set to a lighter green, were adjusted until a visually pleasing result was achieved.

The records per county maps were produced by first calculating the total number of records per county and then applying a graduated style in QGIS, with a greater number of records set to a darker green and a lower number of records set to a lighter green. The mode (e.g., quantile, natural breaks, etc.) and number of classes were then adjusted until a visually pleasing result was achieved.

Species dot locality maps display solid circles (●) for museum vouchered records. Open symbols represent some other verifiable evidence of occurrence: literature (□), research (△), or audio/photographic observation (○). Additional isolated Trauth et al. (2004) point localities, where the underlying source has not been determined, are symbolized by a dot-filled diamond (◈). Some species have points plotted with added obscurity to protect particularly sensitive localities.

Species ranges were developed by first buffering known point localities to a 10 km radius. Small gaps were then filled in and boundaries smoothed out. Ecoregions, rivers, occurrence evidences from neighboring states, known habitat preferences/limitations, and the like were then given consideration on how these might affect particular species distributions. Given the balancing act between what is known and what is speculative, range designations should be considered hypotheses of broad-scale species distributions. Hashed ranges represent either subspecies/shared species complex occurrence, historical occurrence, or questionable/transplant occurrence.

County dot maps show solid circles (●) for counties with at least one scientifically vouchered record (i.e., a specimen or photographic voucher deposited to a scientific museum collection). Open circles (○) represent counties with no scientifically vouchered records, but with some other verifiable evidence of occurrence.

## 1.9. About the Cover

*Eurycea subfluvicola* (Ouachita Streambed Salamander) was discovered in 2011 and formally described in 2014 (Steffen et al., 2014). It is known to occur only in the Slunger Creek valley of Lake Catherine State Park, Hot Spring County, Arkansas; making it one of the smallest, if not the smallest, known distributions of any North American salamander. It is paedomorphic and has similar appearance to the syntopic *Eurycea multiplicata* complex larvae. However, divergence between these two clades occurred approximately 18 million years ago!

The specimen was photographed on site by Kory G. Roberts, March 25, 2017, with the approval of the Arkansas State Parks and Arkansas Game & Fish Commission. It has been processed using GIMP, applying one of the artistic filters, to convert it into line-art.

## 1.10. Funding

The AHA has thus far received no direct funding of any kind.

Two independent contracts have provided auxiliary financial support to the project: revision of herp species maps for the 2015 Arkansas Wildlife Action Plan, funded by the Arkansas Game & Fish Commission, and a report on the status of amphibians and reptiles in Benton and Washington counties, funded by the Arkansas Natural Heritage Commission.

## 1.11. Acknowledgments

The AHA is a project of amalgamation, so the following is a mere attempt to acknowledge those who have made the most direct and contemporary contributions:

Firstly, I would like to thank Kelly J. Irwin for offering administrative oversight of the project, assistance in data acquisition, review of this manuscript, and help in brainstorming and offering feedback on a variety of issues. I

would also like to thank Brian S. Edmond for sharing his experiences, suggestions, and even underlying structure from his work on the Missouri Herpetological Atlas Project, which proved instrumental in developing the initial framework for the AHA; Ronald M. Bonett, Jacquelyn C. Guzy, and J. D. Willson for contributing their respective research/deposition data, along with Donald B. Shepard, who also reviewed the *Plethodon* accounts; T. J. Belford, Jeremy Chamberlain, Luke Pearson, Gerry Salmon, and Scotty A. Winningham for curation of the iNaturalist Herps of Arkansas project; Brian K. Wagner for georeferencing assistance on some referenced cave localities; and Ed Black for reviewing and georeferencing a portion of data.

The following institution curators and representatives offered direct correspondence and, in many cases, submitted their collection data for installment in the AHA (ordered by institution collection code): David Dickey (AMNH), Cindy Osborne and Scotty A. Winningham (ANHC), Ned Gilmore (ANSP), A. Floyd Scott (APSU), Lorin A. Neuman-Lee and Stanley E. Trauth (ASUMZ), Chris Kellner (ATU), Amber King (CHAS), Kelly M. Cassidy (CRCM), Stanlee Miller (CUSC), Travis W. Taggart (FHSM), Alan Resetar (FMNH), Renn Tumlison (HSU), Mike Plummer (HUHC), Laurence M. Hardy (LSUS), James C. Solomon (MBG[8]), Robert L. Jones (MMNS), Nancy A. Reichert (MS), Enrique Santoyo-Brito (OSUCOV), Matthew B. Connior (SAU), Dustin Siegel (SEMSU[9]), Heather L Prestridge (TCWC), Nancy G. McCartney (UAFMC), Matthew E. Gifford (UALR), Glenn J. Manning (UAMN), Gregory Schneider (UMMZ), Carl J. Franklin (UTA), Joel Babitzke and Flavius Killebrew (WTSU), Paul Stone (UCO[10]), Susan Hochgraf (UCONN[11]), and Stephen P. Mackessy (UNC[12]).

Additional data sets were obtained through a variety of biodata portals: Atlas of Living Australia (ALA), Arctos: Collection Management Information System (Arctos), Consortium of Small Vertebrate Collections (CSVColl), Global Biodiversity Information Facility (GBIF), Global Registry of Biodiversity Repositories (GRBio; see GBIF), Global Registry of Scientific Collections (GRSciColl; see GBIF), Integrated Digitized Biocollections (iDigBio), and VertNet (formerly HerpNet).

[8]Missouri Botanical Garden, St. Louis, MO

[9]Southeast Missouri State University, Cape Girardeau, MO

[10]University of Central Oklahoma, Museum of Vertebrates, Edmond, OK

[11]University of Connecticut, Biodiversity Research Collections, Storrs, CT

[12]University of Northern Colorado, Greeley, CO

## 1.12. References

Data sources are listed in Appendix D. The Acknowledgments and Technical Details sections also list important resources, many of which link directly to source websites. Contact the project manager should you wish to inquire about additional primary sources maintained in the underlying AHA project, but not specifically cited in this document.

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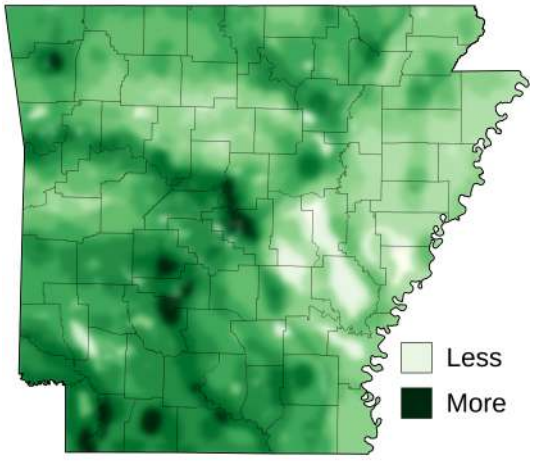
# 2. Combined Overview

All herpetofauna groups combined are represented in Arkansas by 126 species from 63 genera across 29 families. The AHA contains a total of 86,239 records from 134 sources: 73,824 museum, 319 literature, 242 research, and 8,326 observation, with 3,527 additional Trauth et al. (2004) locality points remaining unsourced. Years of collection range from 1853 to *present*.

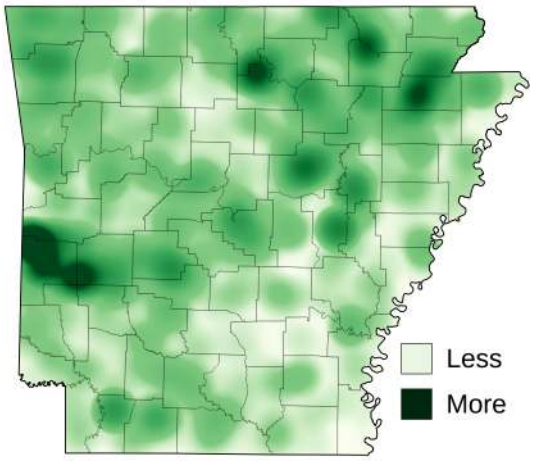
Of the total species having recognized established occurrence in Arkansas, 124 are native and 2 introduced, with an additional 39 species identified as having potential occurrence. The species with the greatest number of records is *Desmognathus brimleyorum* with 8,611 total, or about 10% of all, records. Species with 3 or fewer total records include: *Anolis sagrei* (x3), *Pantherophis slowinskii* (x3), *Plethodon kisatchie* (x2), *Lithobates blairi* (x2), *Plestiodon obsoletus* (x2), *Tropidoclonion lineatum* (x2), *Incilius nebulifer* (x1), *Terrapene carolina* (x1), *Tarentola mauritanica* (x1), and *Pituophis catenifer sayi* (x1). Nine species have been newly documented since 2000: *Anolis sagrei* (2002), *Desmognathus monticola* (2003), *Pseudacris maculata* (2008), *Pituophis catenifer sayi* (2008), *Eurycea subfluvicola* (2013), *Hyla squirella* (2013), *Tropidoclonion lineatum* (2013), *Terrapene carolina* (2016), and *Tarentola mauritanica* (2019). The earliest dated records are from 1853: a *Lampropeltis gentilis/triangulum* complex (MCZ R-803) and 2 *Crotaphytus collaris* (AMNH-REP 9150-9151). The latest dated record to officially make it into this public release was from December 26, 2019 at 3:41 PM CST: a basking *Trachemys scripta elegans* (iNat 36978967).


| | | |
|---|---|---|
| 3 | **Caudata (Salamanders)** | **14** |
| 4 | **Anura (Frogs)** | **42** |
| 5 | **Crocodilia (Alligator)** | **66** |
| 6 | **Testudines (Turtles)** | **68** |
| 7 | **Squamata (Lizards)** | **85** |
| 8 | **Squamata (Snakes)** | **98** |
| 9 | **Introduced Species** | **136** |
| 10 | **Potential Species** | **139** |

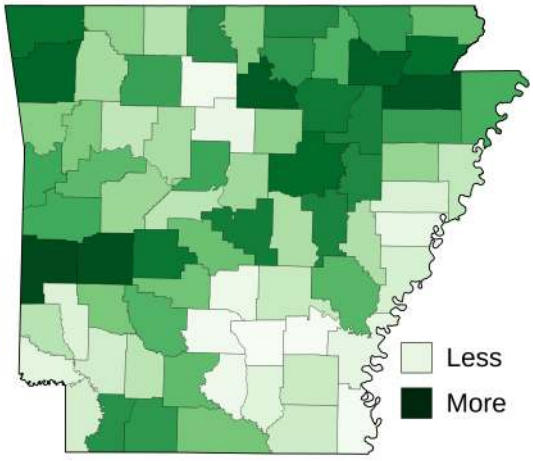

**Biodiversity Heatmap**




**Records Heatmap**




**Records per County Choropleth**

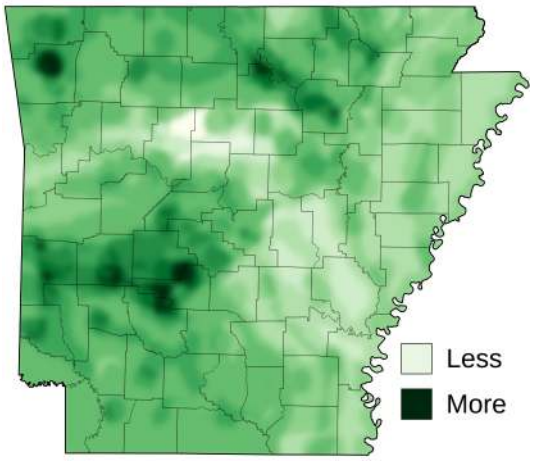


# 3. Caudata (Salamanders)

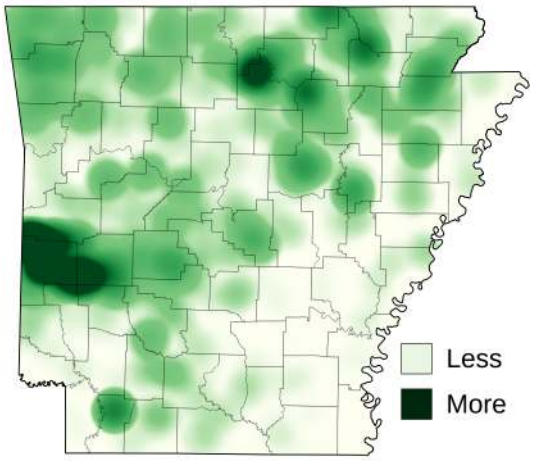
The taxonomic group Caudata (Salamanders) is represented in Arkansas by 31 species from 10 genera across 7 families. The AHA contains a total of 33,452 salamander records from 93 sources: 31,242 museum, 94 literature, 214 research, and 1,479 observation, with 423 additional Trauth et al. (2004) locality points remaining unsourced. Years of collection range from 1855 to *present*.


**3.1 Ambystomatidae (Mole Salamanders)**
*Ambystoma annulatum* . . . . . 15
*Ambystoma maculatum* . . . . . 16
*Ambystoma opacum* . . . . . 17
*Ambystoma talpoideum* . . . . . 18
*Ambystoma texanum* . . . . . 19
*Ambystoma tigrinum* . . . . . 20
**3.2 Amphiumidae (Amphiumas)**
*Amphiuma tridactylum* . . . . . 21
**3.3 Cryptobranchidae (Hellbenders)**
*Cryptobranchus bishopi* . . . . . 22
**3.4 Plethodontidae (Lungless Salamanders)**
*Desmognathus brimleyorum* . . . . . 23
*Desmognathus conanti* . . . . . 24
*Eurycea braggi - E. nerea - E. spelaea* . . . . . 25
*Eurycea lucifuga* . . . . . 26
*Eurycea melanopleura* . . . . . 27
*Eurycea multiplicata* . . . . . 28
*Eurycea paludicola* . . . . . 29
*Eurycea subfluvicola* . . . . . 30
*Eurycea tynerensis* . . . . . 31
*Hemidactylium scutatum* . . . . . 32
*Plethodon albagula - P. kiamichi - P. kisatchie* . . . . . 33
*Plethodon angusticlavius* . . . . . 34
*Plethodon caddoensis* . . . . . 35
*Plethodon fourchensis* . . . . . 36
*Plethodon ouachitae* . . . . . 37
*Plethodon serratus* . . . . . 38
**3.5 Proteidae (Mudpuppies and Waterdogs)**
*Necturus maculosus* . . . . . 39
**3.6 Salamandridae (Newts)**
*Notophthalmus viridescens louisianensis* . . . . . 40
**3.7 Sirenidae (Sirens)**
*Siren intermedia nettingi* . . . . . 41

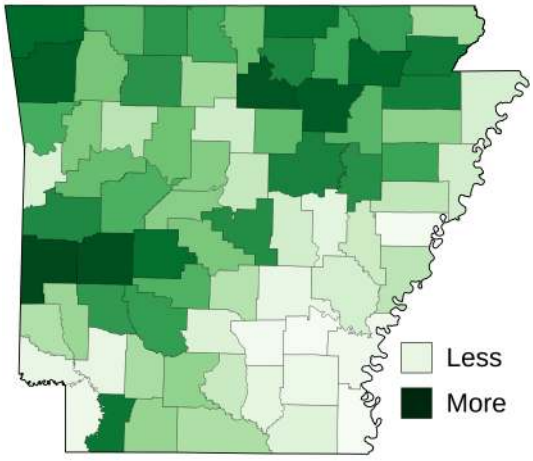

**Biodiversity Heatmap**




**Records Heatmap**

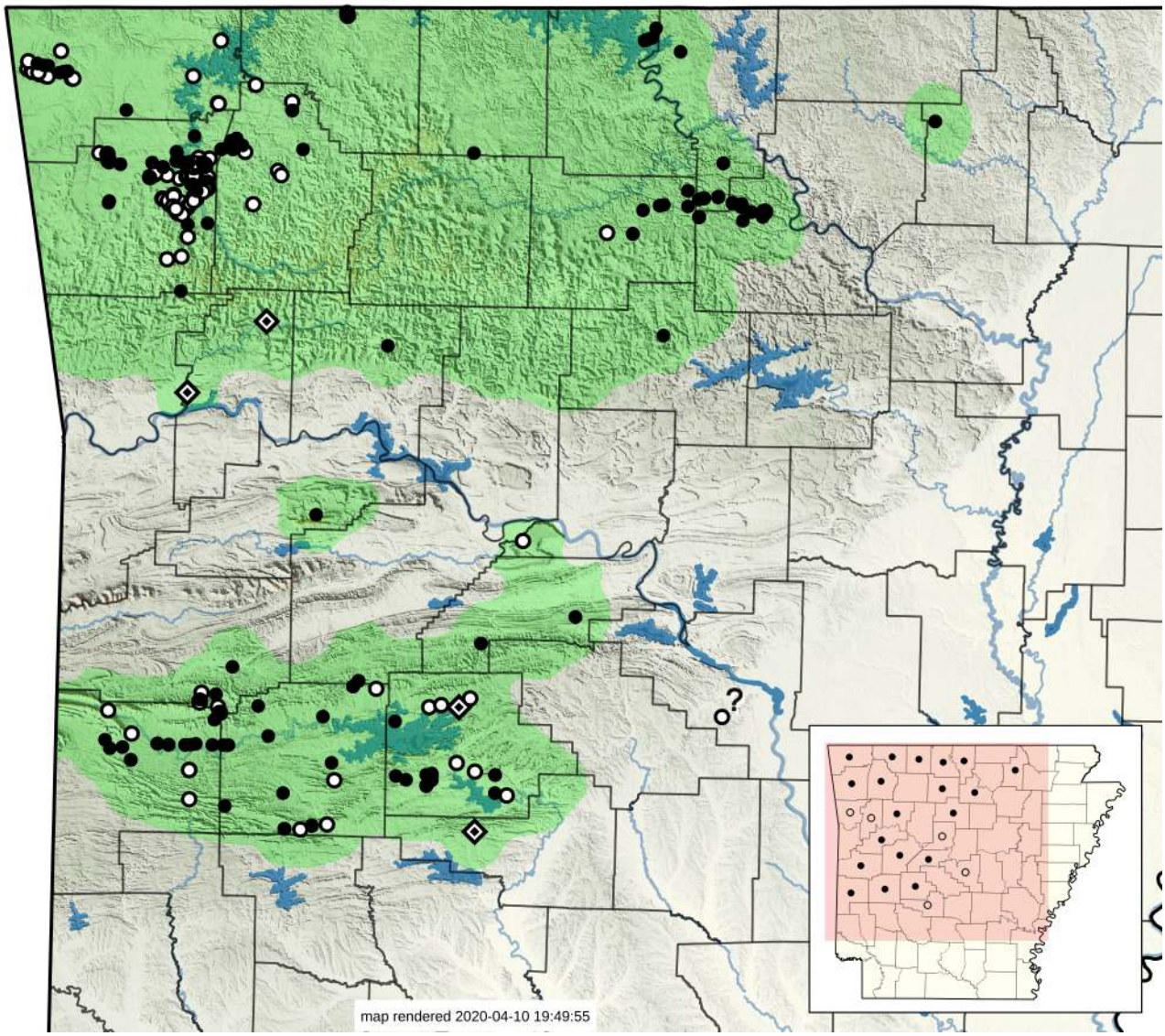



**Records per County Choropleth**



# *Ambystoma annulatum* Cope, 1886

**Ringed Salamander**

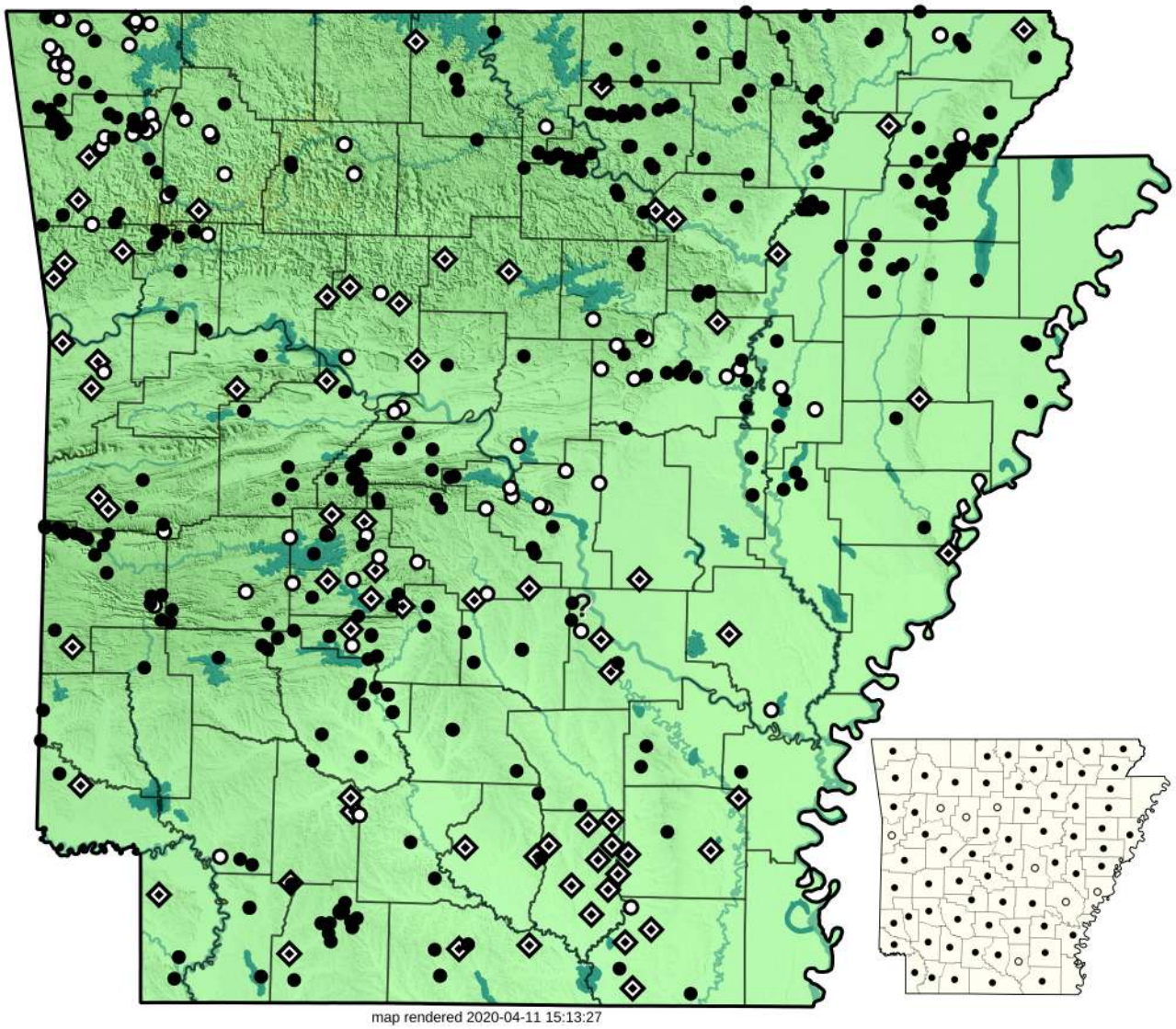



This species is represented by 731 records from 33 sources: 576 museum (●), 0 literature (□), 0 research (△), and 151 observation (○), with 4 additional Trauth et al. (2004) locality points remaining unsourced (◈). It has been museum vouchered for 19 of 75 counties (●), with 5 additional counties having other forms of reported occurrence (○). Years of collection range from 1894 to *present*.

This species occurs throughout portions of the Interior Highlands. In the mountainous regions of the Arkansas Valley, it has been reported from Mount Magazine, Logan County, and Petit Jean Mountain, Conway County, but not from other likely areas (e.g., Poteau Mountain). Relatively large gaps in sampling exist in the Ozark Highlands and range boundaries are not clearly delineated in some areas, particularly the northern and eastern extents in the Ouachita Mountains. An observation record from Pulaski County (ANHC AAAAA01010*042 from 1992) warrants reexamination of the source evidence.

# *Ambystoma maculatum* (Shaw, 1802)

**Spotted Salamander**

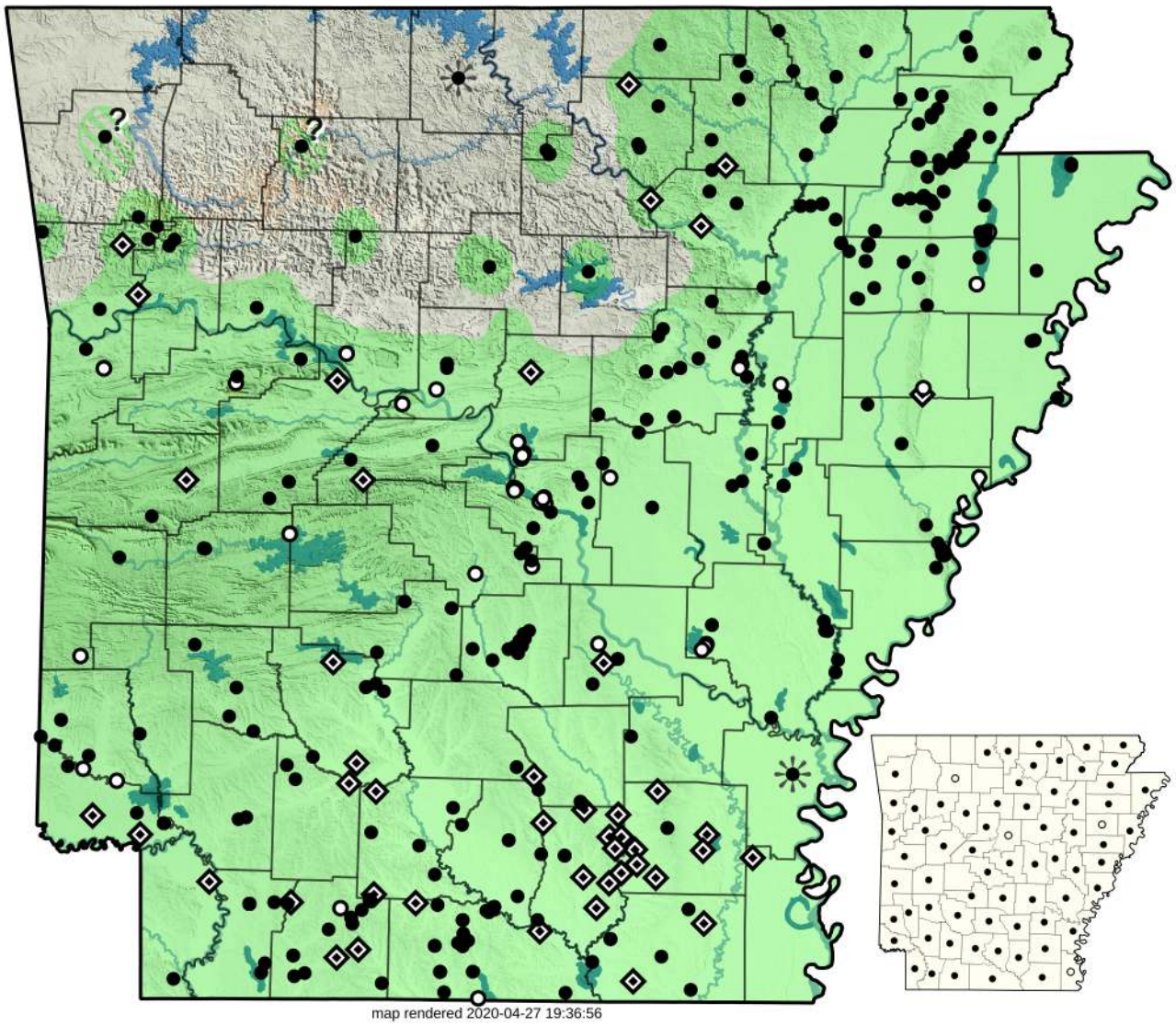



This species is represented by 1,320 records from 32 sources: 1,133 museum (●), 0 literature (□), 0 research (△), and 118 observation (○), with 69 additional Trauth et al. (2004) locality points remaining unsourced (◈). It has been museum vouchered for 63 of 75 counties (●), with 8 additional counties having other forms of reported occurrence (○). Years of collection range from 1898 to *present*.

This species occurs statewide.

# *Ambystoma opacum* (Gravenhorst, 1807)

**Marbled Salamander**

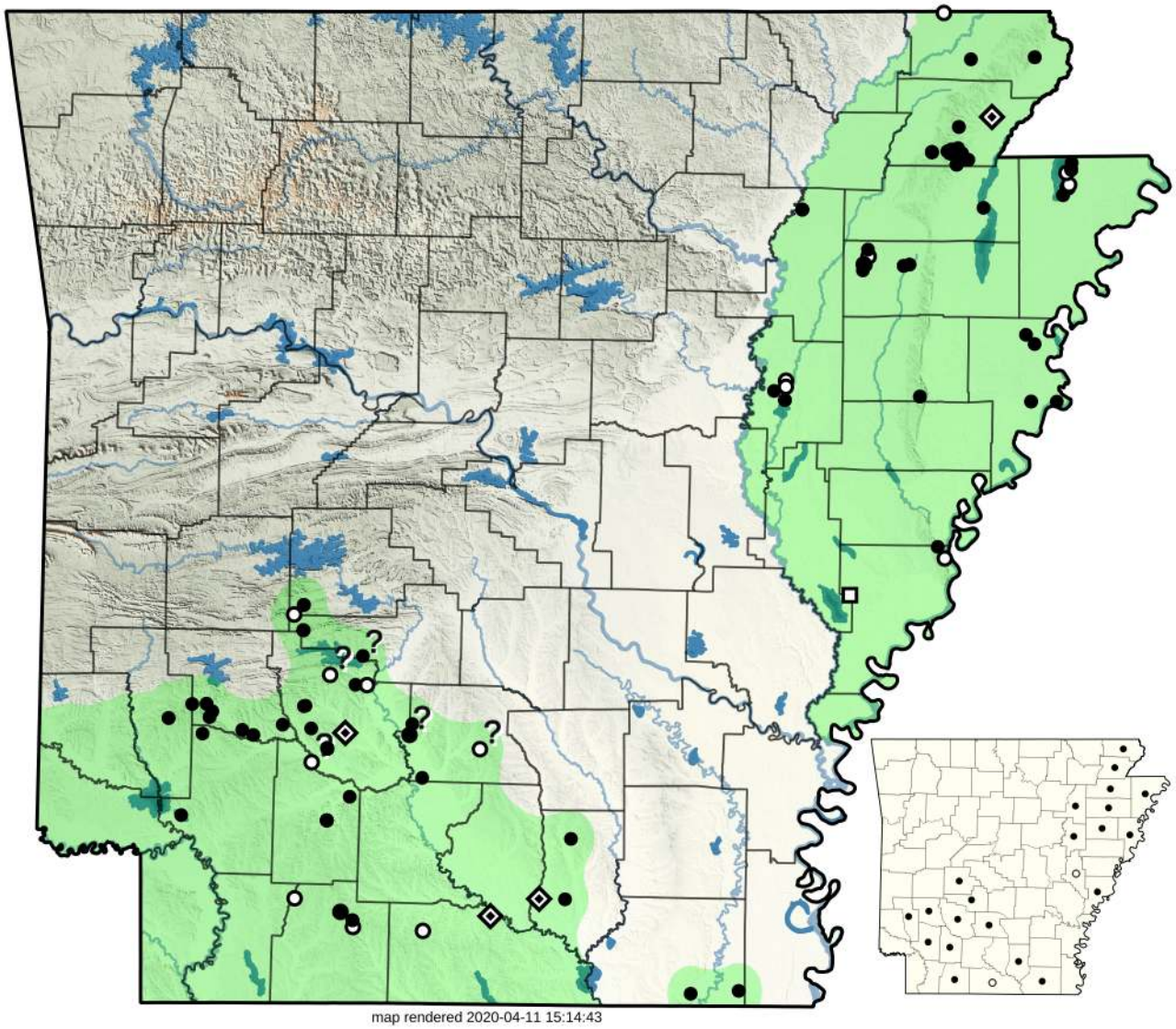



This species is represented by 1,219 records from 32 sources: 1,100 museum (●), 0 literature (□), 0 research (△), and 74 observation (○), with 45 additional Trauth et al. (2004) locality points remaining unsourced (◈). It has been museum vouchered for 65 of 75 counties (●), with 4 additional counties having other forms of reported occurrence (○). Years of collection range from 1897 to *present*.

This species occurs throughout most of the state, but with spotty occurrence in the Ozark Highlands and Boston Mountains. Questionable historical records from northwest Arkansas in Newton and Washington counties (UAFMC 0068-0735-0943 from 1938 and OSUCOV 2232-2233 from 1955) may warrant reexamination. A record from Marion County (ASUMZ 29870 from 2005) provides no specific locality information.

# *Ambystoma talpoideum* (Holbrook, 1838)

**Mole Salamander**

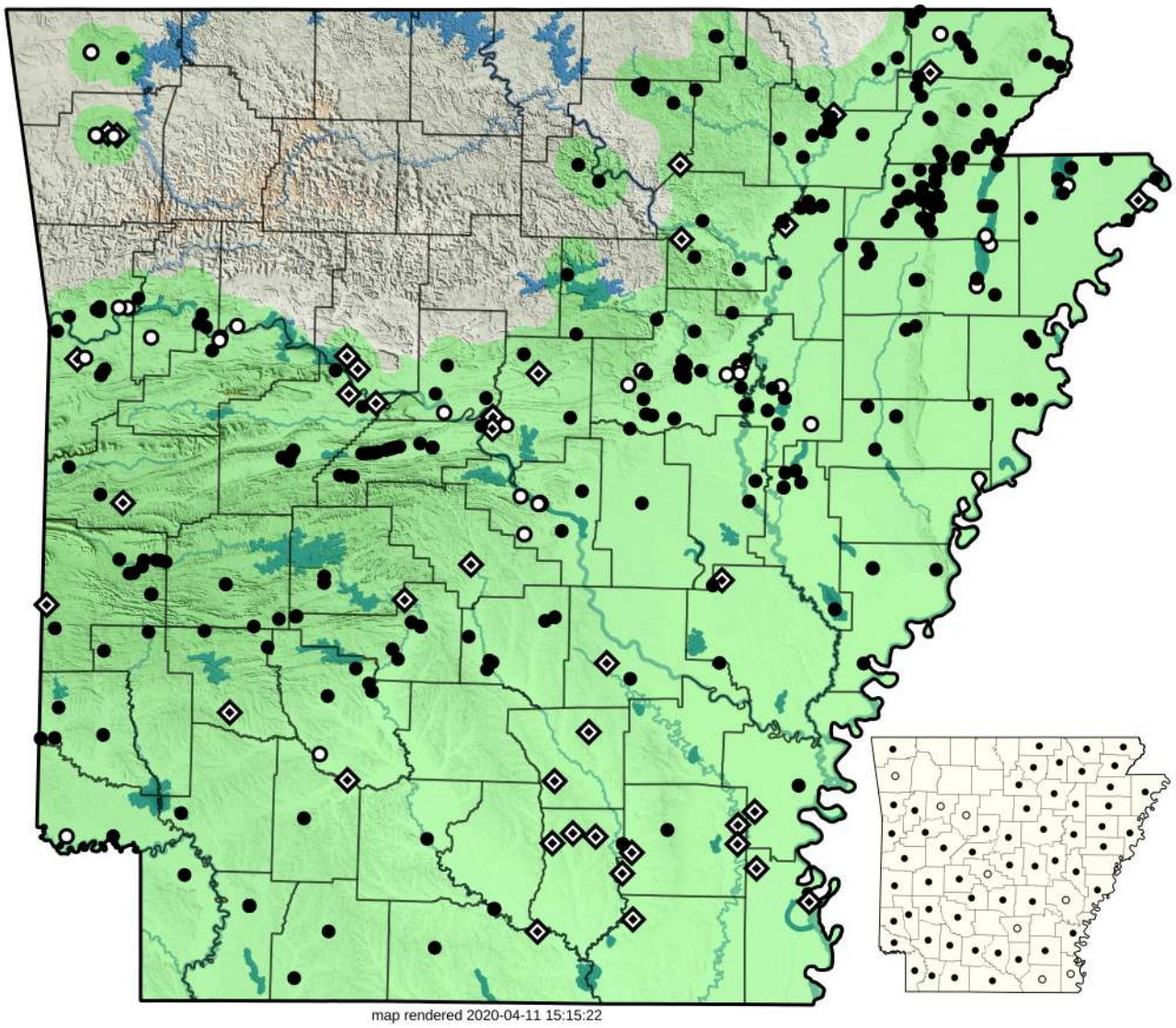



This species is represented by 478 records from 18 sources: 454 museum (●), 1 literature (□), 0 research (△), and 19 observation (○), with 4 additional Trauth et al. (2004) locality points remaining unsourced (◈). It has been museum vouchered for 21 of 75 counties (●), with 2 additional counties having other forms of reported occurrence (○). Years of collection range from 1898 to *present*.

This species has been recorded from lowlands of the South Central Plains west of the Saline River and the Mississippi Alluvial Plain east of the White and Black rivers. Some ascension into lower elevations of the southern Ouachita Mountains occurs along the Caddo River valley. Some records have raised questions due to identifications based on early life stages (eggs and larvae), particularly from the Ouachita Mountains (HSU 1640 from 2012 and ANHC AAAAA01120*003 from 1977) and from the range periphery in Dallas County (ANHC AAAAA01120*002 from 1978).

# *Ambystoma texanum* (Matthes, 1855)

**Small-mouthed Salamander**

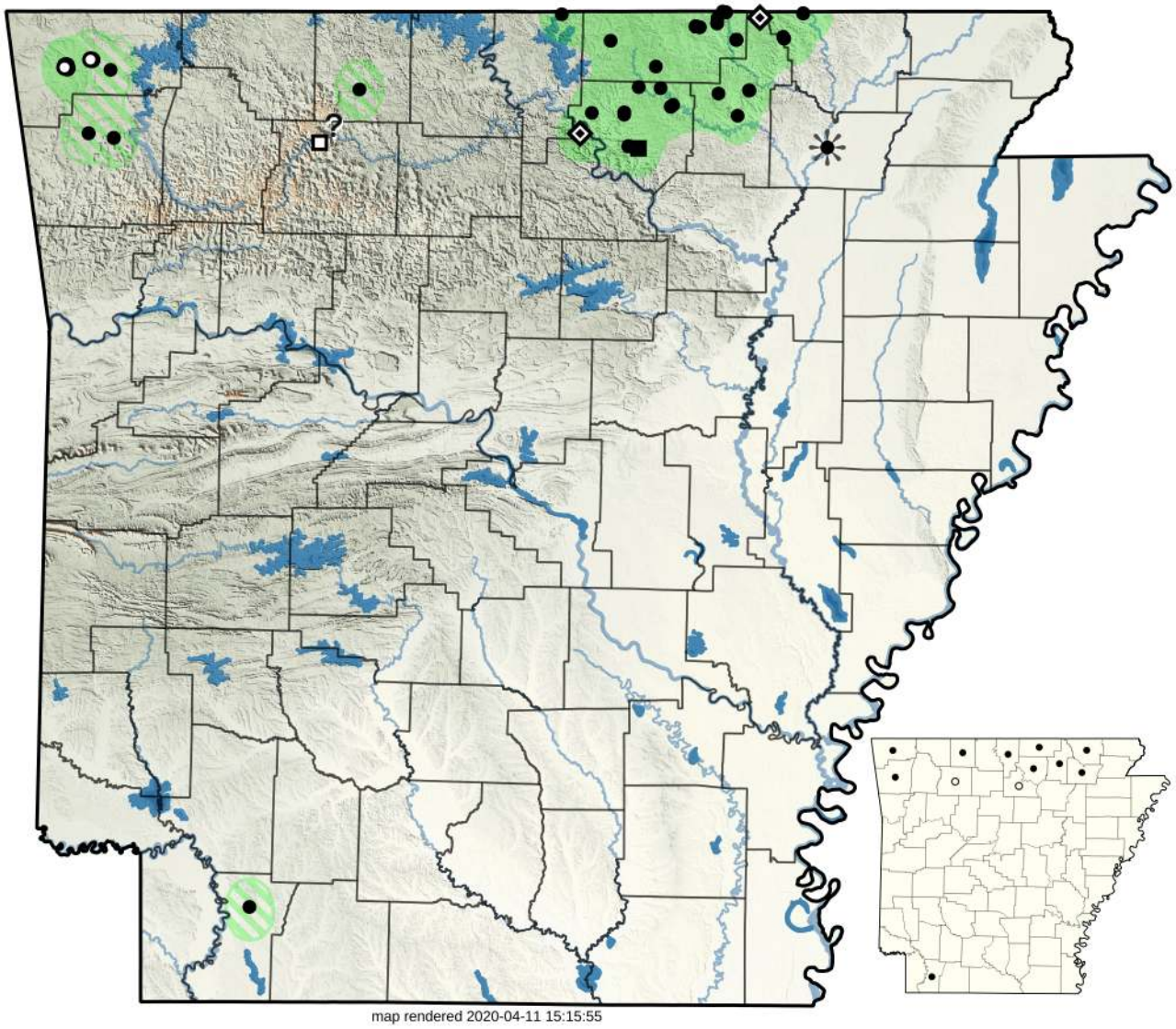



This species is represented by 1,097 records from 25 sources: 1,009 museum (●), 0 literature (□), 0 research (△), and 50 observation (○), with 38 additional Trauth et al. (2004) locality points remaining unsourced (◈). It has been museum vouchered for 56 of 75 counties (●), with 8 additional counties having other forms of reported occurrence (○). Years of collection range from 1898 to *present*.

This species occurs throughout much of the state, but is largely absent from the Ozark Highlands and Boston Mountains, except for isolated localities in the vicinity of Bentonville, Benton County; Fayetteville, Washington County; Mountain View, Stone County; and Fairfield Bay, Cleburne County.

# *Ambystoma tigrinum* (Green, 1825)

**Eastern Tiger Salamander**

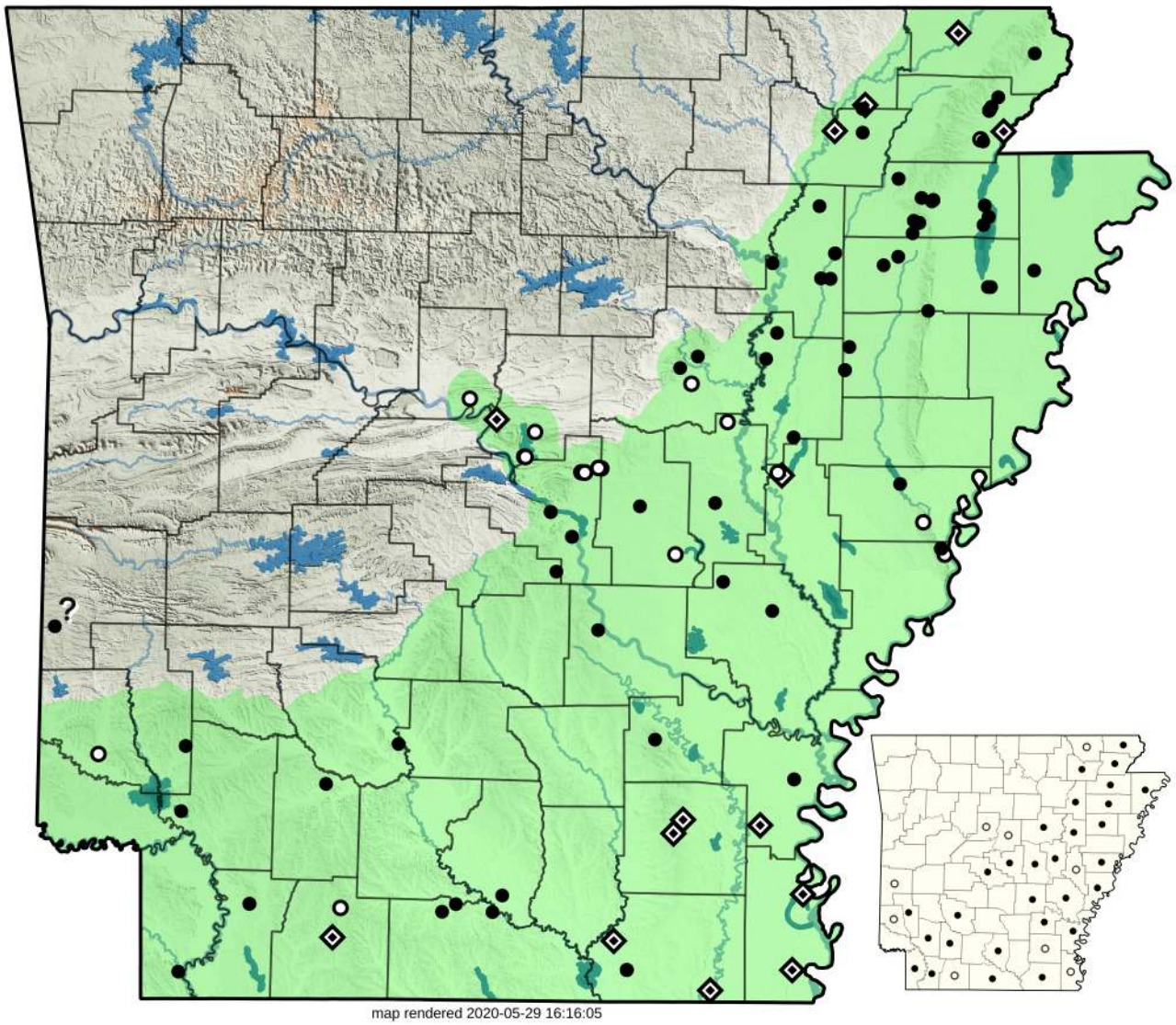



This species is represented by 173 records from 14 sources: 160 museum (●), 2 literature (□), 0 research (△), and 9 observation (○), with 2 additional Trauth et al. (2004) locality points remaining unsourced (◈). It has been museum vouchered for 10 of 75 counties (●), with 2 additional counties having other forms of reported occurrence (○). Years of collection range from 1900 to *present*.

This species occurs primarily in the Springfield Plateau of northcentral Arkansas. A single extant locality is known in northwest Arkansas, with a neighboring locality about 9.6 km away having succumbed to urbanization within the last 10 years (K. G. Roberts, pers. obs.). Extensive surveys in this corner of the state have failed to discover new populations or confirm older historical localities (K G. Roberts, pers. obs.; B. Becker and J. D. Willson, pers. comm.). A historical record from Harrison, Boone County, and a questionable literature/observation record from near Mount Sherman, Newton County (Welbourn and Lindsley, 1979), suggest this species may have occurred more broadly across northern Arkansas at one time. A small number of records traced to the Ozark Biological Laboratory, Imboden, Lawrence County, are likely in reference to the institution source rather than collection site. Evidence of occurrence in the southwest corner of the state comes from a single historical record at Lewisville, Lafayette County, with additional credence from records from neighboring counties in Oklahoma (Sievert and Taggart, 2020) and Texas (Dixon, 2013).

# *Amphiuma tridactylum* Cuvier, 1827

**Three-toed Amphiuma**

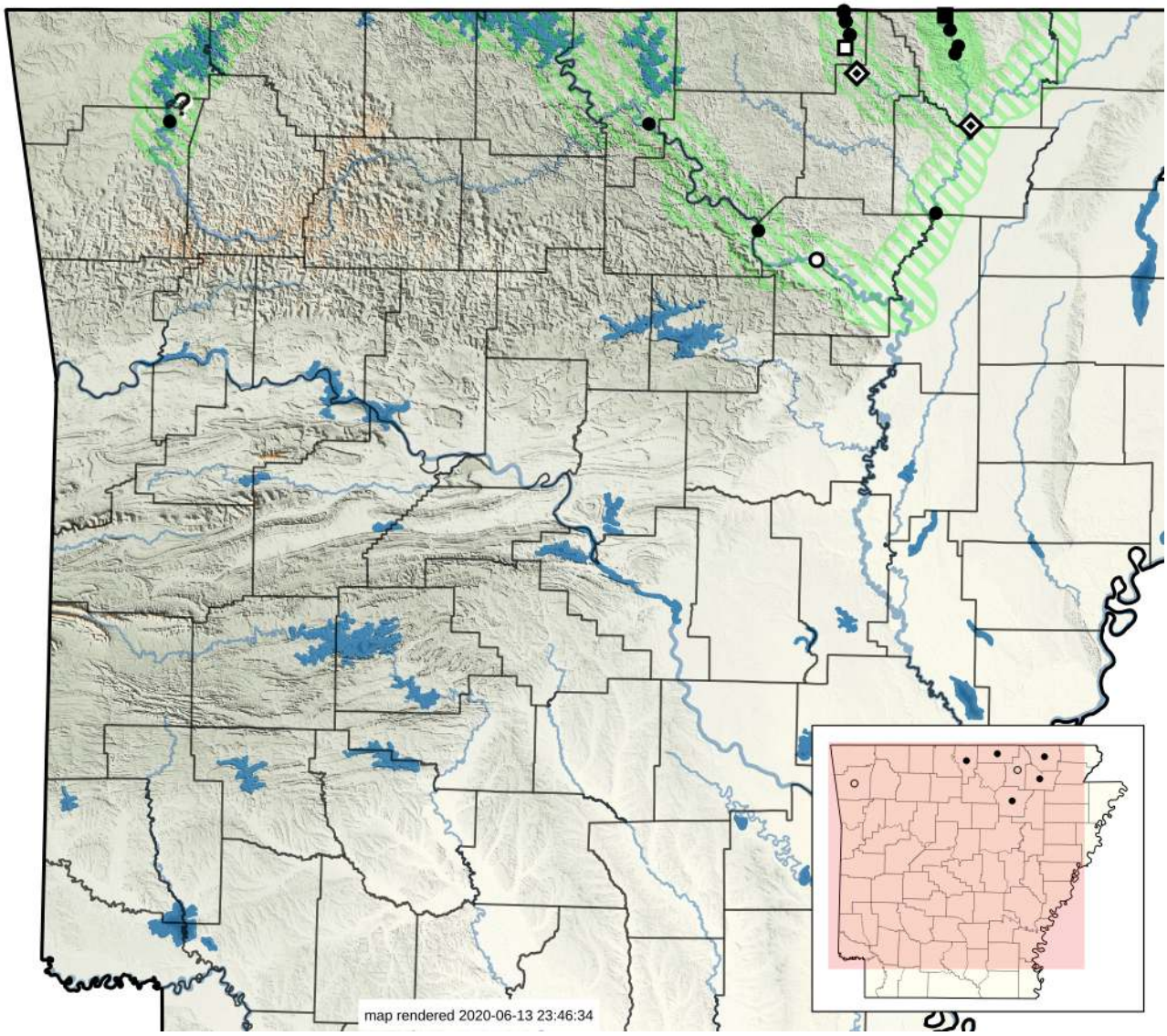



This species is represented by 159 records from 16 sources: 121 museum (●), 0 literature (□), 0 research (△), and 24 observation (○), with 14 additional Trauth et al. (2004) locality points remaining unsourced (◈). It has been museum vouchered for 29 of 75 counties (●), with 9 additional counties having other forms of reported occurrence (○). Years of collection range from 1889 to *present*.

This species occurs throughout the South Central Plains and Mississippi Alluvial Plain, ascending the Arkansas Valley to Morrilton, Conway County. A record from southern Polk County (UAFMC 0068-0735-1708 from 1957) is questionable. A record traced to the Ozark Biological Laboratory, Imboden, Lawrence County (AMNH 36393 from 1930; not shown), is suspected to reference the institution source rather than collection site.

# *Cryptobranchus bishopi* Grobman, 1943

**Ozark Hellbender**

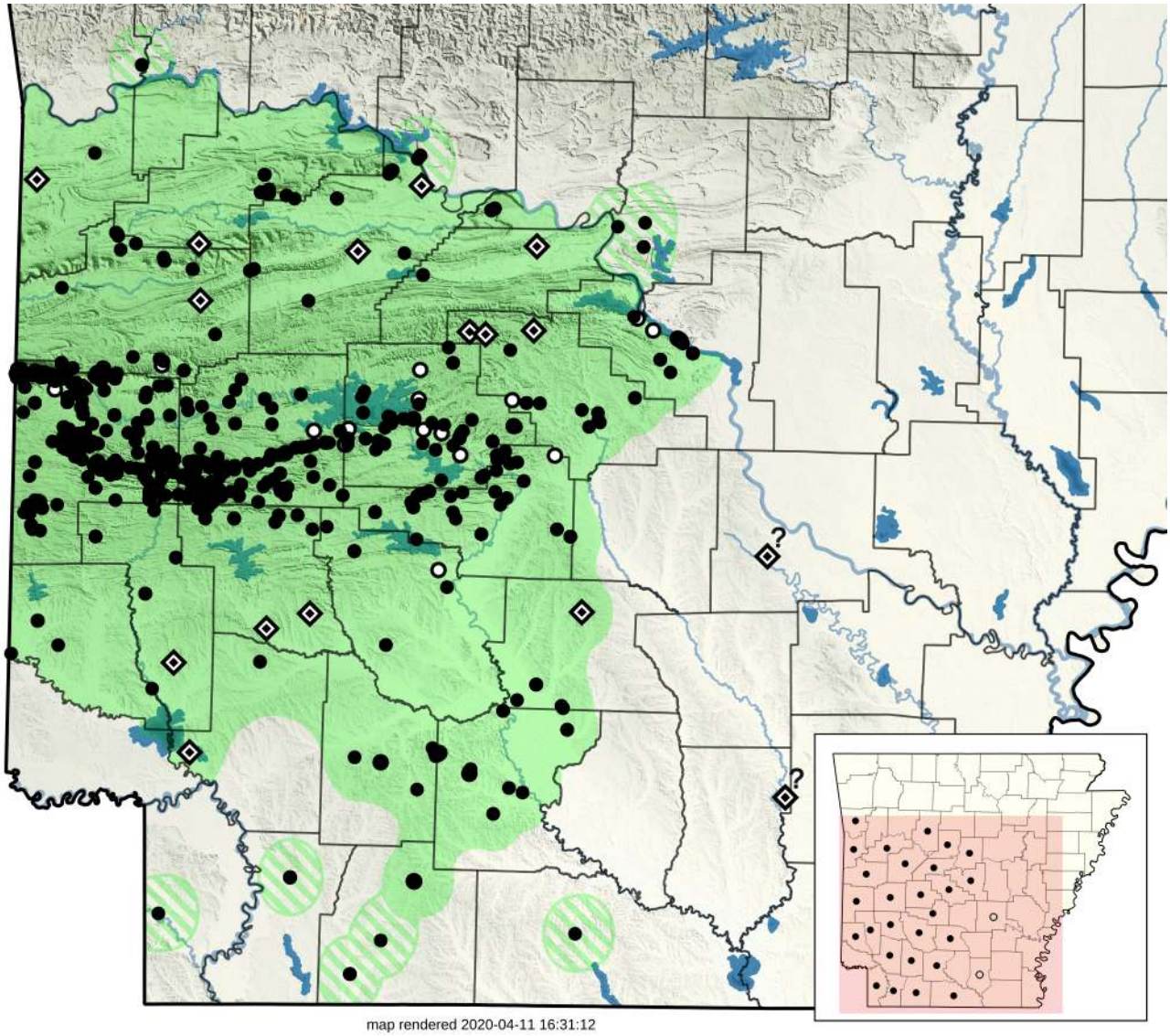



This species is represented by 146 records from 19 sources: 141 museum (●), 2 literature (□), 0 research (△), and 1 observation (○), with 2 additional Trauth et al. (2004) locality points remaining unsourced (◈). It has been museum vouchered for 5 of 75 counties (●), with 2 additional counties having other forms of reported occurrence (○). Years of collection range from 1952 to 2008.

The only remaining viable population known for this species in Arkansas occupies the Eleven Point River, Randolph County. A formerly robust population occupied the upper Spring River, however, the last surveys in 2004-2006 located only 12 individuals and this population is now considered as functionally extirpated (K. J. Irwin, pers. comm.). Additional records are known from the White River between Norfork, Baxter County, and Batesville, Independence County, and from the Black River near the confluence of the Strawberry River. A robust population of more than 1,000 from a 1.7 mile stretch of the North Fork River in Missouri was reported as recently as 1973 (Peterson et al., 1983). While no records are known from the Current River in Arkansas, this species has been documented as far downstream as Doniphan, Missouri (K. J. Irwin, pers. comm.). A set of questionable records from near Fayetteville, Washington County (UAFMC 0068-0735-1837 from 1955), suggests this species may have historically populated the entire upper White River, before this river system was transformed into a series of large reservoirs.

# *Desmognathus brimleyorum* Stejneger, 1895

**Ouachita Dusky Salamander**

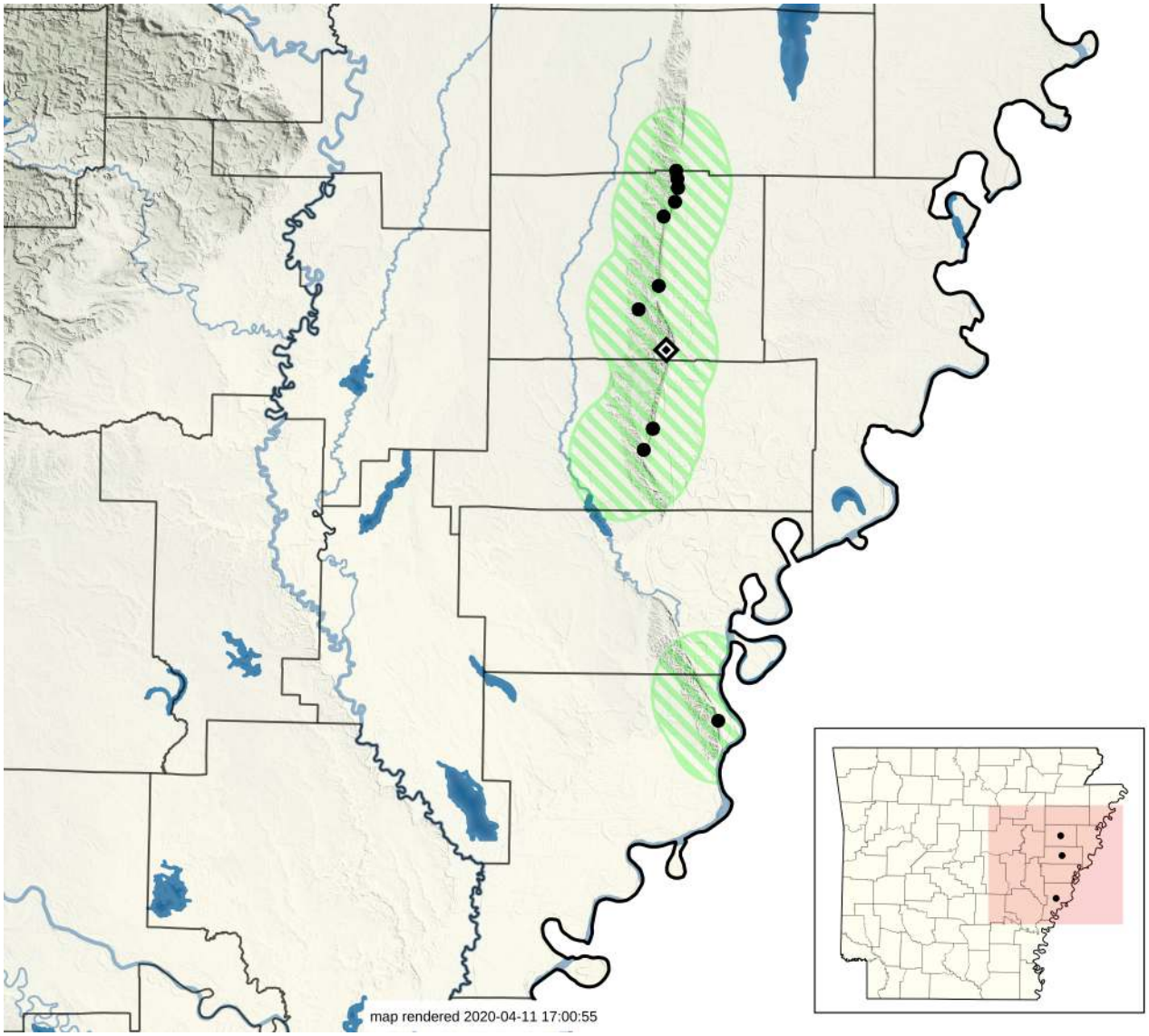



This species is represented by 8,467 records from 50 sources: 8,384 museum (●), 0 literature (□), 0 research (△), and 67 observation (○), with 16 additional Trauth et al. (2004) locality points remaining unsourced (◈). It has been museum vouchered for 27 of 75 counties (●), with 2 additional counties having other forms of reported occurrence (○). Years of collection range from 1875 to *present*.

This species occurs south of the Arkansas River and is particularly abundant in Ouachita Mountain streams. It descends into the South Central Plains, where it can be found in and along sandy soil springs and spring runs. There are a few questionable historical records from north of the Arkansas River: Mulberry, Crawford County (KU 4601-4604 from 1926); southwest of Russellville, Pope County (AMNH 60759-60762 from 1956 and FLMNH 167887 from 1974); and vicinity of Conway, Faulkner County (ASNHC 5750-5753 from 1965). No *Desmognathus* have been documented south of Magnolia, Columbia County, since 1972, with neighboring ranges from Texas and Louisiana currently attributed as *D. conanti* (Boundy and Carr, 2017; Dixon, 2013; Powell et al., 2016). The southern and western boundaries in the South Central Plains are not well established. Two isolated localities plotted by Trauth et al. (2004) near Pine Bluff, Jefferson County, and Warren, Bradley County, remain unsourced.

# *Desmognathus conanti* Rossman, 1958

**Spotted Dusky Salamander**



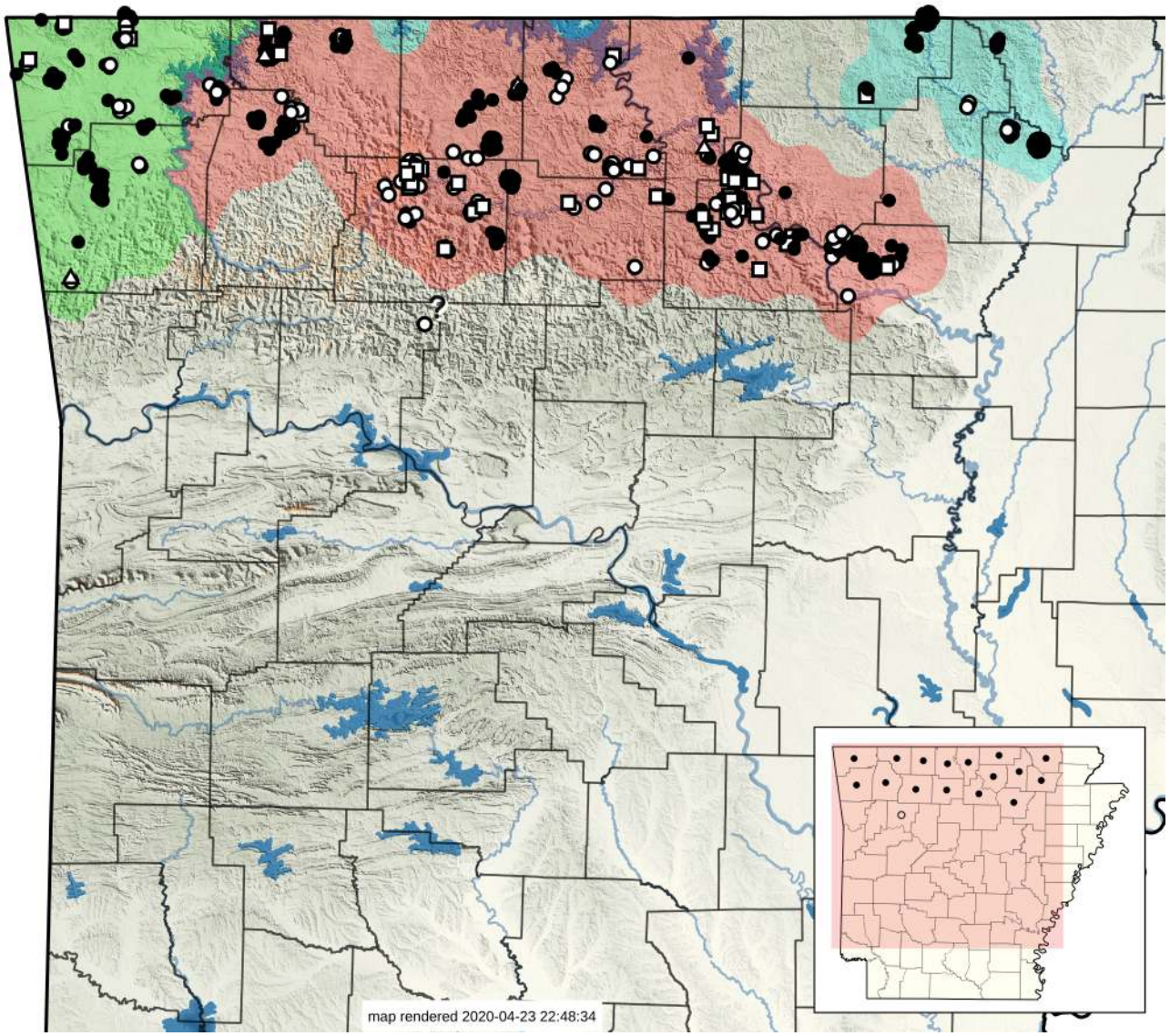

This species is represented by 286 records from 7 sources: 285 museum (●), 0 literature (□), 0 research (△), and 0 observation (○), with 1 additional Trauth et al. (2004) locality point remaining unsourced (◈). It has been museum vouchered for 3 of 75 counties (●). Years of collection range from 1937 to 1972.

This species historically occurred along the eastern side of Crowley's Ridge, where very localized populations inhabited springs. It has not been found in Arkansas since 1972 (D. B. Means, pers. comm.), including failed contemporary surveys at almost all of the historical localities in 2014 (K. G. Roberts, D. S. Shepard, et al., pers. obs.), and is presumed extirpated. New techniques for obtaining DNA from formalin-preserved specimens (Einaga et al., 2017) may afford the opportunity to confirm the taxonomic identity of these former populations. Trauth et al. (2004) mapped populations in the South Central Plains as *D. conanti*, however, recent genetic analyses have effectively demonstrated these to be *D. brimleyorum* (K. J. Irwin and D. B. Shepard, pers. comm.). Taxonomic uncertainty still exists for extreme southern Arkansas (see *Desmognathus brimleyorum*), where contemporary specimen samples suitable for genetic analysis are lacking.

# *Eurycea braggi - E. nerea - E. spelaea*

(Smith, 1968) - (Bishop, 1944) - (Stejneger, 1892)

**Grotto Salamander complex**

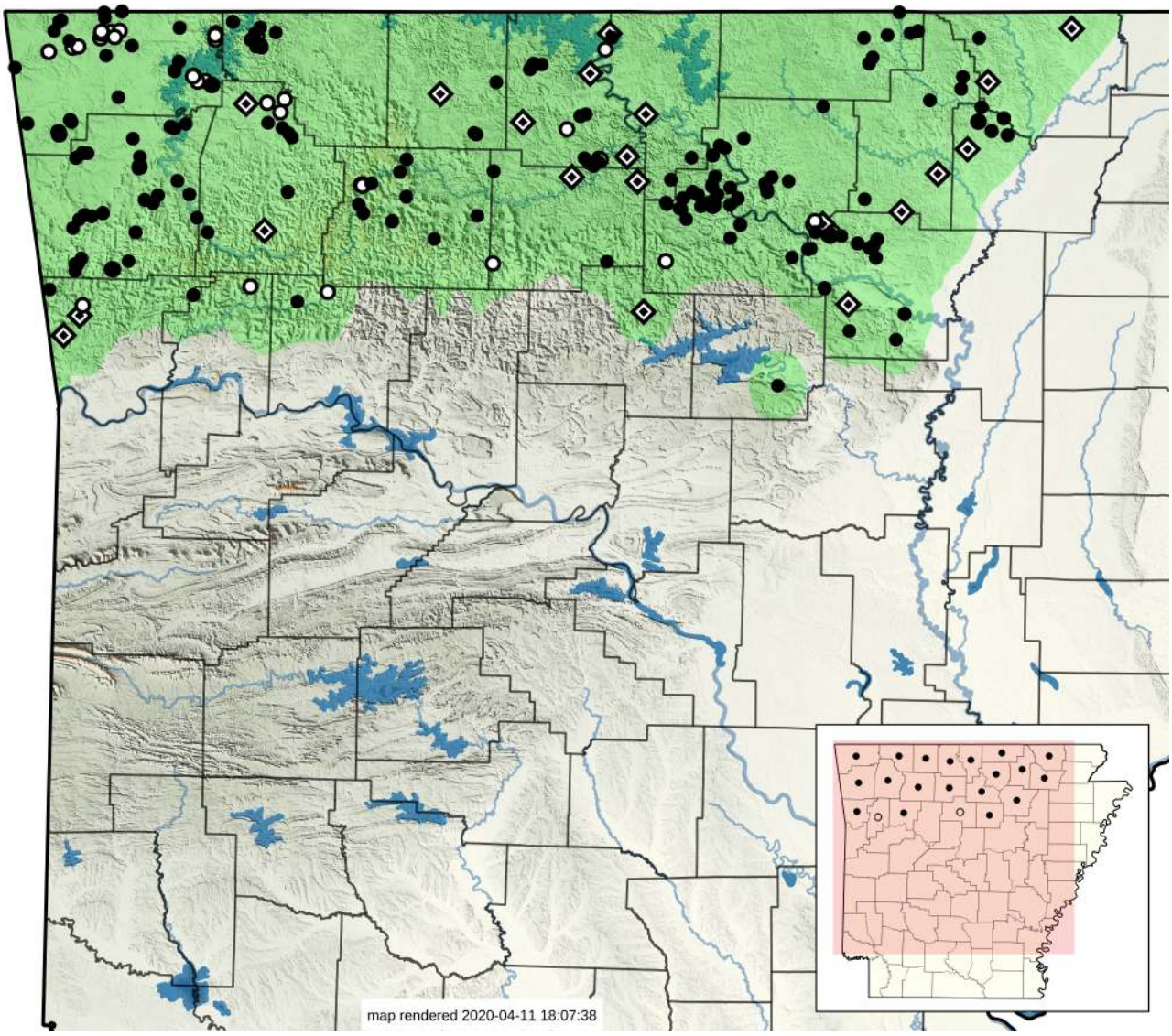



This species complex is represented by 1,114 records from 38 sources: 968 museum (●), 49 literature (□), 4 research (△), and 90 observation (○), with 3 additional Trauth et al. (2004) locality points remaining unsourced (◈). It has been museum vouchered for 16 of 75 counties (●), with 1 additional county having other forms of reported occurrence (○). Years of collection range from 1900 to 2018.

This species complex (Phillips et al., 2017) inhabits karst topographies of the Ozark Highlands and northern portions of the Boston Mountains. While range boundaries are not clearly established, the upper White River may act to divide *E. spelaea* (■) and *E. braggi* (■) in northwest Arkansas. Division of *E. braggi* and *N. nerea* (■) from the Arkansas-Missouri border region is not clearly delimited, although the White River may play some part. A questionable observation record from Johnson County (ANHC AAAAD16010*CVB171 from 2004) is tentatively plotted. There are no known field characters to distinguish between these species.

# *Eurycea lucifuga* Rafinesque, 1822

**Cave Salamander**

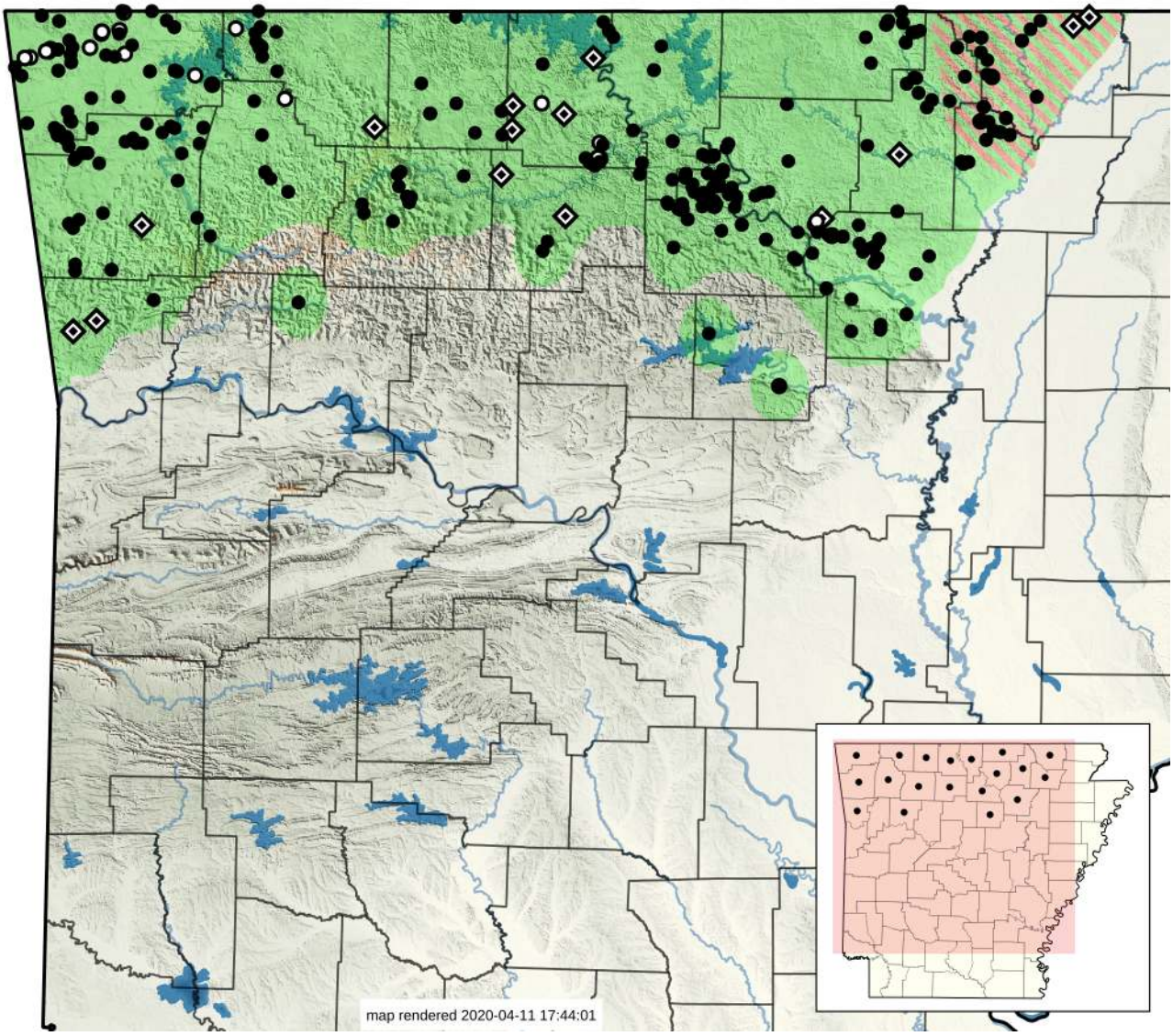



This species is represented by 956 records from 37 sources: 854 museum (●), 0 literature (□), 0 research (△), and 82 observation (○), with 20 additional Trauth et al. (2004) locality points remaining unsourced (◈). It has been museum vouchered for 19 of 75 counties (●), with 2 additional counties having other forms of reported occurrence (○). Years of collection range from 1913 to *present*.

This species inhabits karst topographies of the Ozark Highlands and northern portions of the Boston Mountains. Hybridization with *E. melanopleura* has been detected in genetic studies (R. M. Bonett, pers. comm.).

# *Eurycea melanopleura* (Cope, 1894 "1893")

**Dark-sided Salamander**

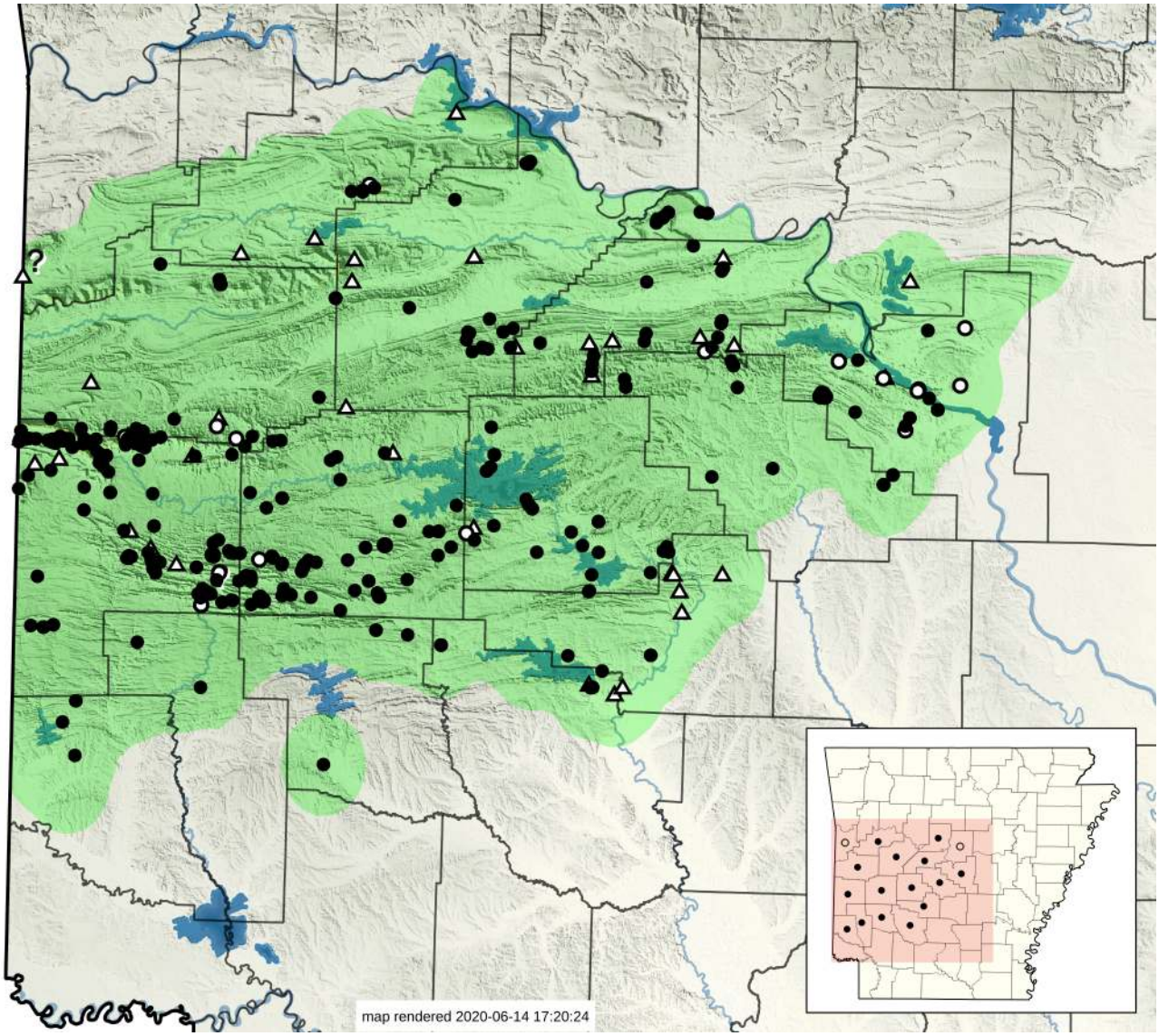



This species is represented by 1,691 records from 39 sources: 1,617 museum (●), 0 literature (□), 0 research (△), and 60 observation (○), with 14 additional Trauth et al. (2004) locality points remaining unsourced (◈). It has been museum vouchered for 19 of 75 counties (●). Years of collection range from 1900 to *present*.

This species inhabits karst topographies of the Ozark Highlands and northern Boston Mountains. The isolated occurrences from the southern margins of the Boston Mountains are questionable. Trauth et al. (2004) illustrated the purported influence of *E. longicauda* (■) in northeast Arkansas. Hybridization with *E. lucifuga* has been detected in genetic studies (R. M. Bonett, pers. comm.).

# *Eurycea multiplicata* (Cope, 1869)

**Many-ribbed Salamander complex**

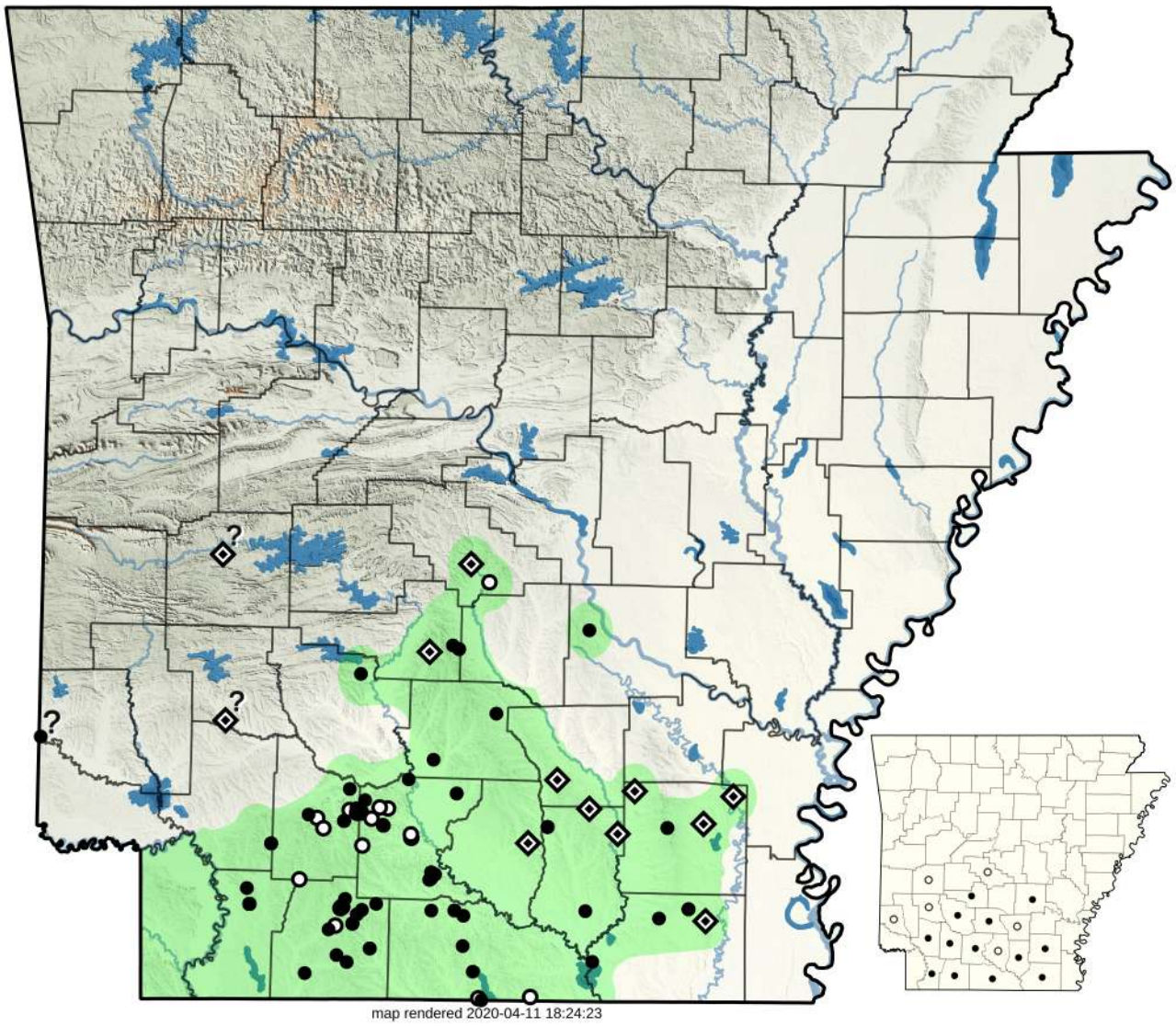



This species complex is represented by 1,013 records from 37 sources: 927 museum (●), 0 literature (□), 37 research (△), and 42 observation (○), with 7 additional Trauth et al. (2004) locality points remaining unsourced (◈). It has been museum vouchered for 15 of 75 counties (●), with 2 additional counties having other forms of reported occurrence (○). Years of collection range from 1900 to *present*.

This species complex occurs throughout the Ouachita Mountains, with some expansion into more mountainous regions of the Arkansas Valley south of the Arkansas River. One locality north of the Arkanasas River in northern Faulkner County, but still an extension of the Ouachita Mountains, has been confirmed by genetic analysis (R. M. Bonett, pers. comm.). It has been found sympatrically with *E. paludicola* in the vicinity of Caddo Valley, Clark County (K. J. Irwin, pers. comm.), so specimens from this area warrant close examination.

# *Eurycea paludicola* (Mittleman, 1947)

**Western Dwarf Salamander**



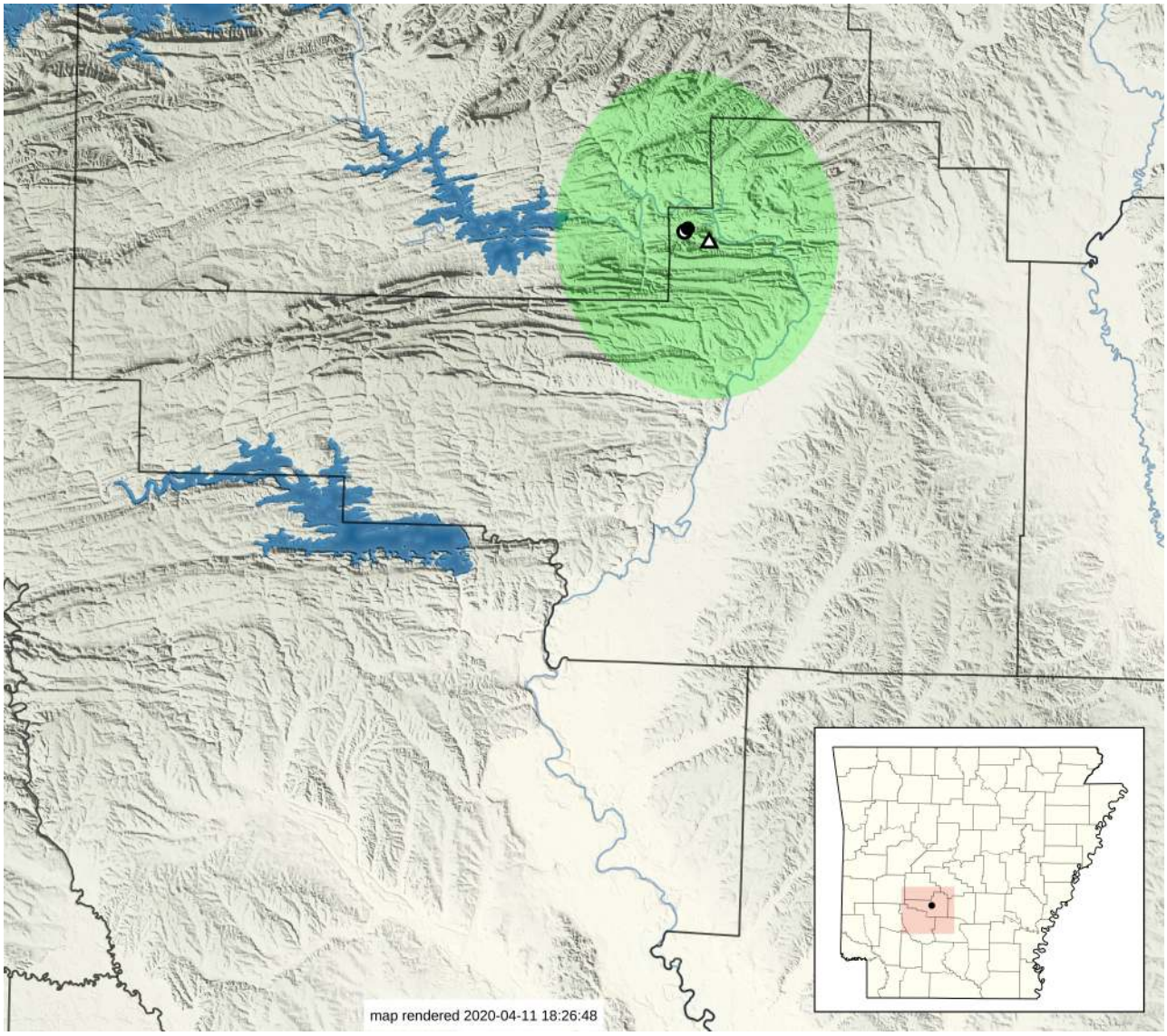

This species is represented by 323 records from 17 sources: 291 museum (●), 0 literature (□), 0 research (△), and 20 observation (○), with 12 additional Trauth et al. (2004) locality points remaining unsourced (◈). It has been museum vouchered for 13 of 75 counties (●), with 6 additional counties having other forms of reported occurrence (○). Years of collection range from 1926 to *present*.

This species occurs in the South Central Plains of southcentral Arkansas. It has been found sympatrically with *E. multiplicata* complex in the vicinity of Caddo Valley, Clark County (K. J. Irwin, pers. comm.), so specimens from this area warrant close examination. A questionable record from southwestern Sevier County (USNM 545607 from 1951) warrants further examination. Trauth et al. (2004) plotted additional localities near Murfreesboro, Pike County, and well into the Ouachita Mountains near Mount Ida, Montgomery County, both of which are likely based on misidentifications but remain unsourced.

# *Eurycea subfluvicola*

Steffen, Irwin, Blair, & Bonett, 2014

**Ouachita Streambed Salamander**

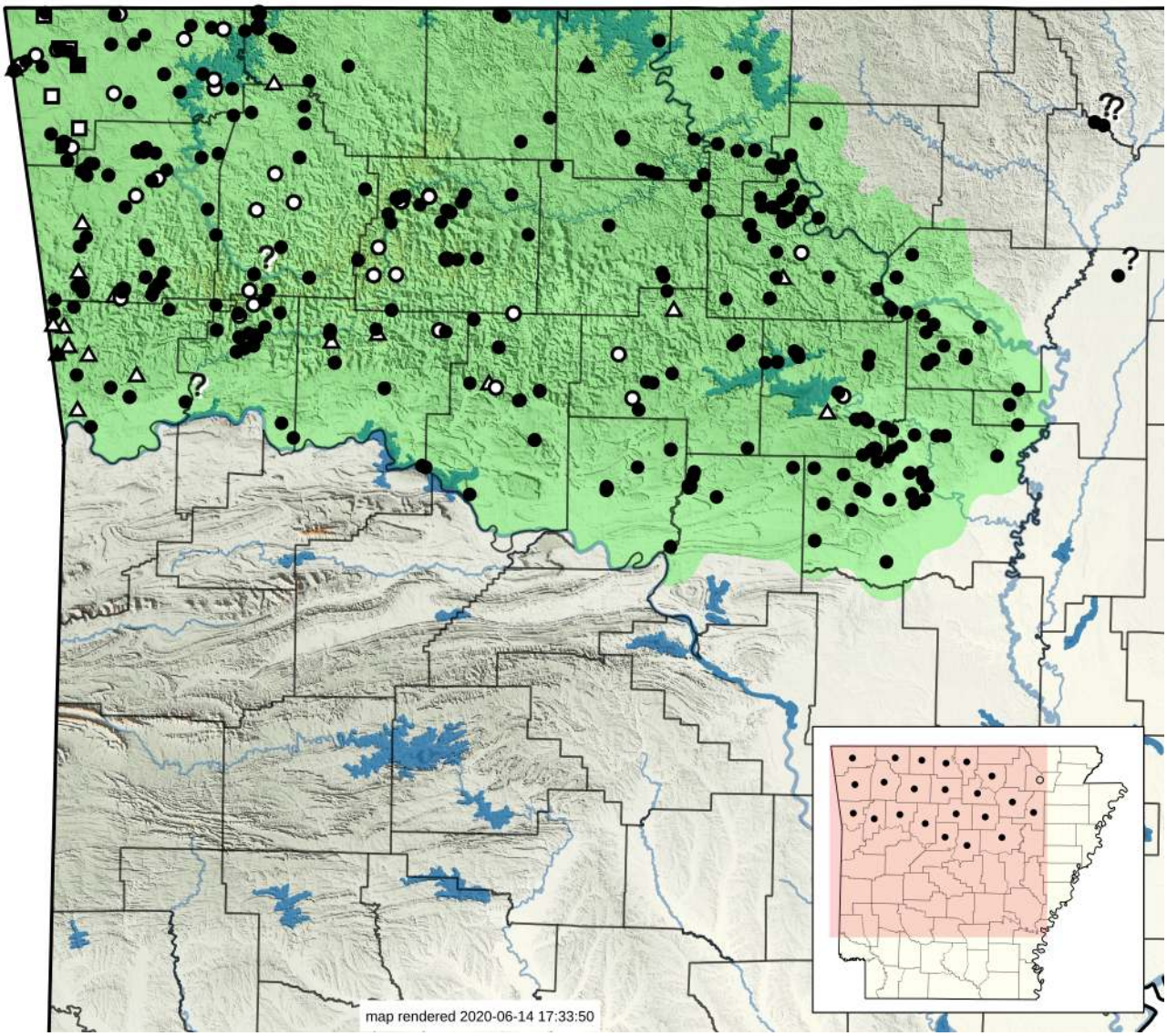



This species is represented by 6 records from 3 sources: 4 museum (●), 0 literature (□), 1 research (△), and 1 observation (○). It has been museum vouchered for 1 of 75 counties (●). Years of collection range from 2013 to 2015.

This newly described species (Steffen et al., 2014) is currently known only from the Slunger Creek valley in Lake Catherine State Park, Hot Spring County. While similar in appearance to the syntopic larval *E. multiplicata* complex, surveys in the surrounding region have thus far failed to uncover additional populations (K. J. Irwin, pers. comm.).

## *Eurycea tynerensis* Moore & Hughes, 1939

**Oklahoma Salamander complex**

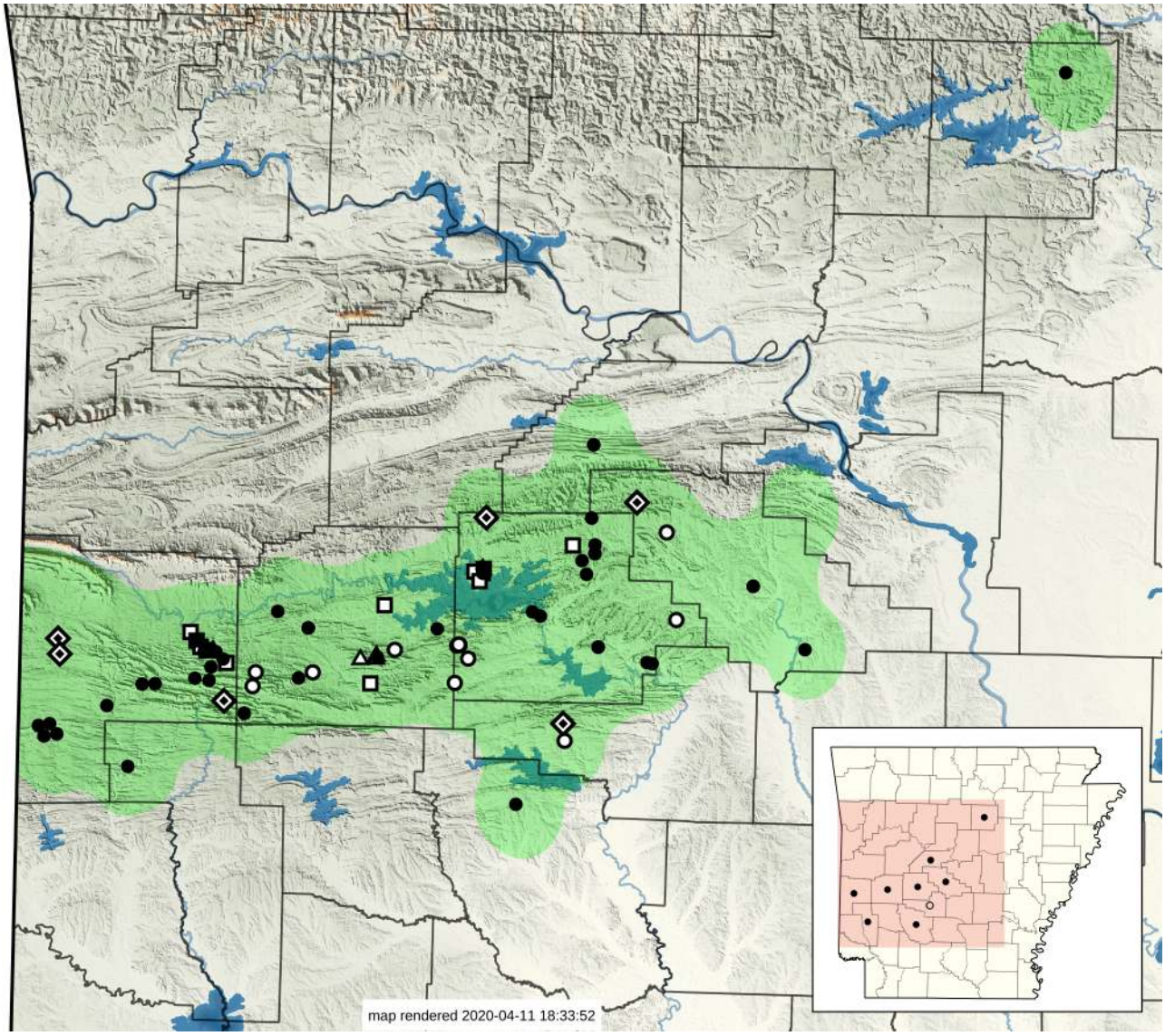



This species complex is represented by 1,268 records from 41 sources: 1,161 museum (●), 7 literature (□), 20 research (△), and 62 observation (○), with 18 additional Trauth et al. (2004) locality points remaining unsourced (◈). It has been museum vouchered for 22 of 75 counties (●), with 1 additional county having other forms of reported occurrence (○). Years of collection range from 1898 to *present*.

This species complex occurs throughout most of the Ozark Highlands, Boston Mountains, and Arkansas Valley north of the Arkansas River. The North Fork and White Rivers may approximate the northeastern range boundary, but further work is needed to examine and confirm identifications for a number of records from east of these rivers. Questionable records come from the vicinity of Swifton, northern Jackson County (ASUMZ 21502 from 1994), and Imboden, Lawrence County (AMNH 16102 from 1922, ASUMZ 10426-10436 from 1988, and FMNH 91035 from 1928).

# *Hemidactylium scutatum* (Temminck & Schlegel in Von Siebold, 1838)

**Four-toed Salamander**

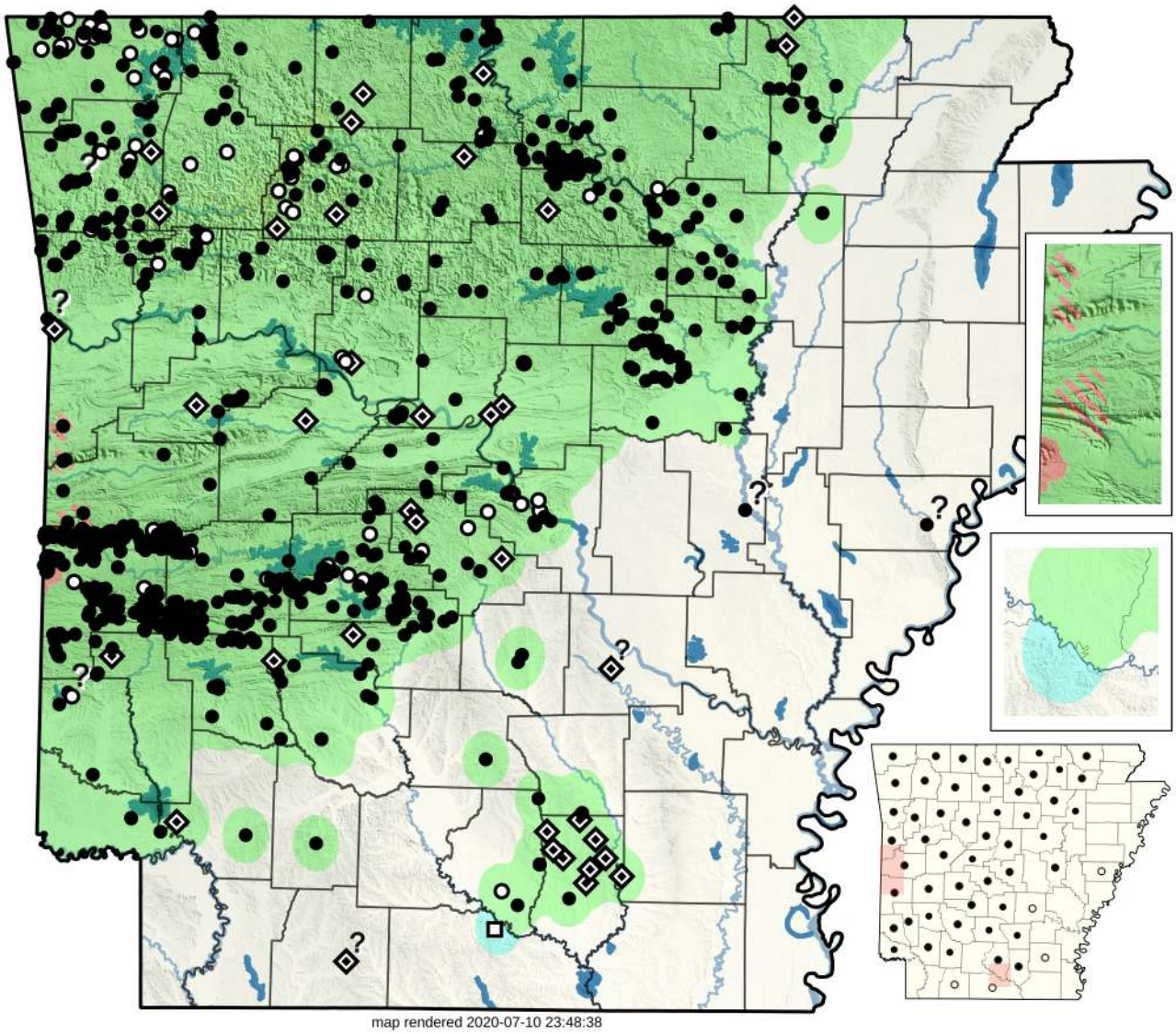



This species is represented by 140 records from 20 sources: 95 museum (●), 14 literature (□), 10 research (△), and 15 observation (○), with 6 additional Trauth et al. (2004) locality points remaining unsourced (◈). It has been museum vouchered for 8 of 75 counties (●), with 1 additional county having other forms of reported occurrence (○). Years of collection range from 1906 to 2018.

This species occurs throughout a large central portion of the Ouachita Mountains. A disjunct population near Wolf Bayou, Cleburne County (ASUMZ 6020 from 1984), hints at perhaps wider isolated occurrences wherever obligate breeding habitats of sphagnum moss are present.

# *Plethodon albagula - P. kiamichi - P. kisatchie* Grobman, 1944 - Highton, 1989 - Highton, 1989

**Slimy Salamander complex**

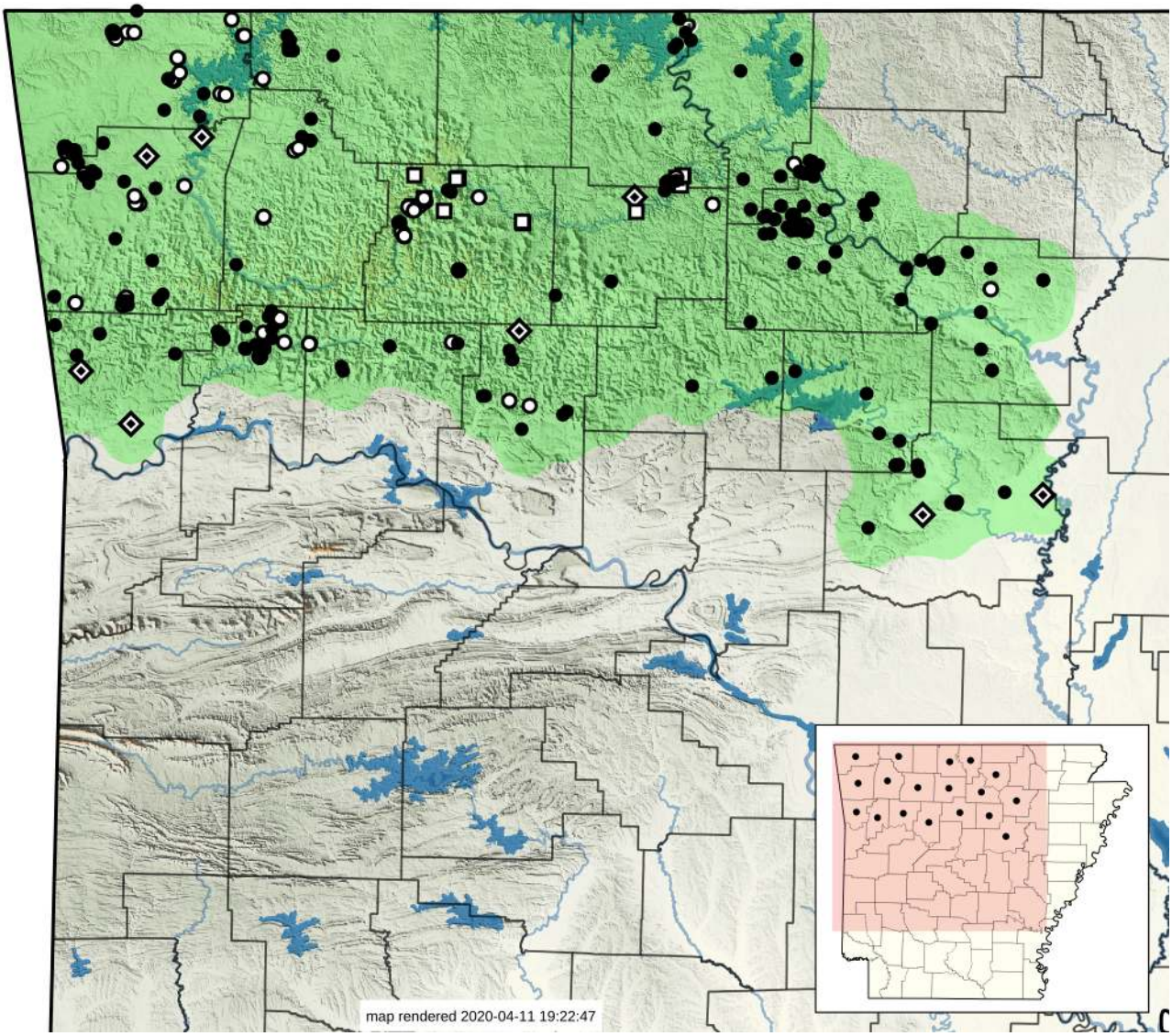



This species complex is represented by 2,970 records from 46 sources: 2,771 museum (●), 1 literature (□), 0 research (△), and 162 observation (○), with 36 additional Trauth et al. (2004) locality points remaining unsourced (◈). It has been museum vouchered for 50 of 75 counties (●), with 5 additional counties having other forms of reported occurrence (○). Years of collection range from 1855 to *present*.

This species complex occurs commonly throughout the Interior Highlands, with additional spotty occurrence in the South Central Plains. Ongoing research continues in an effort to resolve the geographic distributions and taxonomy of this species complex in Arkansas (D. B. Shepard, pers. comm.). As currently ascribed, *P. albagula* (■) ranges most broadly in the state. *Plethodon kiamichi* (■ - inset) occurs on the eastern edge of the Kiamichi Mountain range, Polk County, with spotty, isolated occurrences along the Arkansas-Oklahoma border in the Ouachita Mountains. *Plethodon kisatchie* (■ - inset) occurs west of the Ouachita River in extreme southern Arkansas (Highton et al., 1989), with limited genetic sampling supporting *P. albagula* east of the river (D. B. Shepard, pers. comm.). *Plethodon sequoyah* and an additional undescribed species may occupy portions of the west-southwest corner of the state (D. B. Shepard, pers. comm.). Questionable records from the Mississippi Alluvial Plain (ASUMZ 15822 from 1990 and FMNH 124798-124800, undated) warrant reexamination. Isolated localities plotted by Trauth et al. (2004) near Pine Bluff, Jefferson County, and southeast of Magnolia, Columbia County, remain unsourced. Also see *P. mississippi* and *P. sequoyah*.

# *Plethodon angusticlavius* Grobman, 1944

**Ozark Zigzag Salamander**

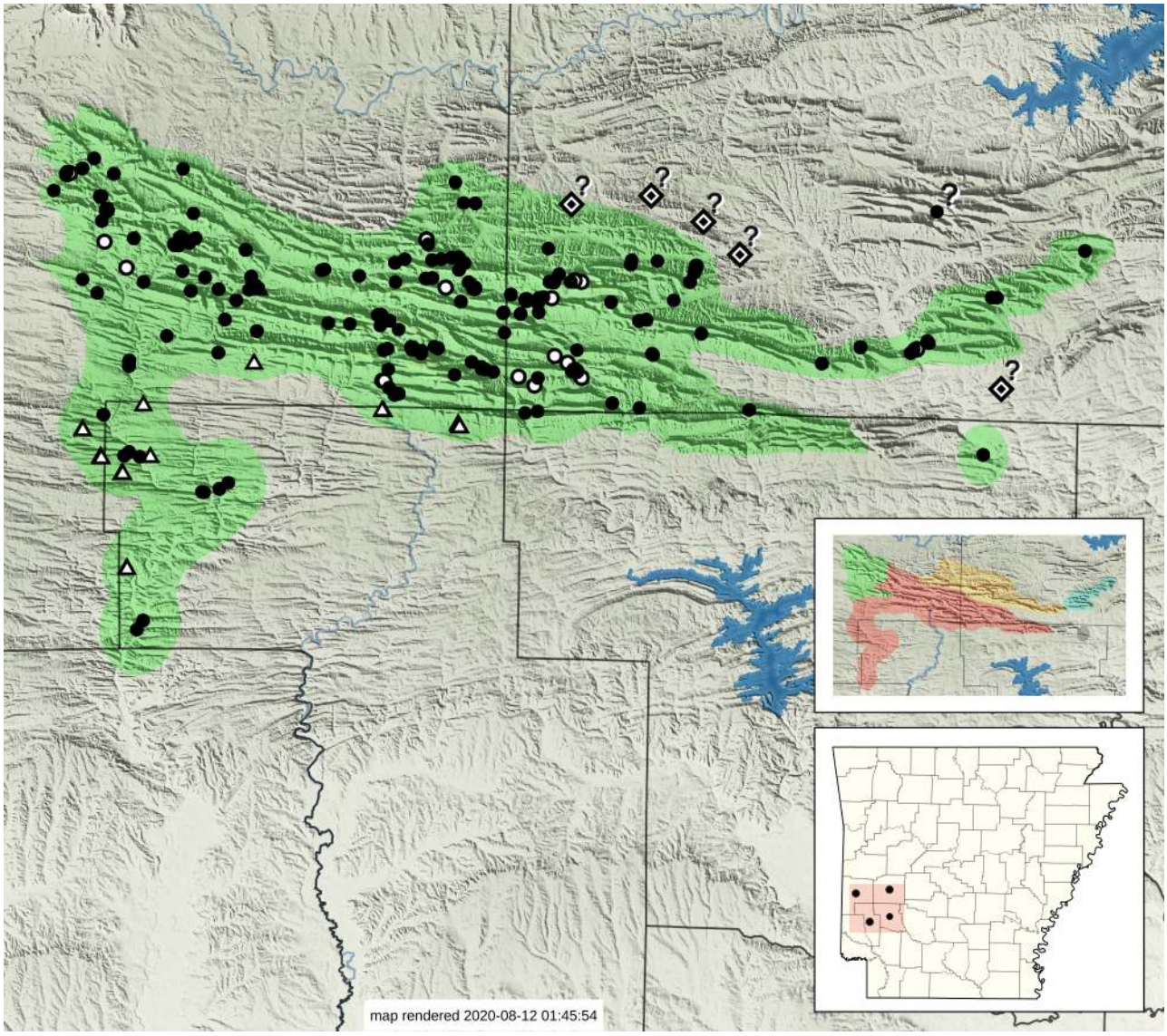



This species is represented by 1,101 records from 35 sources: 924 museum (●), 17 literature (□), 0 research (△), and 152 observation (○), with 8 additional Trauth et al. (2004) locality points remaining unsourced (◈). It has been museum vouchered for 18 of 75 counties (●). Years of collection range from 1903 to *present*.

This species occurs throughout much of the Ozark Highlands, Boston Mountains, and into the northeastern Arkansas Valley in the northern half of White County.

# *Plethodon caddoensis* Pope & Pope, 1951

**Caddo Mountain Salamander**

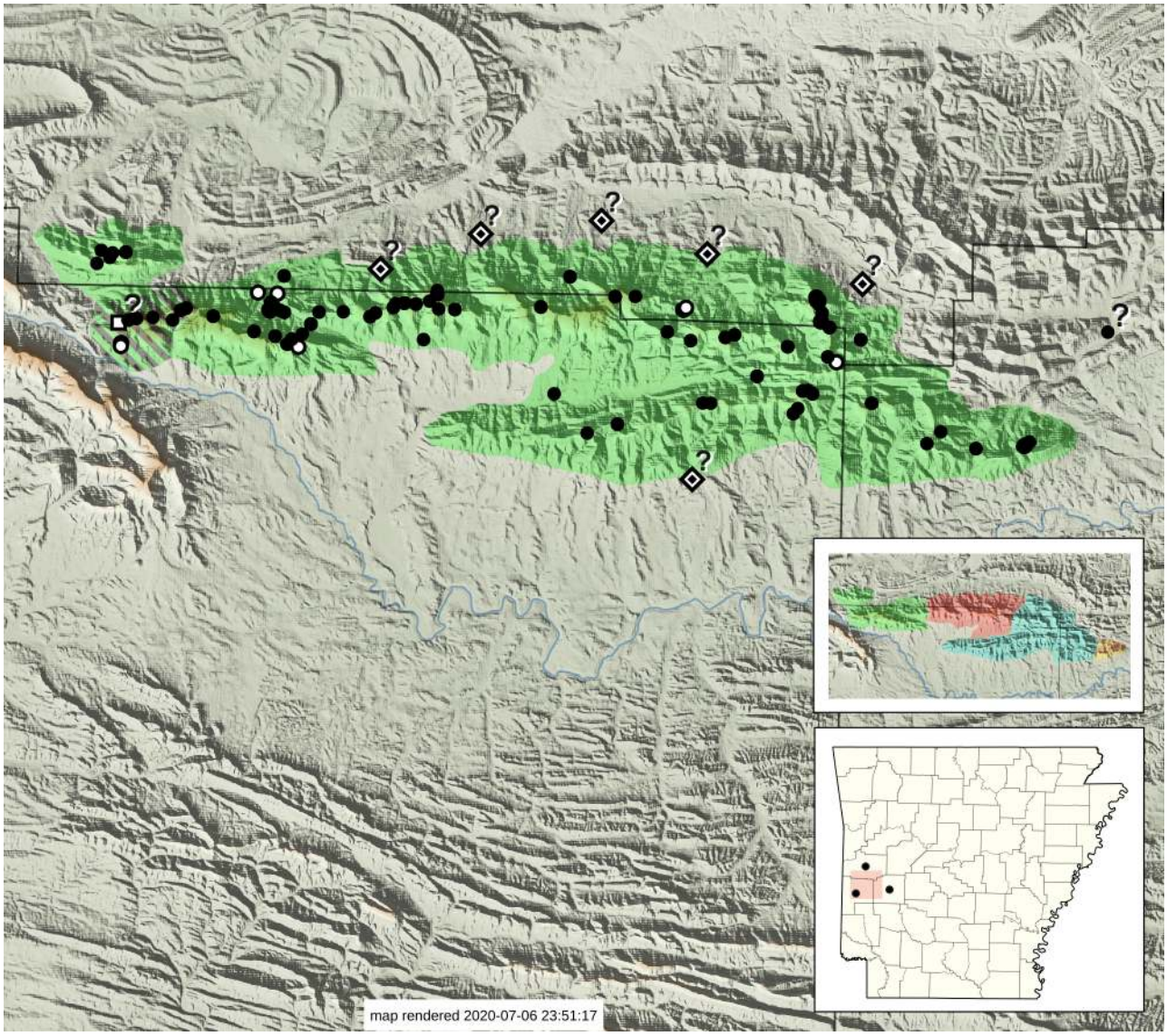



This species is represented by 1,844 records from 37 sources: 1,767 museum (●), 0 literature (□), 36 research (△), and 36 observation (○), with 5 additional Trauth et al. (2004) locality points remaining unsourced (◈). It has been museum vouchered for 4 of 75 counties (●). Years of collection range from 1935 to *present*.

This species inhabits the western half of the Caddo Mountain subrange within the greater Ouachita Mountains, with southward expansion along the Cossatot River to at least Gillham Lake, Howard County. Shepard and Burbrink (2011) identified four highly divergent, geographically distinct lineages (inset): Brushy Creek (■), Cossatot/Little Missouri Rivers (■), Lower Caddo River (■), and Upper Caddo River (■). However, these have not been proposed for species status. Trauth et al. (2004) plotted some questionable localities which remain unsourced.

# *Plethodon fourchensis* Duncan & Highton, 1979

**Fourche Mountain Salamander**



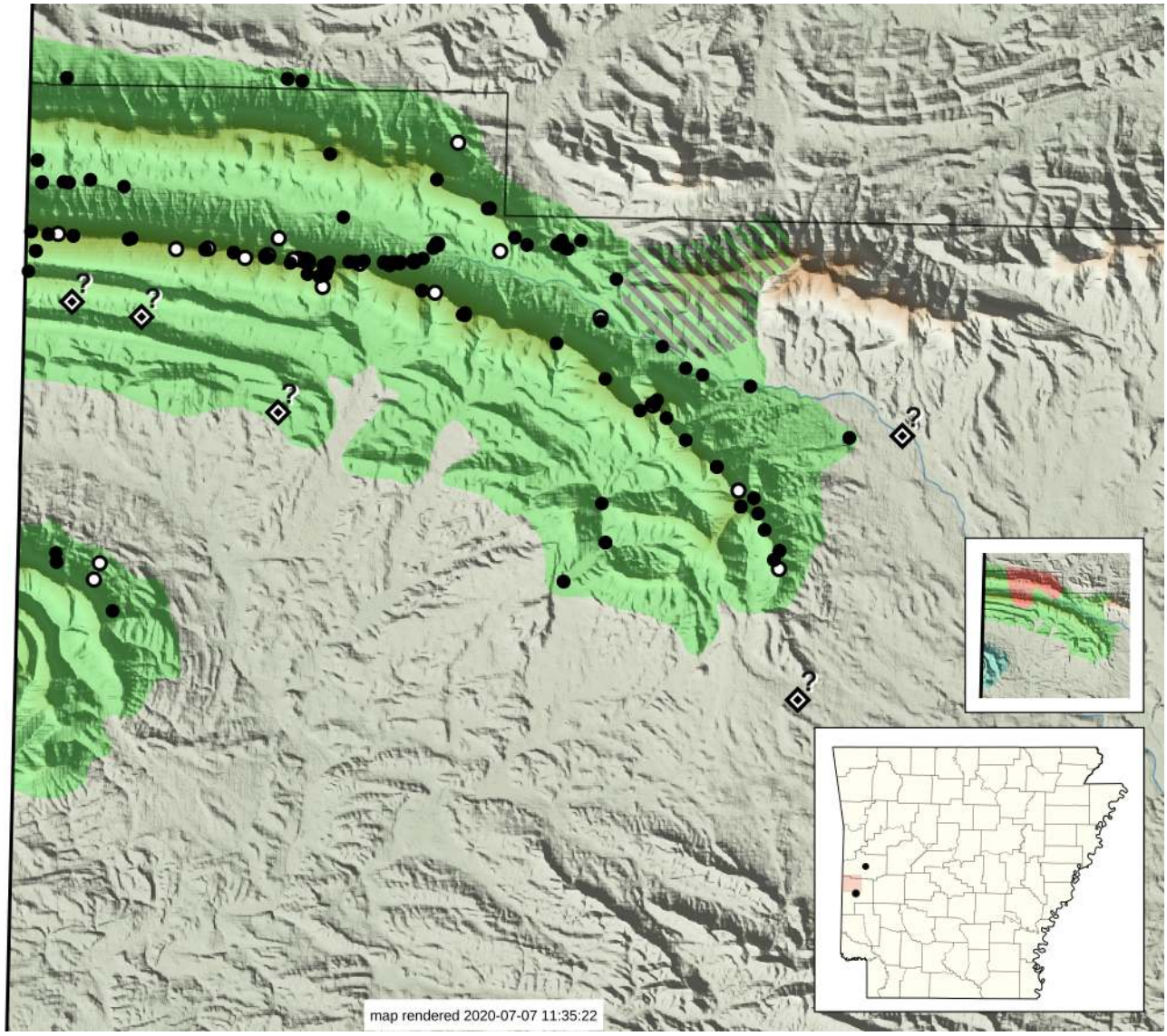

This species is represented by 574 records from 23 sources: 547 museum (●), 1 literature (□), 0 research (△), and 20 observation (○), with 6 additional Trauth et al. (2004) locality points remaining unsourced (◈). It has been museum vouchered for 3 of 75 counties (●). Years of collection range from 1961 to 2017.

This species inhabits the Fourche and Iron Forks mountain subranges within the greater Ouachita Mountains. Shepard and Burbrink (2009) identified four well-supported, geographically structured lineages (inset): Blue Mountain (■), Buck Knob (■), Little Brushy (■), and Western Fourche (■). However, these have not been proposed for species status. Trauth et al. (2004) plotted some questionable localities from lower elevations which remain unsourced. A questionable record from the eastern end of Brushy Creek Mountain, Montgomery County (ASUMZ 27902 from 2003), warrants confirmation. This species is known to hybridize with *P. ouachitae* (■) on the western end of Fourche Mountain (Shepard et al., 2011).

# *Plethodon ouachitae*

Dunn & Heinze, 1933

**Rich Mountain Salamander**



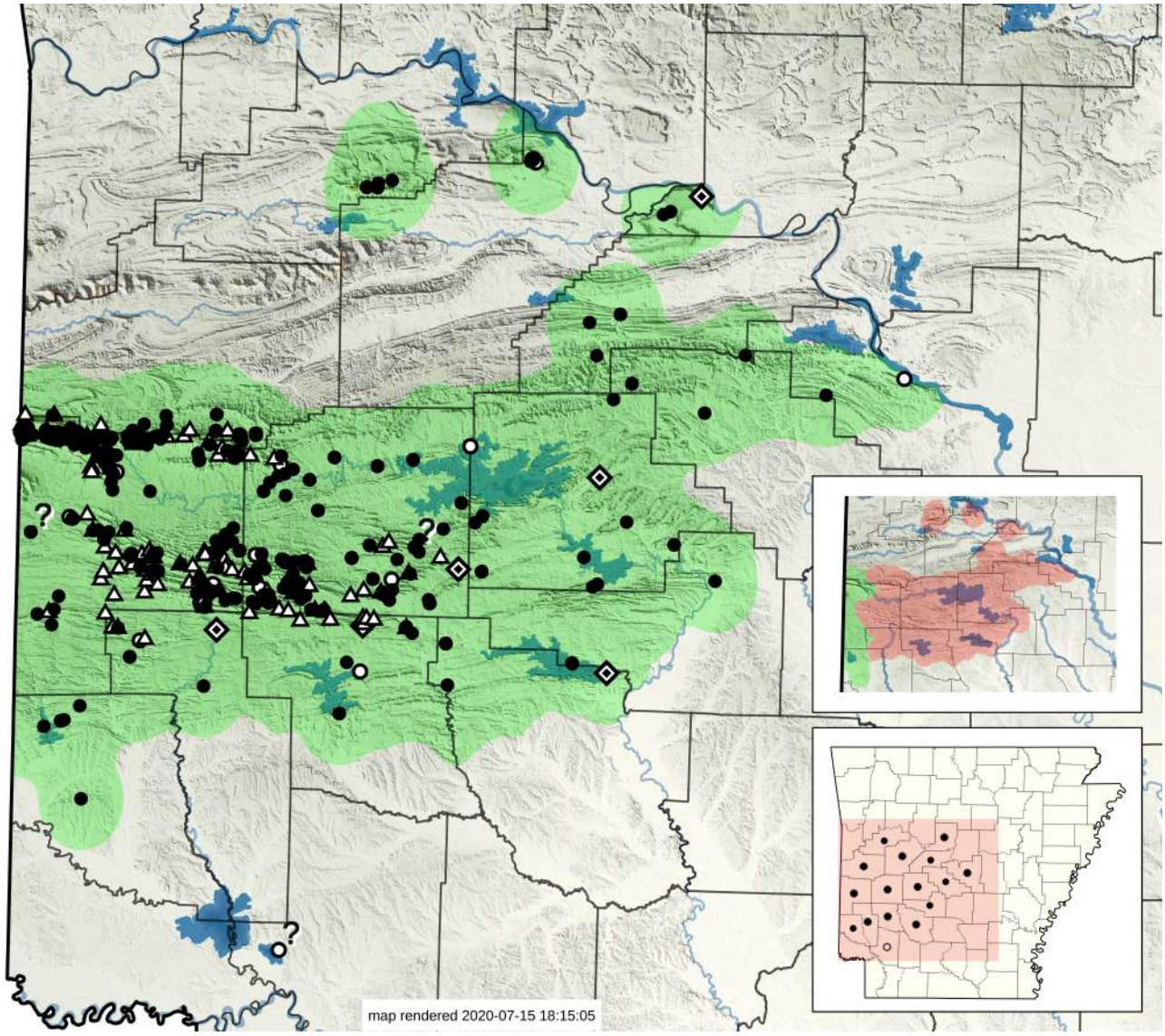

This species is represented by 1,628 records from 41 sources: 1,566 museum (●), 0 literature (□), 0 research (△), and 57 observation (○), with 5 additional Trauth et al. (2004) locality points remaining unsourced (◈). It has been museum vouchered for 2 of 75 counties (●). Years of collection range from 1933 to *present*.

This species inhabits the Rich, Black Fork, and Kiamichi mountain subranges within the greater Ouachita Mountains. Shepard and Burbrink (2008) identified seven well-supported lineages structured across six mountain subranges, with three occurring in Arkansas (inset): Round Mountain (■), Rich Mountain (■), and Black Fork Mountain (■). However, these have not been proposed for species status. Trauth et al. (2004) did not recognize this species as occurring on Round Mountain, western Polk County, where specimens lack the typical chestnut dorsum, but can be distinguished from syntopic *P. kiamichi* in having a light-colored throat. Museum specimens of both species from this area may warrant reexamination to confirm identifications. Trauth et al. (2004) plotted a few localities from lower elevations on the south side of Rich Mountain which remain unsourced. Additional Trauth et al. (2004) localities at Acorn and Mena are likely due to generalized locality descriptions for historic records. This species is known to hybridize with *P. fourchensis* (■) on the western end of Fourche Mountain (Shepard et al., 2011).

# *Plethodon serratus*

Grobman, 1944

**Southern Red-backed Salamander**

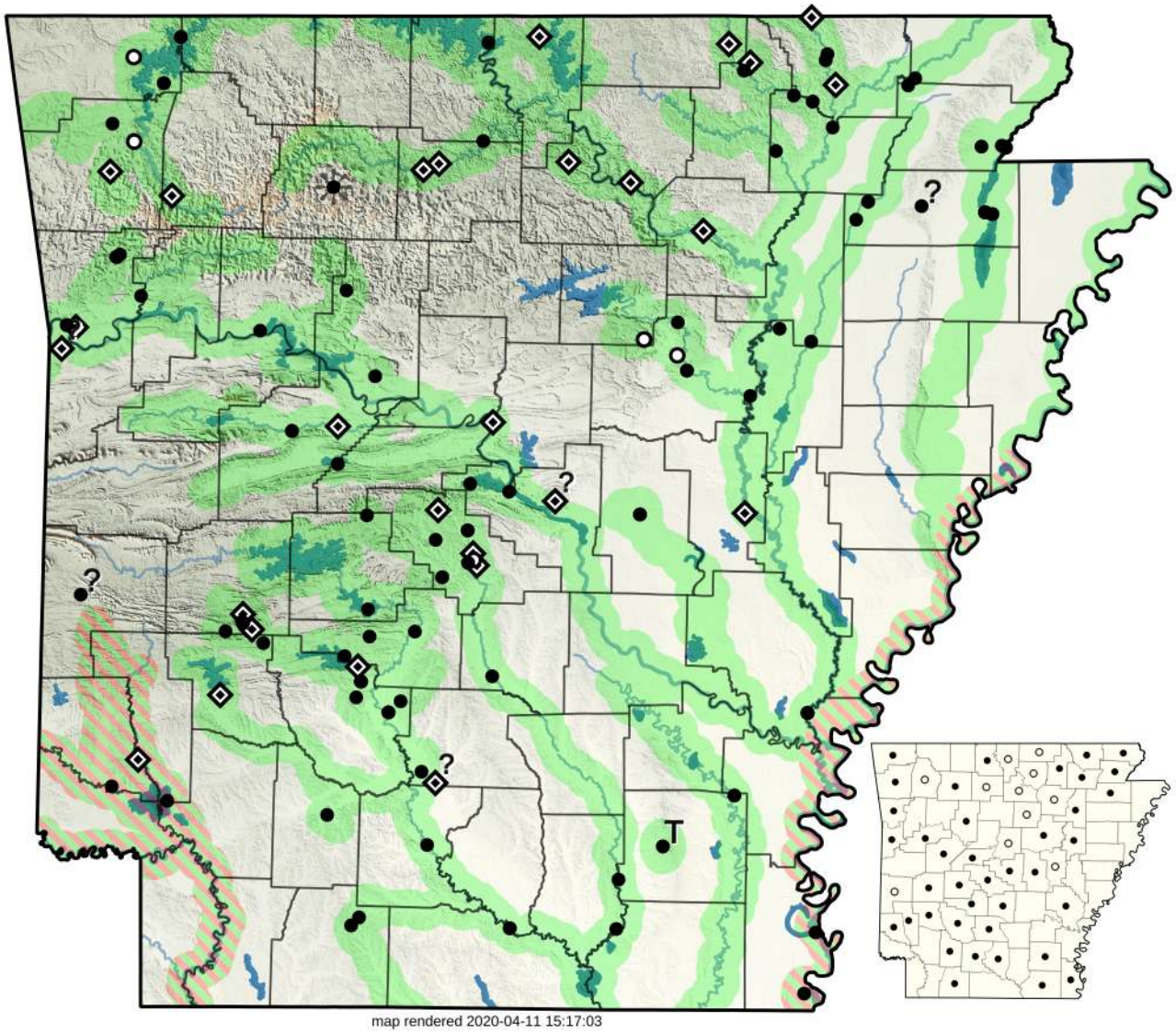



This species is represented by 2,660 records from 38 sources: 2,463 museum (●), 0 literature (□), 106 research (△), and 85 observation (○), with 6 additional Trauth et al. (2004) locality points remaining unsourced (◈). It has been museum vouchered for 15 of 75 counties (●), with 1 additional county having other forms of reported occurrence (○). Years of collection range from 1903 to *present*.

This species occurs throughout much of the Ouachita Mountains, but is apparently less common or even absent in the northern portions of this ecoregion. Additional isolated occurrences from the Arkansas Valley are documented from Mount Magazine, Logan County (none since 1983); Mount Nebo, Yell County; and Petite Jean Mountain, Conway County. Thesing et al. (2016) identified five geographically distinct clades, with two occurring in Arkansas (inset): Western Ouachitas (■) and Eastern Ouachitas (■). However, these have not been proposed for species status. Questionable records from northcentral Arkansas (MPM 14664-14665 from 1976; not shown) are likely misattributed *P. angusticlavius*, with disjunct populations of *P. serratus* in Missouri at least 60 km to the northeast (Daniel and Edmond, 2020). A questionable record from Hempstead County (ANHC AAAAD12160*020 from 1998) may be the result of misidentification of *Eurycea paludicola*.

# *Necturus maculosus* (Rafinesque, 1818)

**Mudpuppy complex**

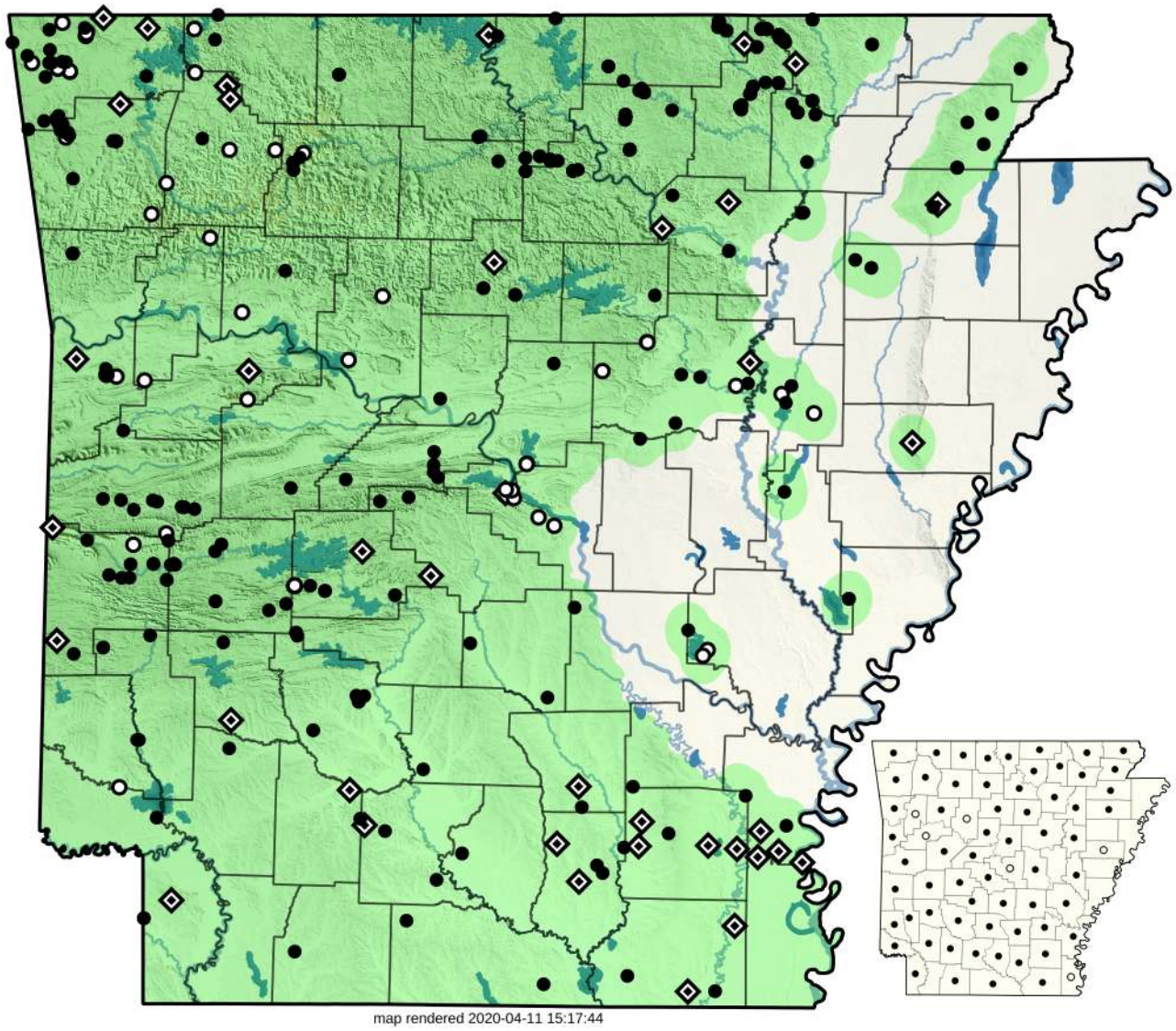



This species complex is represented by 181 records from 19 sources: 148 museum (●), 0 literature (□), 0 research (△), and 6 observation (○), with 27 additional Trauth et al. (2004) locality points remaining unsourced (◈). It has been museum vouchered for 39 of 75 counties (●), with 11 additional counties having other forms of reported occurrence (○). Years of collection range from 1855 to 2017.

This species complex inhabits perennial rivers, streams, and lakes throughout the state. Records from the University of Arkansas at Monticello, Drew County (ASUMZ 3412-3413 from 1978), are likely transplanted individuals associated with fish stocking. A questionable record attributed to Jonesboro, Craighead County (NCSM 60307 from 1974), is likely in reference to the institution source rather than collection site. A record from the Ouachita Mountains in Polk County (HSU 1559 from 2010) requires further clarification. A number of localities plotted by Trauth et al. (2004) remain unsourced. While the *Necturus* phylogeography is poorly resolved, what is currently ascribed as *N. beyeri* (■) may occupy the Red River watershed in southwest Arkansas and possibly the Mississippi River (Dixon, 2013; Powell et al., 2016), with a number of existing museum specimens potentially in warrant of reexamination (UAFMC 0068-0735-1066 from 1953, ASUMZ 29009 from 2005, MPM 13959 from 1970, and NLU 39120 from 1973).

# *Notophthalmus viridescens louisianensis* (Wolterstorff, 1914)

**Central Newt**

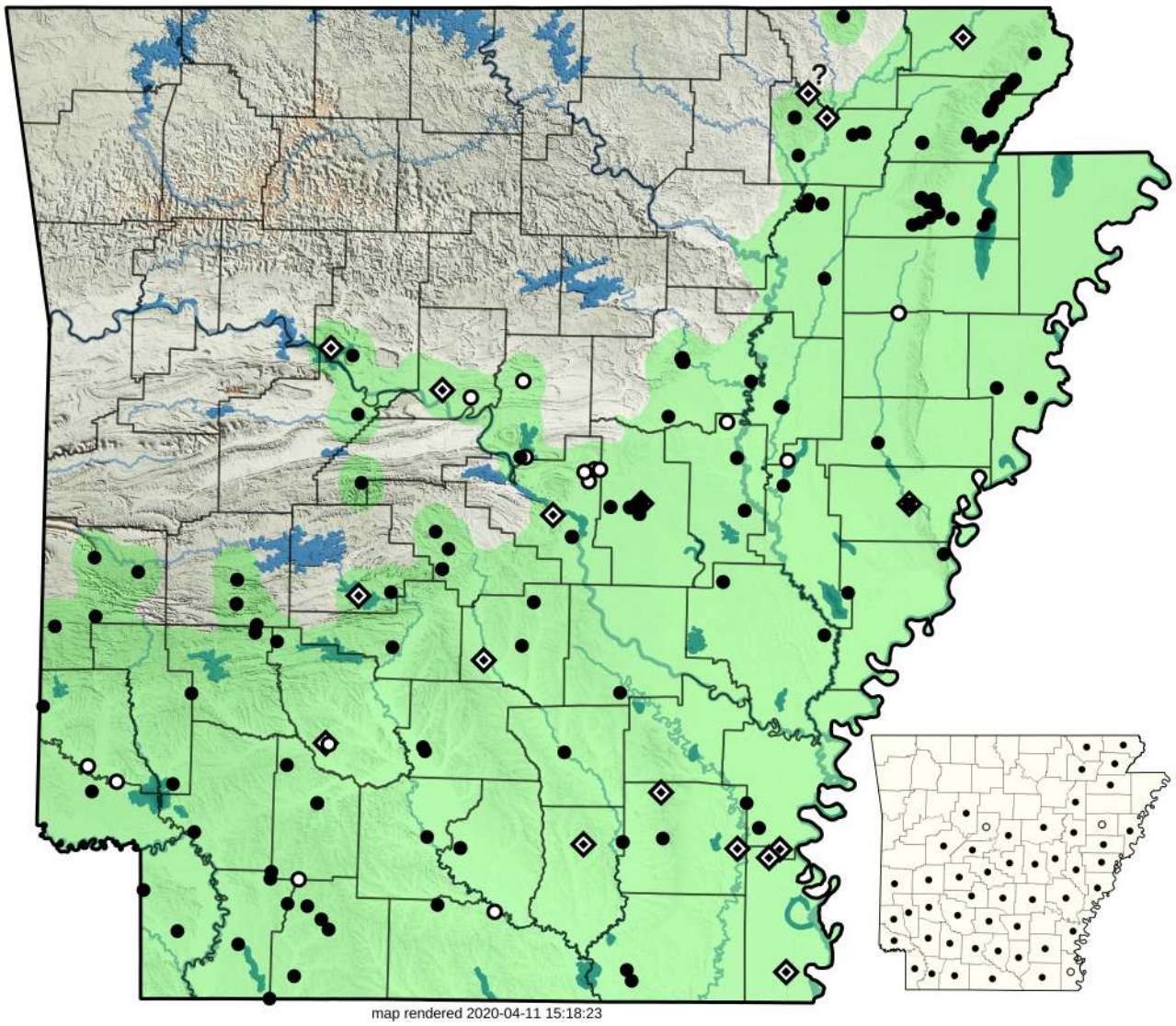



This species is represented by 1,161 records from 29 sources: 1,066 museum (●), 0 literature (□), 0 research (△), and 57 observation (○), with 38 additional Trauth et al. (2004) locality points remaining unsourced (◈). It has been museum vouchered for 62 of 75 counties (●), with 6 additional counties having other forms of reported occurrence (○). Years of collection range from 1900 to *present*.

This species occurs throughout much of the state, but with spotty occurrences in the Mississippi Alluvial Plain. An isolated locality plotted by Trauth et al. (2004) in the vicinity of Forest City, St. Francis County, remains unsourced.

# *Siren intermedia nettingi* Goin, 1942

**Western Lesser Siren**




This species is represented by 746 records from 29 sources: 710 museum (●), 0 literature (□), 0 research (△), and 19 observation (○), with 17 additional Trauth et al. (2004) locality points remaining unsourced (◈). It has been museum vouchered for 47 of 75 counties (●), with 3 additional counties having other forms of reported occurrence (○). Years of collection range from 1899 to *present*.

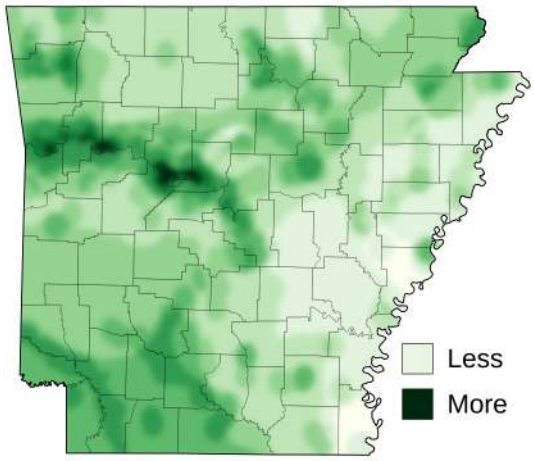
This species occurs throughout the South Central Plains and Mississippi Alluvial Plain, and ascends stream valleys in the southern Ouachita Mountains and up the Arkansas Valley to Russellville, Pope County. Records traced to the Ozark Biological Laboratory, Imboden, Lawrence County, are known to have come from collection sites 5-12 km farther south (Noble and Marshall, 1932).

# 4. Anura (Frogs)

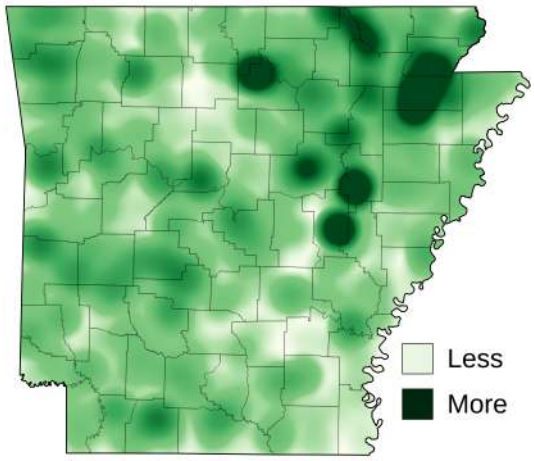
The taxonomic group Anura (Frogs) is represented in Arkansas by 25 species from 8 genera across 5 families. The AHA contains a total of 20,942 frog records from 68 sources: 18,542 museum, 16 literature, 0 research, and 1,663 observation, with 721 additional Trauth et al. (2004) locality points remaining unsourced. Years of collection range from 1855 to *present*.


**4.1 Bufonidae (True Toads)**
*Anaxyrus americanus charlesmithi* . . . . . 43
*Anaxyrus fowleri* . . . . . 44
**4.2 Hylidae (Treefrogs)**
*Acris blanchardi* . . . . . 45
*Hyla avivoca avivoca* . . . . . 46
*Hyla chrysoscelis - H. versicolor* . . . . . 47
*Hyla cinerea* . . . . . 48
*Hyla squirella* . . . . . 49
*Pseudacris crucifer* . . . . . 50
*Pseudacris fouquettei - P. maculata* . . . . . 51
*Pseudacris illinoensis* . . . . . 52
*Pseudacris streckeri* . . . . . 53
**4.3 Microhylidae (Microhylid Frogs and Toads)**
*Gastrophryne carolinensis* . . . . . 54
*Gastrophryne olivacea* . . . . . 55
**4.4 Ranidae (True Frogs)**
*Lithobates areolatus* ssp. . . . . 56
*Lithobates blairi* . . . . . 57
*Lithobates catesbeianus* . . . . . 58
*Lithobates clamitans* . . . . . 59
*Lithobates palustris* . . . . . 60
*Lithobates sphenocephalus utricularius* . . . . . 61
*Lithobates sylvaticus* . . . . . 62
**4.5 Scaphiopodidae (North American Spadefoots)**
*Scaphiopus holbrookii* . . . . . 63
*Scaphiopus hurterii* . . . . . 64
*Spea bombifrons* . . . . . 65

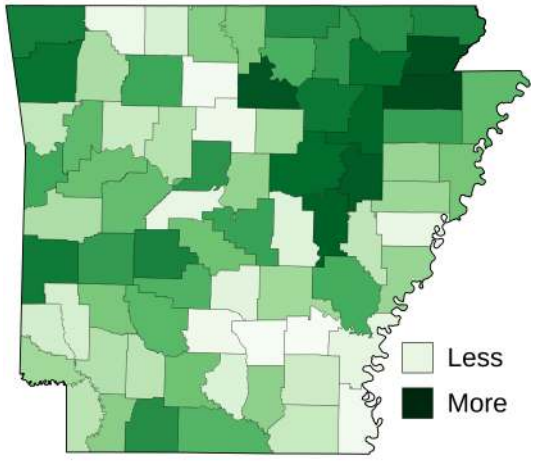

**Biodiversity Heatmap**




**Records Heatmap**

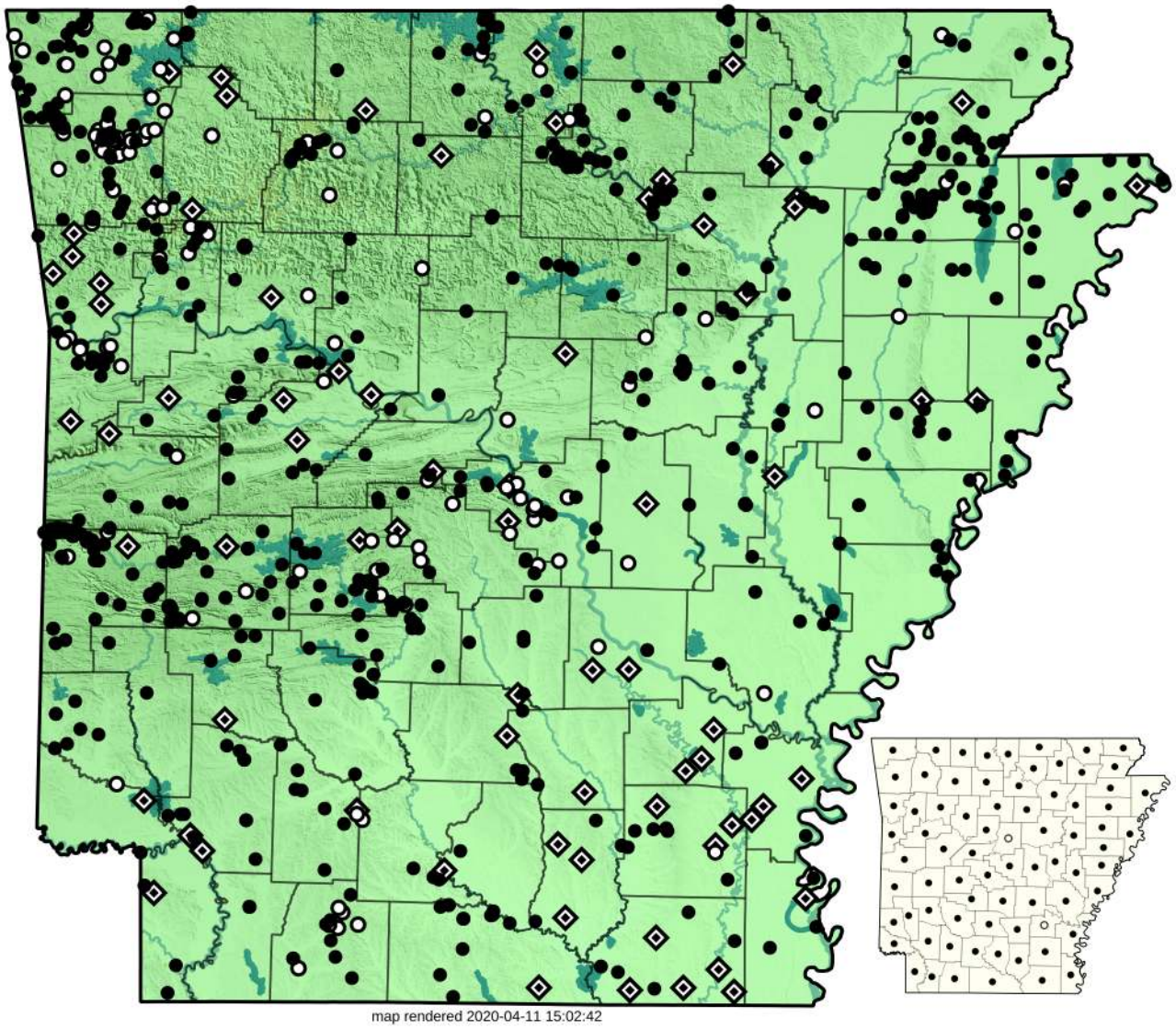



**Records per County Choropleth**



## *Anaxyrus americanus charlesmithi* (Bragg, 1954)

**Dwarf American Toad**

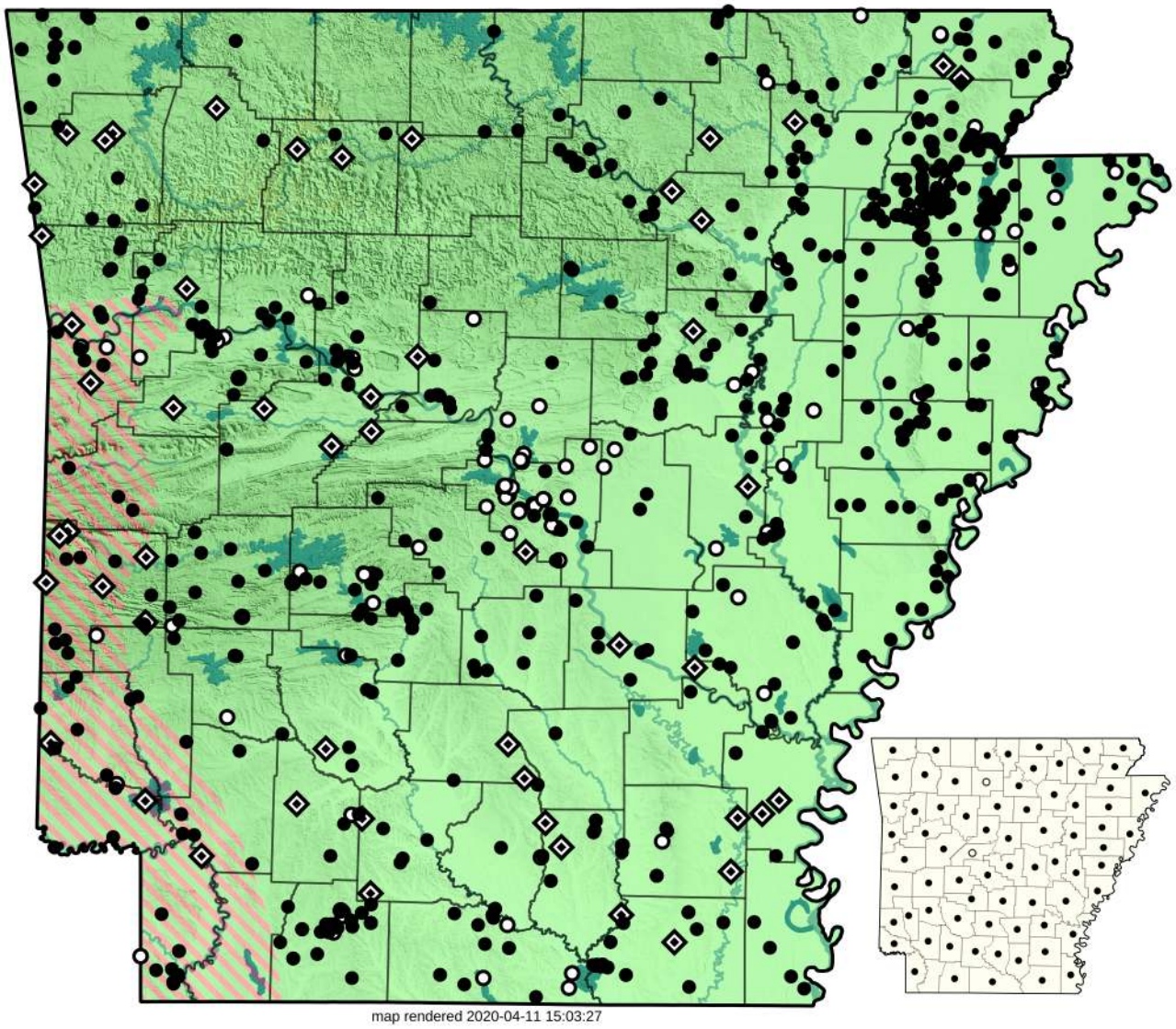



This species is represented by 1,937 records from 39 sources: 1,704 museum (●), 0 literature (□), 0 research (△), and 158 observation (○), with 75 additional Trauth et al. (2004) locality points remaining unsourced (◈). It has been museum vouchered for 73 of 75 counties (●), with 2 additional counties having other forms of reported occurrence (○). Years of collection range from 1894 to *present*.

This species occurs statewide. Morphological variation and potential hybridization among *Anaxyrus* species often makes definitive identification difficult, and may raise questions of taxonomic clarity. This species is not recognized as having occurrence in northern Louisiana (Boundy and Carr, 2017), so records from extreme southern Arkansas may be questionable.

# *Anaxyrus fowleri* (Hinckley, 1882)

**Fowler's Toad**

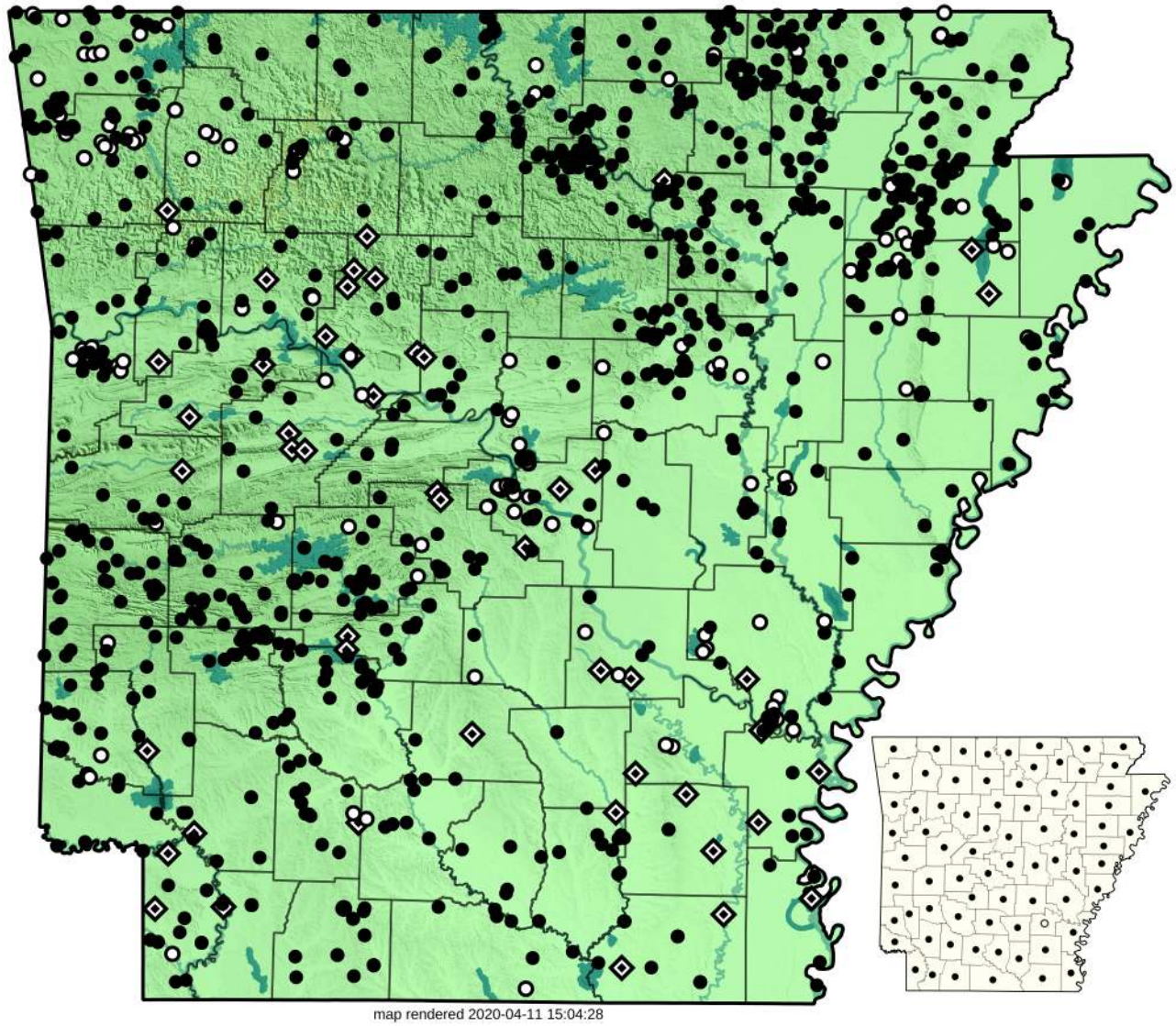



This species is represented by 2,104 records from 41 sources: 1,924 museum (●), 0 literature (□), 0 research (△), and 128 observation (○), with 52 additional Trauth et al. (2004) locality points remaining unsourced (◈). It has been museum vouchered for 71 of 75 counties (●), with 2 additional counties having other forms of reported occurrence (○). Years of collection range from 1898 to *present*.

This species occurs statewide. Hybridization with *A. woodhousii woodhousii* (■) has most notably been reported from southwest Arkansas (Trauth et al., 2004), although the extent of this influence is poorly resolved. Morphological variation and potential hybridization among species of *Anaxyrus* can make definitive identification difficult. Specimen and call surveys in recent years have failed to produce evidence of this species in northwest Arkansas (K. G. Roberts, pers. obs.; J. D. Willson, pers. comm.), so the approximately 30 historical records from this corner of the state may warrant reexamination.

# *Acris blanchardi* Harper, 1947

**Blanchard's Cricket Frog**



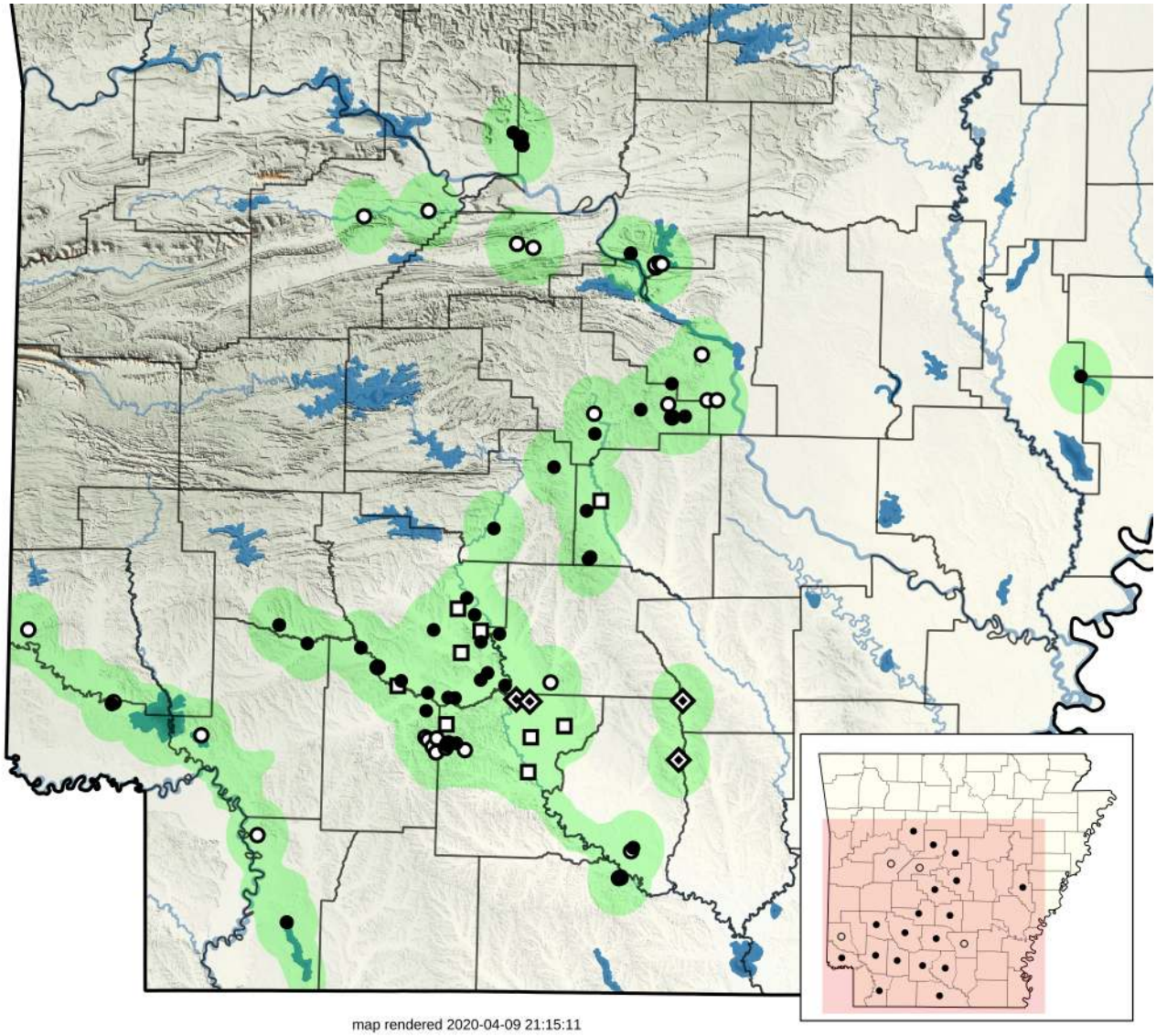

This species is represented by 3,766 records from 41 sources: 3,506 museum (●), 0 literature (□), 0 research (△), and 212 observation (○), with 48 additional Trauth et al. (2004) locality points remaining unsourced (◈). It has been museum vouchered for 74 of 75 counties (●), with 1 additional county having other forms of reported occurrence (○). Years of collection range from 1855 to *present*.

This species is ubiquitous statewide.

# *Hyla avivoca avivoca*

Viosca, 1928

**Western Bird-voiced Treefrog**



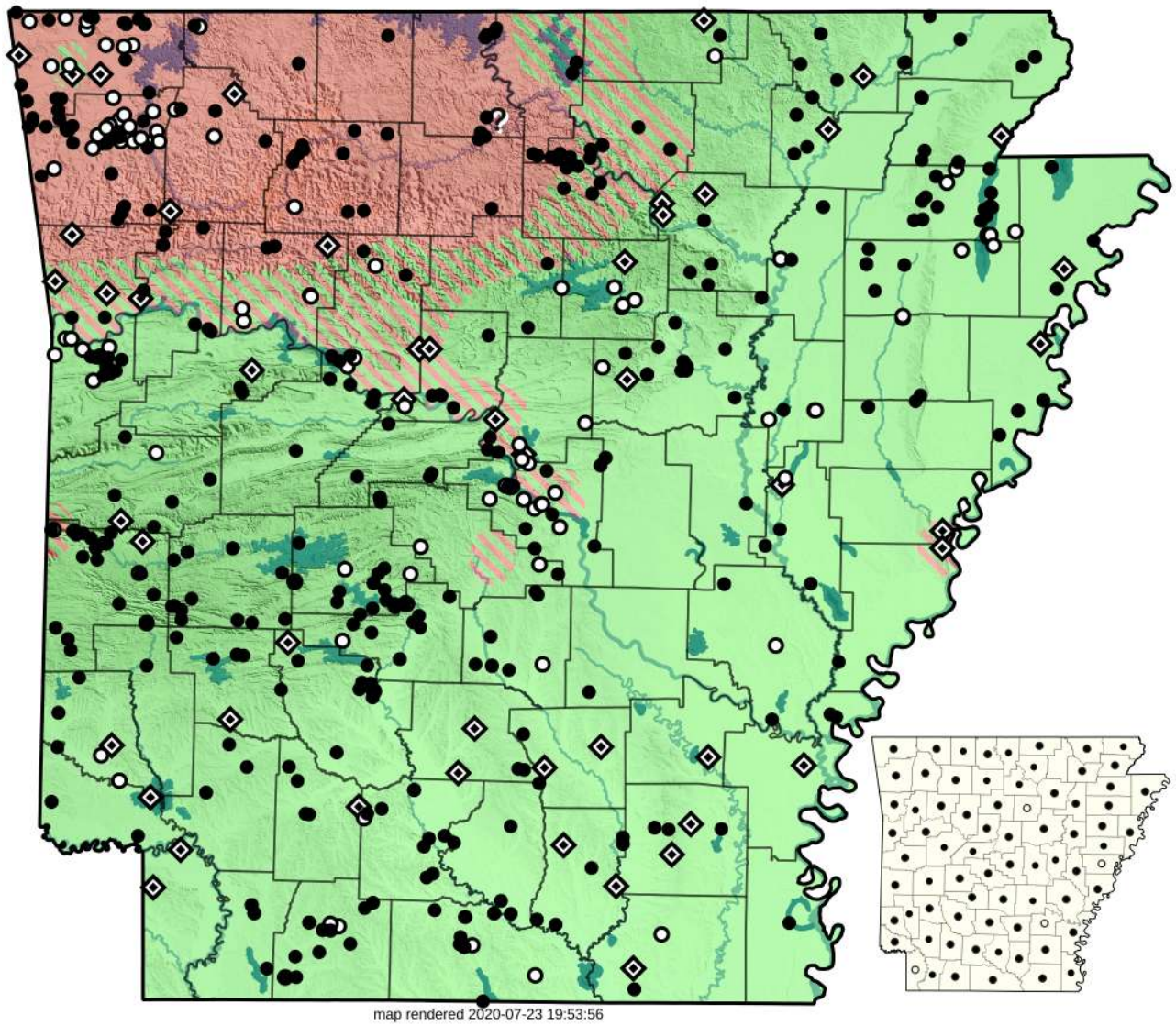

This species is represented by 193 records from 9 sources: 142 museum (●), 9 literature (□), 0 research (△), and 38 observation (○), with 4 additional Trauth et al. (2004) locality points remaining unsourced (◈). It has been museum vouchered for 18 of 75 counties (●), with 4 additional counties having other forms of reported occurrence (○). Years of collection range from 1962 to 2017.

This species has a somewhat spotty distribution based on available records. The lone occurrence in the Mississippi Alluvial Plain (ASUMZ 6135 from 1991) may warrant further confirmation. Additional surveys are likely to reveal a wider distribution in the South Central Plains than is currently recognized.

# *Hyla chrysoscelis - H. versicolor*

Cope, 1880 - LeConte, 1825

**Gray Treefrog complex**

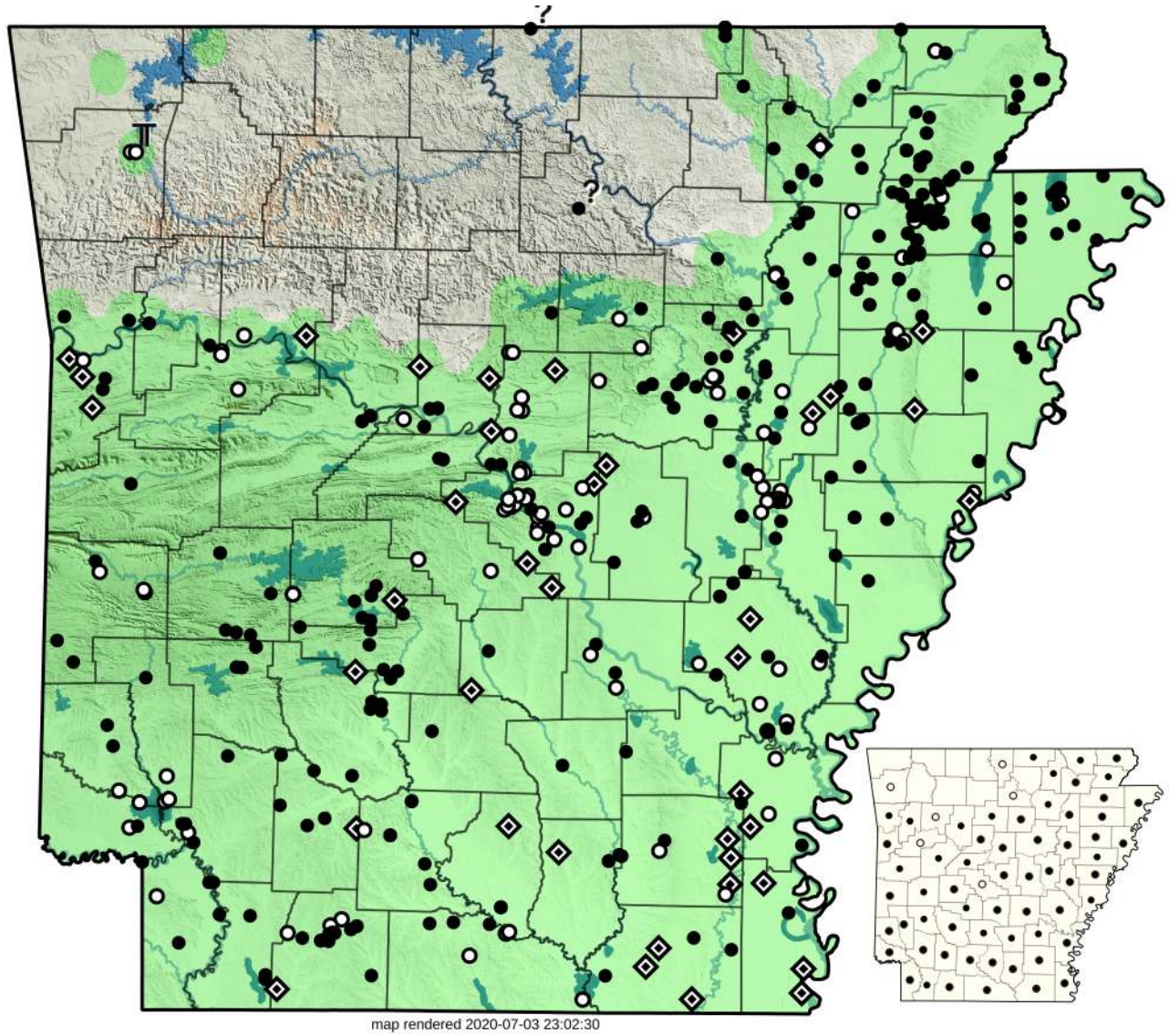



This species complex is represented by 1,087 records from 38 sources: 887 museum (●), 0 literature (□), 0 research (△), and 150 observation (○), with 50 additional Trauth et al. (2004) locality points remaining unsourced (◈). It has been museum vouchered for 70 of 75 counties (●), with 4 additional counties having other forms of reported occurrence (○). Years of collection range from 1890 to *present*.

The range extents and areas of sympatry in this species complex are poorly resolved in Arkansas, with *H. versicolor* (■) occupying the northwest corner of the state and *H. chrysoscelis* (■) throughout the remainder of the state. The occurrence of *H. versicolor* south of the Arkansas River and into the Ouachita Mountains (D. B. Shepard, J. D. Chamberlain, pers. obs.) is based on limited evidence. An isolated record of *H. versicolor* in the Mississippi River floodplain, based on the average nuclear diameter of eyelid cells (Chaffin and Trauth, 1987), warrants further confirmation; currently symbolized as an isolated, unsourced Trauth et al. (2004) locality point. Call surveys would be helpful in refining the distributions of these species, with *H. chrysoscelis* calls having almost twice the pulse rate as *H. versicolor* (Harrison, 2016).

# *Hyla cinerea* (Schneider, 1799)

**Green Treefrog**

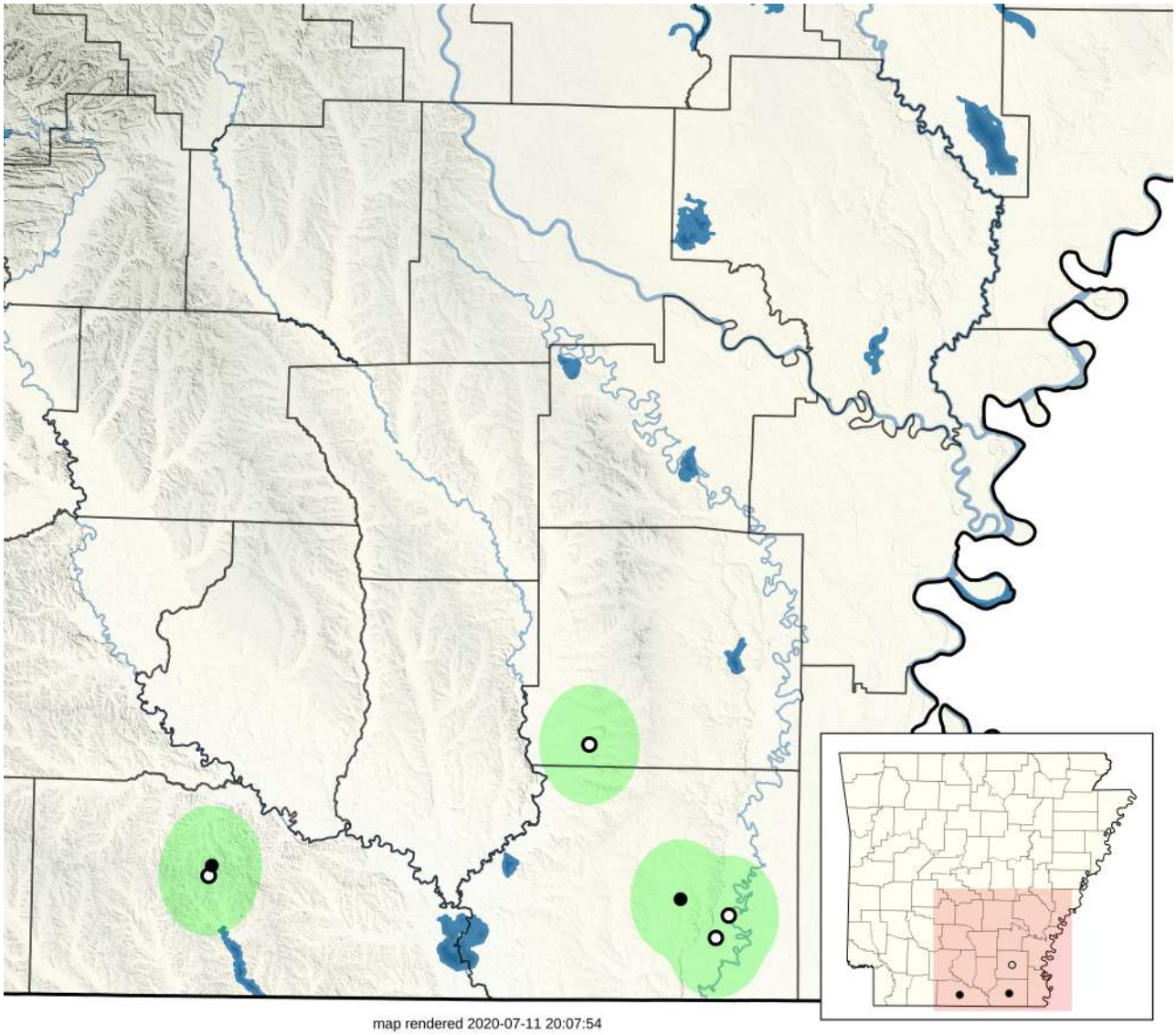



This species is represented by 1,417 records from 25 sources: 1,231 museum (●), 0 literature (□), 0 research (△), and 146 observation (○), with 40 additional Trauth et al. (2004) locality points remaining unsourced (◈). It has been museum vouchered for 61 of 75 counties (●), with 6 additional counties having other forms of reported occurrence (○). Years of collection range from 1910 to *present*.

This species is common throughout the South Central Plains, Mississippi Alluvial Plain, and Arkansas Valley. It has spotty distribution in the Ouachita Mountains, where records occur in stream valleys. Transplant populations have been confirmed in recent years at Lake Sequoyah, east of Fayetteville, Washington County, Lake Leatherwood near Eureka Springs, Carroll County (L. Beattie, pers. comm.), and vicinity of the Northwest Medical Center - Bentonville, Benton County (A. Schaffer, pers. comm.). An additional transplant population is known from the Missouri side of Table Rock Lake (Daniel and Edmond, 2020). Questionable records from west of Mountain View, Stone County (MPM 14125 from 1974), and northern Baxter County (ASUMZ 31340 from 2009) warrant verification.

# *Hyla squirella* Daudin, 1800

**Squirrel Treefrog**

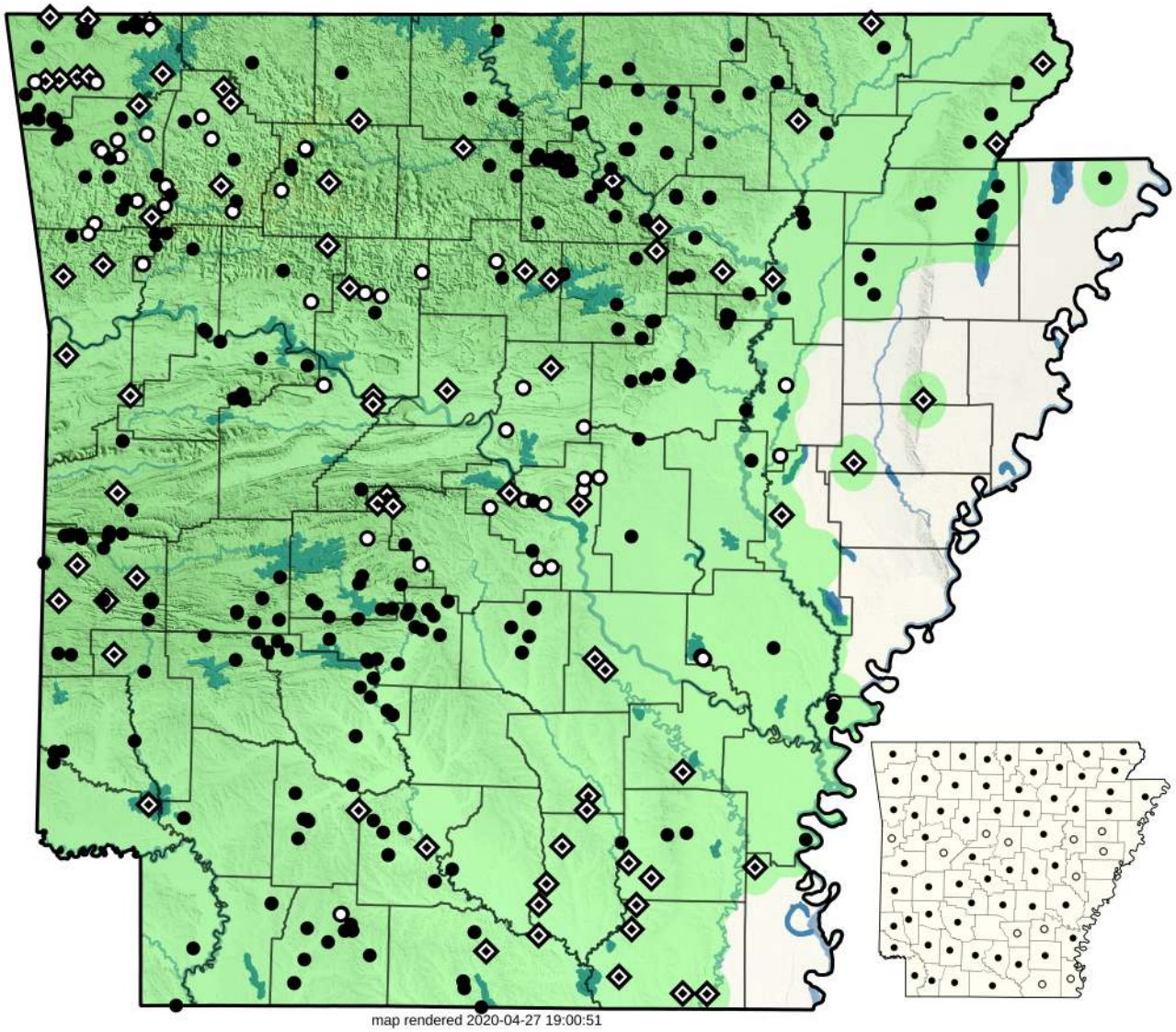



This species is represented by 8 records from 2 sources: 2 museum (●), 0 literature (□), 0 research (△), and 6 observation (○). It has been museum vouchered for 2 of 75 counties (●), with 1 additional county having other forms of reported occurrence (○). Years of collection range from 2013 to *present*.

This species was first reported in Arkansas in 2013 from the vicinity of El Dorado, Union County (Fulmer and Connior, 2013). It has since been recorded from the vicinity of the Overflow National Wildlife Refuge, Ashley County, and southwestern Drew County. Further surveys are likely to reveal additional localities of this species in southern Arkansas.

# *Pseudacris crucifer* (Wied-Neuwied, 1838)

**Spring Peeper**



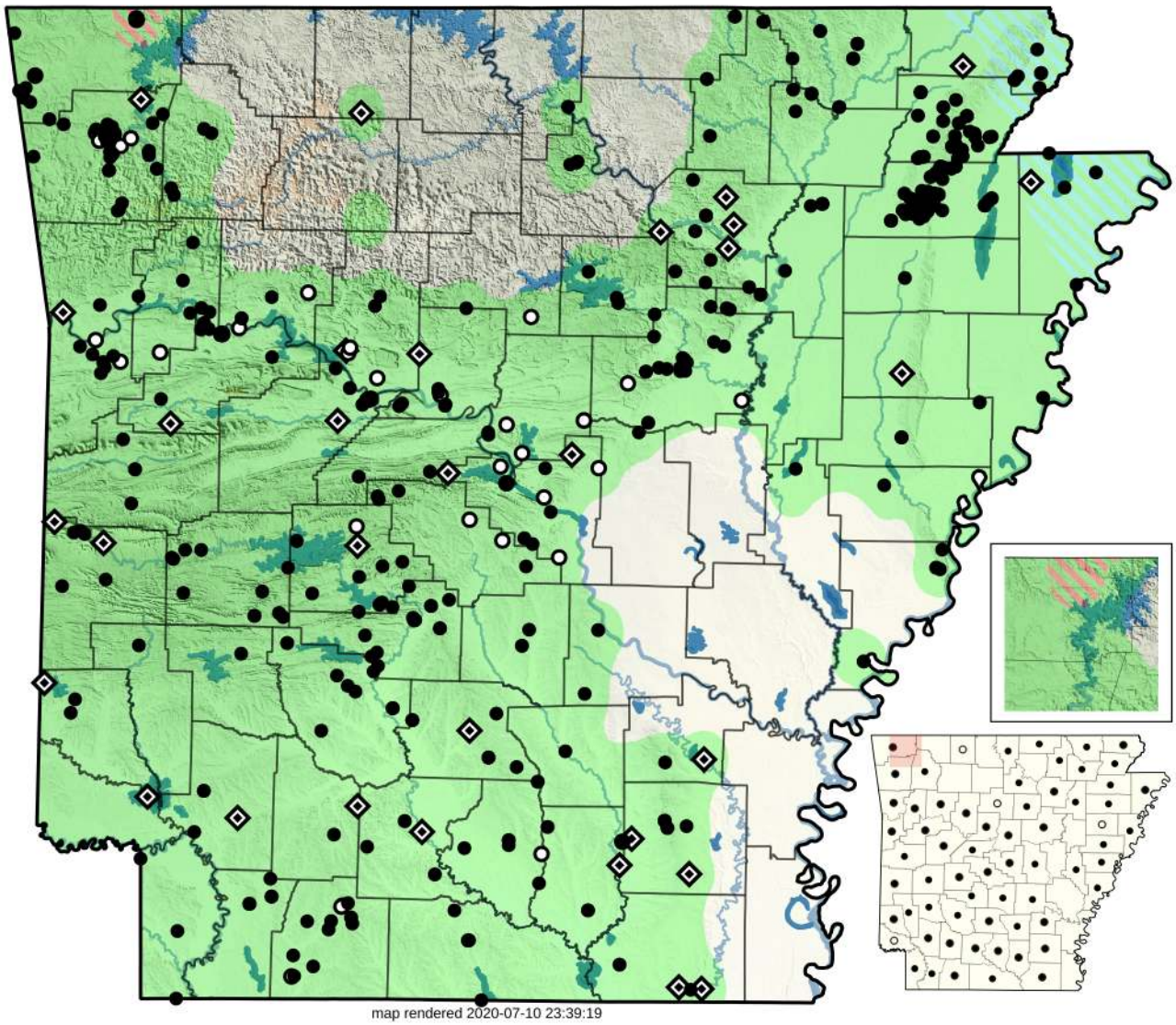

This species is represented by 962 records from 33 sources: 818 museum (●), 0 literature (□), 0 research (△), and 72 observation (○), with 72 additional Trauth et al. (2004) locality points remaining unsourced (◈). It has been museum vouchered for 59 of 75 counties (●), with 12 additional counties having other forms of reported occurrence (○). Years of collection range from 1922 to *present*.

This species is common nearly statewide, with an absence of records from large portions of the Mississippi Alluvial Plain in eastern Arkansas.

# *Pseudacris fouquettei - P. maculata*

Lemmon, Lemmon, Collins, & Cannatella, 2008 - (Agassiz, 1850)

**Cajun Chorus Frog complex**

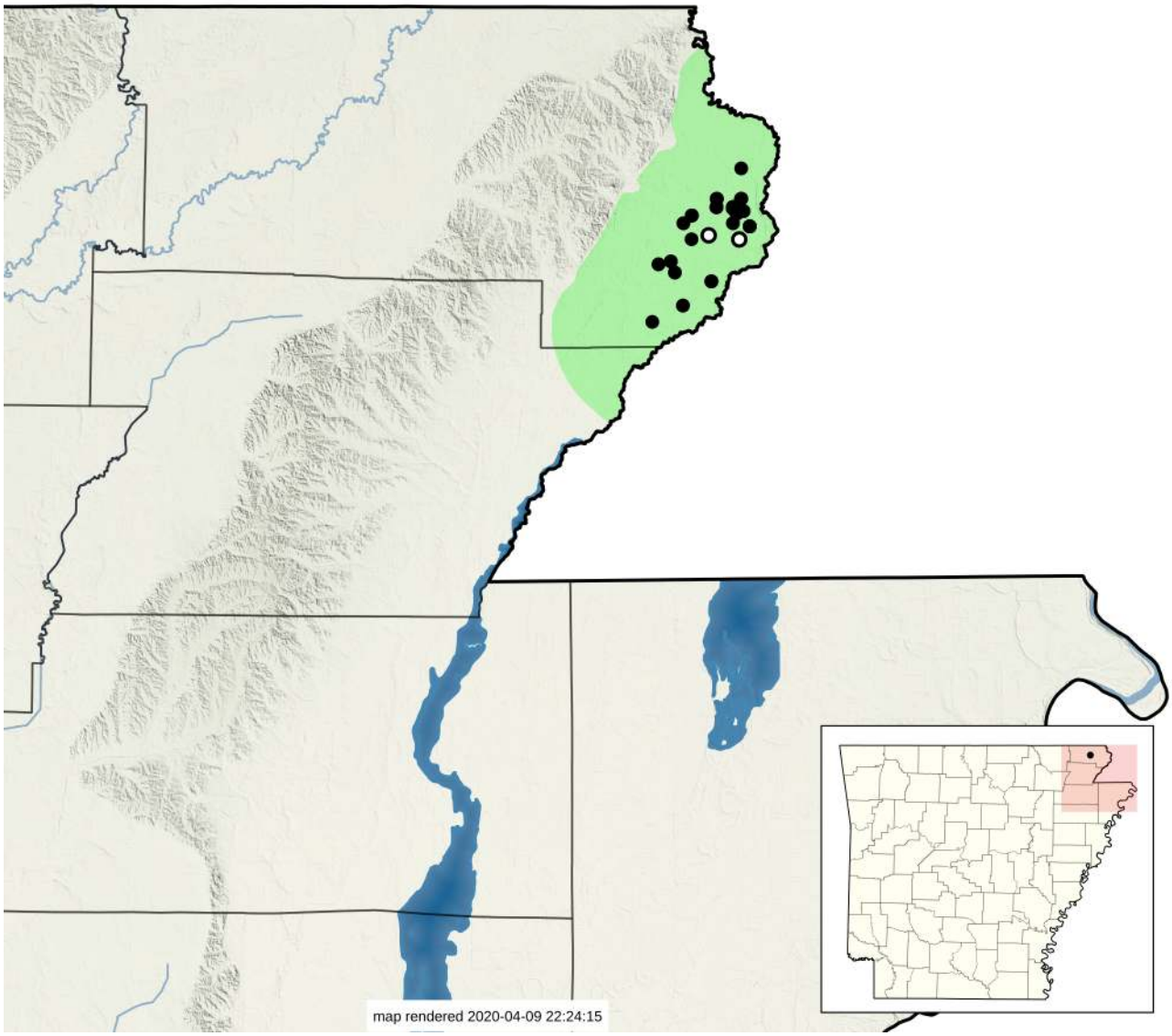



This species complex is represented by 1,319 records from 35 sources: 1,234 museum (●), 0 literature (□), 0 research (△), and 54 observation (○), with 31 additional Trauth et al. (2004) locality points remaining unsourced (◈). It has been museum vouchered for 61 of 75 counties (●), with 4 additional counties having other forms of reported occurrence (○). Years of collection range from 1921 to *present*.

This species complex occurs throughout much of the state, although undocumented from a large portion of the northcentral Ozark Highlands, Grand Prairie region, and the southeast corner of the state along the Mississippi River. Species are essentially indistinguishable by field characters, but *P. fouquettei* (■) is the most widespread in the state. *Pseudacris maculata* (■ - inset) has been confirmed by genetic analysis from the Pea Ridge National Military Park (PRNMP), Benton County (J. T. Collins and E. Moriarty Lemmon, pers. comm.). Additional samples from northwest Arkansas, including Gentry and Maysville, Benton County; Huntsville, Madison County; and west of PRNMP, Benton County; have all proven out as *P. fouquettei* (J. T. Collins, M. Connior, and E. Moriarty Lemmon, pers. comm.). *Pseudacris feriarum* (■) has not been confirmed in the state, but may occupy portions of the extreme northeast corner, although samples from near Jonesboro, Craighead County, have proven out as *P. fouquettei* (Moriarty Lemmon et al., 2008).

# *Pseudacris illinoensis* Smith, 1951

**Illinois Chorus Frog**

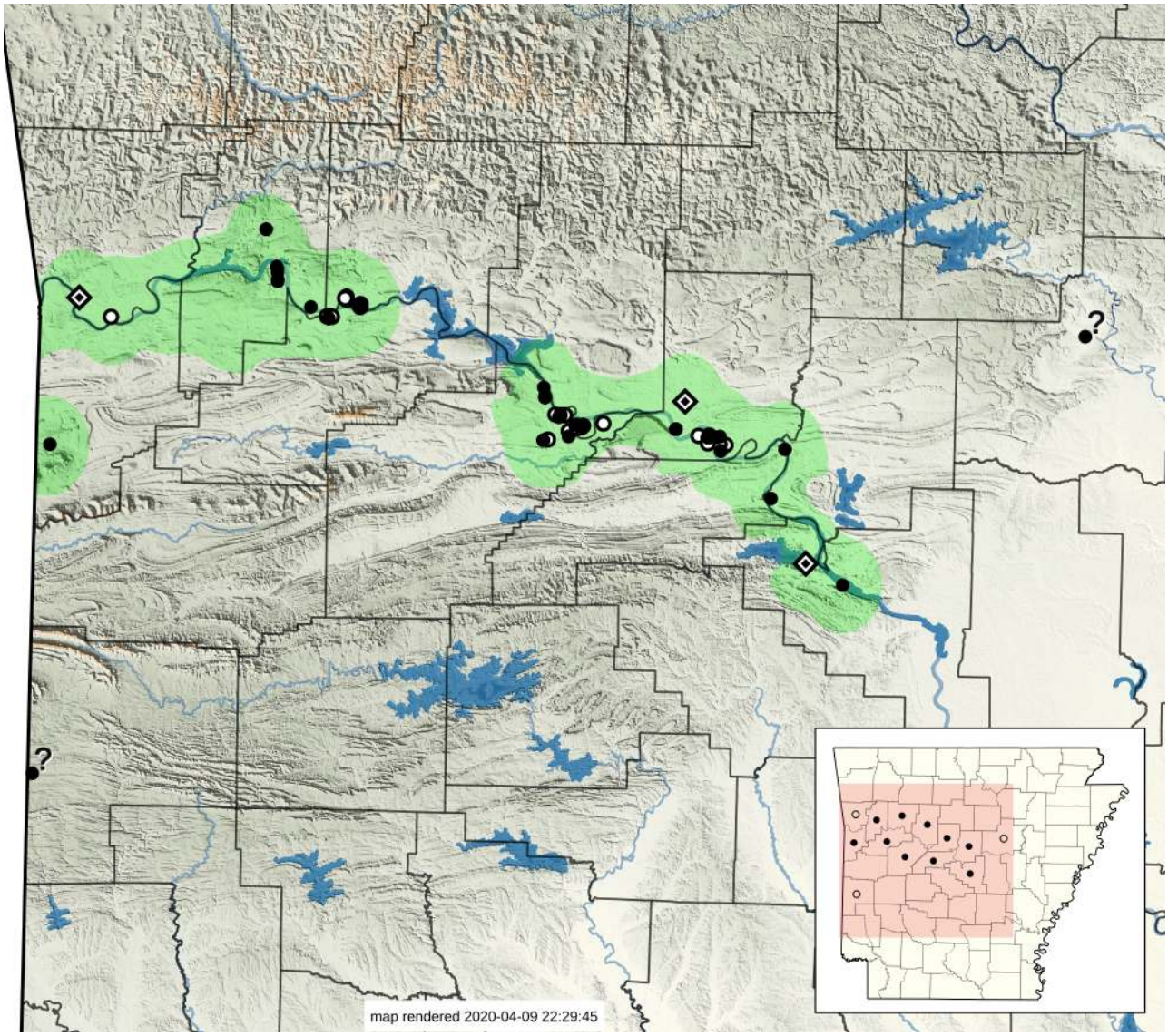



This species is represented by 181 records from 5 sources: 179 museum (●), 0 literature (□), 0 research (△), and 2 observation (○). It has been museum vouchered for 1 of 75 counties (●). Years of collection range from 1965 to 2016.

This species occupies only the former sand prairies of extreme eastern Clay County, which have now been entirely converted to intensive row crop agriculture.

# *Pseudacris streckeri* Wright & Wright, 1933

**Strecker's Chorus Frog**

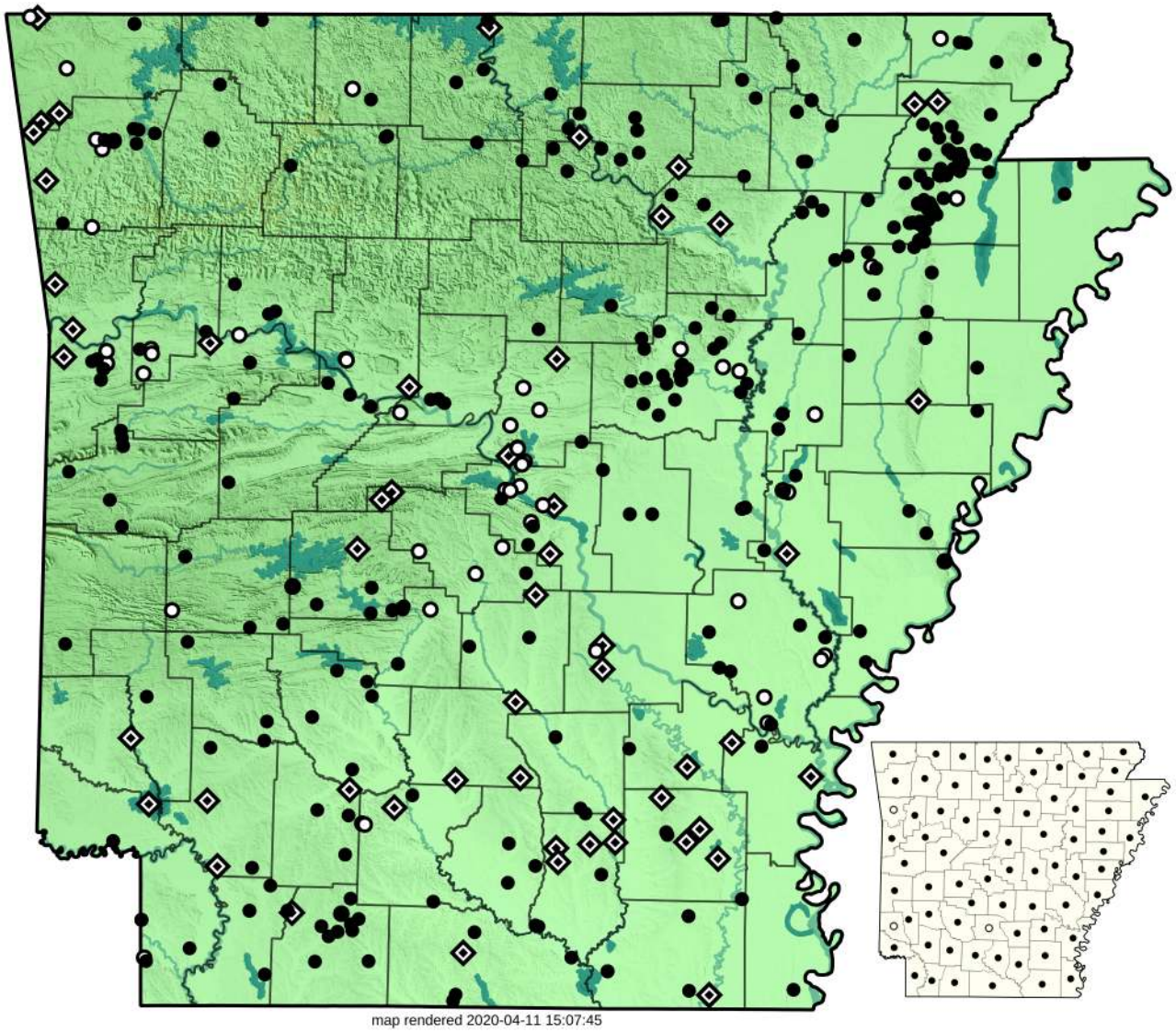



This species is represented by 165 records from 13 sources: 131 museum (●), 0 literature (□), 0 research (△), and 30 observation (○), with 4 additional Trauth et al. (2004) locality points remaining unsourced (◈). It has been museum vouchered for 10 of 75 counties (●), with 3 additional counties having other forms of reported occurrence (○). Years of collection range from 1955 to 2018.

This species occurs primarily along the Arkansas Valley in what are now predominantly agricultural bottomlands. Records from Polk County (OSUCOV 1613 from 1964) and White County (MPM 19070 from 1980) are questionable and warrant reexamination. Occurrence in northwest Arkansas cannot be completely discounted on the basis of a historical record from Delaware County, Oklahoma, (OSUCOV 2957 from 1940) and anecdotal call surveys (K. G. Roberts, pers. obs., 2000s).

# *Gastrophryne carolinensis* (Holbrook, 1835)

**Eastern Narrow-mouthed Toad**

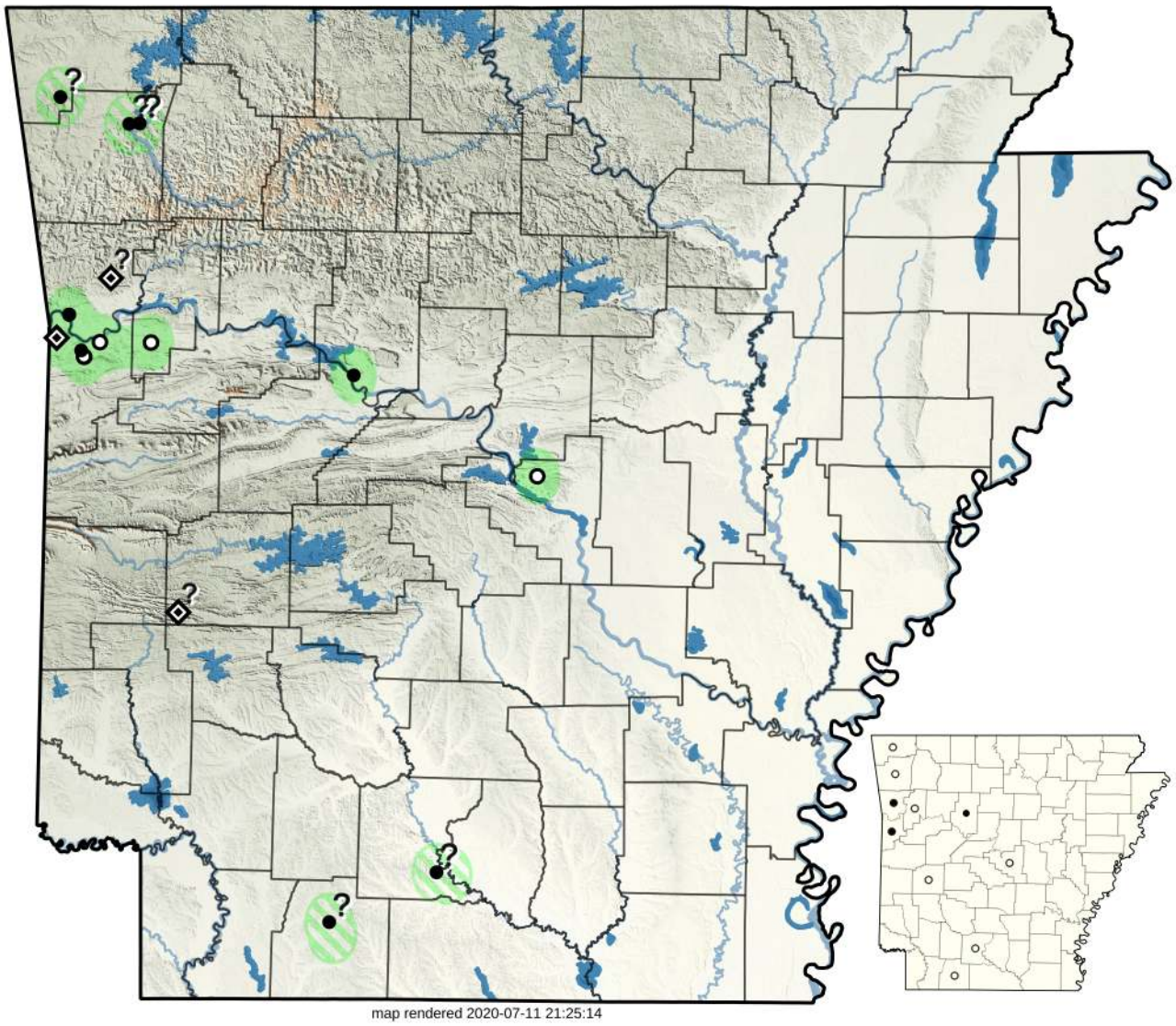



This species is represented by 931 records from 35 sources: 813 museum (●), 0 literature (□), 0 research (△), and 65 observation (○), with 53 additional Trauth et al. (2004) locality points remaining unsourced (◈). It has been museum vouchered for 71 of 75 counties (●), with 3 additional counties having other forms of reported occurrence (○). Years of collection range from 1897 to *present*.

This species occurs statewide, with records lacking from the central Boston Mountains.

# *Gastrophryne olivacea* (Hallowell, 1856)

**Western Narrow-mouthed Toad**

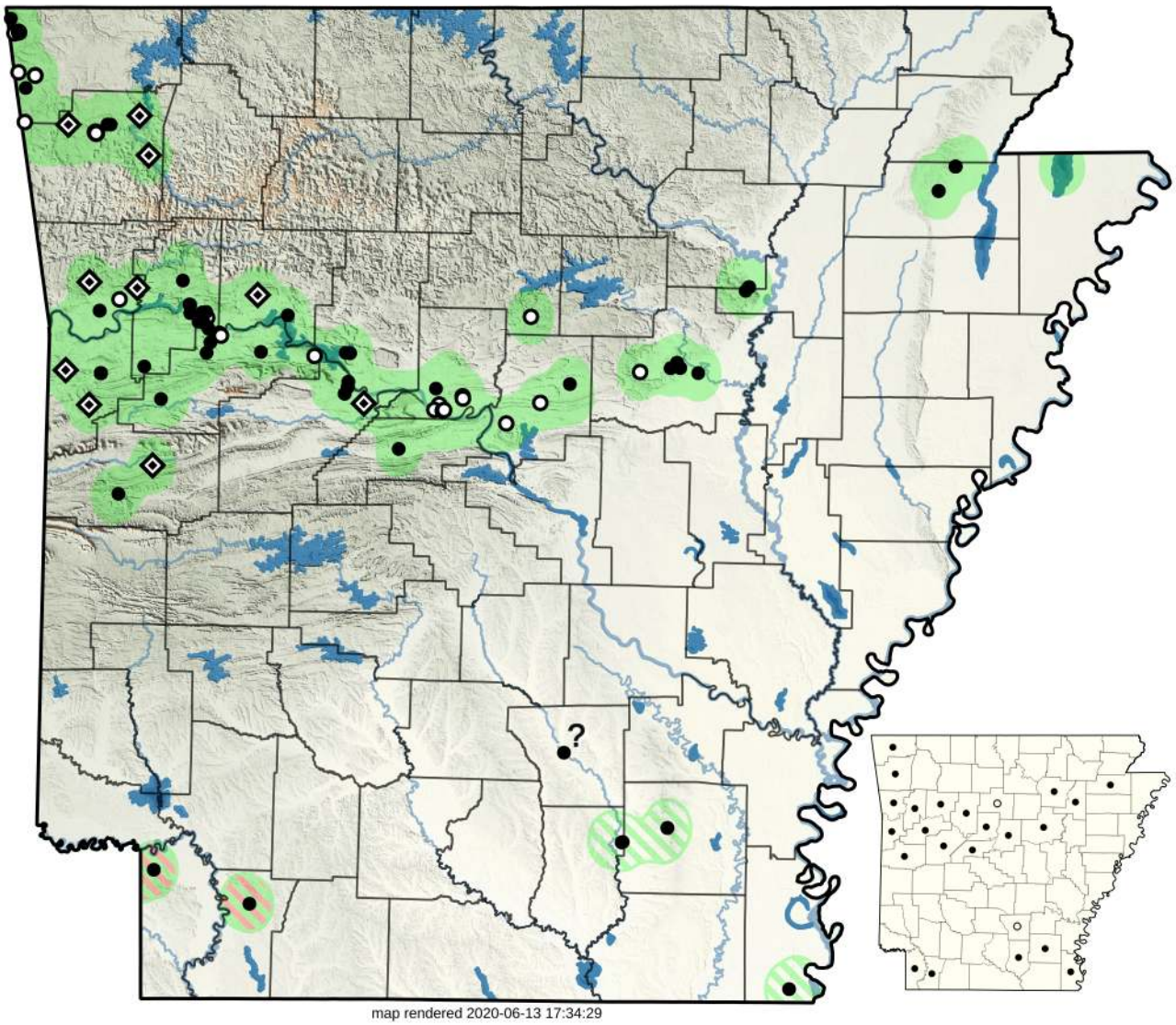



This species is represented by 27 records from 8 sources: 18 museum (●), 0 literature (□), 0 research (△), and 6 observation (○), with 3 additional Trauth et al. (2004) locality points remaining unsourced (◈). It has been museum vouchered for 3 of 75 counties (●), with 7 additional counties having other forms of reported occurrence (○). Years of collection range from 1904 to *present*.

This species occurs along the Arkansas Valley near the Arkansas River, from the vicinity of Fort Smith, Sebastian County; Dardanelle, Pope County; and east of Maumelle, Pulaski County. Similarities in appearance and call with syntopic *G. carolinensis*, compounded by the difficulty of getting one in hand for closer examination, are likely responsible for undersampling. The historical museum records from southern Arkansas (MPM 8539 and 8556, both from 1974) and northwest Arkansas (OMNH 35702 from 1969 and UCM 58151-58154 from 1970) are in need of specimen identification confirmation. Trauth et al. (2004) plotted localities in southwestern Montgomery County and central Crawford County, which have been unmatchable to known records of either *Gastrophryne* species.

## *Lithobates areolatus* ssp. (Baird & Girard, 1852)

**Crawfish Frog**



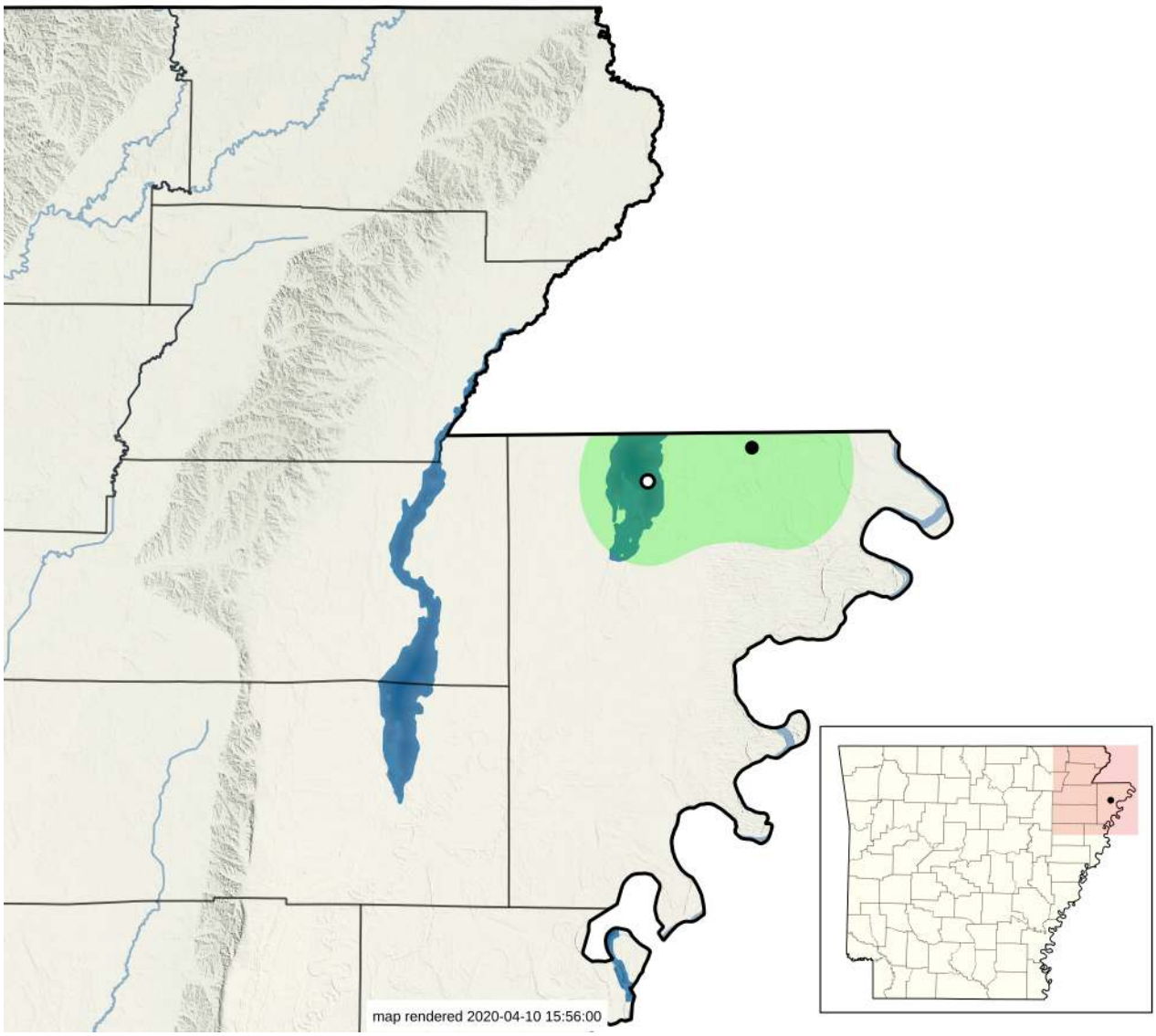

This species is represented by 146 records from 13 sources: 86 museum (●), 0 literature (□), 0 research (△), and 50 observation (○), with 10 additional Trauth et al. (2004) locality points remaining unsourced (◈). It has been museum vouchered for 22 of 75 counties (●), with 2 additional counties having other forms of reported occurrence (○). Years of collection range from 1926 to *present*.

This species has shown declines throughout its range. In Arkansas, it seems relatively secure along the Arkansas Valley and in portions of northwest Arkansas. Urbanization and habitat alterations have presumably caused extirpation of localized historical populations in the vicinity of Fayetteville, Washington County (J. D. Willson, pers. comm.); Searcy, White County (T. J. Belford, pers. comm.); and Jonesboro, Craighead County. The spotty records from central Arkansas extending to the Missouri Bootheel, may be an artifact of a formerly more widespread distribution. Despite surveys in recent years, it has not been confirmed from southeast Arkansas since 1977 nor southwest Arkansas since 1940 and may well be extirpated from the southern third of the state. A couple of relatively recent confirmed reports from Louisiana (Boundy and Carr, 2017) offer some hope of this secretive species still persisting in isolated pockets from this portion of its range. A questionable record from Cleveland County (ANSP 26728 from 1960) is based on tadpoles, which are easily misidentified. An anecdotal observation circa 2015 comes from the vicinity of Big Lake National Wildlife Refuge, Mississippi County (K. J. Irwin, pers. comm.). The *L. a. areolatus* subspecies (■) has been ascribed to records from the southwest corner of the state, while those elsewhere as *L. a. circulosus* (■).

## *Lithobates blairi*

(Mecham, Littlejohn, Oldham, Brown, & Brown, 1973)

**Plains Leopard Frog**

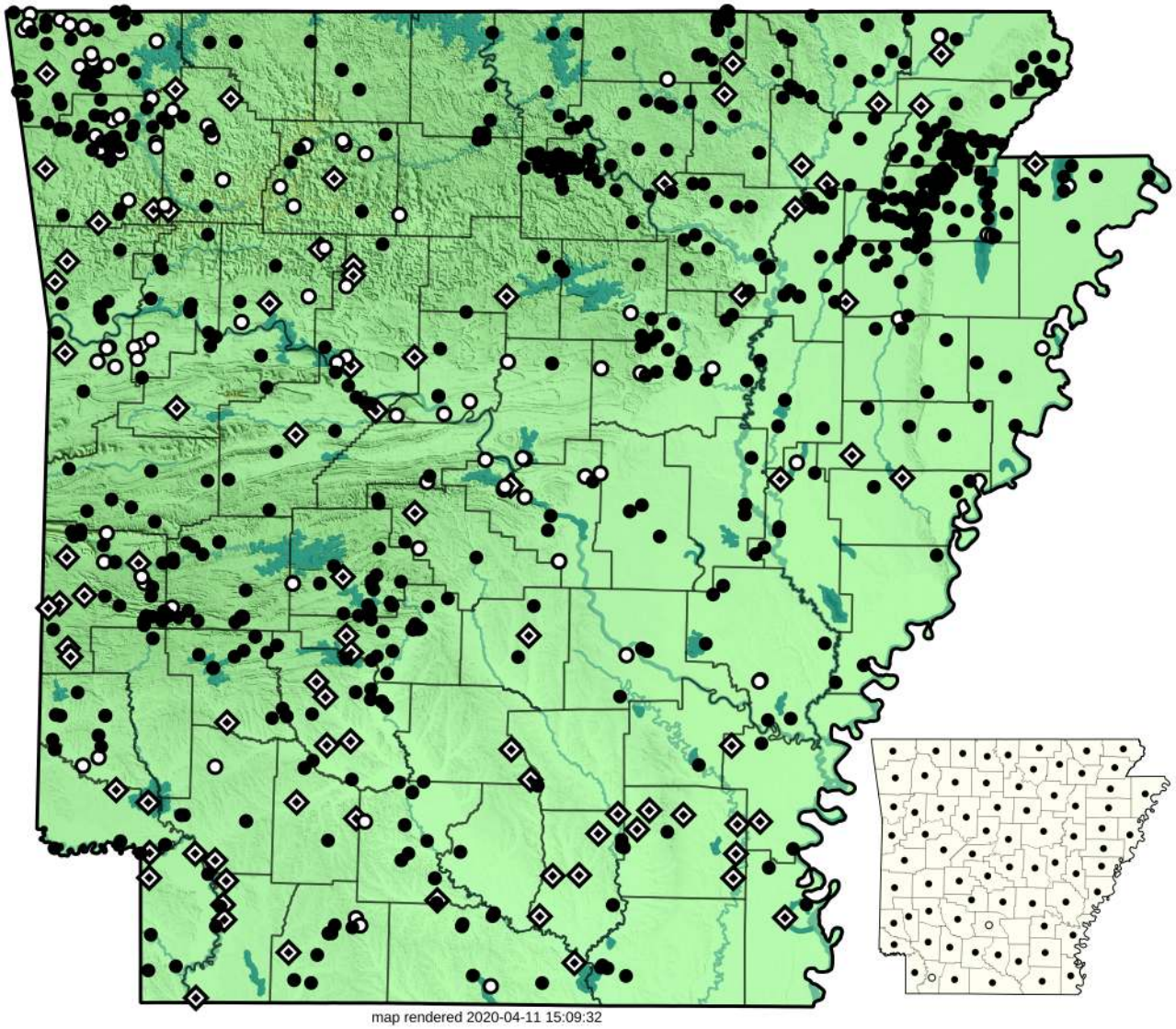



This species is represented by 2 records from 2 sources: 1 museum (●), 0 literature (□), 0 research (△), and 1 observation (○). It has been museum vouchered for 1 of 75 counties (●). Years of collection range from 1992 to 2015.

This species has only two documented records for the state, both from northern Mississippi County, dated 1992 and 2015. A record from just across the border in the Missouri Bootheel (Daniel and Edmond, 2020) lends credence to these records. This frog is very similar in appearance to many *L. sphenocephalus utricularius*, which may have some influence in detection and sampling. Occurrence in northwest Arkansas cannot be completely discounted, on the basis of hypothesized ranges (Powell et al., 2016), although many leopard frogs from this corner of the state have been examined by experts and none have been identified as this species (K. G. Roberts, pers. obs., and J. D. Willson, pers. comm.).

# *Lithobates catesbeianus* (Shaw, 1802)

**American Bullfrog**

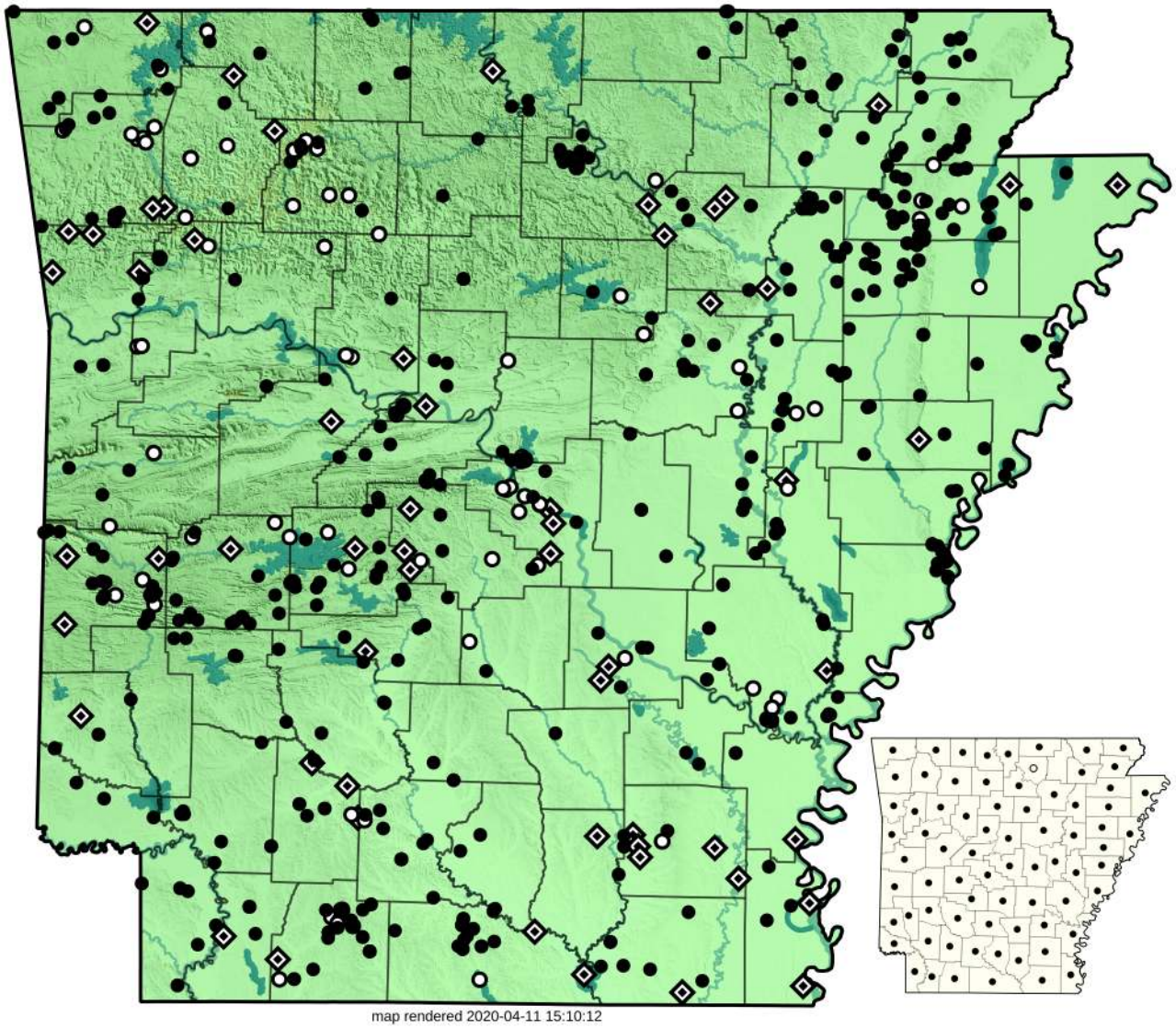



This species is represented by 1,375 records from 39 sources: 1,164 museum (●), 0 literature (□), 0 research (△), and 126 observation (○), with 85 additional Trauth et al. (2004) locality points remaining unsourced (◈). It has been museum vouchered for 72 of 75 counties (●), with 2 additional counties having other forms of reported occurrence (○). Years of collection range from 1891 to *present*.

This species is common statewide.

# *Lithobates clamitans* (Latreille, 1801)

**Green Frog**

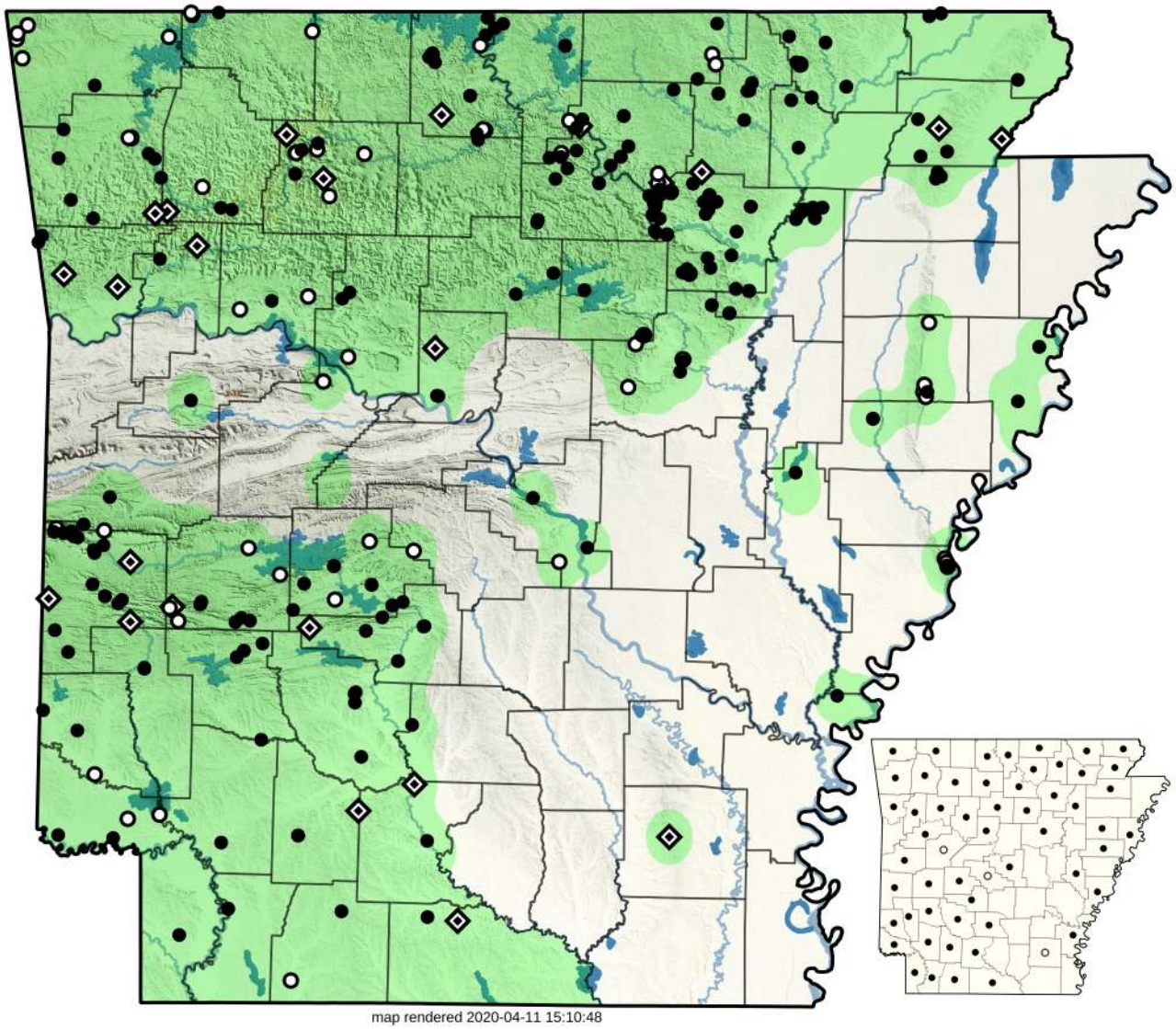



This species is represented by 1,298 records from 35 sources: 1,113 museum (●), 0 literature (□), 0 research (△), and 127 observation (○), with 58 additional Trauth et al. (2004) locality points remaining unsourced (◈). It has been museum vouchered for 73 of 75 counties (●), with 1 additional county having other forms of reported occurrence (○). Years of collection range from 1900 to *present*.

This species is common statewide.

# *Lithobates palustris* (LeConte, 1825)

**Pickerel Frog**

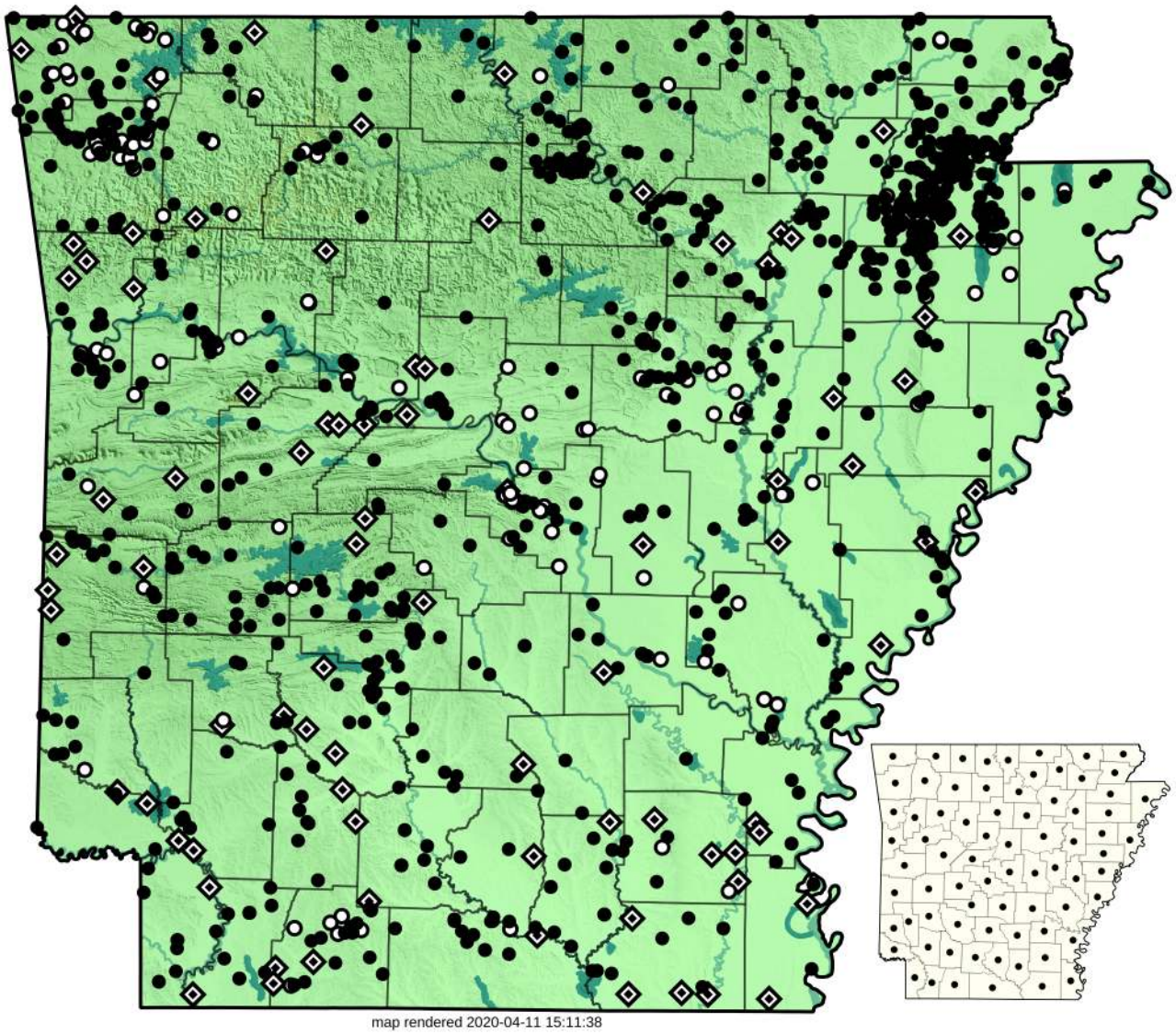



This species is represented by 544 records from 24 sources: 454 museum (●), 0 literature (□), 0 research (△), and 67 observation (○), with 23 additional Trauth et al. (2004) locality points remaining unsourced (◈). It has been museum vouchered for 53 of 75 counties (●), with 3 additional counties having other forms of reported occurrence (○). Years of collection range from 1917 to *present*.

This species has been documented throughout much of the northern half of the state and southwest quarter, with scattered records elsewhere. The large gaps in distribution may be an artifact of undersampling. Recent observations of numerous subadults along portions of the eastern edge of Crowley's Ridge (K. G. Roberts, pers. obs., 2019) suggest this species likely occurs along the entirety of this ecoregion. An isolated record reported by Trauth et al. (2004) from the vicinity of Monticello, Drew County, remains unsourced.

# *Lithobates sphenocephalus utricularius* (Harlan, 1825)

**Coastal Plains Leopard Frog**

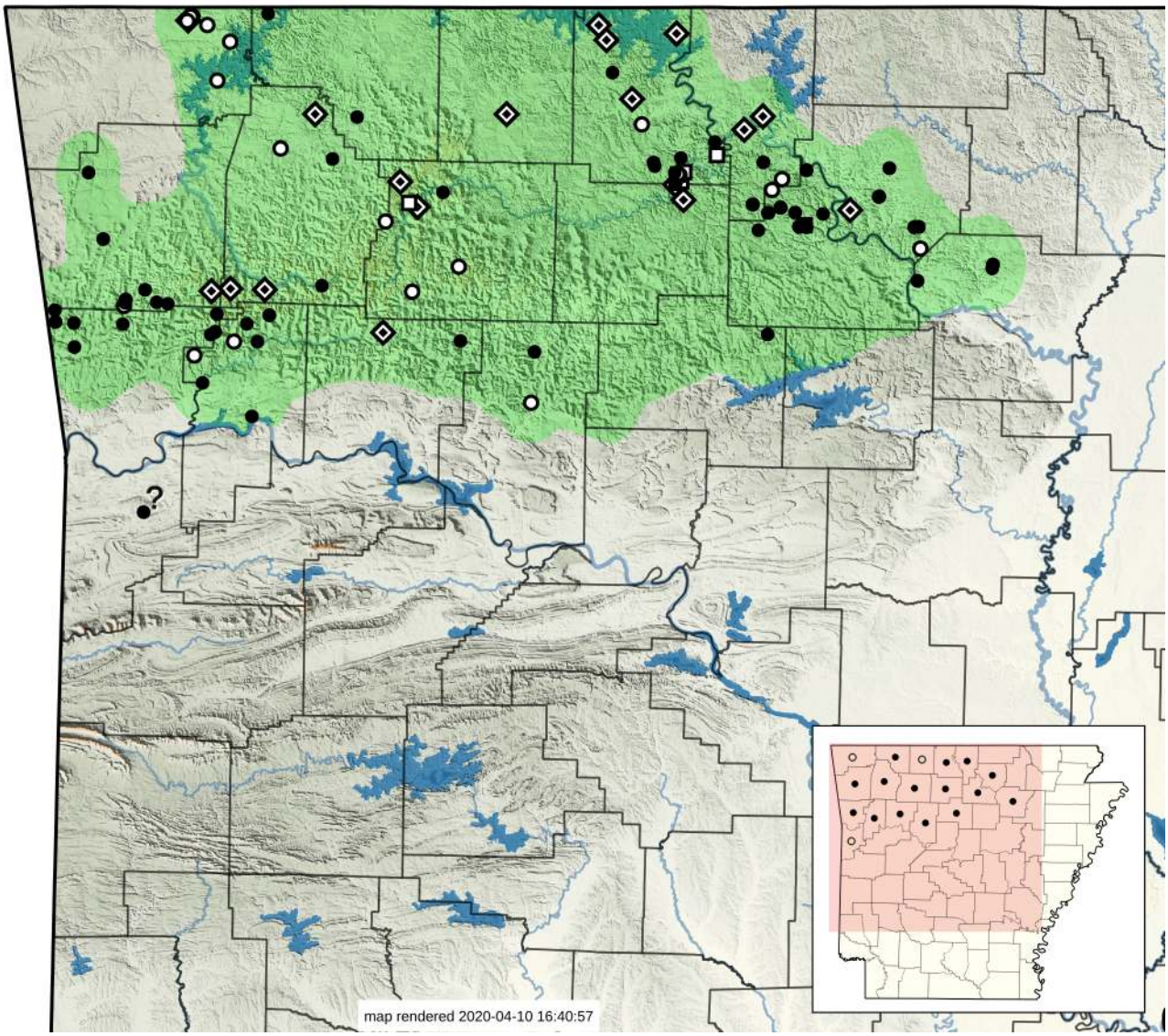



This species is represented by 2,541 records from 40 sources: 2,284 museum (●), 0 literature (□), 0 research (△), and 173 observation (○), with 84 additional Trauth et al. (2004) locality points remaining unsourced (◈). It has been museum vouchered for all counties (●). Years of collection range from 1898 to *present*.

This species is common statewide.

# *Lithobates sylvaticus* (LeConte, 1825)

**Wood Frog**

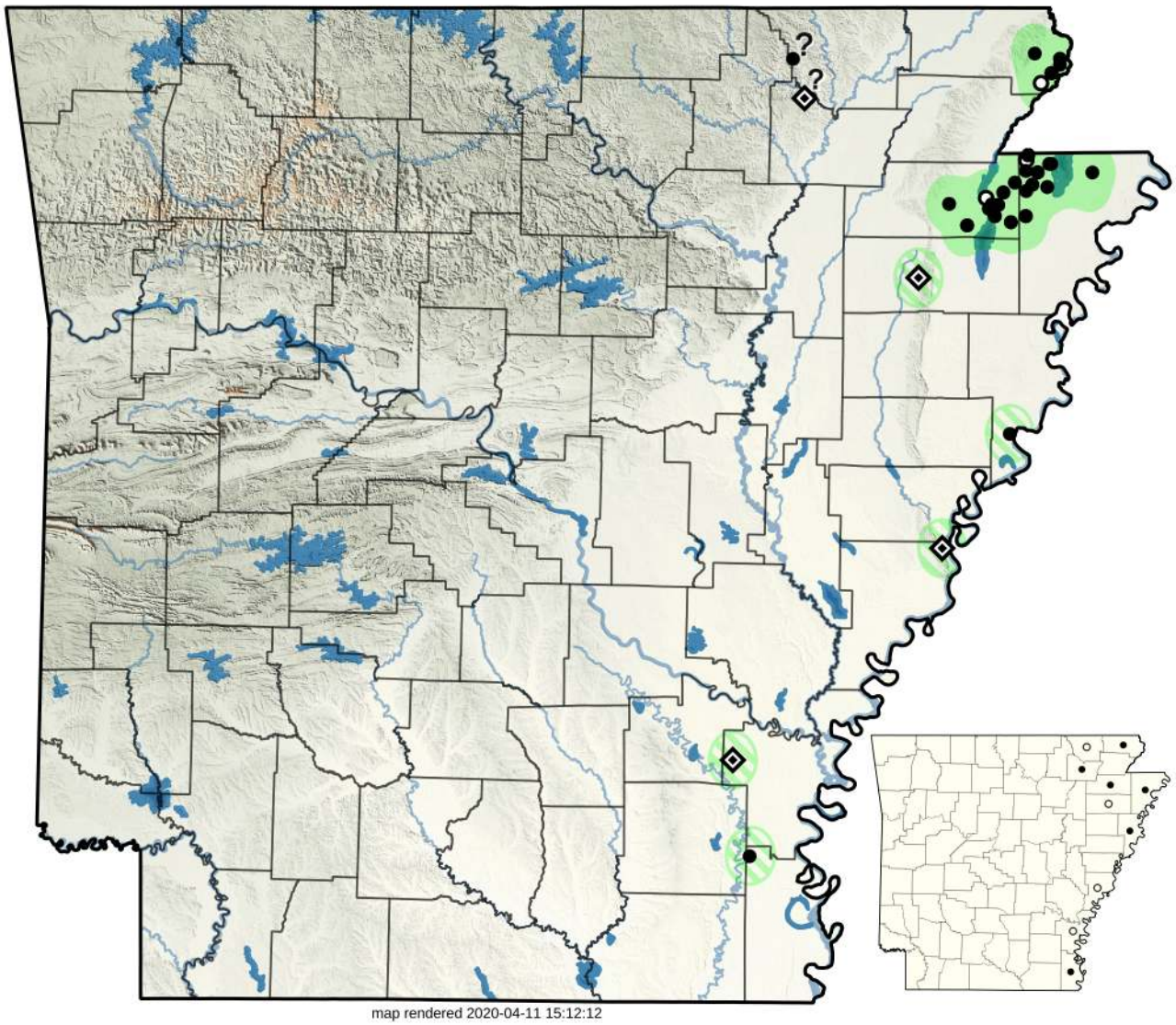



This species is represented by 574 records from 23 sources: 526 museum (●), 7 literature (□), 0 research (△), and 23 observation (○), with 18 additional Trauth et al. (2004) locality points remaining unsourced (◈). It has been museum vouchered for 15 of 75 counties (●), with 3 additional counties having other forms of reported occurrence (○). Years of collection range from 1932 to *present*.

This species occurs throughout much of the Ozark Highlands and Boston Mountains. A questionable record from Ft. Chaffee, Sebastian County (OMNH 38398 from 1992), is almost certainly a mistake in attribution, as this species is not known to occur south of the Arkansas River.

# *Scaphiopus holbrookii* (Harlan, 1835)

**Eastern Spadefoot**

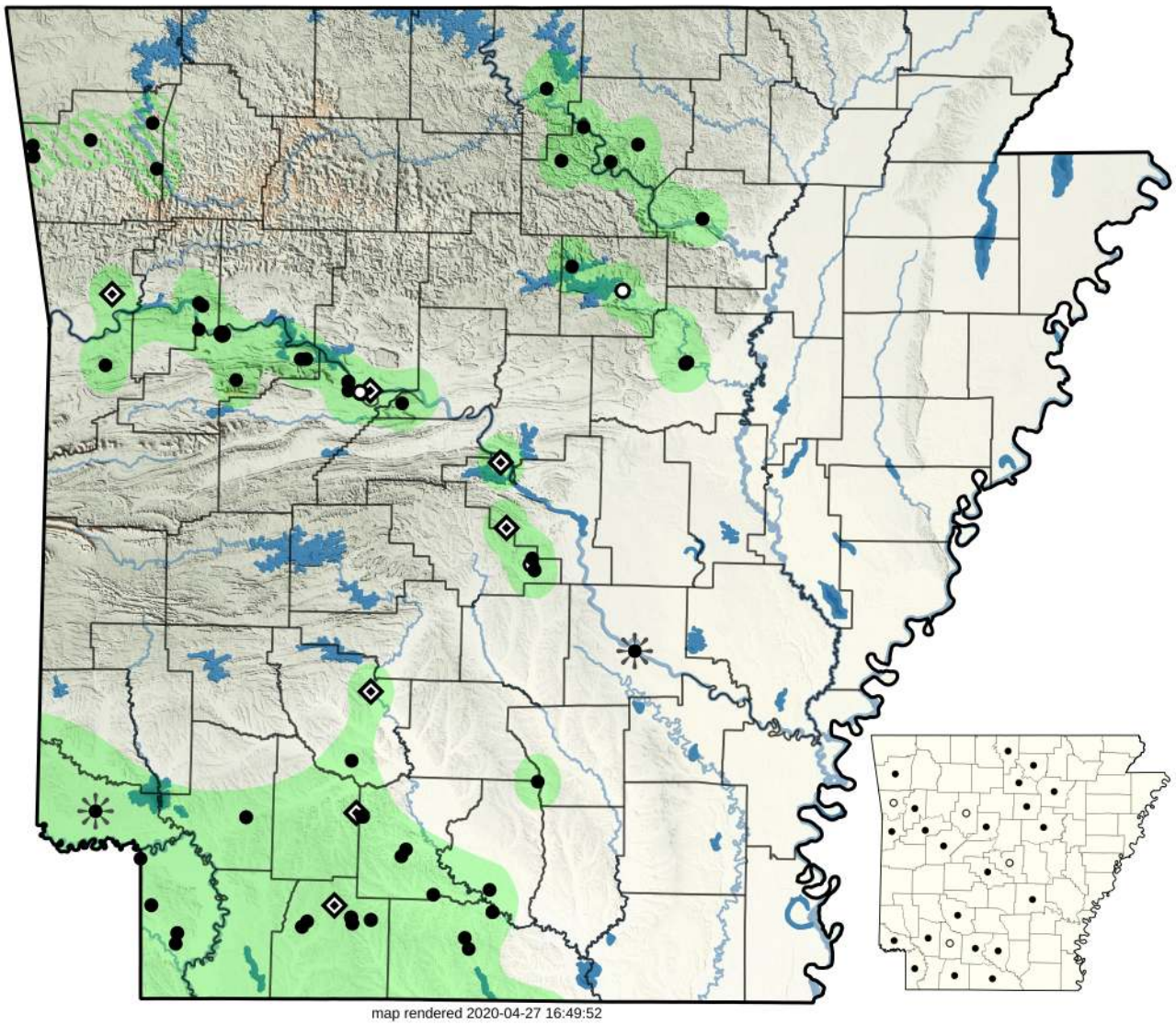



This species is represented by 126 records from 13 sources: 119 museum (●), 0 literature (□), 0 research (△), and 3 observation (○), with 4 additional Trauth et al. (2004) locality points remaining unsourced (◈). It has been museum vouchered for 6 of 75 counties (●), with 4 additional counties having other forms of reported occurrence (○). Years of collection range from 1898 to 2017.

This species has recognized occurrence in northeast Arkansas. *Scaphiopus holbrookii* and *S. hurterii* were formerly considered synonymous, so spotty occurrences along the Mississippi River in eastcentral and southeast Arkansas may lack taxonomic clarity. It has not been documented outside of Clay, Craighead, or Mississippi County since the 1970s, except for an anecdotal photographic report from Chicot County in 2016 (P. Tomerlin, pers. comm.). Three of the historical localities reported by Trauth et al. (2004) remain unsourced. A record west of Ravenden Springs, Randolph County (ASUMZ 3945 from 1975), is questionable, as are a number of records traced to the Ozark Biological Laboratory (OBL), Imboden, Lawrence County. These latter records may have come from the vicinity of Walnut Ridge, Lawrence County, on the basis of likely suitable habitat for this species and sampling likelihood by the OBL director.

# *Scaphiopus hurterii* Strecker, 1910

**Hurter's Spadefoot**

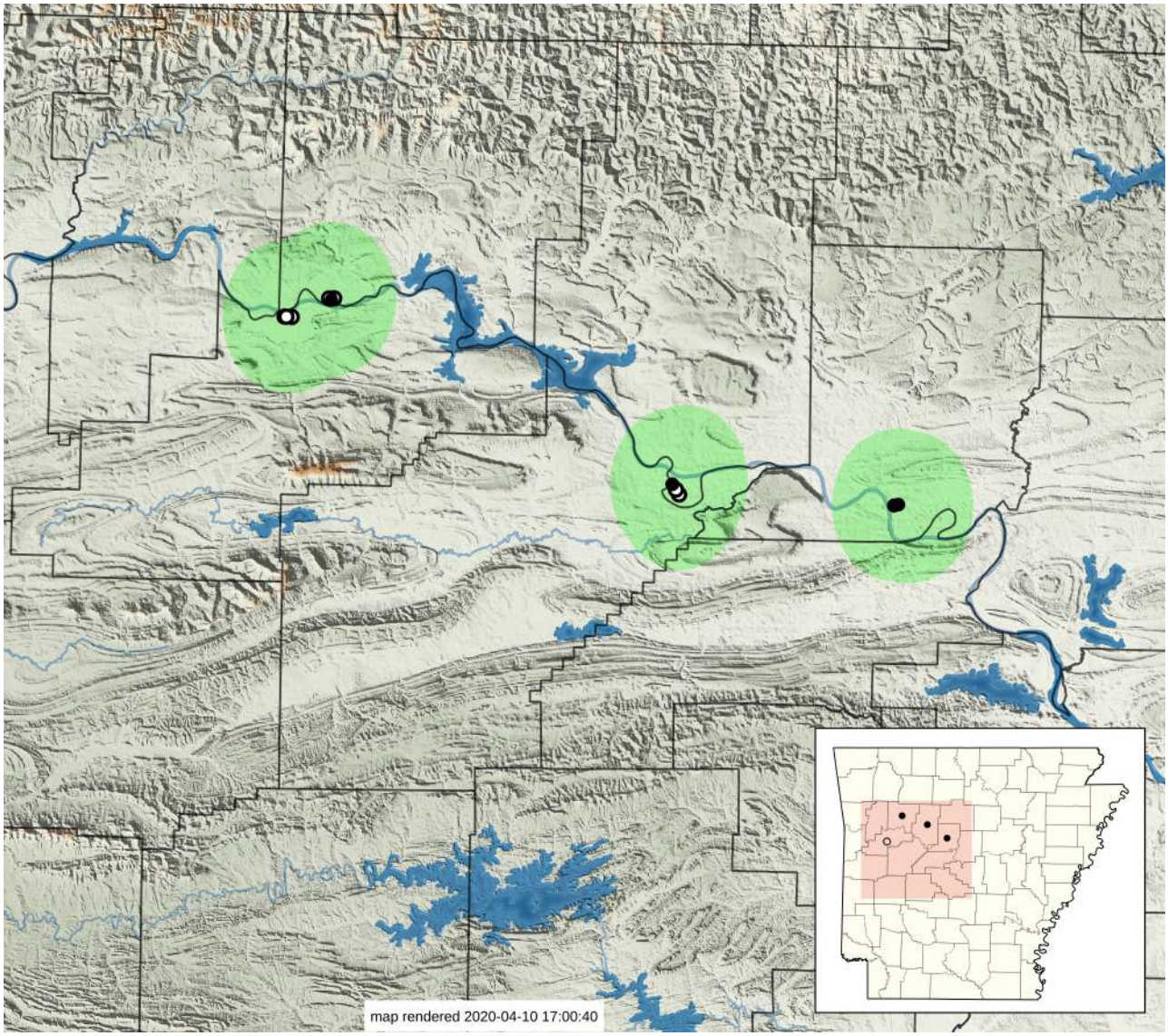



This species is represented by 223 records from 21 sources: 197 museum (●), 0 literature (□), 0 research (△), and 19 observation (○), with 7 additional Trauth et al. (2004) locality points remaining unsourced (◈). It has been museum vouchered for 22 of 75 counties (●), with 4 additional counties having other forms of reported occurrence (○). Years of collection range from 1934 to *present*.

This species occurs in the southwest quarter of the state, along the Arkansas Valley, and the White and Little Red River valleys in northcentral Arkansas. A small number of records dated prior to 1978 come from northwest Arkansas, but with recent surveys suggesting extirpation (K. G. Roberts, pers. obs., and J. D. Willson, pers. comm.). *Scaphiopus holbrookii* and *S. hurterii* were formerly considered synonymous, so spotty occurrences along the Mississippi River in eastcentral and southeast Arkansas may lack taxonomic clarity. A *Scaphiopus* record attributed to Jefferson County (RAD 1946, undated) provides minimal data.

# *Spea bombifrons* (Cope, 1863)

**Plains Spadefoot**




This species is represented by 16 records from 4 sources: 9 museum (●), 0 literature (□), 0 research (△), and 7 observation (○). It has been museum vouchered for 3 of 75 counties (●), with 1 additional county having other forms of reported occurrence (○). Years of collection range from 1978 to 2017.

This species has been reported from four localities of the Arkansas River floodplain. The first specimens collected in 1978 from Holla Bend National Wildlife Refuge, Pope County, were initially published with an incorrect identification as *Scaphiopus hurterii* (Turnipseed, 1980; Plummer and Turnipseed, 1982). Reexamination of other historical *Scaphiopodidae* records from the Arkansas Valley may be warranted to confirm identifications. Detection of this species is difficult, so further surveys are needed to discover additional occurrences along the Arkansas River.

# 5. Crocodilia (Alligator)

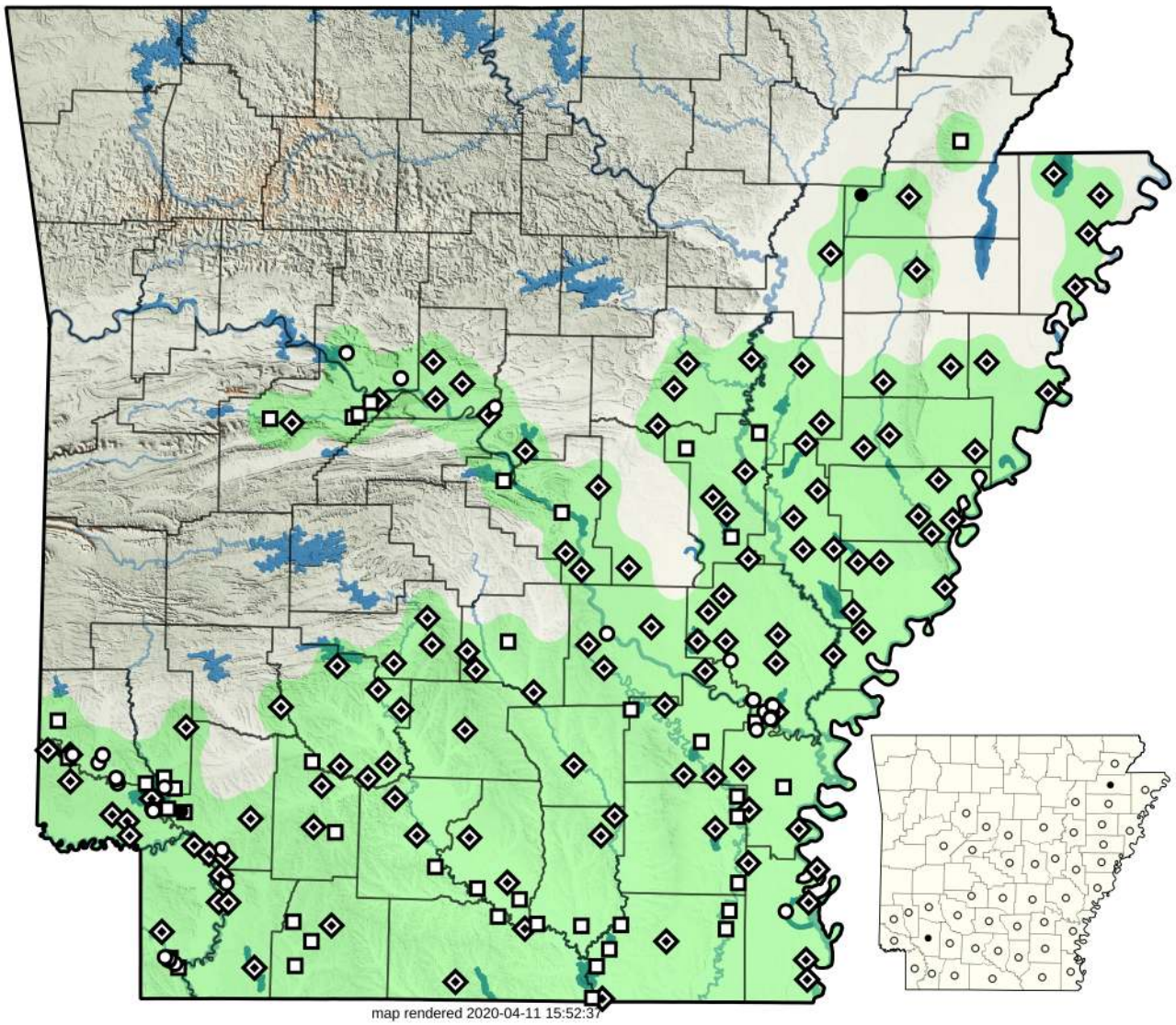
The taxonomic group Crocodilia (Alligator) is represented in Arkansas by 1 species.


### 5.1 Alligatoridae (Alligators and Caimans)

*Alligator mississippiensis* . . . . . 67

# *Alligator mississippiensis* (Daudin, 1802 "1801")

**American Alligator**




This species is represented by 246 records from 8 sources: 6 museum (●), 44 literature (□), 0 research (△), and 78 observation (○), with 118 additional Trauth et al. (2004) locality points remaining unsourced (◈). It has been museum vouchered for 2 of 75 counties (●), with 44 additional counties having other forms of reported occurrence (○). Years of collection range from 1955 to *present*.

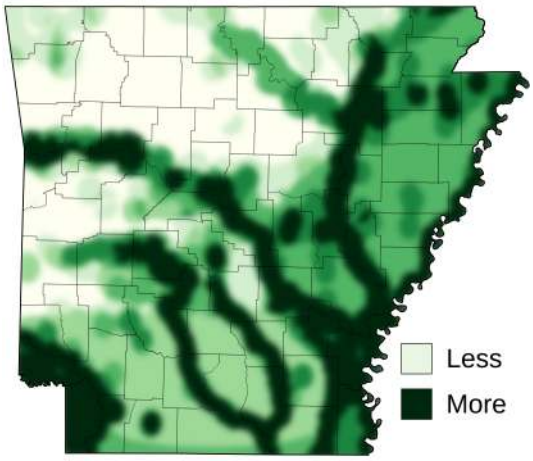
This species currently occurs in the South Central Plains and much of the Mississippi Alluvial Plain, with ascension up the Arkansas Valley along the Arkansas River to Russellville, Pope County, and Petit Jean River to Danville, Yell County. After near extirpation, followed by restocking efforts by the Arkansas Game & Fish Commission (AGFC) from 1975-1984, the current distribution likely approximates the historical range (K. J. Irwin, pers. comm.). The northern extent is based, in part, on a 2001 record from the vicinity of the Cache River, west of Jonesboro, Craighead County, with two additional AGFC reports dated in the 2000s from the St. Francis River, Greene County (K. J. Irwin, pers. comm.; range shading pending specific locality information). It has not been definitively documented from Missouri (Daniel and Edmond, 2020). A large number of localities plotted by Trauth et al. (2004) remain unsourced, although several AGFC reports providing source documentation are in-waiting for installment in the AHA.

# 6. Testudines (Turtles)

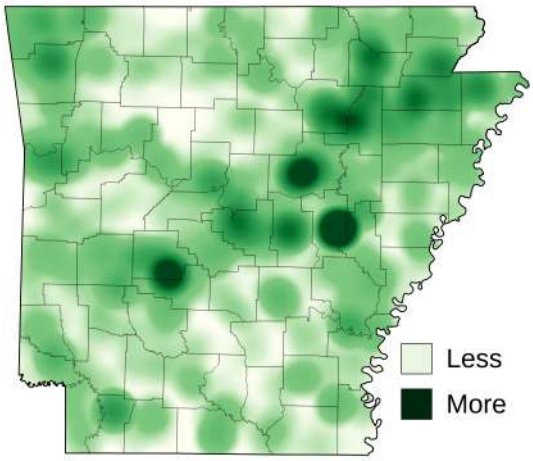
The taxonomic group Testudines (Turtles) is represented in Arkansas by 16 species from 11 genera across 4 families. The AHA contains a total of 6,638 turtle records from 70 sources: 4,218 museum, 140 literature, 0 research, and 1,330 observation, with 950 additional Trauth et al. (2004) locality points remaining unsourced. Years of collection range from 1855 to *present*.


**6.1 Chelydridae (Snapping Turtles)**
*Chelydra serpentina* . . . . . 69
*Macrochelys temminckii* . . . . . 70
**6.2 Emydidae (Box and Basking Turtles)**
*Chrysemys dorsalis* . . . . . 71
*Deirochelys reticularia miaria* . . . . . 72
*Graptemys geographica* . . . . . 73
*Graptemys ouachitensis* . . . . . 74
*Graptemys pseudogeographica kohnii* . . . . . 75
*Pseudemys concinna concinna* . . . . . 76
*Terrapene triunguis* . . . . . 77
*Terrapene ornata* . . . . . 78
*Trachemys scripta elegans* . . . . . 79
**6.3 Kinosternidae (Mud and Musk Turtles)**
*Kinosternon subrubrum hippocrepis* . . . . . 80
*Sternotherus carinatus* . . . . . 81
*Sternotherus odoratus* . . . . . 82
**6.4 Trionychidae (Softshells)**
*Apalone mutica mutica* . . . . . 83
*Apalone spinifera* ssp. . . . . 84

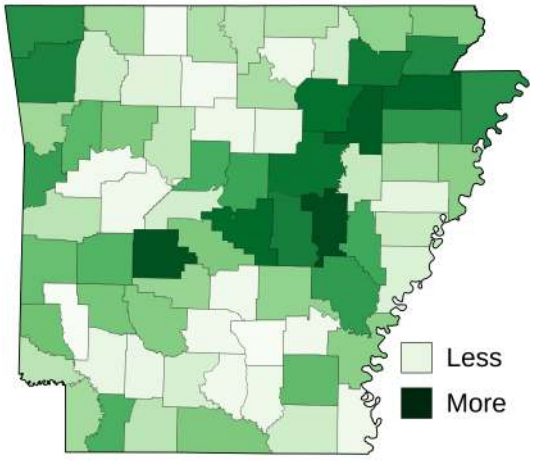

**Biodiversity Heatmap**




**Records Heatmap**

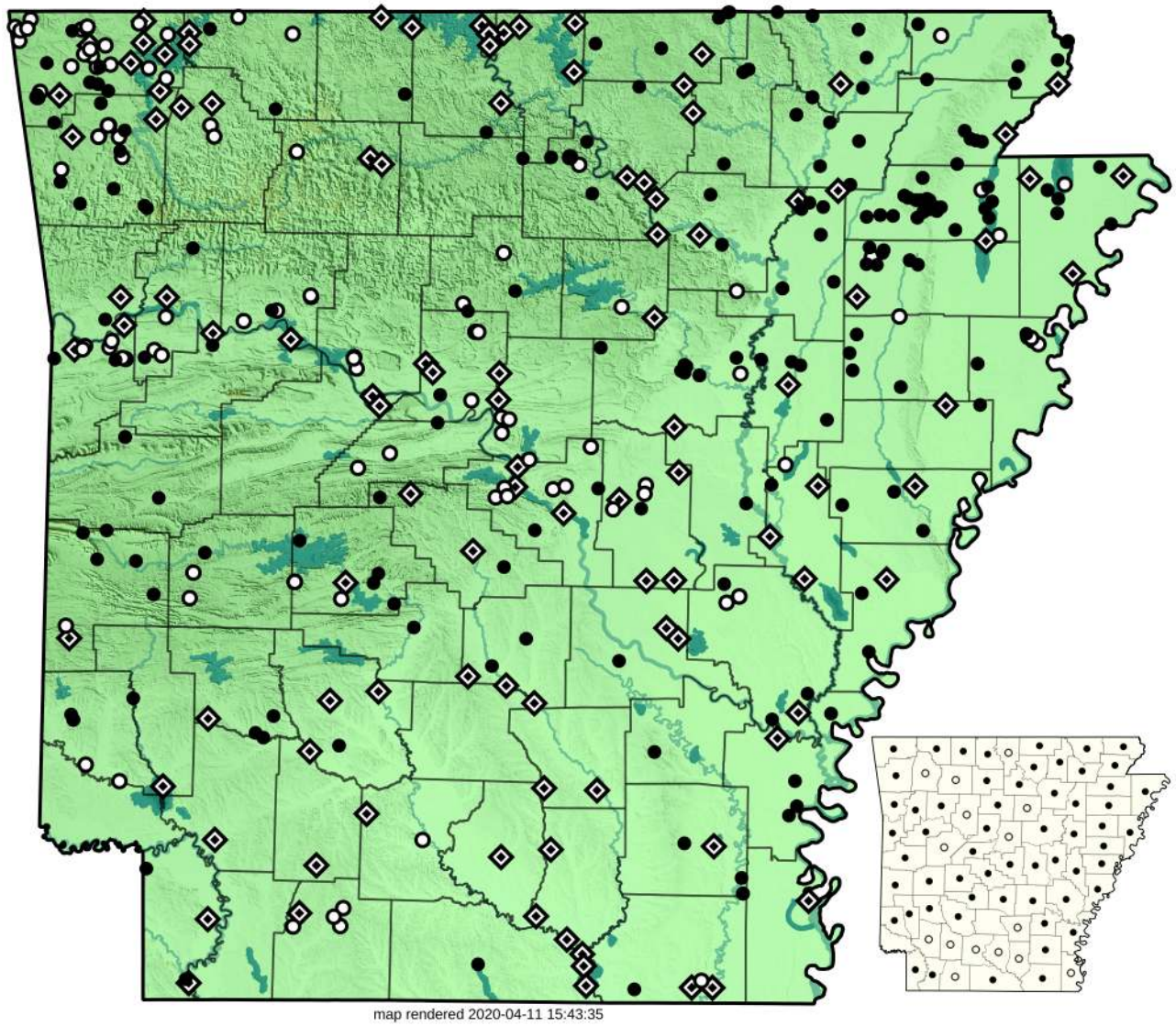



**Records per County Choropleth**



# *Chelydra serpentina* (Linnaeus, 1758)

**Snapping Turtle**

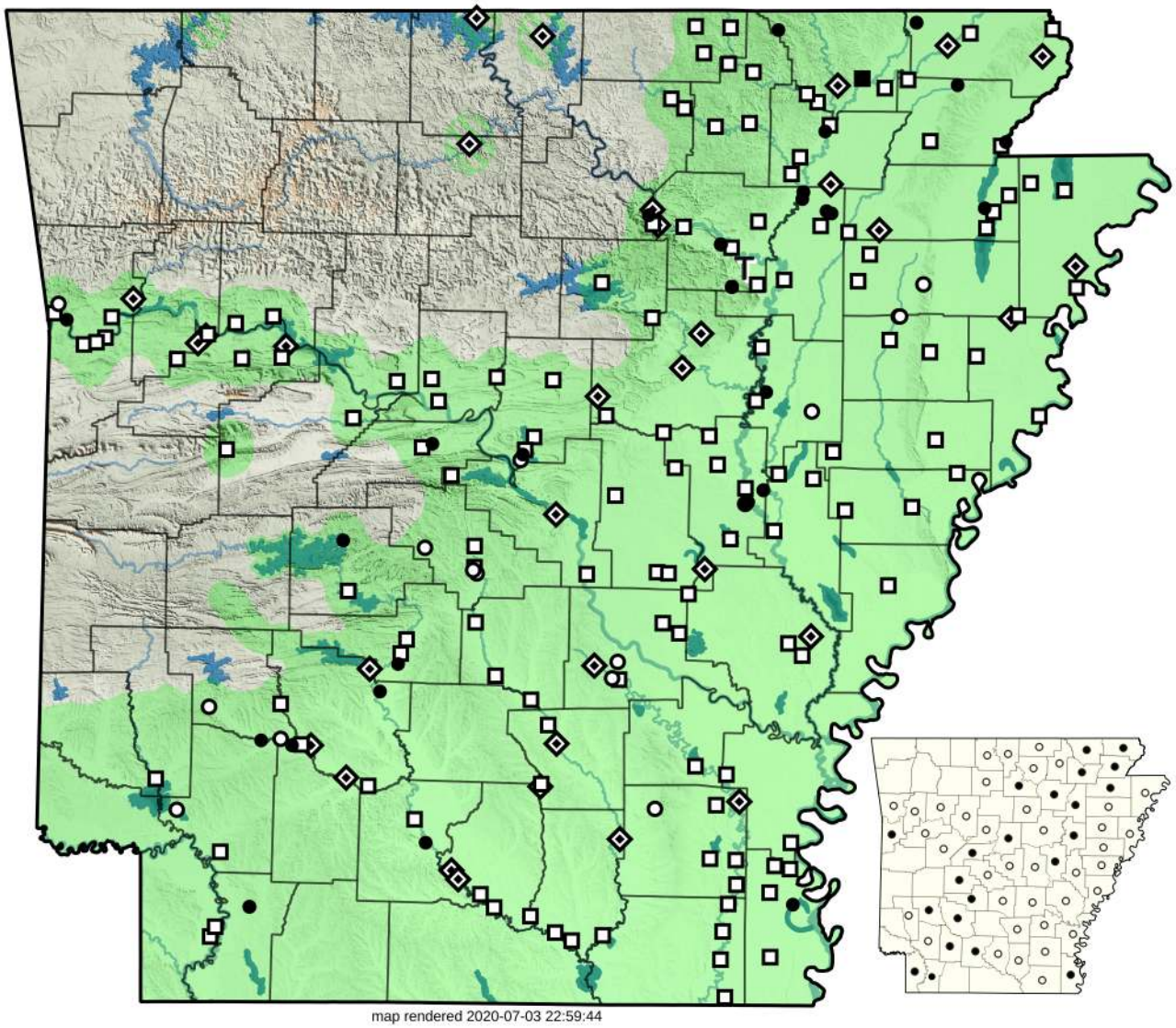



This species is represented by 463 records from 24 sources: 244 museum (●), 0 literature (□), 0 research (△), and 113 observation (○), with 106 additional Trauth et al. (2004) locality points remaining unsourced (◈). It has been museum vouchered for 58 of 75 counties (●), with 15 additional counties having other forms of reported occurrence (○). Years of collection range from 1893 to *present*.

This species occurs statewide.

# *Macrochelys temminckii* (Harlan, 1835)

**Alligator Snapping Turtle**

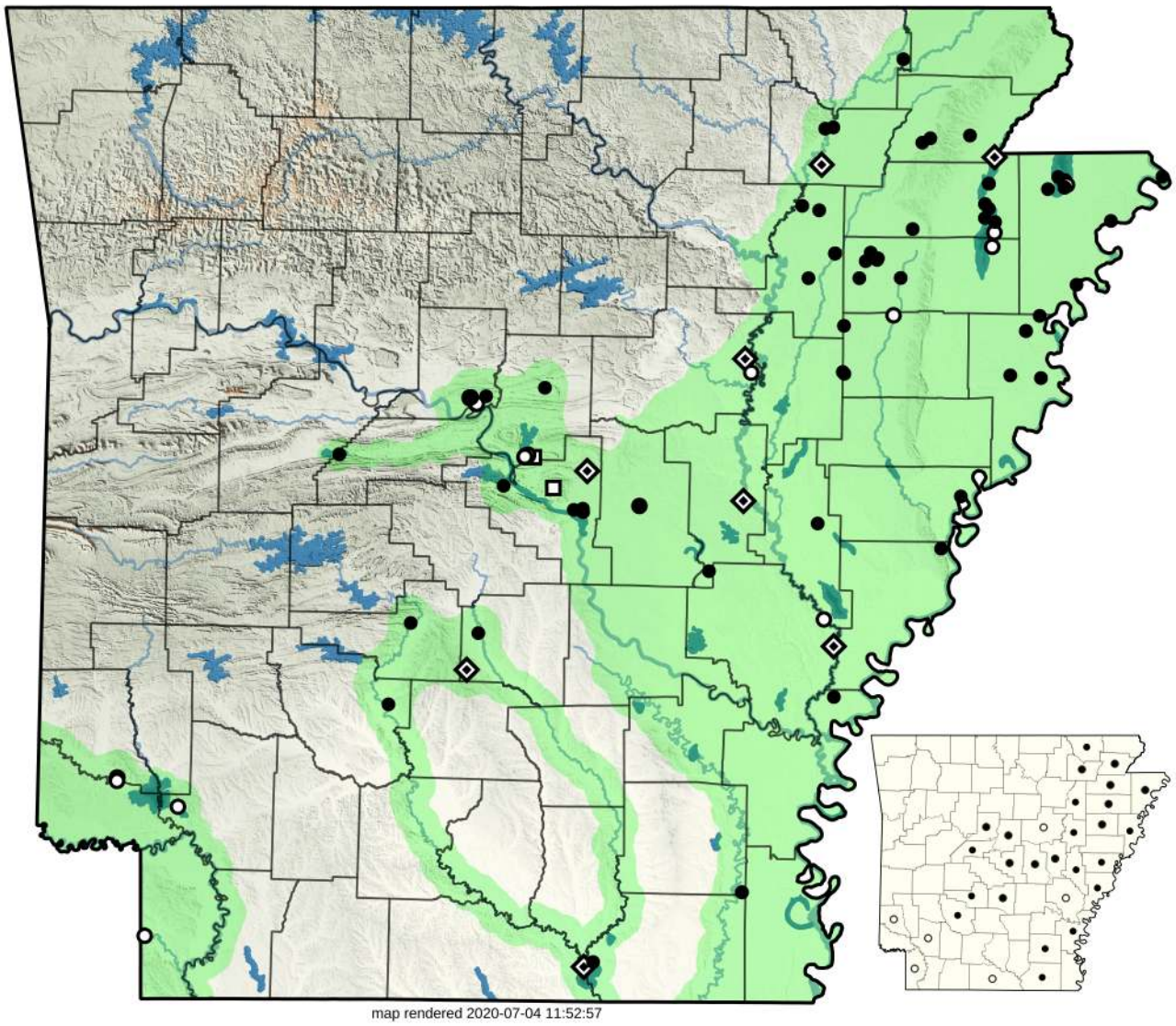



This species is represented by 283 records from 21 sources: 102 museum (●), 133 literature (□), 0 research (△), and 16 observation (○), with 32 additional Trauth et al. (2004) locality points remaining unsourced (◈). It has been museum vouchered for 22 of 75 counties (●), with 38 additional counties having other forms of reported occurrence (○). Years of collection range from 1894 to *present*.

This highly aquatic species may occupy most of the larger waterways in the state, except for high gradient streams of the Interior Highlands. It has well-documented occurrence in the South Central Plains and Mississippi Alluvial Plain. Photographic newspaper accounts, circa early 1970s, from Beaver, Carroll County, three records from southcentral Missouri (Daniel and Edmond, 2020), and three Trauth et al. (2004) unsourced locality points in northcentral Arkansas illustrate ascension up the upper White River system. However, an unpublished ANHC report from 1976 of a purported *Macrochelys temminckii* in a small, rocky stream in Benton County was likely the result of a misidentified *Chelydra serpentina*. Undocumented observations have been made by experts in Ozark Highland streams of southern Missouri and northern Arkansas in the North Fork, Eleven Point, and Current rivers, and Bryant Creek (J. T. Briggler and K. J. Irwin, pers. comm.). K. J. Irwin observed a courting pair in the Caddo River near Glenwood, Montgomery County (pers. obs.), and received an adult specimen taken by a fisherman from Lake Ouachita, Garland County (K. G. Roberts, private collection, 2019).

# *Chrysemys dorsalis* Agassiz, 1857

**Southern Painted Turtle**



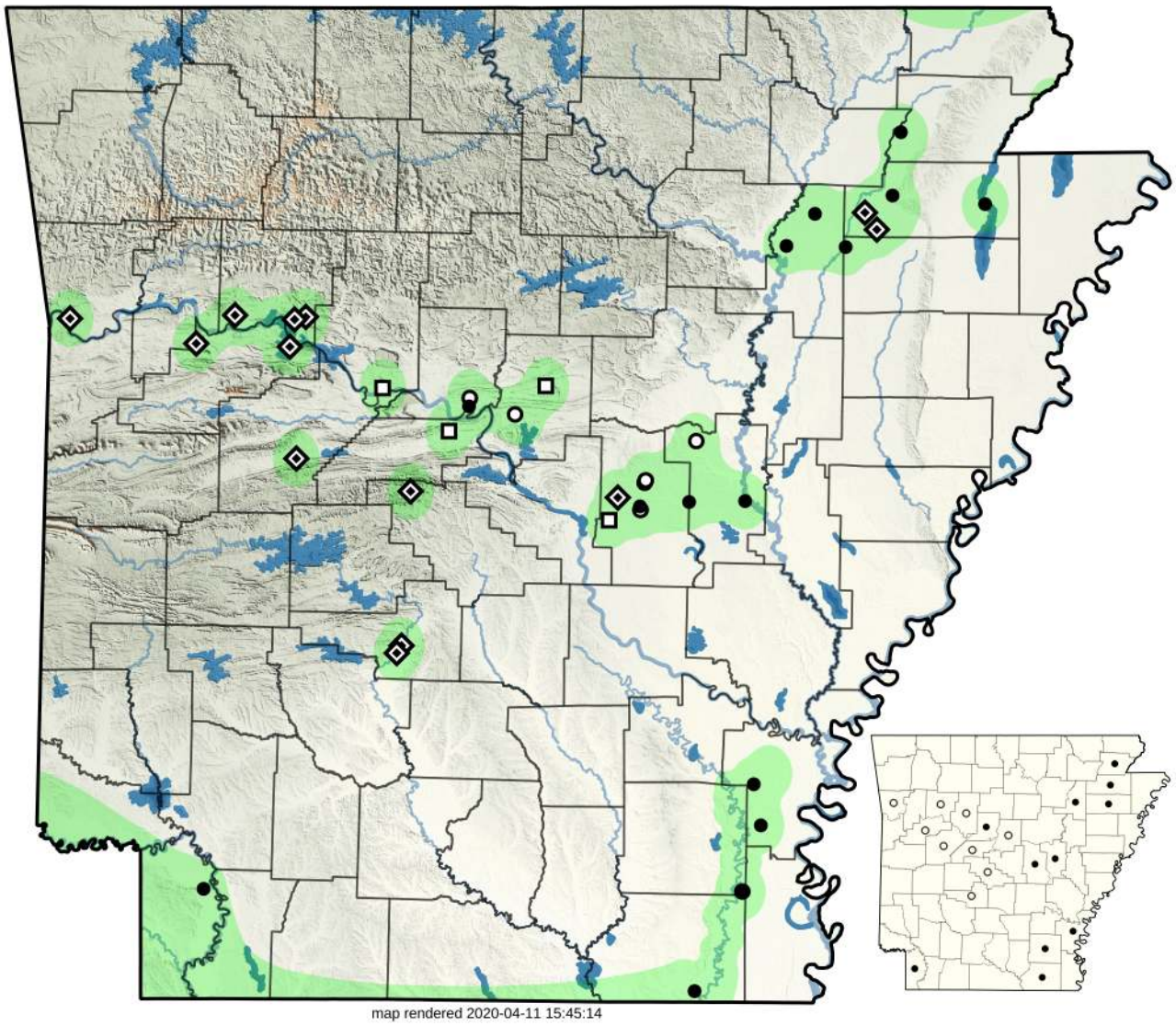

This species is represented by 134 records from 22 sources: 87 museum (●), 2 literature (□), 0 research (△), and 37 observation (○), with 8 additional Trauth et al. (2004) locality points remaining unsourced (◈). It has been museum vouchered for 25 of 75 counties (●), with 6 additional counties having other forms of reported occurrence (○). Years of collection range from 1929 to *present*.

This species has a spotty distribution throughout the Mississippi Alluvial Plain and eastern Arkansas Valley, with limited documentation in the South Central Plains from the backwaters of the Little, Ouachita, Red, and Saline Rivers. It is likely undersampled throughout its range. A historical record from Nimrod Lake, Perry County (RAD 1802 from 1965), is likely valid, as K. J. Irwin has captured several unvouchered specimens in the Fourche River floodplain at Harris Brake Wildlife Management Area, Perry County (pers. obs.).

# *Deirochelys reticularia miaria*

Schwartz, 1956

**Western Chicken Turtle**

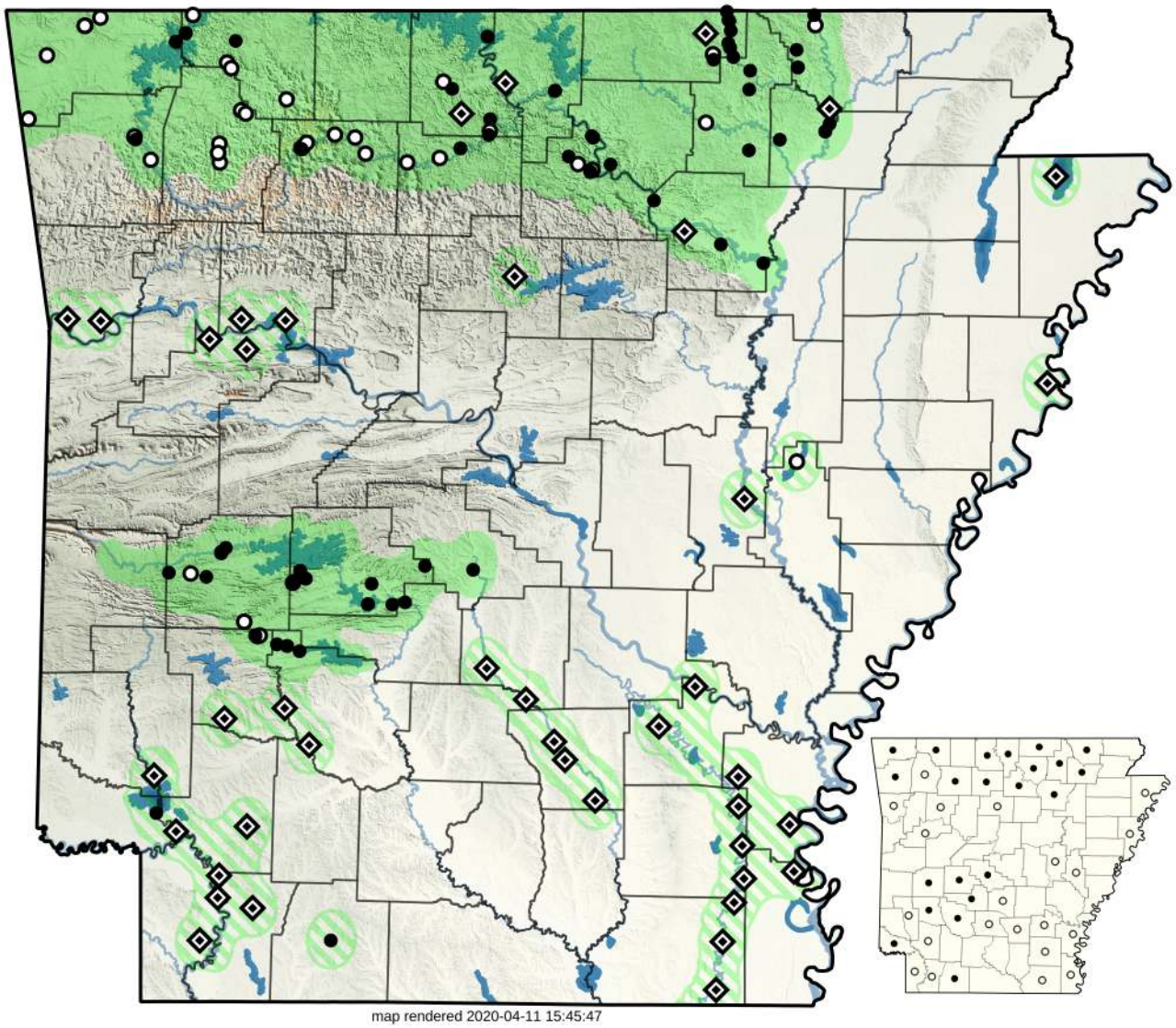



This species is represented by 45 records from 19 sources: 16 museum (●), 4 literature (□), 0 research (△), and 12 observation (○), with 13 additional Trauth et al. (2004) locality points remaining unsourced (◈). It has been museum vouchered for 11 of 75 counties (●), with 9 additional counties having other forms of reported occurrence (○). Years of collection range from 1926 to 2017.

This uncommon species has a very spotty distribution record in the Mississippi Alluvial Plain, South Central Plains, and Arkansas Valley. The unusual habits of this species, such as long aestivation retreats, and preferred habitat of temporally-flooded edge backwaters make sampling challenging. Several records from the Missouri Bootheel (Daniel and Edmond, 2020) suggest a wider distribution in the northeast corner of the state. A 2016 record from Miller County illustrates the need for further surveys across the South Central Plains. Trauth et al. (2004) plotted a number of localities along the western Arkansas Valley and scattered in the Ouachita Mountains which remain unsourced.

# *Graptemys geographica* (LeSueur, 1817)

**Northern Map Turtle**

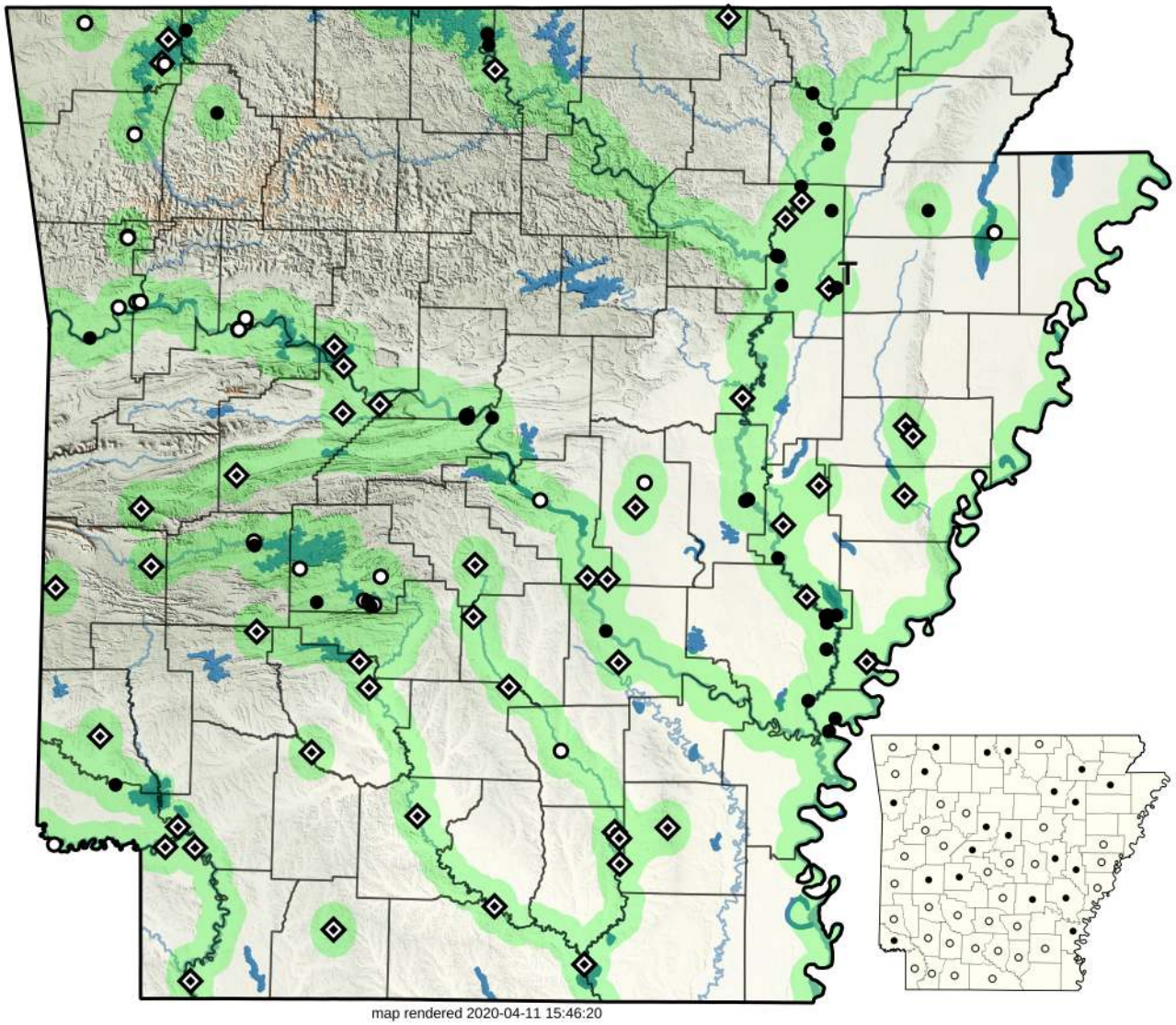



This species is represented by 195 records from 28 sources: 108 museum (●), 0 literature (□), 0 research (△), and 46 observation (○), with 41 additional Trauth et al. (2004) locality points remaining unsourced (◈). It has been museum vouchered for 22 of 75 counties (●), with 21 additional counties having other forms of reported occurrence (○). Years of collection range from 1855 to *present*.

This species is well documented from streams in the Ozark Highlands, northern Boston Mountains, and Caddo and Ouachita rivers in the Ouachita Mountains. Trauth et al. (2004) plotted many localities in the Arkansas Valley, South Central Plains, and Mississippi Alluvial Plain, which remain unsourced. The four sourced records outside of well established ranges–two from northern Monroe County (video vouchers CLO 440542 and 440545 from 2004), Little River County (KU 319190 from 1979), and Columbia County (MPM 16004 from 1976)–warrant reexamination. To provide further context from neighboring states, no known confirmed records exist for central or southern Oklahoma (Sievert and Taggart, 2020), Texas (Dixon, 2013), Mississippi (Powell et al., 2016), western third of Tennessee (Scott and Redmond, 2019), nor the Missouri Bootheel (Daniel and Edmond, 2020), with only a single confirmed state record from the Ouachita River in northcentral Louisiana (Boundy and Carr, 2017).

# *Graptemys ouachitensis* Cagle, 1953

**Ouachita Map Turtle**

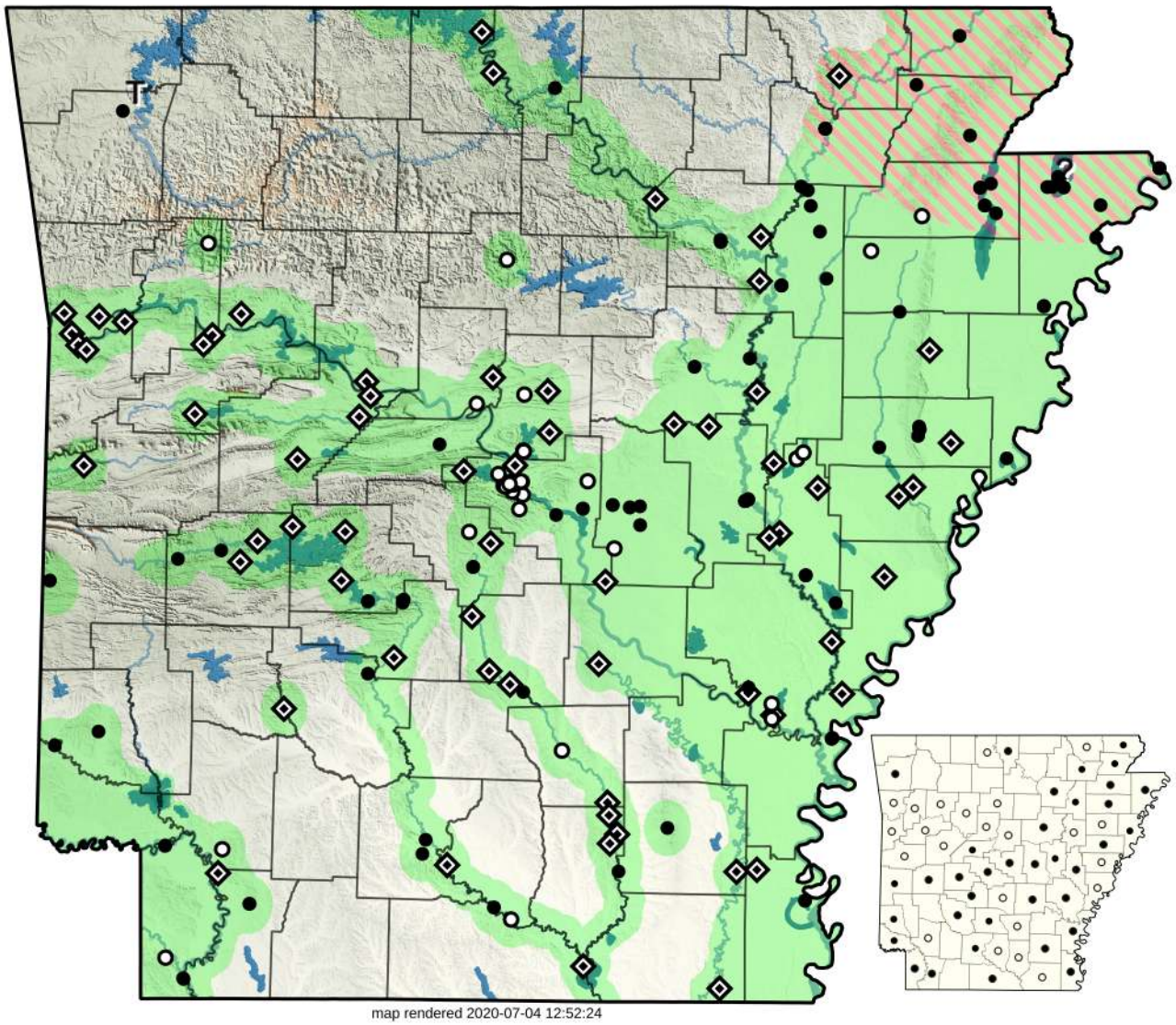



This species is represented by 336 records from 16 sources: 260 museum (●), 0 literature (□), 0 research (△), and 29 observation (○), with 47 additional Trauth et al. (2004) locality points remaining unsourced (◈). It has been museum vouchered for 20 of 75 counties (●), with 32 additional counties having other forms of reported occurrence (○). Years of collection range from 1855 to *present*.

This species may occur statewide, particularly in larger rivers and associated reservoirs and outside of high gradient streams of the Interior Highlands. The *Graptemys ouachitensis* / *pseudogeographica* complex has historically presented taxonomic challenges and the occasional Arkansas specimen has proven difficult to determine specific assignment. Many localities plotted by Trauth et al. (2004) remain unsourced.

# *Graptemys pseudogeographica kohnii* (Baur, 1890)

**Mississippi Map Turtle**

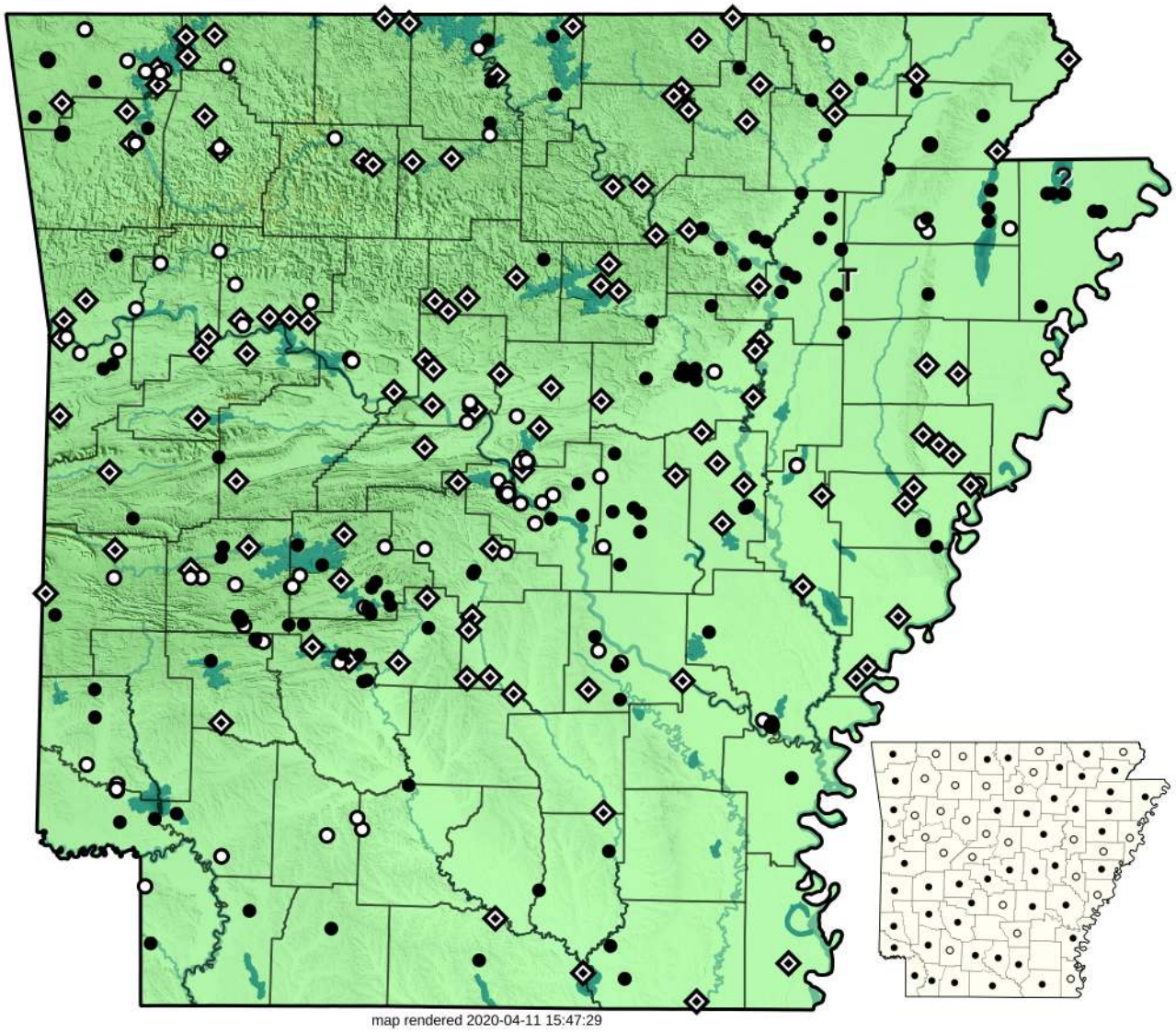



This species is represented by 517 records from 23 sources: 390 museum (●), 0 literature (□), 0 research (△), and 62 observation (○), with 65 additional Trauth et al. (2004) locality points remaining unsourced (◈). It has been museum vouchered for 36 of 75 counties (●), with 23 additional counties having other forms of reported occurrence (○). Years of collection range from 1855 to *present*.

This species may occur statewide, outside of high gradient streams of the Interior Highlands. The *Graptemys ouachitensis* / *pseudogeographica* complex has historically presented taxonomic challenges and the occasional Arkansas specimen has proven difficult to determine specific assignment. Many localities plotted by Trauth et al. (2004), particularly along the western Arkansas Valley, remain unsourced. An isolated record from a city lake in northwest Arkanasas is currently attributed as a likely transplant. Powell et al. (2016) show a large intergrade zone with the *G. p. pseudogeographica* subspecies (■) across the northeast corner of the state.

# *Pseudemys concinna concinna* (LeConte, 1830)

**Eastern River Cooter**

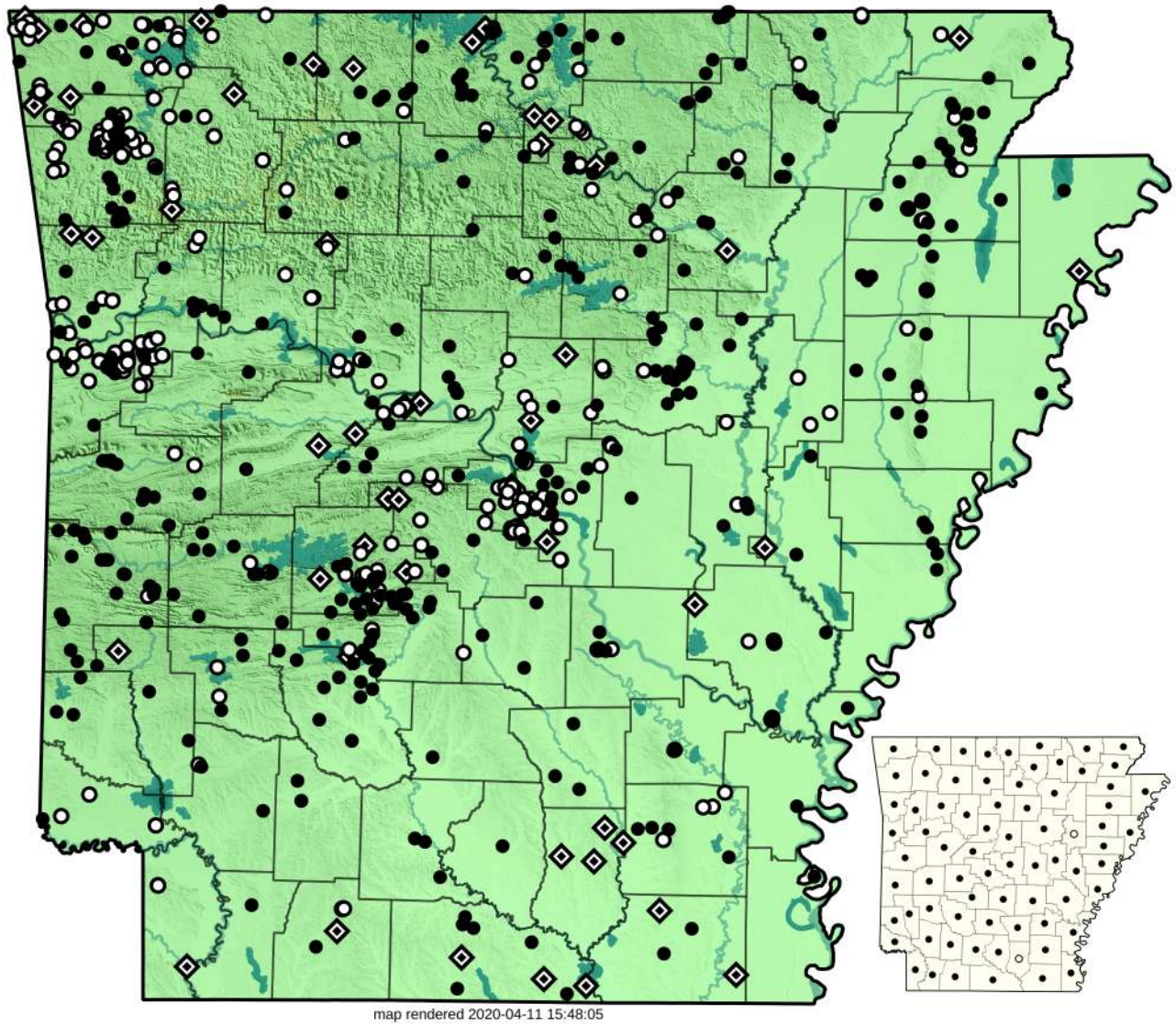



This species is represented by 618 records from 31 sources: 376 museum (●), 0 literature (□), 0 research (△), and 129 observation (○), with 113 additional Trauth et al. (2004) locality points remaining unsourced (◈). It has been museum vouchered for 45 of 75 counties (●), with 26 additional counties having other forms of reported occurrence (○). Years of collection range from 1855 to *present*.

This species occurs statewide, although it may be less common from high gradient streams of the Interior Highlands.

# *Terrapene triunguis* (Agassiz, 1857)

**Three-toed Box Turtle**

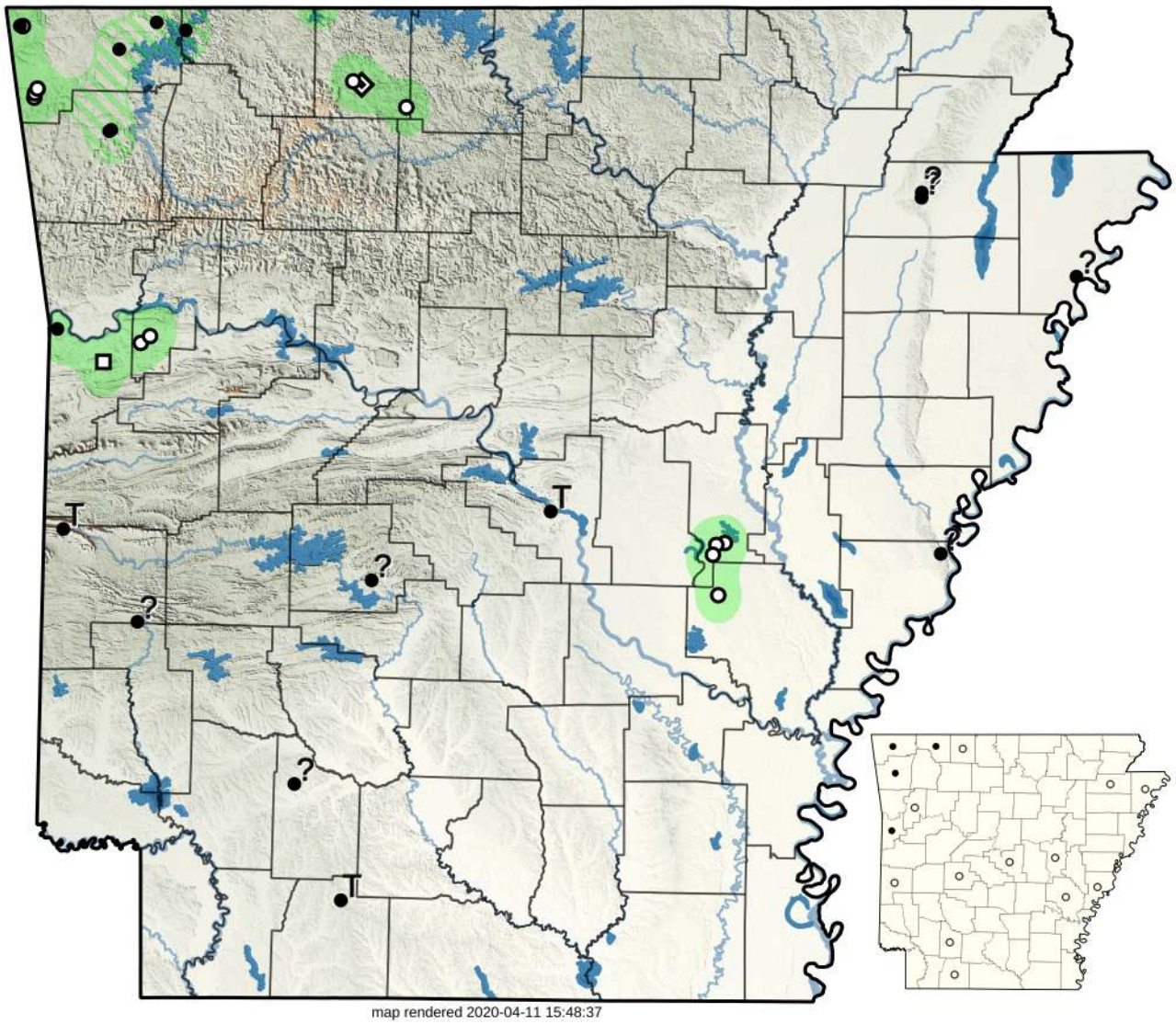



This species is represented by 974 records from 36 sources: 498 museum (●), 0 literature (□), 0 research (△), and 423 observation (○), with 53 additional Trauth et al. (2004) locality points remaining unsourced (◈). It has been museum vouchered for 72 of 75 counties (●), with 2 additional counties having other forms of reported occurrence (○). Years of collection range from 1892 to *present*.

This species is common statewide. The *Terrapene carolina* / *triunguis* complex has presented taxonomic challenges, with *T. carolina* having reported morphological influence from occasional specimens in southeast Arkansas (Tumlison and Rocconi, 2000). Also see *T. carolina*.

# *Terrapene ornata* (Agassiz, 1857)

**Ornate Box Turtle**

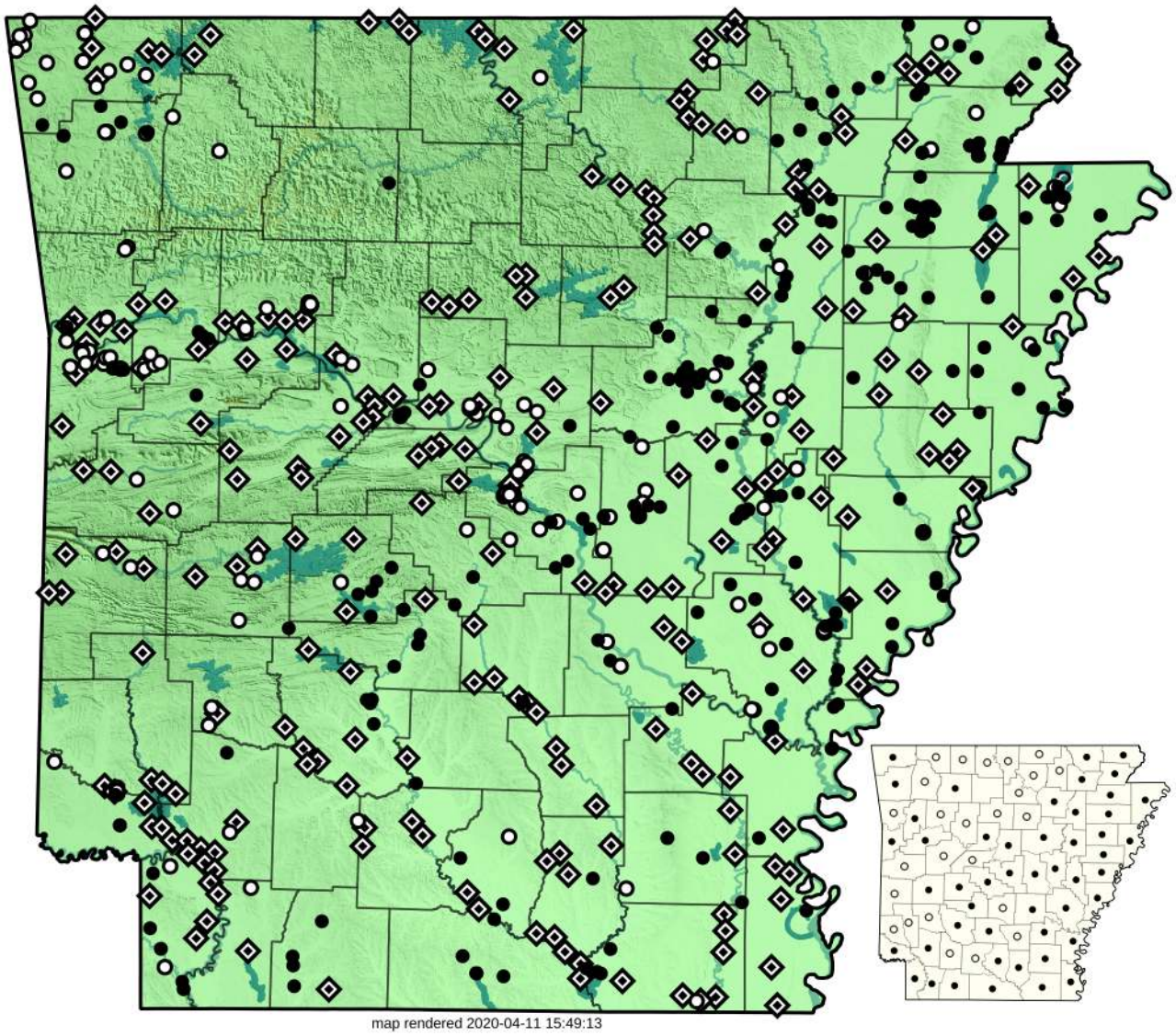



This species is represented by 36 records from 10 sources: 20 museum (●), 1 literature (□), 0 research (△), and 14 observation (○), with 1 additional Trauth et al. (2004) locality point remaining unsourced (◈). It has been museum vouchered for 4 of 75 counties (●), with 12 additional counties having other forms of reported occurrence (○). Years of collection range from 1947 to 2017.

This uncommon species inhabits tallgrass prairie remnants of the Springfield Plateau in northwest Arkansas, the western Arkansas Valley, and Grand Prairie region. Negative impacts from agriculture and urban expansion have resulted in range contractions due to habitat loss, with known viable populations largely restricted to managed properties, such as Ft. Chaffee and ANHC reserves. The borders with Missouri and Oklahoma, as well as the southwest corner of the state, may harbor additional occurrences. Scattered records elsewhere in the state are presumed to be misidentifications of *T. triunguis* or transplants (ASUMZ 1053, 4566, 5882-5883, 13334, and 29432; HSU 832; UAFMC 0068-0735-2302, 0068-0735-2305, and 0068-0735-2307; UMMZ 96568-96569).

# *Trachemys scripta elegans* (Wied-Neuwied, 1838)

**Red-eared Slider**

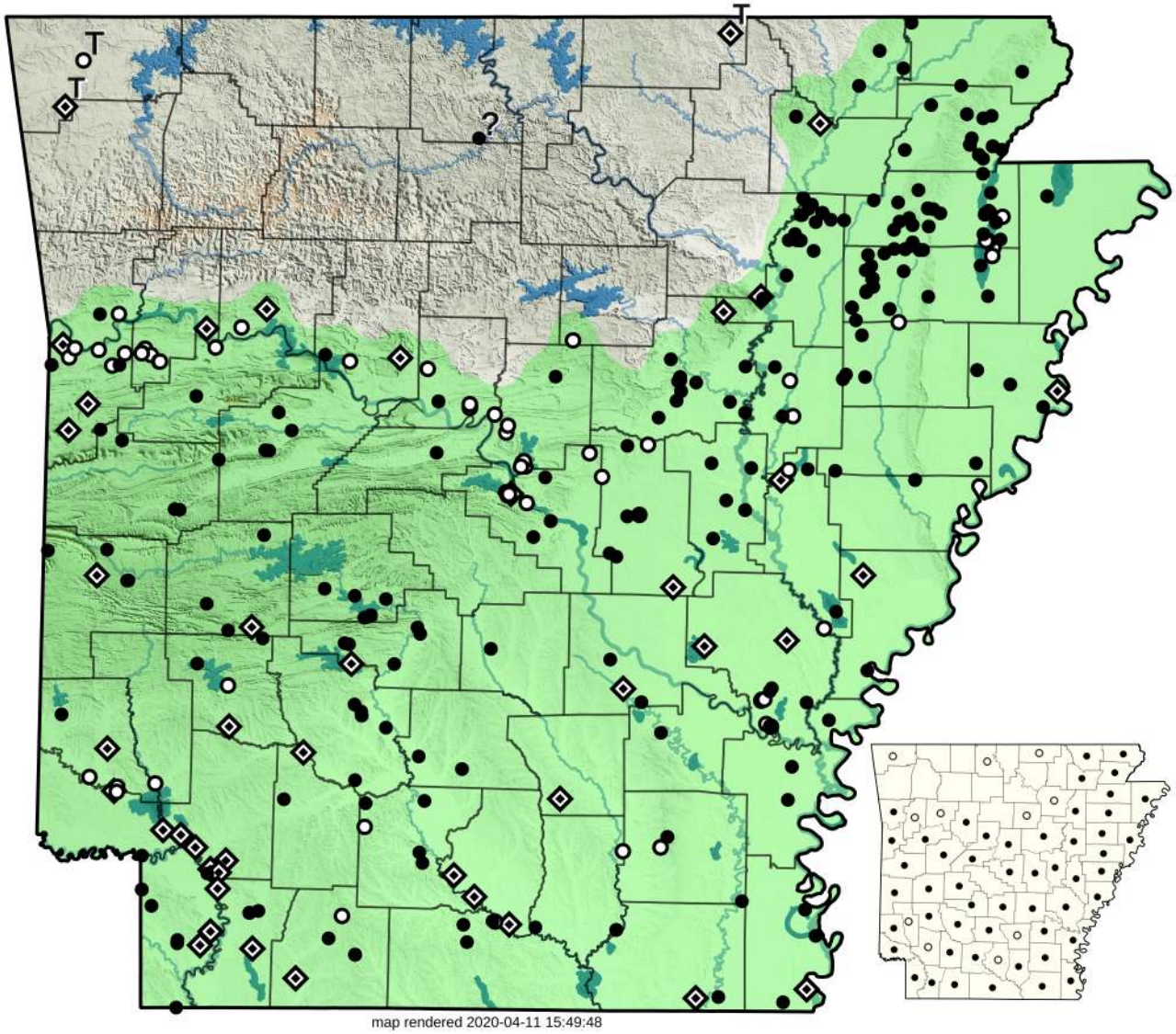



This species is represented by 1,151 records from 34 sources: 669 museum (●), 0 literature (□), 0 research (△), and 235 observation (○), with 247 additional Trauth et al. (2004) locality points remaining unsourced (◈). It has been museum vouchered for 50 of 75 counties (●), with 24 additional counties having other forms of reported occurrence (○). Years of collection range from 1887 to *present*.

This species occurs statewide, although records from high gradient streams of the central Boston Mountains are lacking. Trauth et al. (2004) plotted many localities across most of the state which remain unsourced.

# *Kinosternon subrubrum hippocrepis* Gray, 1855

**Mississippi Mud Turtle**

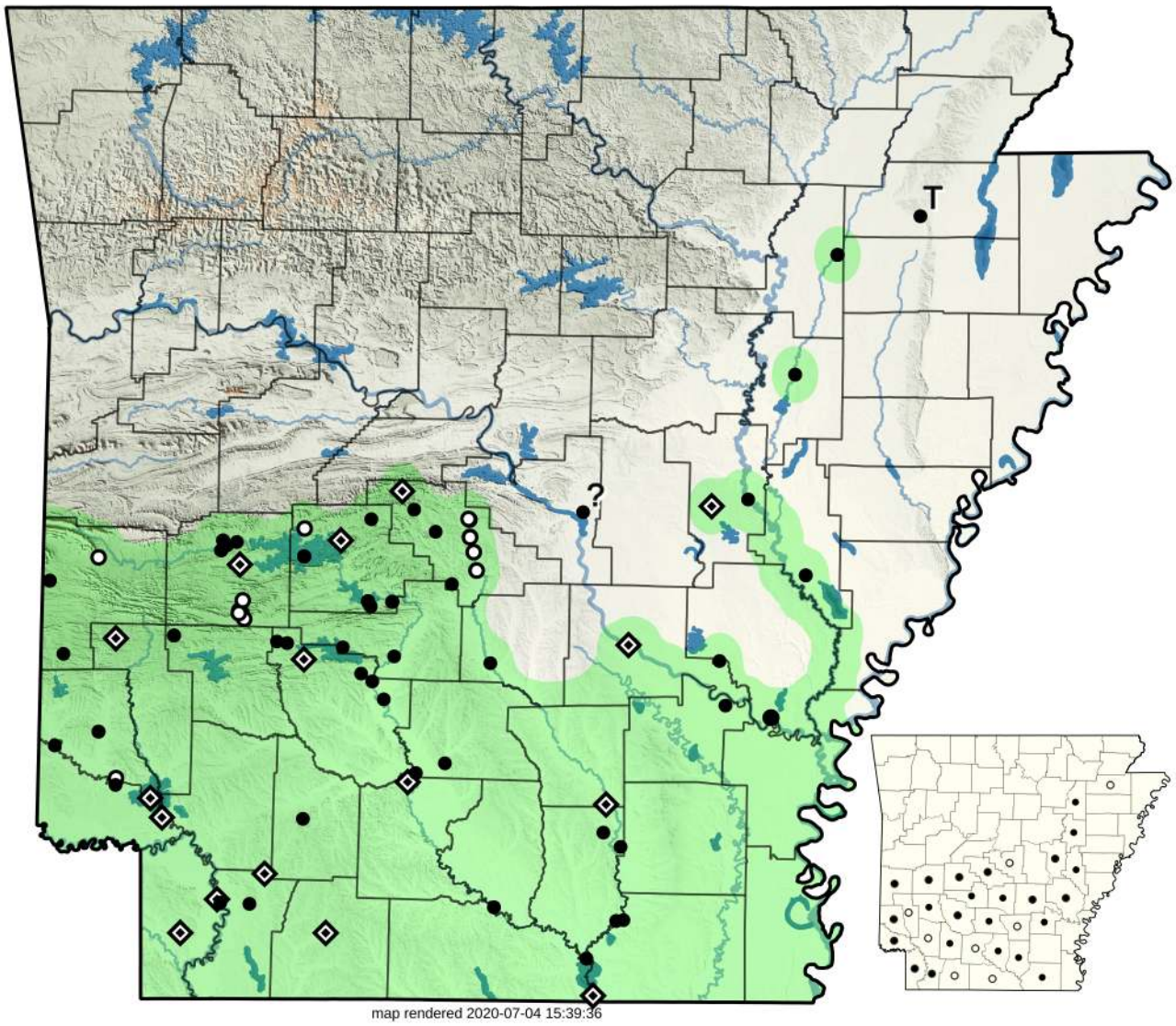



This species is represented by 537 records from 29 sources: 420 museum (●), 0 literature (□), 0 research (△), and 74 observation (○), with 43 additional Trauth et al. (2004) locality points remaining unsourced (◈). It has been museum vouchered for 52 of 75 counties (●), with 11 additional counties having other forms of reported occurrence (○). Years of collection range from 1906 to *present*.

This species occurs throughout much of the state, except for the Ozark Highlands and Boston Mountains. Three suspected transplants in the Ozark Highlands are traceable to fish hatcheries (two plotted by Trauth et al., 2004, which remain unsourced, and iNat 6699032 from 1990). A record from near the Buffalo River, Marion County (ASUMZ 31346 from 2009), may be evidence of ascension up the White River, but warrants confirmation.

# *Sternotherus carinatus* (Gray, 1855)

**Razor-backed Musk Turtle**

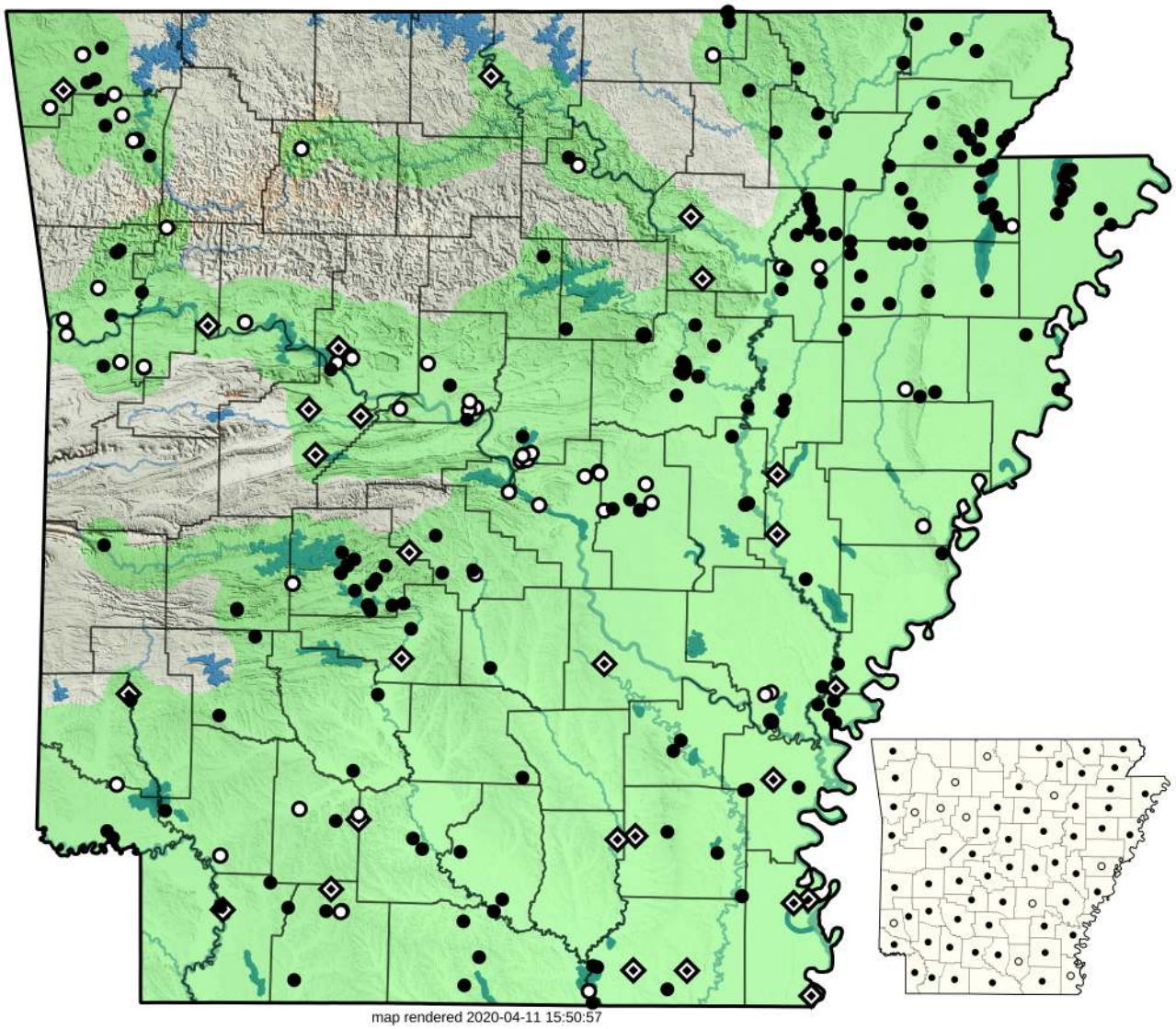



This species is represented by 163 records from 19 sources: 127 museum (●), 0 literature (□), 0 research (△), and 20 observation (○), with 16 additional Trauth et al. (2004) locality points remaining unsourced (◈). It has been museum vouchered for 24 of 75 counties (●), with 8 additional counties having other forms of reported occurrence (○). Years of collection range from 1926 to *present*.

This species predominantly occupies riverine systems and associated reservoirs of the South Central Plains, ascending well into the Ouachita Mountains and up the White and Cache rivers of the Mississippi Alluvial Plain. A specimen from a city lake in Jonesboro, Craighead County (ASUMZ 33368 from 2015), is most likely a transplant, unsubstantiated by additional samples. A questionable record north of the Arkansas River in Pulaski County (UAFMC 2011-0007-0061 from 1970) warrants reexamination. Targeted sampling up the Arkansas Valley and Mississippi Alluvial Plain river systems may expand the known range of this species. A 1934 record from LeFlore County, Oklahoma (Sievert and Taggart, 2020), suggests the upper Poteau River in westcentral Arkansas may also harbor this species.

# *Sternotherus odoratus* (Latreille in Sonnini & Latreille, 1801)

**Eastern Musk Turtle**

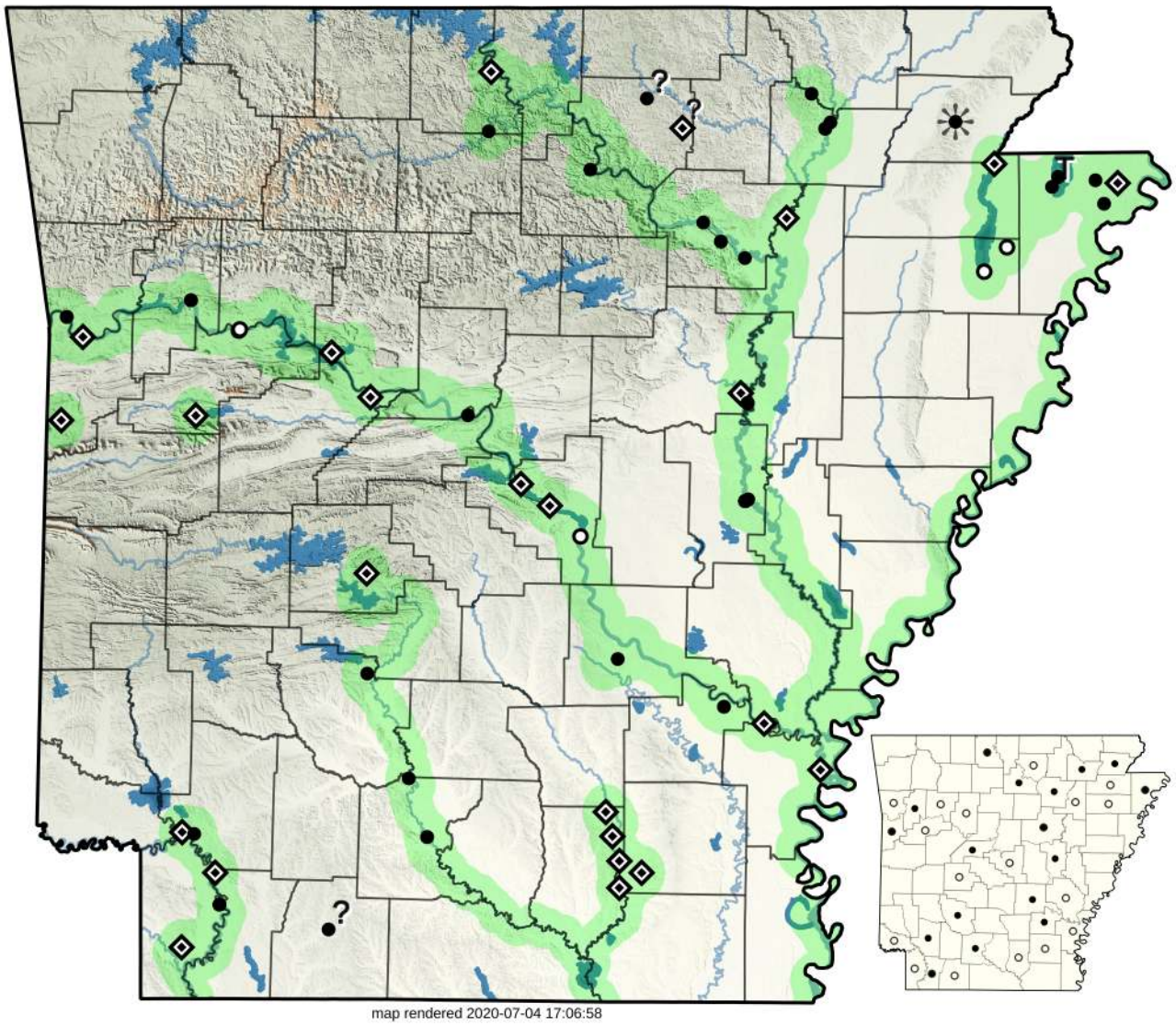



This species is represented by 600 records from 28 sources: 511 museum (●), 0 literature (□), 0 research (△), and 62 observation (○), with 27 additional Trauth et al. (2004) locality points remaining unsourced (◈). It has been museum vouchered for 54 of 75 counties (●), with 11 additional counties having other forms of reported occurrence (○). Years of collection range from 1910 to *present*.

This species occurs throughout most of the state, although possibly absent from high gradient streams of the Interior Highlands. Ascension into higher elevations occurs along larger river systems (e.g., Buffalo River in the Ozark Highlands and Ouachita River in the Ouachita Mountains).

# *Apalone mutica mutica* (LeSueur, 1827)

**Midland Smooth Softshell**



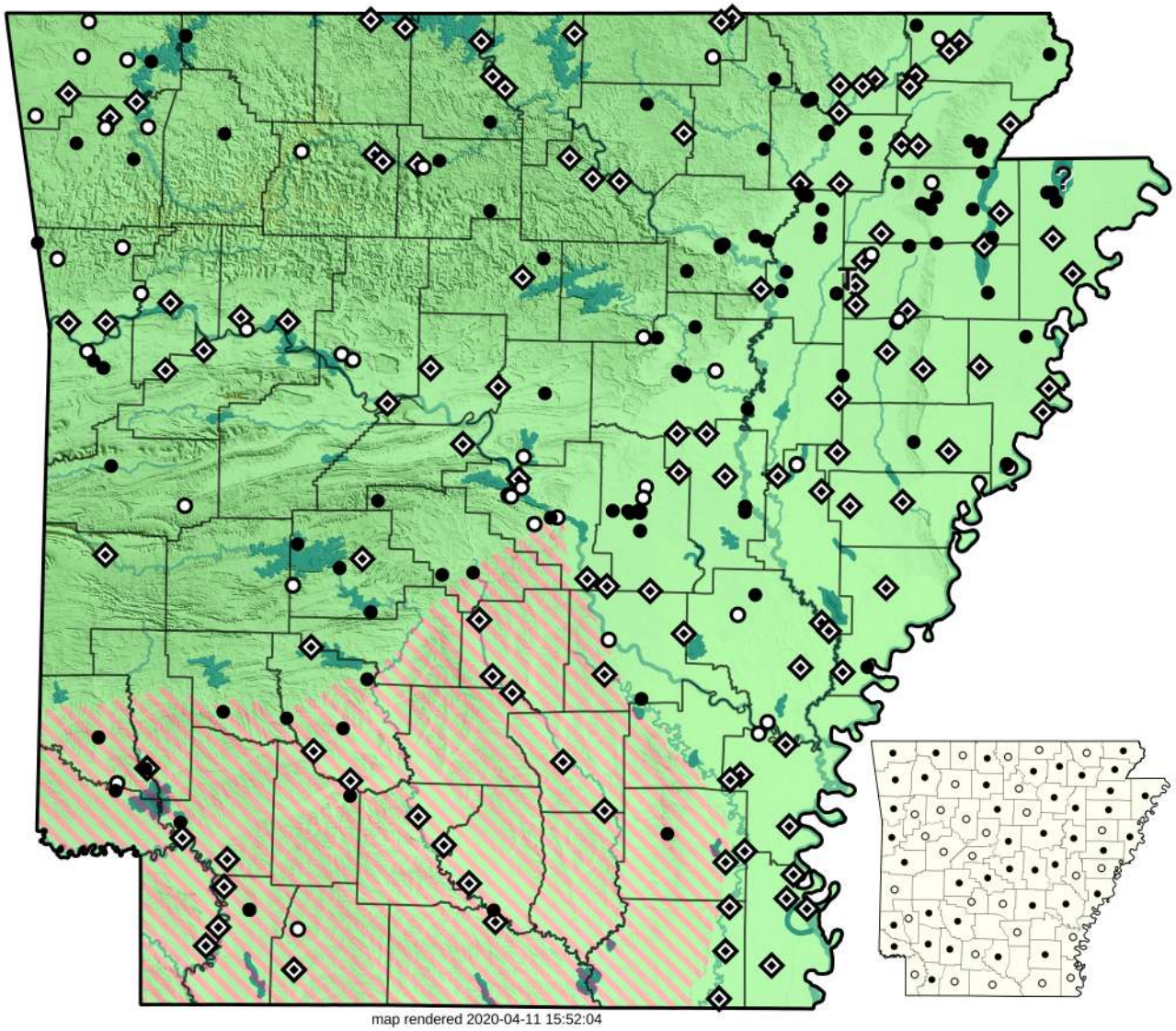

This species is represented by 119 records from 17 sources: 90 museum (●), 0 literature (□), 0 research (△), and 5 observation (○), with 24 additional Trauth et al. (2004) locality points remaining unsourced (◈). It has been museum vouchered for 17 of 75 counties (●), with 17 additional counties having other forms of reported occurrence (○). Years of collection range from 1889 to 2018.

This species occupies large river systems with soft sand and mud substrates, including the Arkansas, White, Ouachita, Red, and Mississippi rivers. A good number of localities plotted by Trauth et al. (2004), most notably from the Saline River in southeast Arkansas, remain unsourced. Despite several records from northeast Arkansas, corroboration of occurrence in the Missouri Bootheel (Daniel and Edmond, 2020) is lacking. Records demonstrating ascension into the Ozark Highlands (e.g., ASUMZ 2023 from 1972) and Ouachita Mountains (NLU 29961 from 1970), along with a questionable record from Magnolia, Columbia County (MPM 8026 from 1973), may warrant reexamination to confirm species identification.

# *Apalone spinifera* ssp.

(LeSueur, 1827)

**Spiny Softshell**




This species is represented by 467 records from 20 sources: 300 museum (●), 0 literature (□), 0 research (△), and 53 observation (○), with 114 additional Trauth et al. (2004) locality points remaining unsourced (◈). It has been museum vouchered for 42 of 75 counties (●), with 29 additional counties having other forms of reported occurrence (○). Years of collection range from 1900 to *present*.

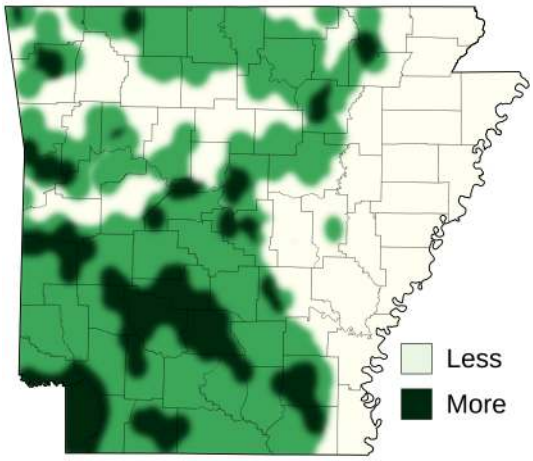
This species occurs statewide, although it may be less common in high gradient streams of the Interior Highlands. Many localities plotted by Trauth et al. (2004) across the state remain unsourced. The *A. s. spinifera* subspecies (■) is recognized for most of the state, with the *A. s. pallida* subspecies (■) reported from the Red River drainage in southwest Arkansas and purported to have morphological influence throughout the South Central Plains (Trauth et al., 2004; Powell et al., 2016).

# 7. Squamata (Lizards)

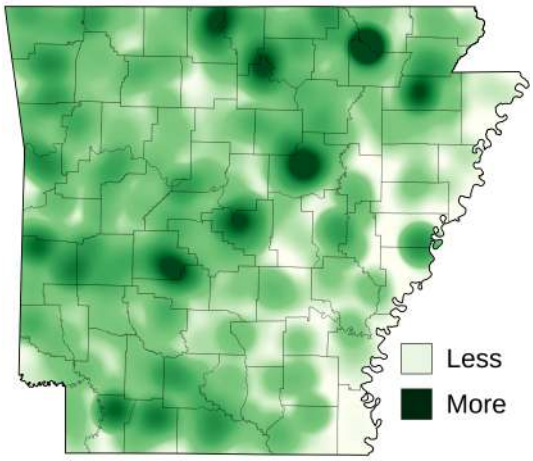
The taxonomic group Squamata (Lizards) is represented in Arkansas by 12 species from 8 genera across 6 families. The AHA contains a total of 8,156 lizard records from 61 sources: 6,942 museum, 1 literature, 0 research, and 737 observation, with 476 additional Trauth et al. (2004) locality points remaining unsourced. Years of collection range from 1853 to *present*.


**7.1 Anguidae (Glass Lizards and Alligator Lizards)**
*Ophisaurus attenuatus attenuatus* . . . . . 86
**7.2 Crotaphytidae (Collared and Leopard Lizards)**
*Crotaphytus collaris* . . . . . 87
**7.3 Dactyloidae (Anoles)**
*Anolis carolinensis* . . . . . 88
**7.4 Phrynosomatidae (Spiny Lizards)**
*Phrynosoma cornutum* . . . . . 89
*Sceloporus consobrinus* . . . . . 90
**7.5 Scincidae (Skinks)**
*Plestiodon anthracinus pluvialis* . . . . . 91
*Plestiodon fasciatus* . . . . . 92
*Plestiodon laticeps* . . . . . 93
*Plestiodon obsoletus* . . . . . 94
*Plestiodon septentrionalis obtusirostris* . . . . . 95
*Scincella lateralis* . . . . . 96
**7.6 Teiidae (Whiptails, Racerunners, and Ameivas)**
*Aspidoscelis sexlineatus viridis* . . . . . 97

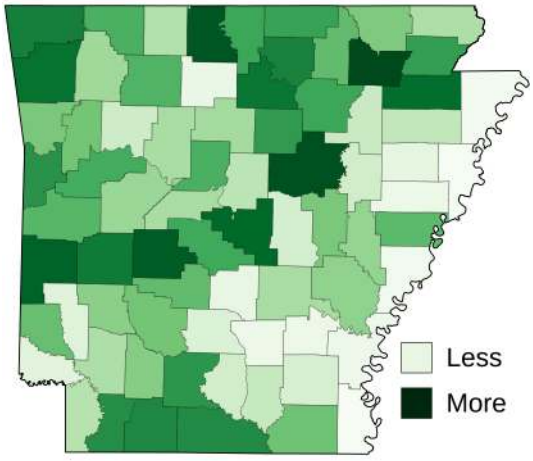

**Biodiversity Heatmap**




**Records Heatmap**

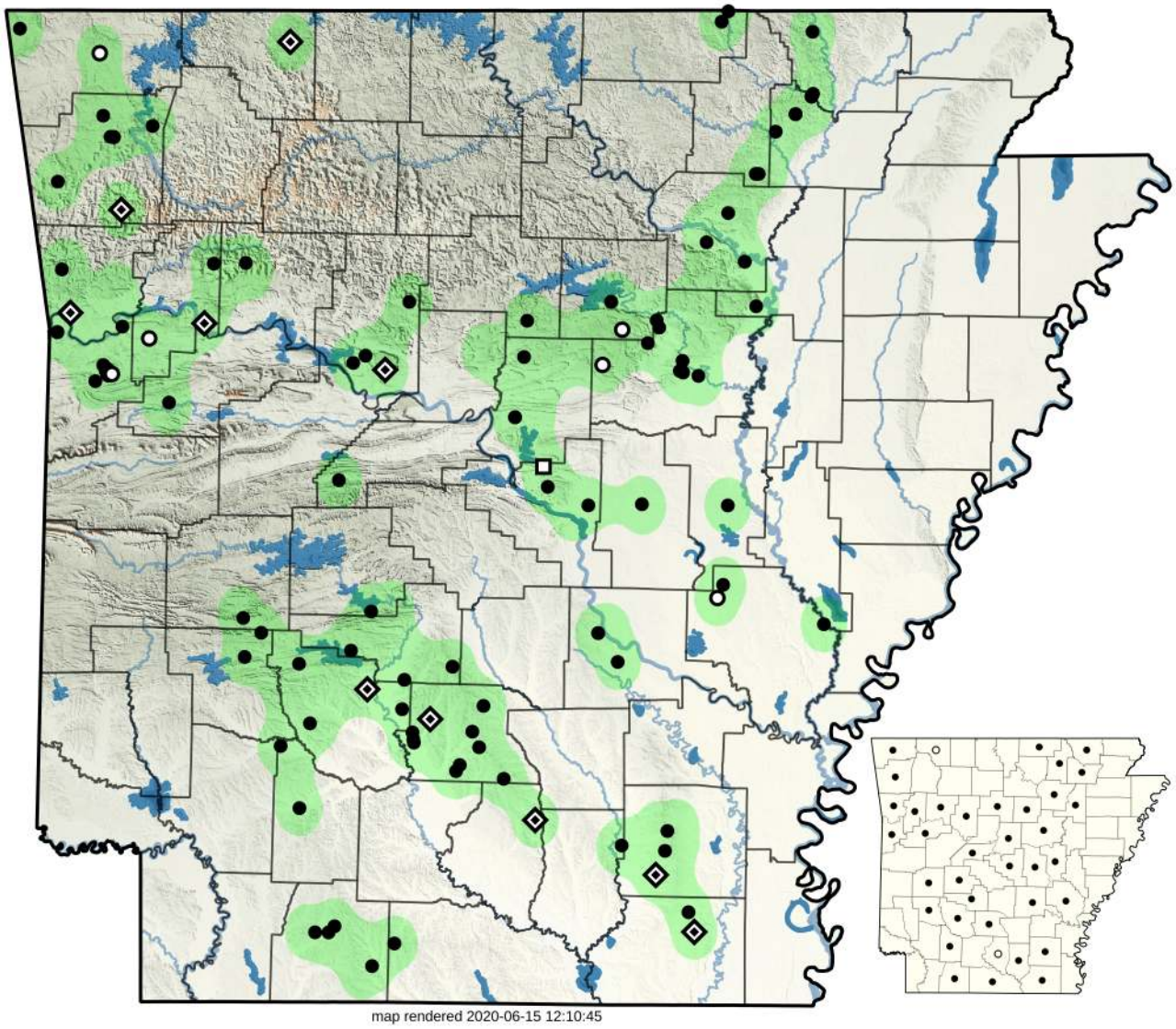



**Records per County Choropleth**



# *Ophisaurus attenuatus attenuatus* Cope, 1880

**Western Slender Glass Lizard**



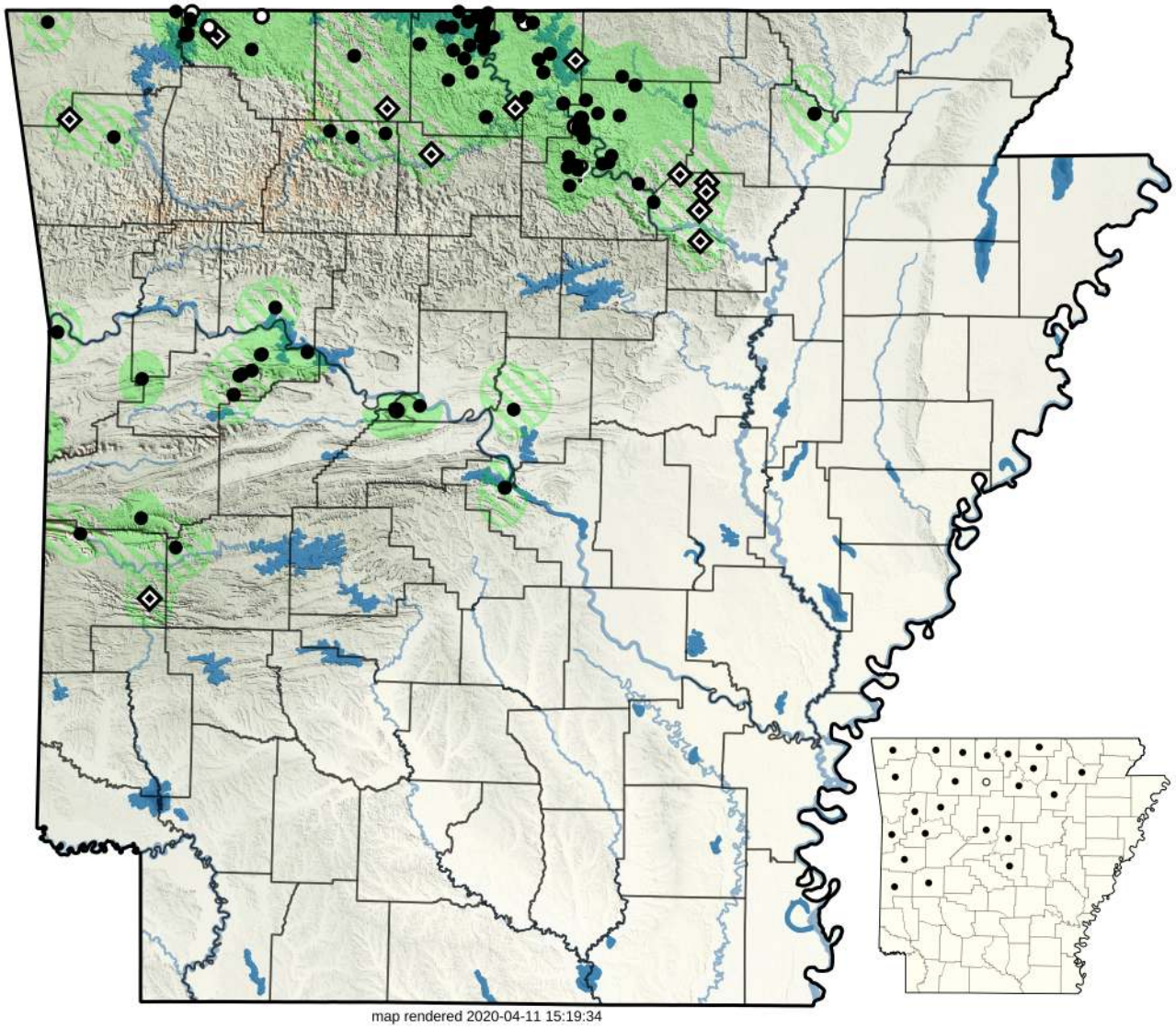

This species is represented by 125 records from 26 sources: 106 museum (●), 1 literature (□), 0 research (△), and 8 observation (○), with 10 additional Trauth et al. (2004) locality points remaining unsourced (◈). It has been museum vouchered for 36 of 75 counties (●), with 2 additional counties having other forms of reported occurrence (○). Years of collection range from 1897 to *present*.

This uncommon species has a spotty distribution in the state, with some of the large range gaps likely an artifact of detection difficulties. Records are largely absent from the mountainous regions of the Interior Highlands, portions of the South Central Plains, and, with the exception of a few scattered records from the Grand Prairie region, the Mississippi Alluvial Plain.

# *Crotaphytus collaris*

(Say in James, 1822 "1823")

**Eastern Collared Lizard**

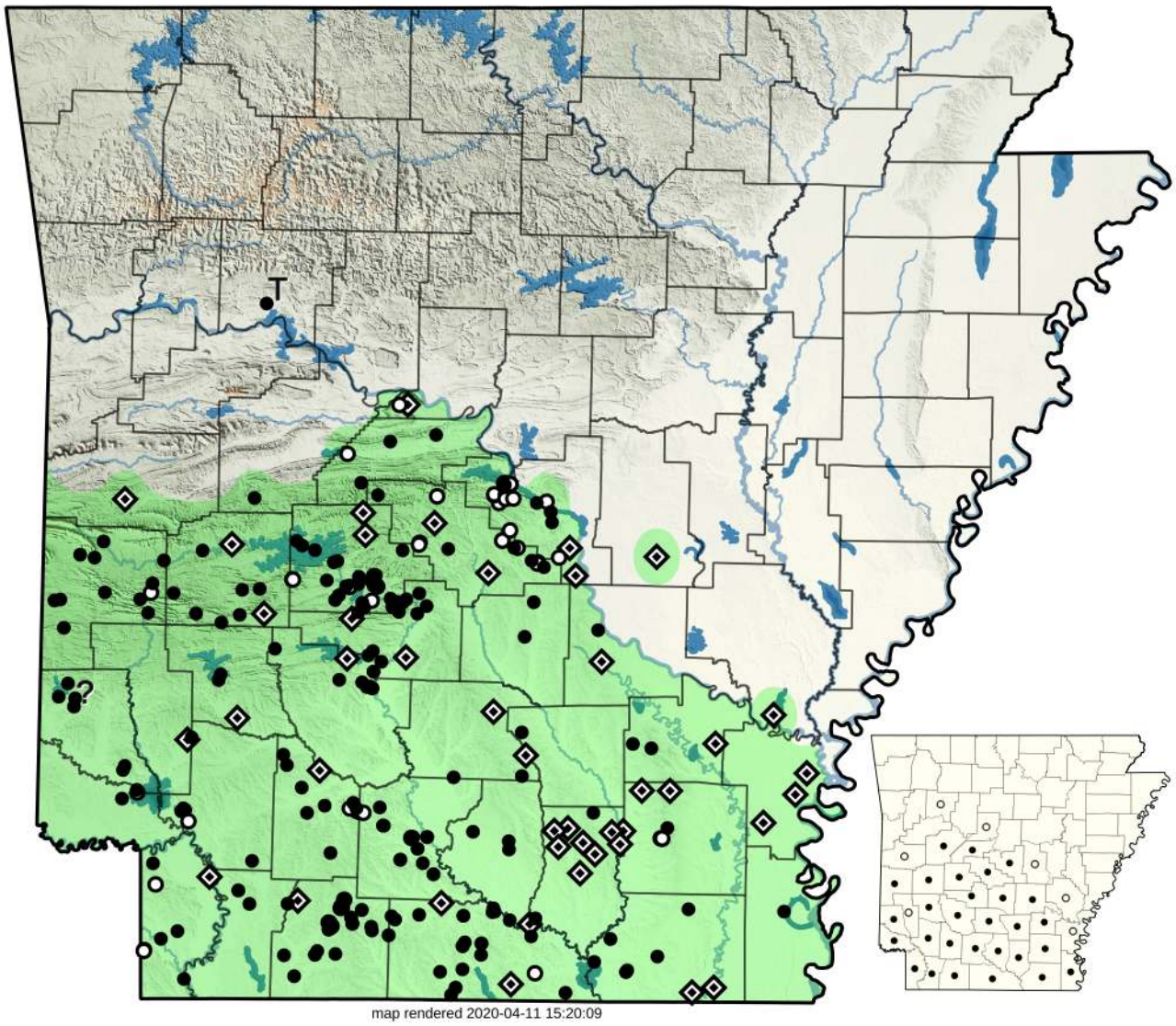



This species is represented by 491 records from 26 sources: 461 museum (●), 0 literature (□), 0 research (△), and 18 observation (○), with 12 additional Trauth et al. (2004) locality points remaining unsourced (◈). It has been museum vouchered for 23 of 75 counties (●), with 1 additional county having other forms of reported occurrence (○). Years of collection range from 1853 to *present*.

This species historically occupied open rocky glades and mountainous ridges throughout much the Interior Highlands. It appears to have been extripated from much of its former range, including northwest Arkansas (last confirmed 1940), the vicinity of the Buffalo River (last confirmed 1972), Mount Magazine (last confirmed 1965), Pinnacle Mountain (last confirmed 1945), north of Conway (last confirmed 1948), and western Ouachita Mountains (last confirmed with a single isolated observation record from 2002 near Y-city, Scott County). Records attributed to Fayetteville, Washington County; Fort Smith, Sebastian County; and Black Rock/Imboden, Lawrence County; are likely generalized localities or in reference to institution sources rather than collection sites. A cluster of localities from Independence County, plotted by Trauth et al. (2004), remain unsourced.

# *Anolis carolinensis* (Voigt, 1832)

**Green Anole**

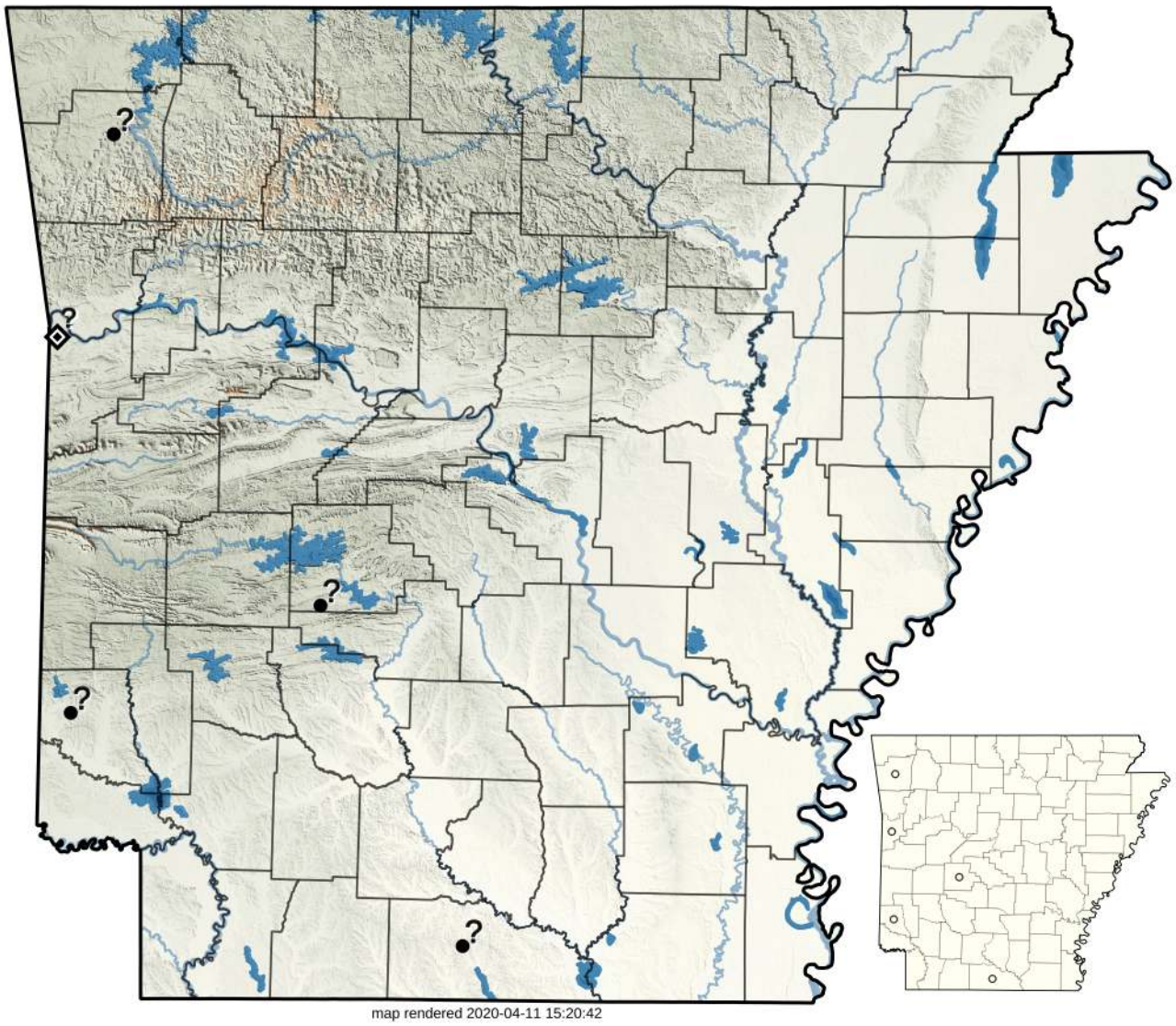



This species is represented by 367 records from 27 sources: 245 museum (●), 0 literature (□), 0 research (△), and 79 observation (○), with 43 additional Trauth et al. (2004) locality points remaining unsourced (◈). It has been museum vouchered for 29 of 75 counties (●), with 7 additional counties having other forms of reported occurrence (○). Years of collection range from 1894 to *present*.

This species occurs throughout the Ouachita Mountains and South Central Plains. Evidence of population occurrence north of the Arkansas River has been reported from North Little Rock, Pulaski County (iNat 23737962 from 2019 and J. D. Chamberlain, pers. comm.). Additional records north of the Arkansas River include a possibly transplanted individual from Clarksville, Johnson County (ASUMZ 31281 from 2008), and unsourced localities plotted by Trauth et al. (2004) in southern Lonoke County and at Arkansas Post, Arkansas County.

# *Phrynosoma cornutum* (Harlan, 1825)

**Texas Horned Lizard**

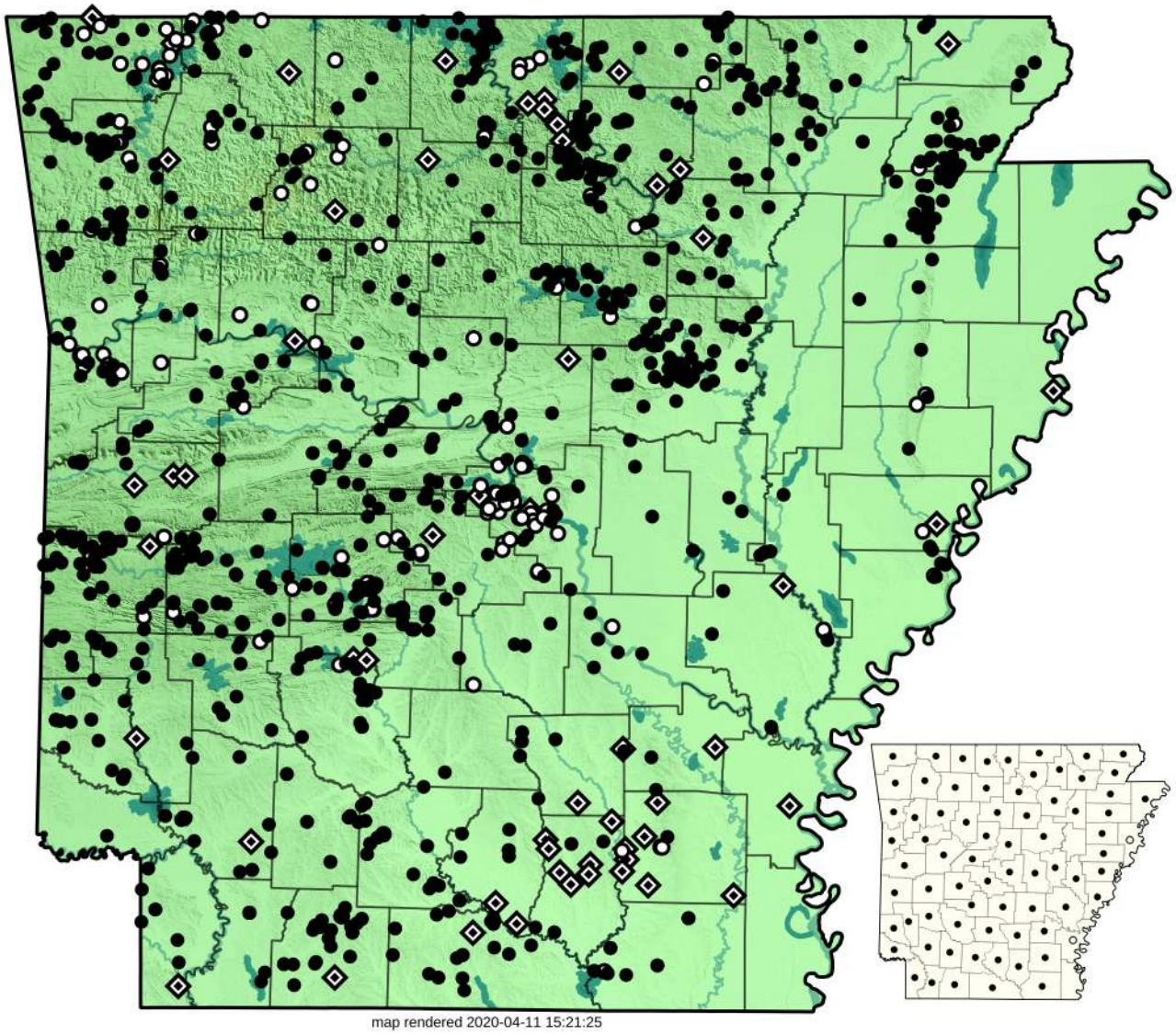



This species is represented by 9 records from 7 sources: 8 museum (●), 0 literature (□), 0 research (△), and 0 observation (○), with 1 additional Trauth et al. (2004) locality point remaining unsourced (◈). It has been museum vouchered for 0 of 75 counties (●), with 5 additional counties having other forms of reported occurrence (○). Years of collection range from 1930 to 2001.

This species may have had spotty historical occurrence along the Arkansas-Oklahoma border and in southern Arkansas, in association with prairie-like habitats and presence of harvester ant colonies. The few documented records, all but one dated prior to 1959, have unclear origins and may trace back to released pets. Scattered records from bordering states, including southwest Missouri (3 dated prior to 1966; Daniel and Edmond, 2020), western Oklahoma (1 undated and 2 from the 1930s; Sievert and Taggart, 2020), northeast Texas (unknown number or dates; Dixon, 2013), and northern Louisiana (3+ from 3 localities dated prior to 1966; Boundy and Carr, 2017), hold similar ambiguities. The only contemporary Arkansas record, from Garland County (ASUMZ 26446 from 2001), remains unexplained.

# *Sceloporus consobrinus* Baird & Girard, 1853

**Prairie Lizard**

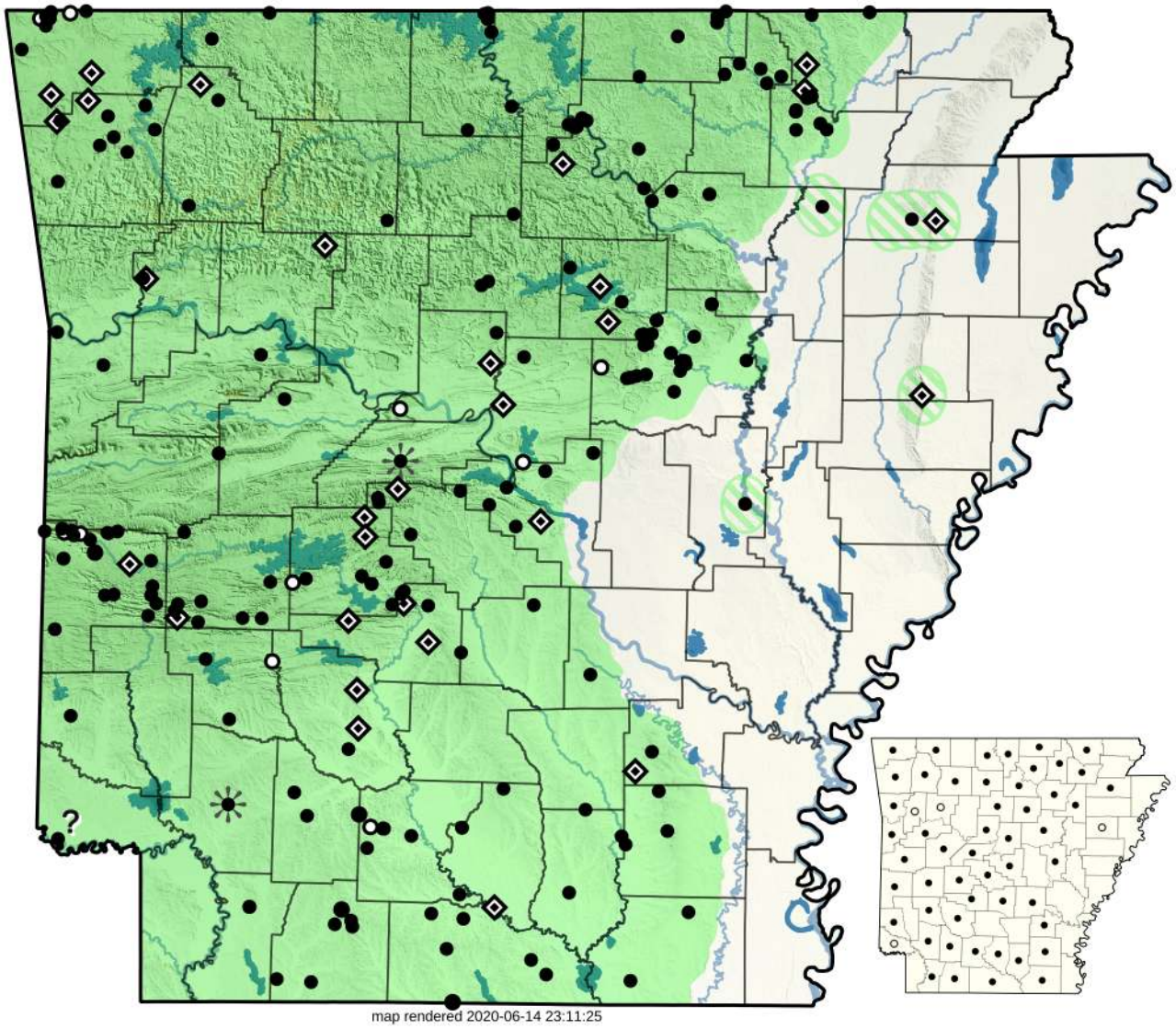



This species is represented by 2,350 records from 49 sources: 2,072 museum (●), 0 literature (□), 0 research (△), and 222 observation (○), with 56 additional Trauth et al. (2004) locality points remaining unsourced (◈). It has been museum vouchered for 71 of 75 counties (●), with 2 additional counties having other forms of reported occurrence (○). Years of collection range from 1855 to *present*.

This species occurs statewide, although less sampled through most of the Mississippi Alluvial Plain and in the extreme southeast corner of the state.

# *Plestiodon anthracinus pluvialis* (Cope, 1880)

**Southern Coal Skink**

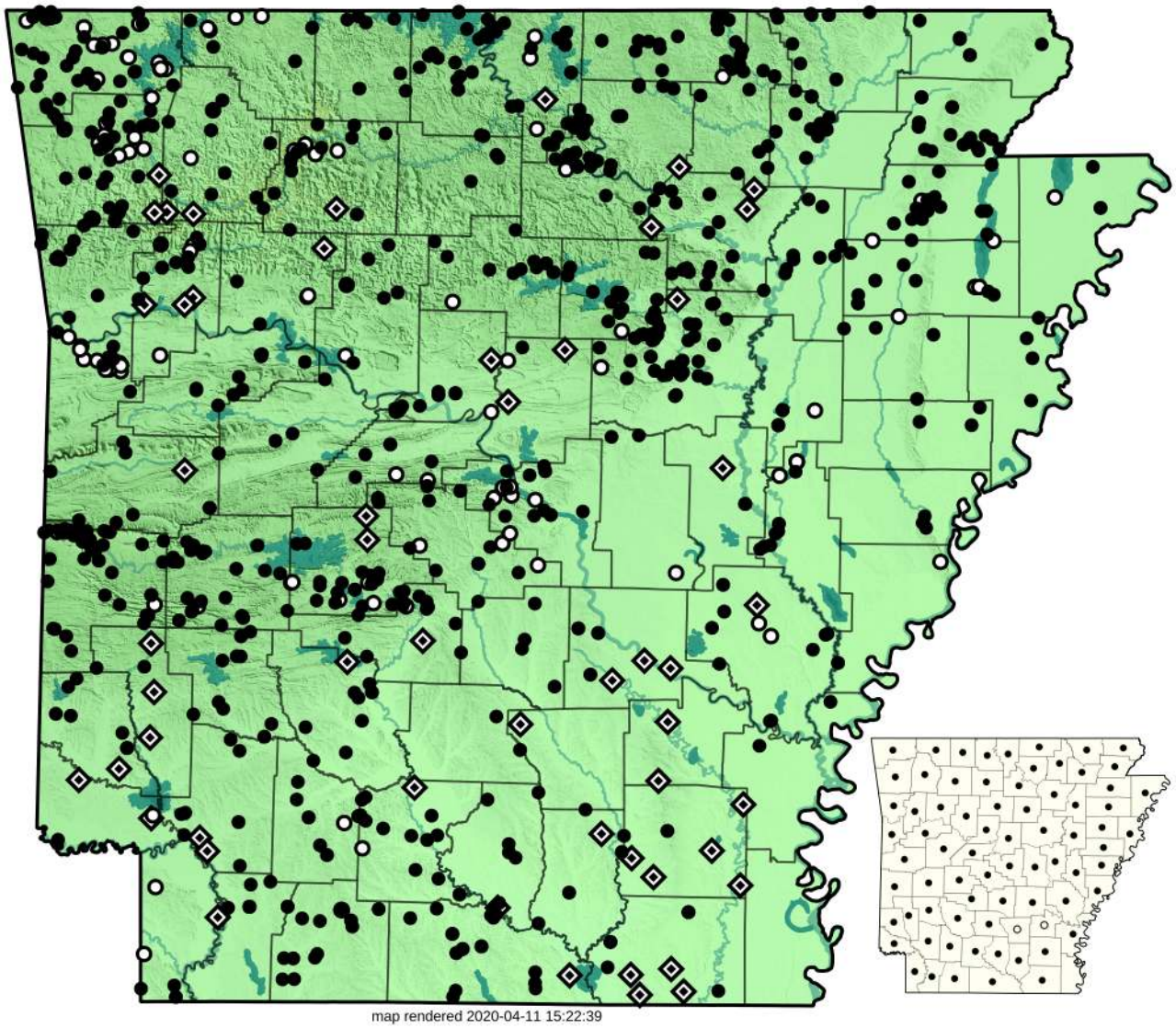



This species is represented by 335 records from 35 sources: 291 museum (●), 0 literature (□), 0 research (△), and 15 observation (○), with 29 additional Trauth et al. (2004) locality points remaining unsourced (◈). It has been museum vouchered for 51 of 75 counties (●), with 4 additional counties having other forms of reported occurrence (○). Years of collection range from 1897 to *present*.

This species occurs throughout the Interior Highlands and South Central Plains. Scattered historical records from the Mississippi Alluvial Plain, such as Swifton, Jackson County (ASUMZ 1183 from 1963); Jonesboro, Craighead County (ASUMZ 1857 from 1973); and De Valls Bluff, Prairie County (KU 8859 and 8861 from 1926) may warrant confirmation. An additional isolated point locality at Village Creek State Park, Cross County (Trauth et al., 2004), remains unsourced. While this infrequently encountered species likely occupies the entirety of Crowley's Ridge, evidence is lacking.

# *Plestiodon fasciatus* (Linnaeus, 1758)

**Common Five-lined Skink**

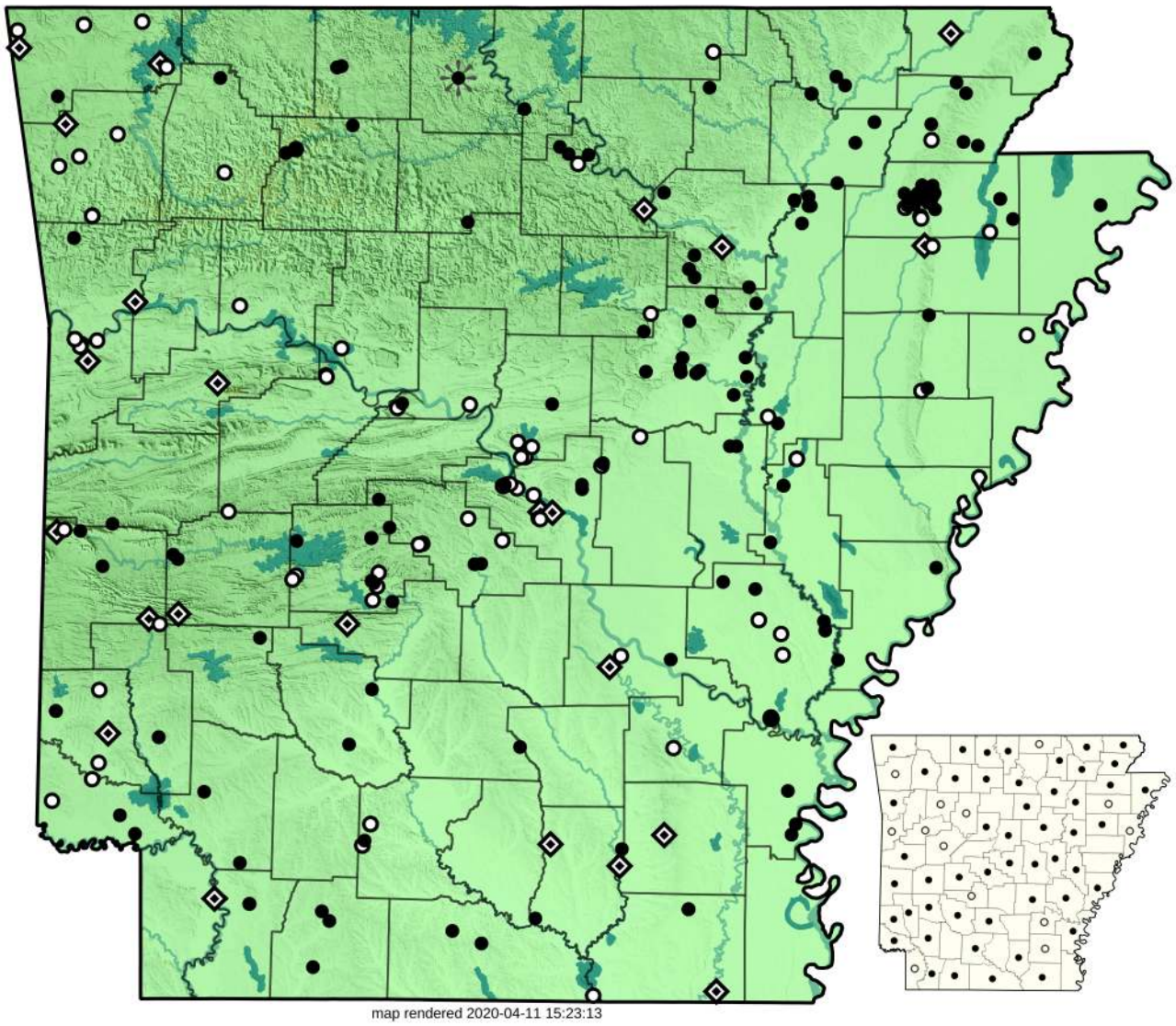



This species is represented by 1,856 records from 44 sources: 1,635 museum (●), 0 literature (□), 0 research (△), and 168 observation (○), with 53 additional Trauth et al. (2004) locality points remaining unsourced (◈). It has been museum vouchered for 72 of 75 counties (●), with 2 additional counties having other forms of reported occurrence (○). Years of collection range from 1855 to *present*.

This species is common statewide.

# *Plestiodon laticeps* (Schneider, 1801)

**Broad-headed Skink**

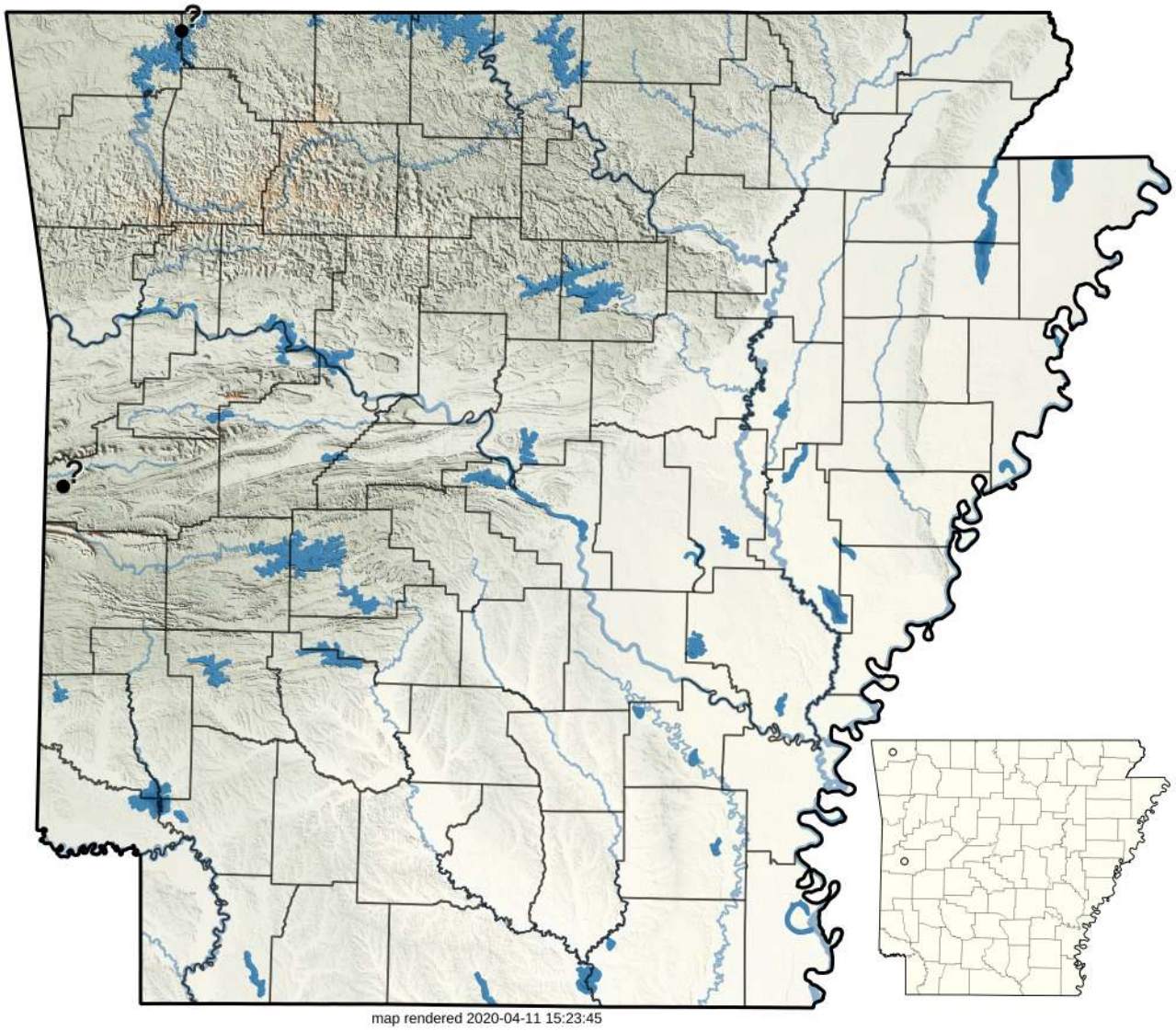



This species is represented by 341 records from 25 sources: 228 museum (●), 0 literature (□), 0 research (△), and 90 observation (○), with 23 additional Trauth et al. (2004) locality points remaining unsourced (◈). It has been museum vouchered for 50 of 75 counties (●), with 13 additional counties having other forms of reported occurrence (○). Years of collection range from 1903 to *present*.

This species occurs statewide.

# *Plestiodon obsoletus* Baird & Girard, 1852

**Great Plains Skink**

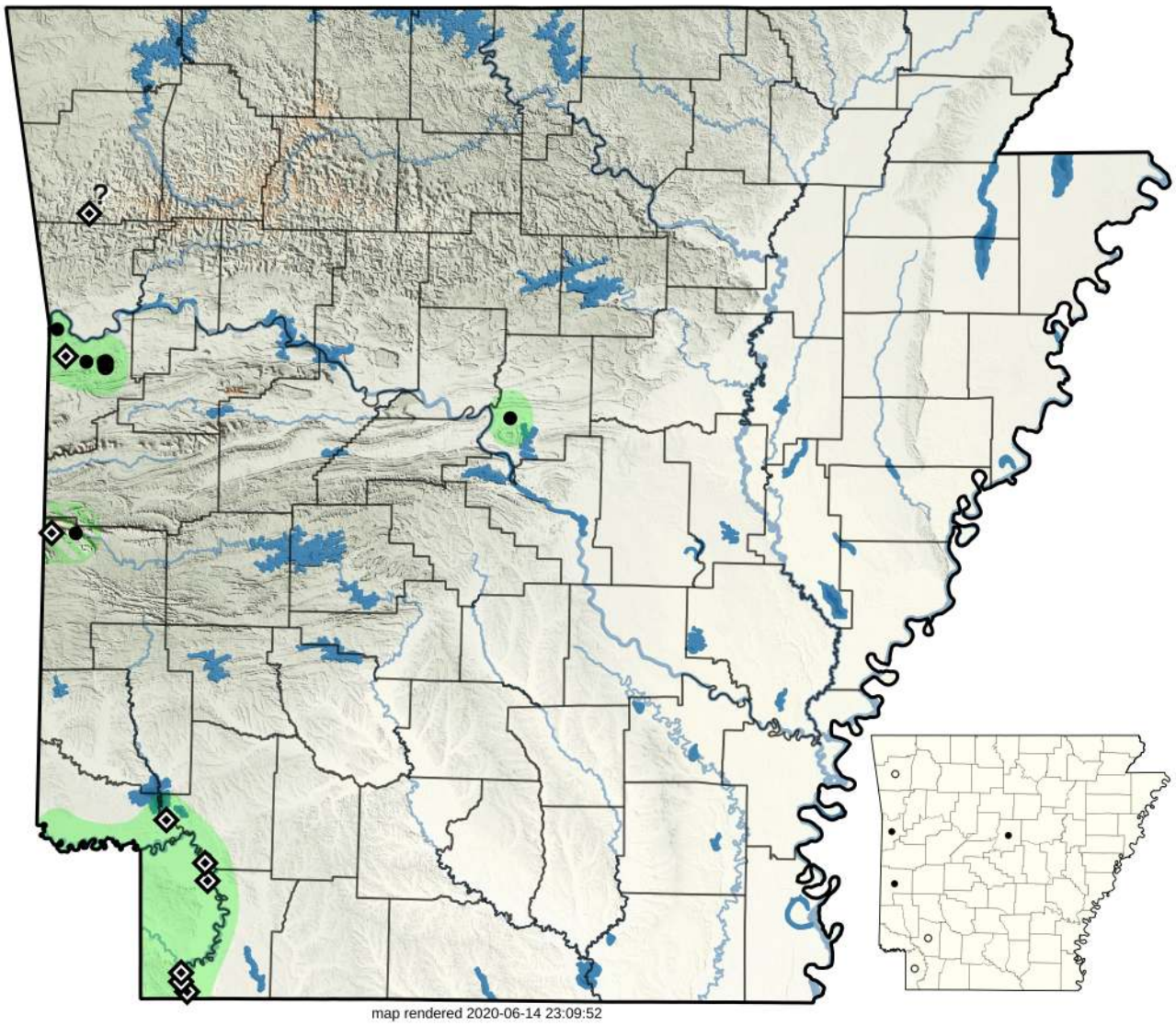



This species is represented by 2 records from 1 source: 2 museum (●), 0 literature (□), 0 research (△), and 0 observation (○). It has been museum vouchered for 0 of 75 counties (●), with 2 additional counties having other forms of reported occurrence (○). Years of collection range from 1962 to 1972.

This species has been reported from the state based on two historic, questionable records: vicinity of Beaver Dam, Benton County (NLU 517 from 1962), and western Scott County (NLU 35863 from 1972; though not listed in the latest available digital catalog). Trauth et al. (2004) depict an anecdotal observation from northcentral Benton County. All of these records are based on juvenile specimens (also see Robison and Douglas, 1978) and are likely misidentified *P. anthracinus pluvialis*. However, records dated 1991-1992 from southwestern Barry County, Missouri (Daniel and Edmond, 2020), may lend some credence to the possibility of occurrence in northwest Arkansas. A discounted record from southwestern Little River County (TNHC 69229 from 1971; not shown) is believed to be a species misidentification or clerical mistake. A previously listed record from the vicinity of Sulfur Springs, Benton County (UMMZ 60112 from 1924), appears to have been corrected with an identification of *P. anthracinus pluvialis*.

# *Plestiodon septentrionalis obtusirostris* (Bocourt, 1879)

**Southern Prairie Skink**



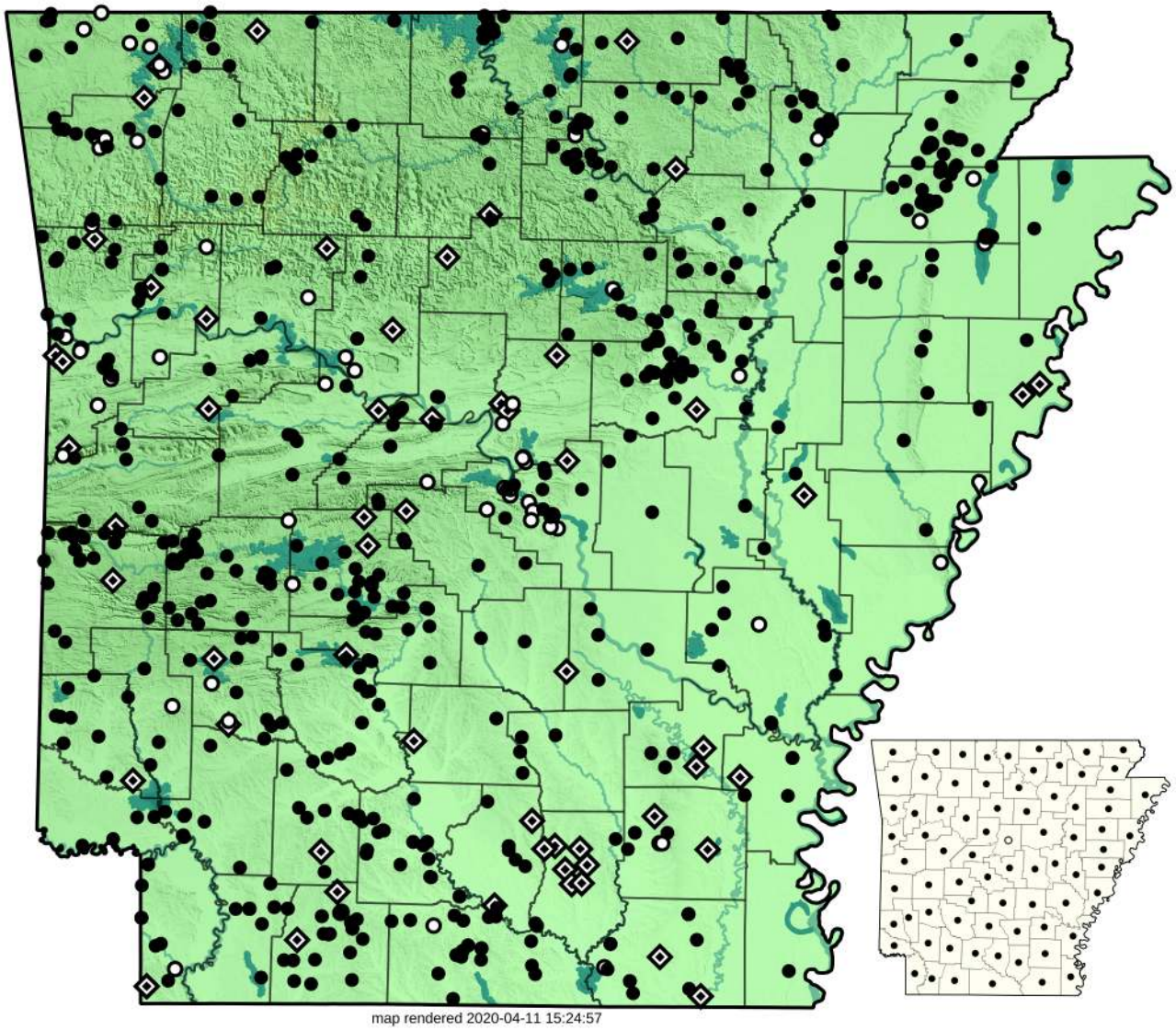

This species is represented by 21 records from 8 sources: 8 museum (●), 0 literature (□), 0 research (△), and 4 observation (○), with 9 additional Trauth et al. (2004) locality points remaining unsourced (◈). It has been museum vouchered for 3 of 75 counties (●), with 3 additional counties having other forms of reported occurrence (○). Years of collection range from 1897 to *present*.

In recent years, this species has been confirmed from Ft. Chaffee, Sebastian County, and Conway, Faulkner County, suggesting it may occupy relic prairie habitats along the Arkansas Valley. Occurrences in southwest Arkansas are sourced to Ball (1980), but currently symbolized as Trauth et al. (2004) locality points until this literature source can be obtained. While no associated voucher specimens from Ball (1980) have been located in available digital catalogs, credence comes from records from nearby counties in Texas (Dixon, 2013) and Caddo Parish, Louisiana (Boundy and Carr, 2017). Occurrence on Rich Mountain, Polk County, is considered historic (NLU 13156-13157 from 1965 and NLU 13089 from 1967). Trauth et al. (2004) reported an anecdotal observation at Devil's Den State Park, Washington County, but confirmation is warranted. Occurrence in northwest Arkansas cannot be fully discounted, although recent surveys in suitable prairie-like habitats have failed to produce any specimens (J. D. Willson, pers. comm.).

# *Scincella lateralis*

(Say in James, 1822 "1823")

**Little Brown Skink**

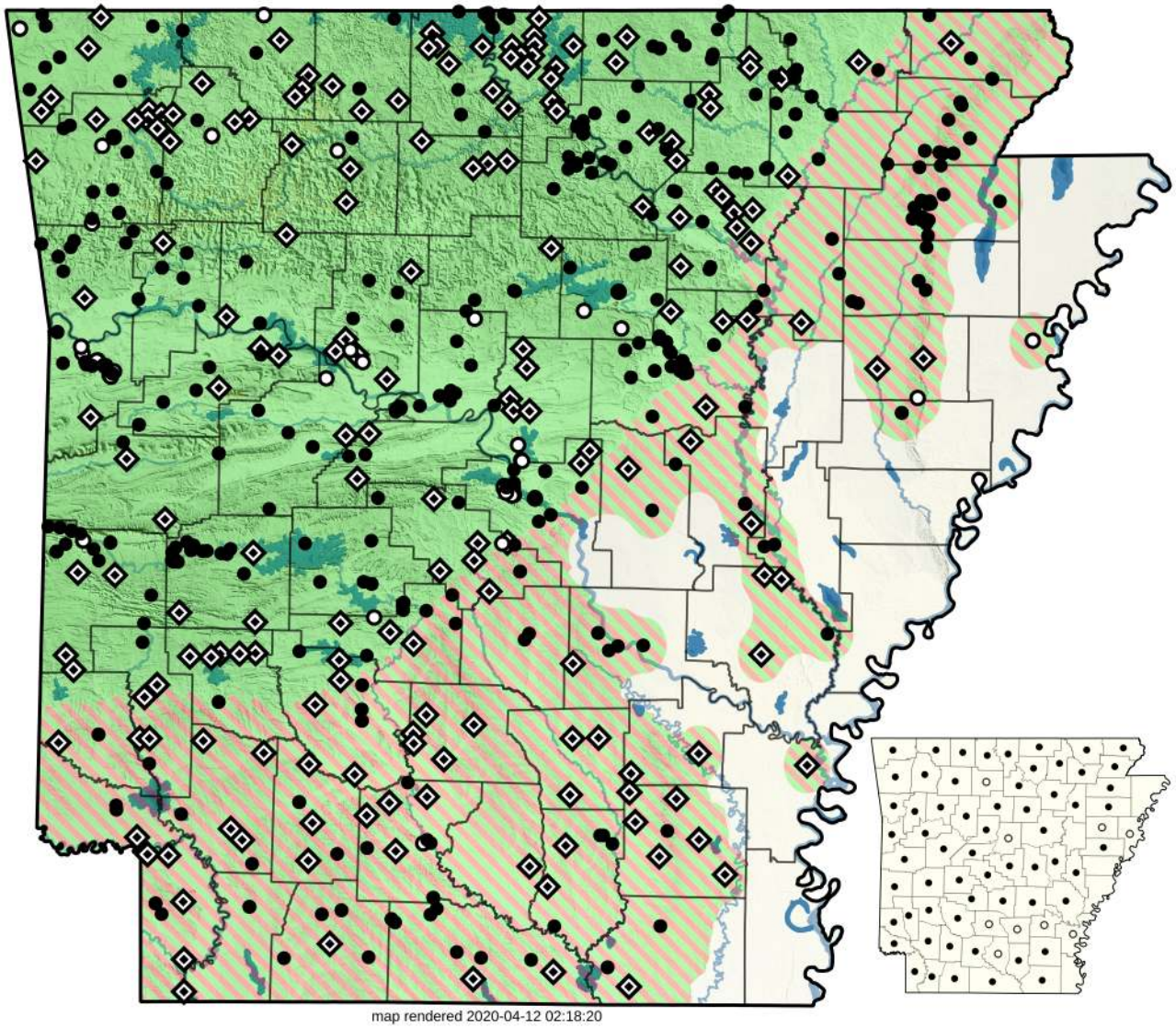



This species is represented by 1,319 records from 43 sources: 1,178 museum (●), 0 literature (□), 0 research (△), and 84 observation (○), with 57 additional Trauth et al. (2004) locality points remaining unsourced (◈). It has been museum vouchered for 74 of 75 counties (●), with 1 additional county having other forms of reported occurrence (○). Years of collection range from 1855 to *present*.

This species is common statewide.

# *Aspidoscelis sexlineatus viridis* (Lowe, 1966)

**Prairie Racerunner**




This species is represented by 940 records from 36 sources: 708 museum (●), 0 literature (□), 0 research (△), and 49 observation (○), with 183 additional Trauth et al. (2004) locality points remaining unsourced (◈). It has been museum vouchered for 61 of 75 counties (●), with 9 additional counties having other forms of reported occurrence (○). Years of collection range from 1894 to *present*.

This species has recorded occurrence throughout most of the state, with some distributional gaps in the Mississippi Alluvial Plain. Powell et al. (2016) show a large intergrade zone with the *A. s. sexlineatus* subspecies (■) across the Mississippi Alluvial Plain and South Central Plains.

# 8. Squamata (Snakes)

The taxonomic group Squamata (Snakes) is represented in Arkansas by 39 species from 24 genera across 5 families. The AHA contains a total of 15,747 snake records from 83 sources: 11,993 museum, 24 literature, 28 research, and 2,865 observation, with 837 additional Trauth et al. (2004) locality points remaining unsourced. Years of collection range from 1853 to *present*.


– Nonvenomous –

**8.1 Colubridae (Harmless Egg-Laying Snakes)**

*Cemophora coccinea copei* ..... 99
*Coluber constrictor* ssp. ..... 100
*Lampropeltis calligaster* ..... 101
*Lampropeltis gentilis - L. triangulum* ..... 102
*Lampropeltis holbrooki* ..... 103
*Masticophis flagellum flagellum* ..... 104
*Opheodrys aestivus aestivus* ..... 105
*Pantherophis emoryi - P. slowinskii* ..... 106
*Pantherophis obsoletus* ..... 107
*Sonora episcopa* ..... 108
*Tantilla gracilis* ..... 109

**8.2 Dipsadidae (Rear-Fanged Snakes)**

*Carphophis amoenus helenae* ..... 110
*Carphophis vermis* ..... 111
*Diadophis punctatus* ssp. ..... 112
*Farancia abacura reinwardtii* ..... 113
*Heterodon platirhinos* ..... 114

**8.3 Natricidae (Harmless Live-Bearing Snakes)**

*Haldea striatula* ..... 115
*Liodytes rigida sinicola* ..... 116
*Nerodia cyclopion* ..... 117
*Nerodia erythrogaster* ..... 118
*Nerodia fasciata confluens* ..... 119
*Nerodia rhombifer rhombifer* ..... 120
*Nerodia sipedon pleuralis* ..... 121
*Regina grahamii* ..... 122
*Regina septemvittata* ..... 123
*Storeria dekayi* ..... 124
*Storeria occipitomaculata* ..... 125
*Thamnophis proximus proximus* ..... 126
*Thamnophis sirtalis sirtalis* ..... 127
*Tropidoclonion lineatum* ..... 128
*Virginia valeriae elegans* ..... 129

– Venomous –

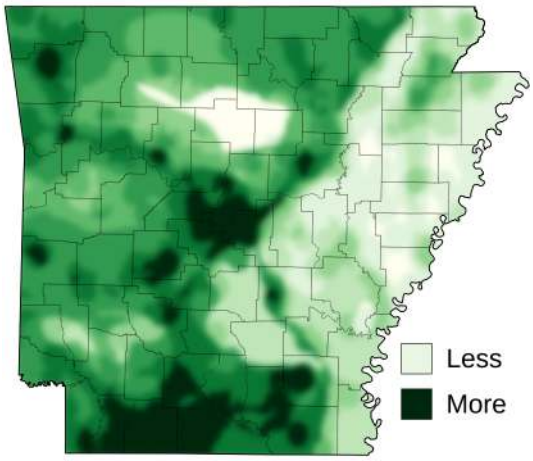
**8.4 Crotalidae (Pitvipers)**

*Agkistrodon contortrix* ..... 130
*Agkistrodon piscivorus* ..... 131
*Crotalus atrox* ..... 132
*Crotalus horridus* ..... 133
*Sistrurus miliarius streckeri* ..... 134

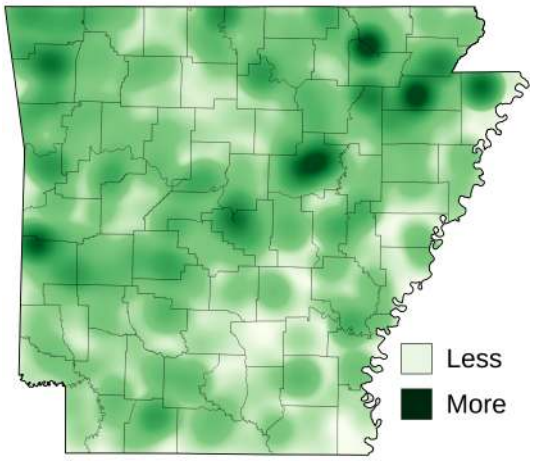
**8.5 Elapidae (Coralsnakes, Cobras, and Kraits)**

*Micrurus tener tener* ..... 135

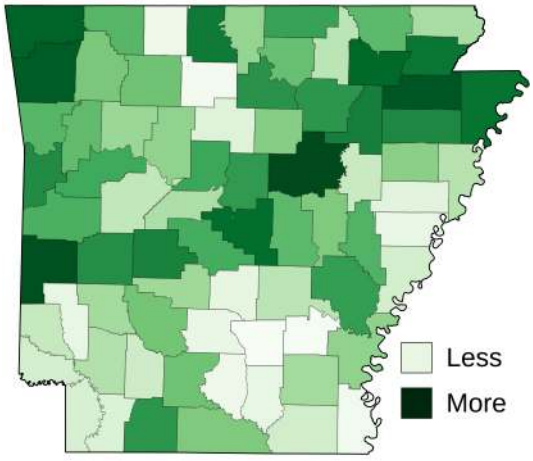

**Biodiversity Heatmap**




**Records Heatmap**

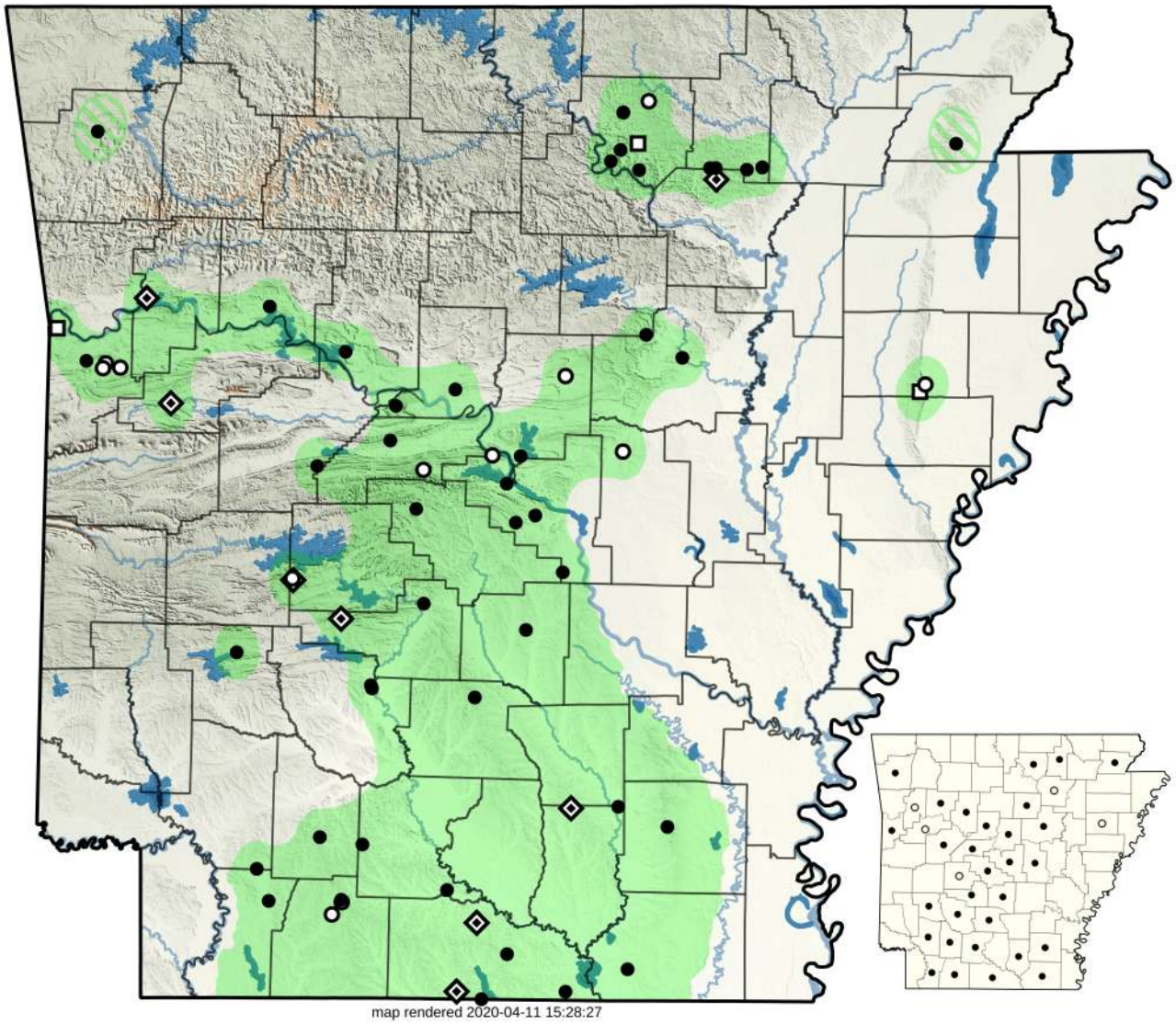



**Records per County Choropleth**



# *Cemophora coccinea copei* Jan, 1863

**Northern Scarletsnake**



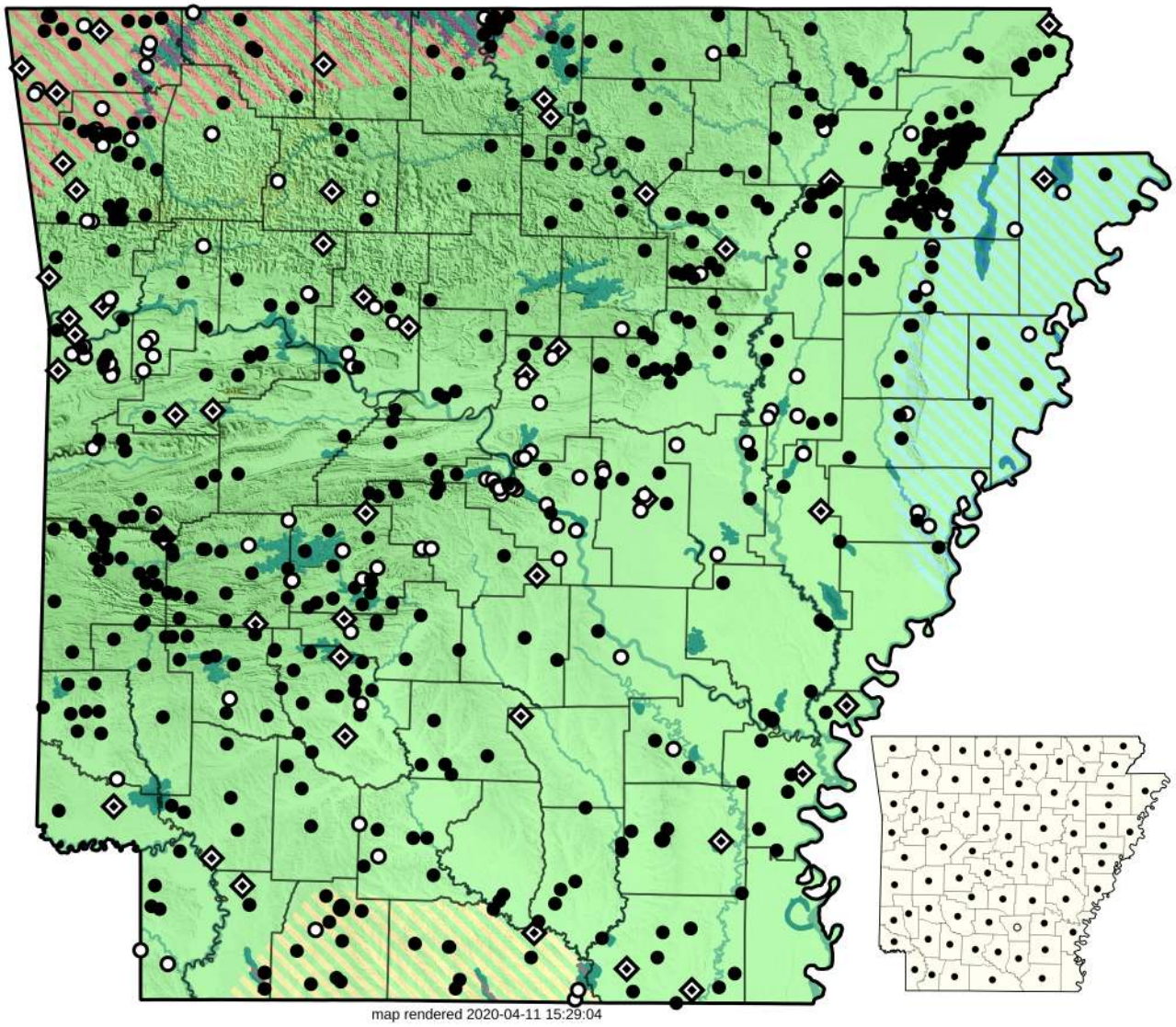

This species is represented by 76 records from 21 sources: 53 museum (●), 3 literature (□), 0 research (△), and 12 observation (○), with 8 additional Trauth et al. (2004) locality points remaining unsourced (◈). It has been museum vouchered for 30 of 75 counties (●), with 5 additional counties having other forms of reported occurrence (○). Years of collection range from 1934 to *present*.

This secretive and rarely encountered species has spotty occurrences throughout the central South Central Plains and along the Arkansas Valley. A cluster of records come from the eastern Ozark Highlands in northeastern Arkansas. There are isolated records from Crowley's Ridge at Village Creek State Park, Cross County, and historically in 1935 from southwest of Paragould, Greene County. A questionable historical record from the vicinity of Fayetteville, Washington County (UAFMC 0068-0735-0830 from 1935), may be valid, given credence from nearby records from southeastern Delaware County, Oklahoma, (one from 1959 and two undated; Sievert and Taggart, 2020) and an anecdotal in-hand observation of a large specimen from just west of Huntsville, Madison County (K. G. Roberts, pers. obs., 1980s). It is likely this species has a much broader range in Arkansas than is currently established, presumably across the western Ouachita Mountains (corroborated by a record from Le Flore County, Oklahoma; Sievert and Taggart, 2020) and at least historically along the entirety of Crowley's Ridge (corroborated by a record dated prior to 1966 from Dunklin County, Missouri; Daniel and Edmond, 2020).

# *Coluber constrictor* ssp.

Linnaeus, 1758

**North American Racer**

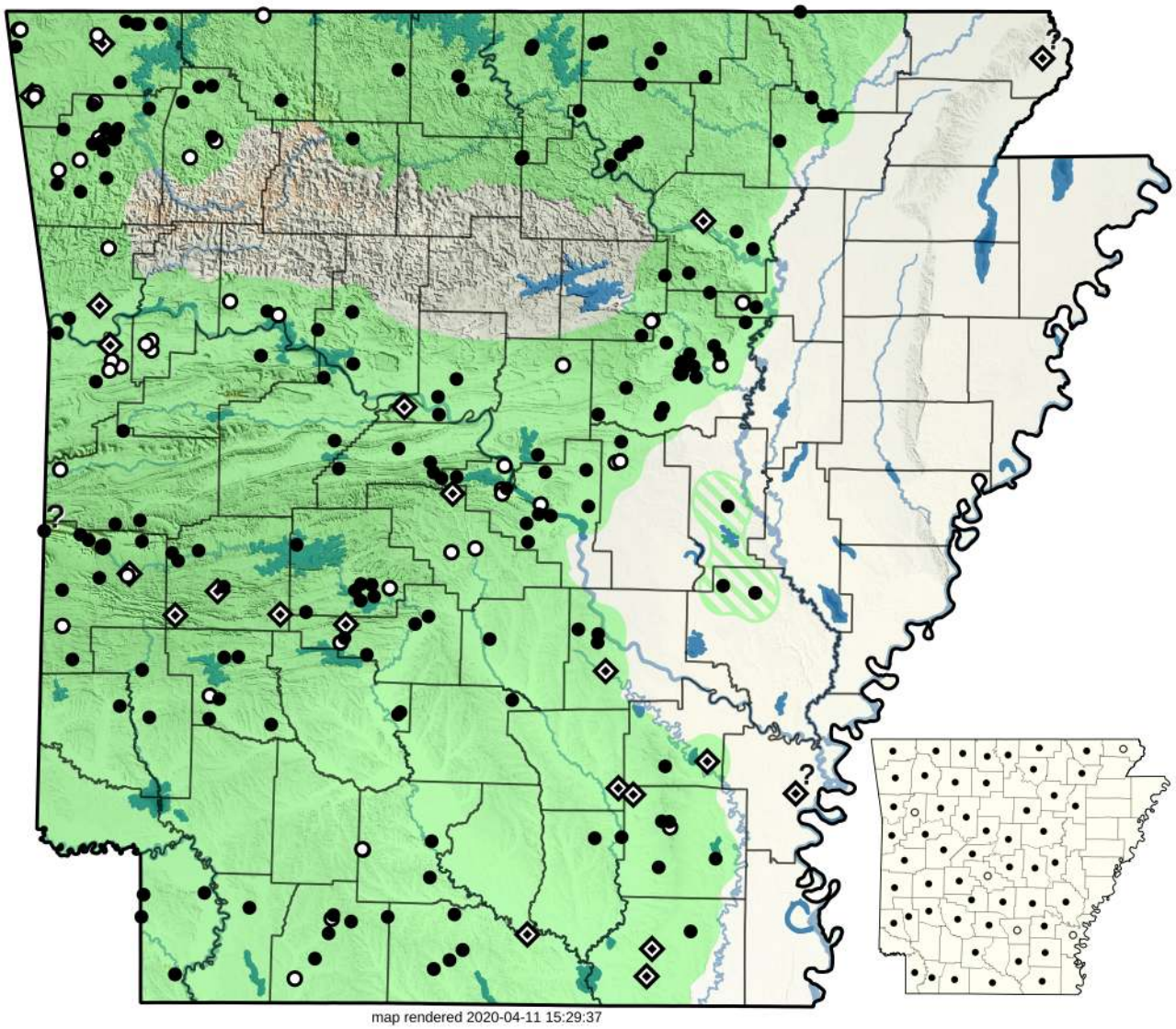



This species is represented by 845 records from 40 sources: 637 museum (●), 0 literature (□), 0 research (△), and 163 observation (○), with 45 additional Trauth et al. (2004) locality points remaining unsourced (◈). It has been museum vouchered for 73 of 75 counties (●), with 1 additional county having other forms of reported occurrence (○). Years of collection range from 1878 to *present*.

This species is common statewide. Four geographic color variants are recognized as being present in the state, with *C. c. priapus* (■) being the most widespread and dominant form. The strikingly patterned *C. c. anthicus* (■) occurs in southcentral Arkansas, *C. c. flaviventris* (■) along the northern Ozark Highlands, and *C. c. latrunculus* (■) from Crowley's Ridge eastward.

# *Lampropeltis calligaster* (Harlan, 1827)

**Prairie Kingsnake**



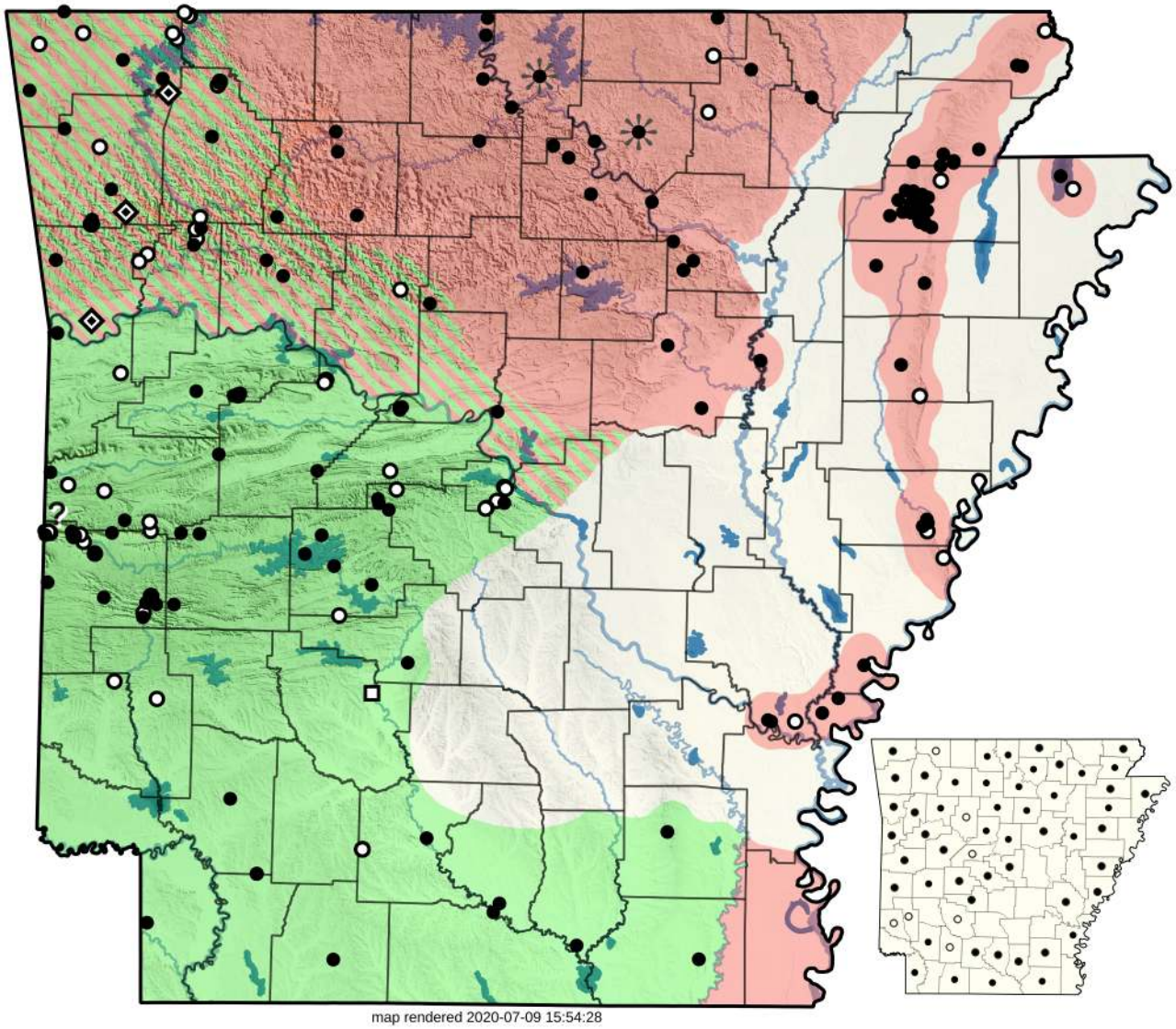

This species is represented by 277 records from 26 sources: 200 museum (●), 0 literature (□), 0 research (△), and 56 observation (○), with 21 additional Trauth et al. (2004) locality points remaining unsourced (◈). It has been museum vouchered for 51 of 75 counties (●), with 5 additional counties having other forms of reported occurrence (○). Years of collection range from 1926 to *present*.

This species is well documented from the Ozark Highlands, Arkansas Valley, Ouachita Mountains, and South Central Plains. However, records are notably absent from the central Boston Mountains and Mississippi Alluvial Plain. A few historic records dated 1951-1970 from the Grand Prairie region may suggest a formerly wider distribution in eastern Arkansas. Two isolated localities plotted by Trauth et al. (2004) in the northeast and southeast corners of the state, respectively, remain unsourced.

# *Lampropeltis gentilis - L. triangulum*

(Baird & Girard, 1853) - (Lacépède, 1789)

**Milksnake complex**

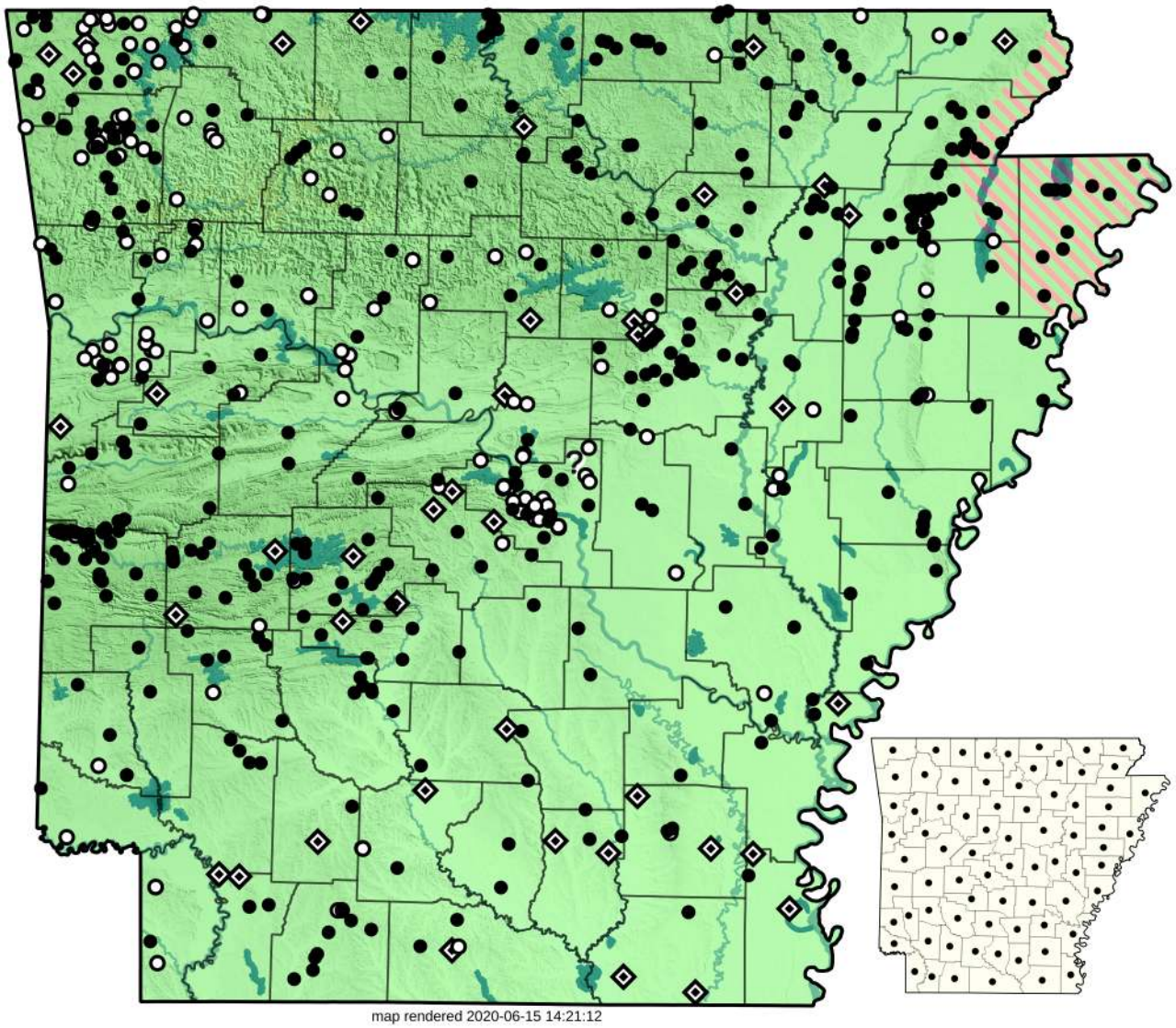



This species complex is represented by 239 records from 30 sources: 159 museum (●), 1 literature (□), 0 research (△), and 64 observation (○), with 15 additional Trauth et al. (2004) locality points remaining unsourced (◈). It has been museum vouchered for 51 of 75 counties (●), with 7 additional counties having other forms of reported occurrence (○). Years of collection range from 1853 to *present*.

As currently ascribed, *L. triangulum* (■) occurs throughout much of the Ozark Highlands and Crowley's Ridge, with isolated record clusters in the Mississippi Alluvial Plain from the vicinity of Big Lake National Wildlife Refuge and the confluence of the Arkansas and White rivers. *Lampropeltis gentilis* (■) occurs throughout the Ouachita Mountains and much of the South Central Plains. A relatively broad zone of contact north of the Arkansas River is hypothesized to extend from the northwest corner southeastward to central Arkansas, on the basis of gestalt appearance of photographed specimens submitted to iNaturalist. Reconstruction of this formerly wide-ranging monophyletic species into 7 disparate species (Ruane et al., 2014), not well-aligned to previous subspecies designations nor palaeogeographies, has not been universally accepted (Chambers and Hillis, 2019).

# *Lampropeltis holbrooki* Stejneger, 1903

**Speckled Kingsnake**

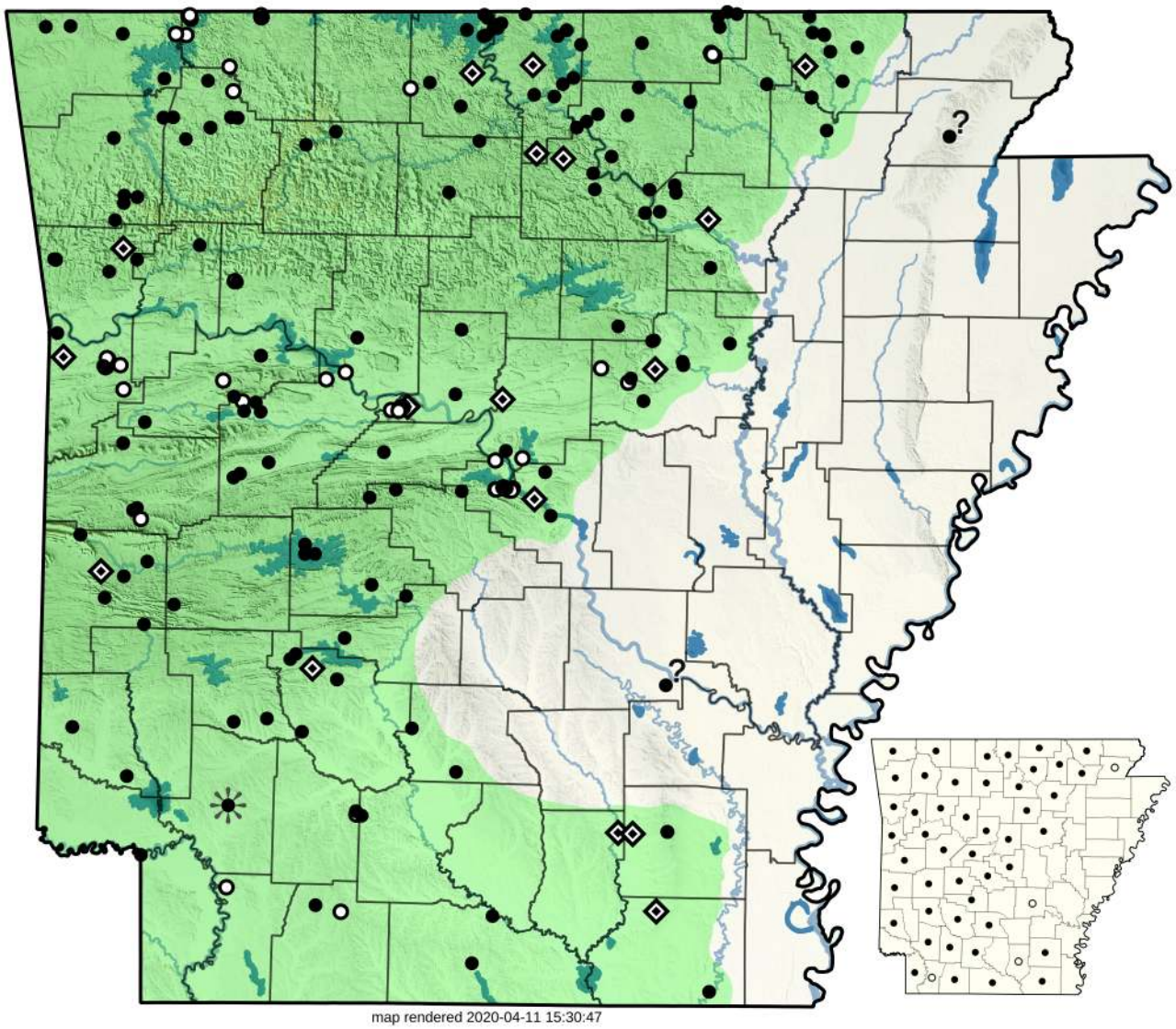



This species is represented by 799 records from 43 sources: 570 museum (●), 0 literature (□), 0 research (△), and 186 observation (○), with 43 additional Trauth et al. (2004) locality points remaining unsourced (◈). It has been museum vouchered for all counties (●). Years of collection range from 1855 to *present*.

This species occurs statewide. *Lampropeltis nigra* (■), a species of the complex that ranges mostly east of the Mississippi River, has multiple records from the Missouri Bootheel (Daniel and Edmond, 2020), suggesting potential occurrence in northeast Arkansas. No confirmation by genetic analysis has been established for Arkansas, however.

# *Masticophis flagellum flagellum* (Shaw, 1802)

**Eastern Coachwhip**

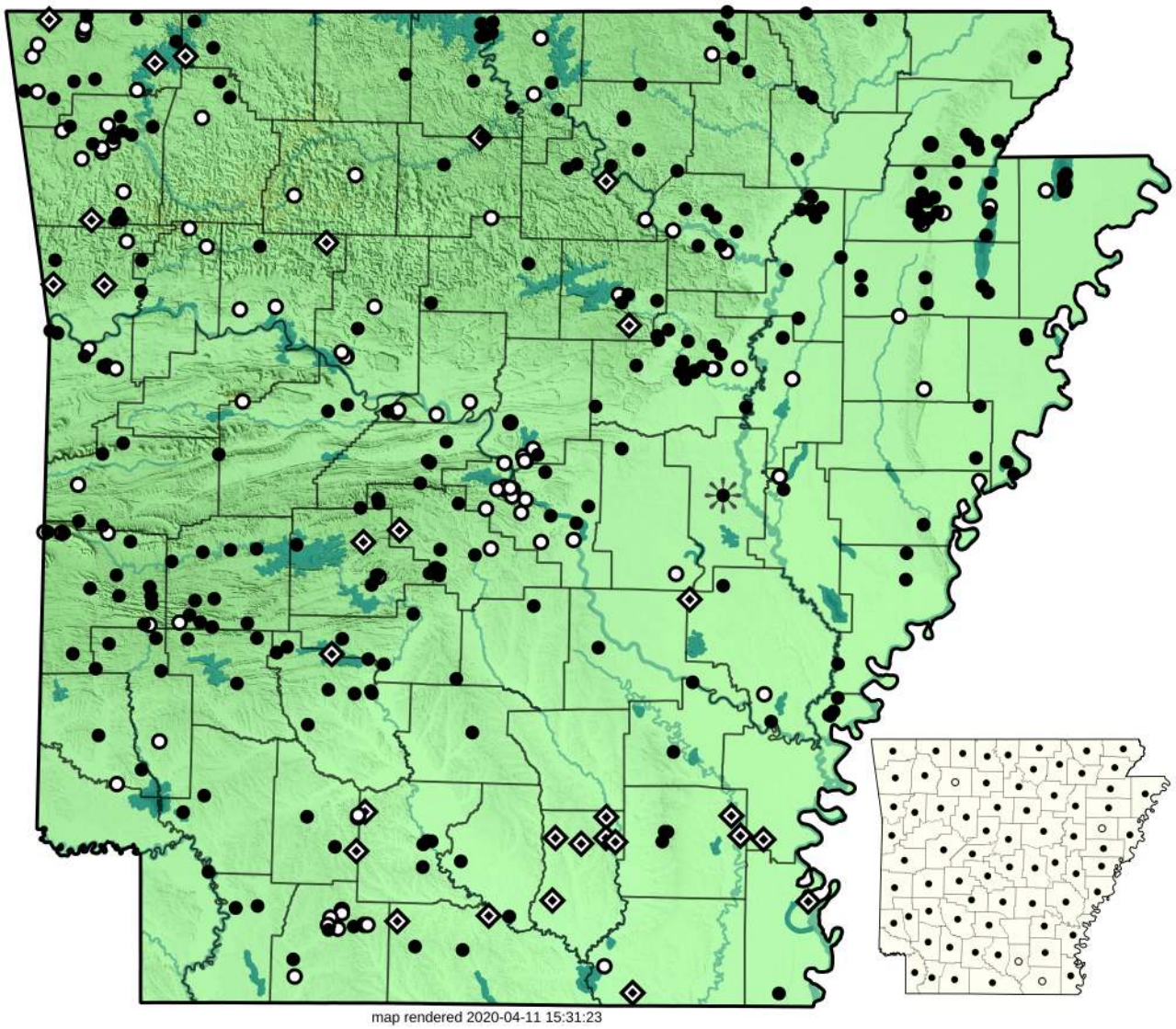



This species is represented by 241 records from 23 sources: 175 museum (●), 0 literature (□), 0 research (△), and 49 observation (○), with 17 additional Trauth et al. (2004) locality points remaining unsourced (◈). It has been museum vouchered for 46 of 75 counties (●), with 4 additional counties having other forms of reported occurrence (○). Years of collection range from 1897 to *present*.

This species occurs throughout much of the Interior Highlands and most of the South Central Plains. Records are relatively thin from the latter, where it may be less common, and from the central Boston Mountains as a possible artifact of undersampling this area. Two historical records from the Mississippi Alluvial Plain warrant confirmation: west of Paragould, Greene County (ASUMZ 2268 from 1966), and southeast of Pine Bluff, Jefferson/Lincoln County (CM 24583 from 1945).

# *Opheodrys aestivus aestivus* (Linnaeus, 1766)

**Northern Rough Greensnake**



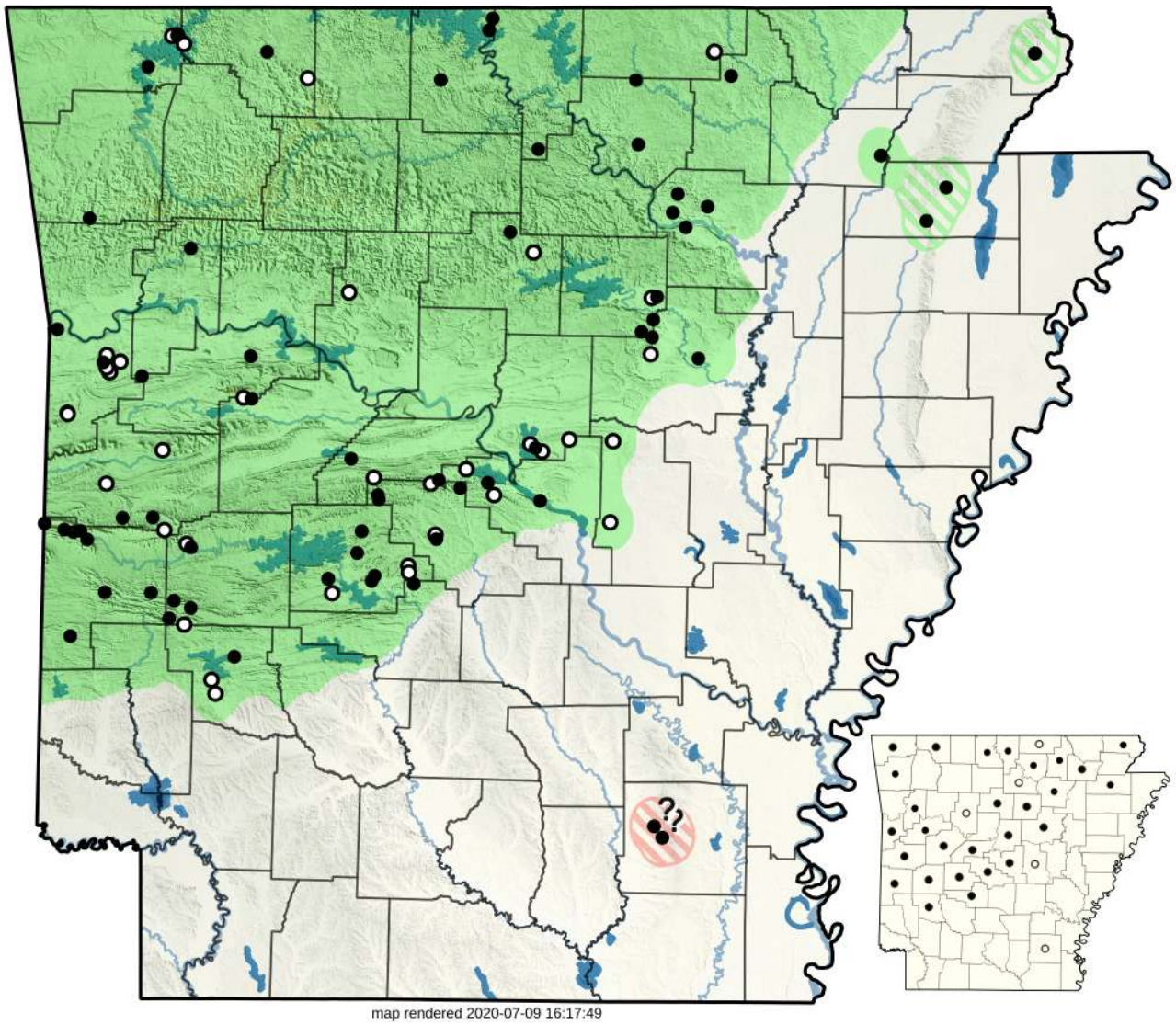

This species is represented by 818 records from 38 sources: 670 museum (●), 0 literature (□), 0 research (△), and 119 observation (○), with 29 additional Trauth et al. (2004) locality points remaining unsourced (◈). It has been museum vouchered for 68 of 75 counties (●), with 4 additional counties having other forms of reported occurrence (○). Years of collection range from 1855 to *present*.

This species occurs statewide.

# *Pantherophis emoryi - P. slowinskii*

(Baird & Girard, 1853) - (Burbrink, 2002)

**Great Plains/Slowinski's Ratsnake complex**

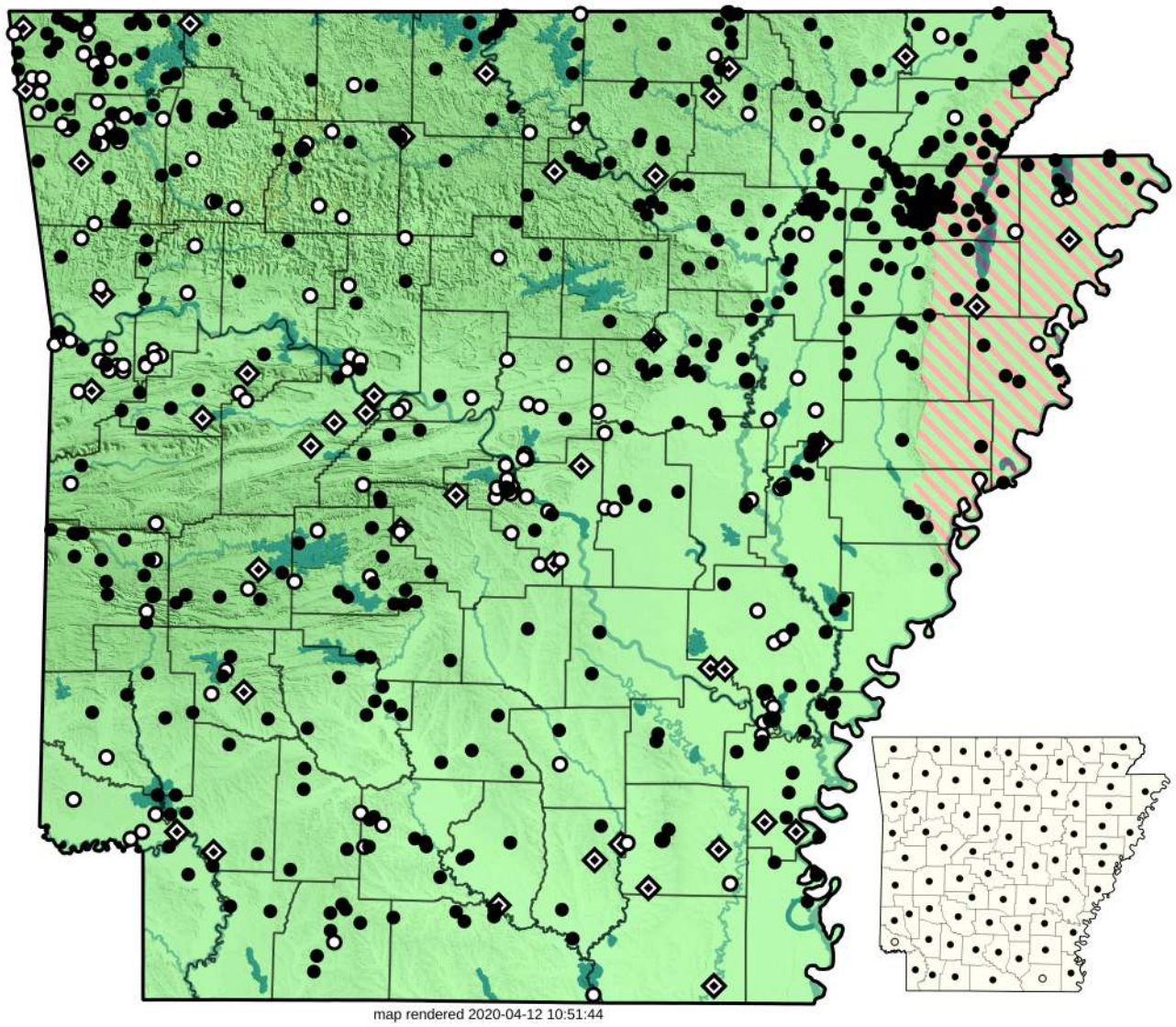



This species complex is represented by 128 records from 23 sources: 78 museum (●), 0 literature (□), 0 research (△), and 43 observation (○), with 7 additional Trauth et al. (2004) locality points remaining unsourced (◈). It has been museum vouchered for 28 of 75 counties (●), with 5 additional counties having other forms of reported occurrence (○). Years of collection range from 1898 to *present*.

This uncommon species complex has widely scattered records throughout the Interior Highlands. A small number of additional records, mostly historical, come from northeast Arkansas along Crowley's Ridge. The historical records of *P. slowinskii* (■) from the vicinity of Monticello, Drew County (FMNH 37786 from 1941, FMNH 40754 from 1942, and UAMN 114 from 1967), were previously considered as suspect juvenile *P. obsoletus*, however, a 2017 anecdotal photographic report of an adult road-killed specimen in Monticello, Drew County, suggests this species may still be present in the area (K. J. Irwin, pers. comm.). Just prior to public release of this document, an additional adult road-killed specimen of this complex was collected in Nevada County (C. Vick, unpublished data; not shown).

# *Pantherophis obsoletus* (Say in James, 1822 "1823")

**Western Ratsnake**

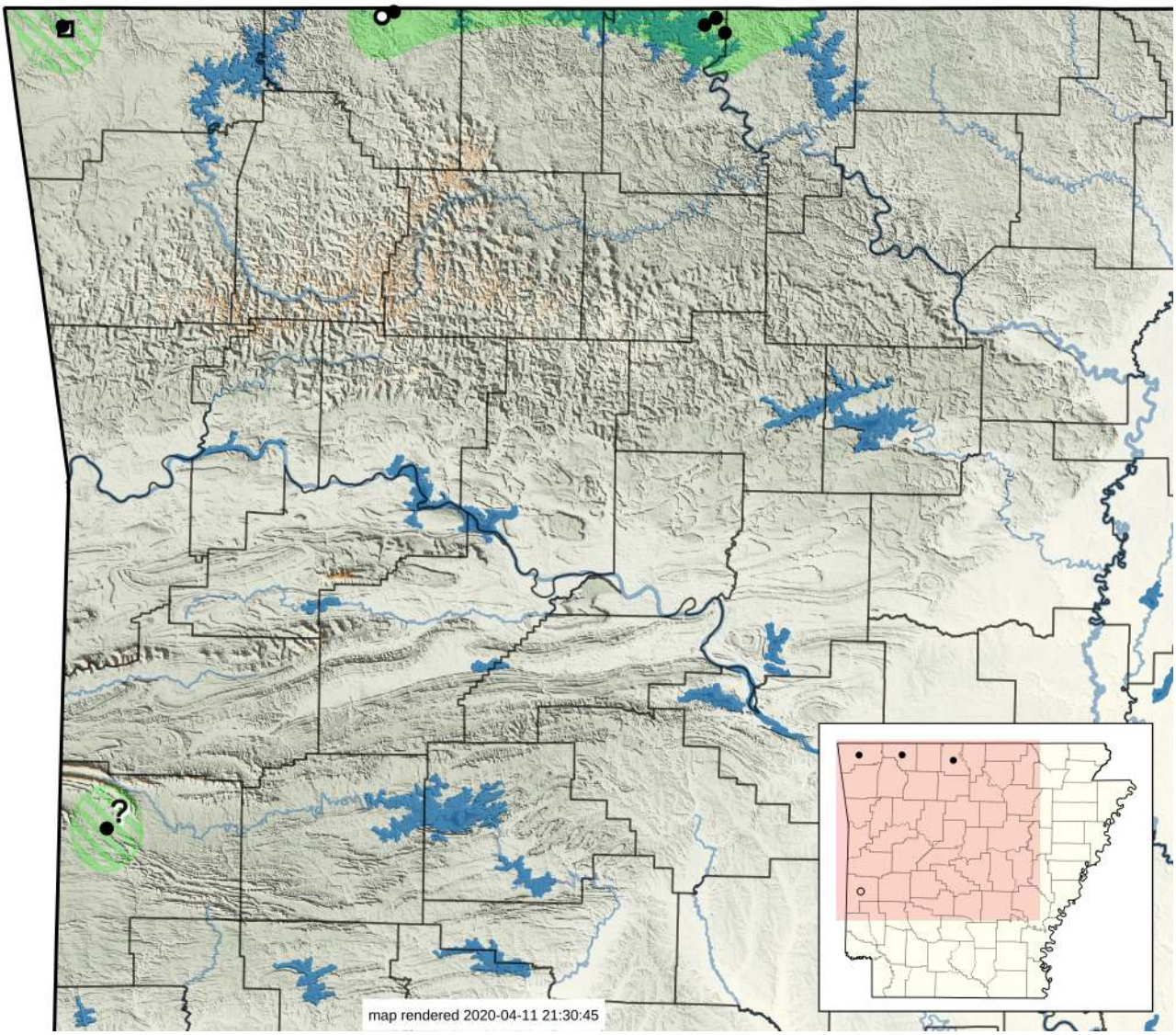



This species is represented by 886 records from 33 sources: 656 museum (●), 0 literature (□), 0 research (△), and 189 observation (○), with 41 additional Trauth et al. (2004) locality points remaining unsourced (◈). It has been museum vouchered for 73 of 75 counties (●), with 2 additional counties having other forms of reported occurrence (○). Years of collection range from 1892 to *present*.

This species is common statewide. Hybridization with *P. spiloides* (■) may occur east of Crowley's Ridge (Powell et al., 2016), but the extent of this influence, if present, is unknown.

## *Sonora episcopa* (Kennicott, 1859)

**Great Plains Groundsnake**

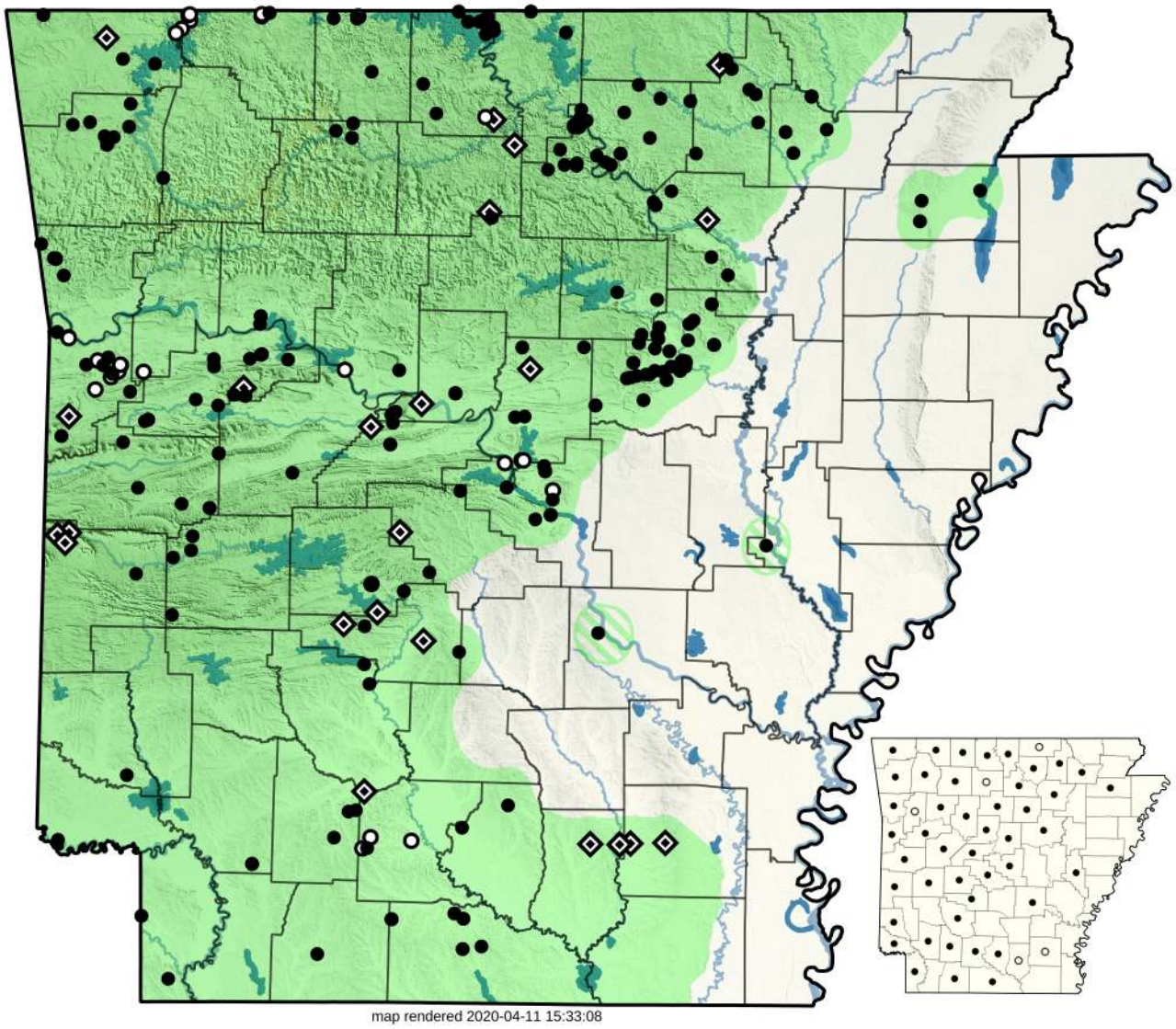



This species is represented by 26 records from 5 sources: 11 museum (●), 3 literature (□), 0 research (△), and 12 observation (○). It has been museum vouchered for 3 of 75 counties (●), with 1 additional county having other forms of reported occurrence (○). Years of collection range from 1945 to *present*.

This species has very limited occurrence along the Arkansas-Missouri border, with two areas having recent confirmation: northcentral Carroll County and northeastern Marion County. Additional historical records come from northwestern Benton County, 1945 and 1958, where the habitat at the time was described as rocky, dry, and relatively bare, with little vegetation (Dowling, 1958). These same sites were surveyed circa 2007 and found to be heavily encroached by vegetation, particularly Eastern Red Cedar, rendering them now much less suitable for this species (K. G. Roberts and G. J. Manning, pers. obs.). Highly questionable records from the vicinity of Mena, Polk County (ASUMZ 29262 and 29267 from 2005), may well be the result of deceptive actions by certain individuals. This species potentially has a broader distribution along the northern and western border counties, based on records from McDonald, Ozark, Stone, and Taney counties in Missouri (Daniel and Edmond, 2020) and Adair, Delaware, and McCurtain counties in Oklahoma (Sievert and Taggart, 2020).

# *Tantilla gracilis* Baird & Girard, 1853

**Flat-headed Snake**

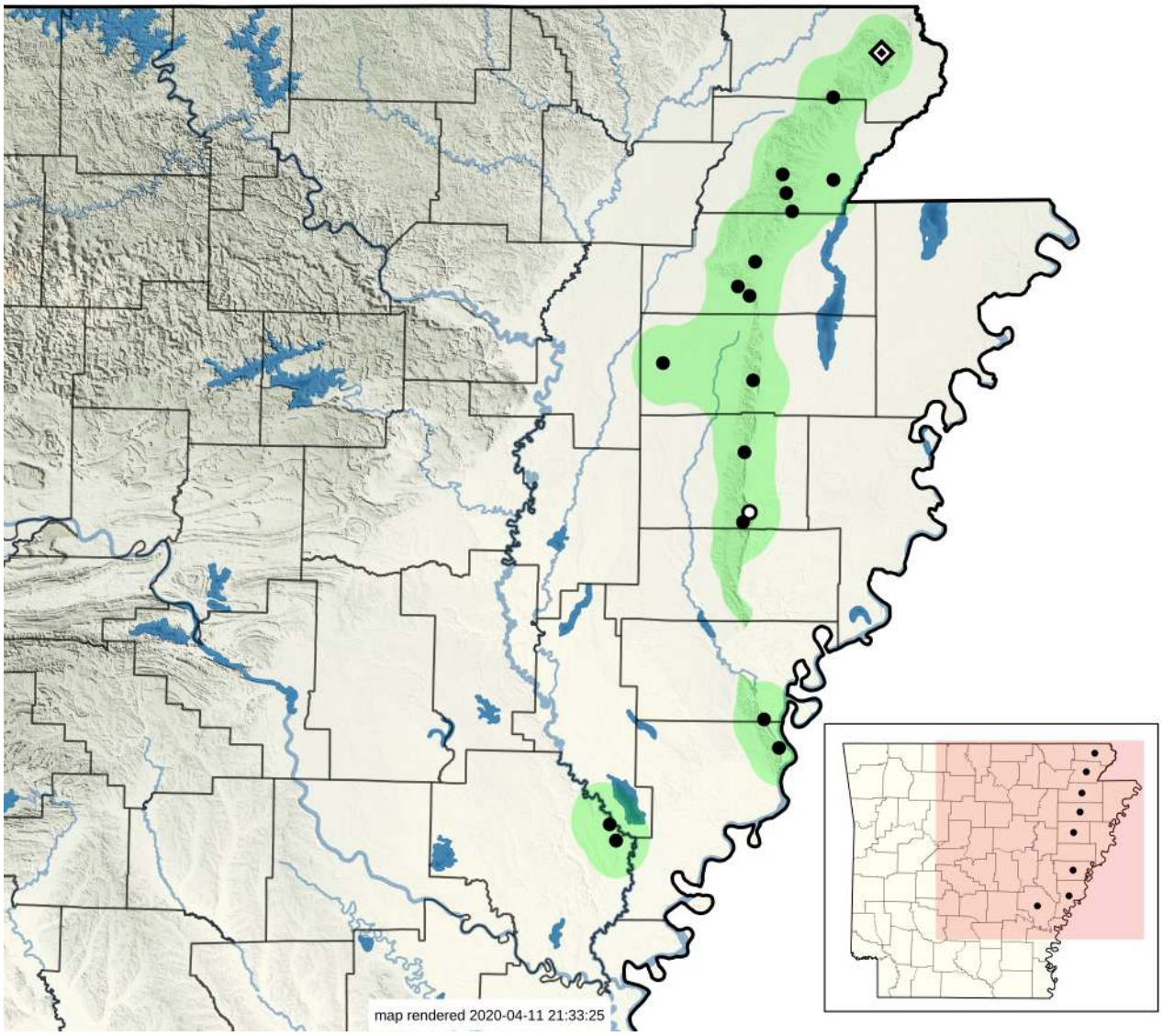



This species is represented by 548 records from 29 sources: 491 museum (●), 0 literature (□), 0 research (△), and 34 observation (○), with 23 additional Trauth et al. (2004) locality points remaining unsourced (◈). It has been museum vouchered for 45 of 75 counties (●), with 5 additional counties having other forms of reported occurrence (○). Years of collection range from 1897 to *present*.

This species occurs throughout much of the Interior Highlands and South Central Plains. An absence of records from the central Boston Mountains is likely an artifact of undersampling this area. Few records exist from the Mississippi Alluvial Plain and Crowley's Ridge, with most clustered in the vicinity of Jonesboro, Craighead County. The historical records from western Monroe County (APSU 13970 from 1934), and vicinity of Pine Bluff, Jefferson County (UAFMC 0068-0735-0399, undated), may warrant confirmation. An isolated cluster of localities plotted by Trauth et al. (2004) from the vicinity of Monticello, Drew County, remain unsourced.

# *Carphophis amoenus helenae* (Kennicott, 1859)

**Midwestern Wormsnake**

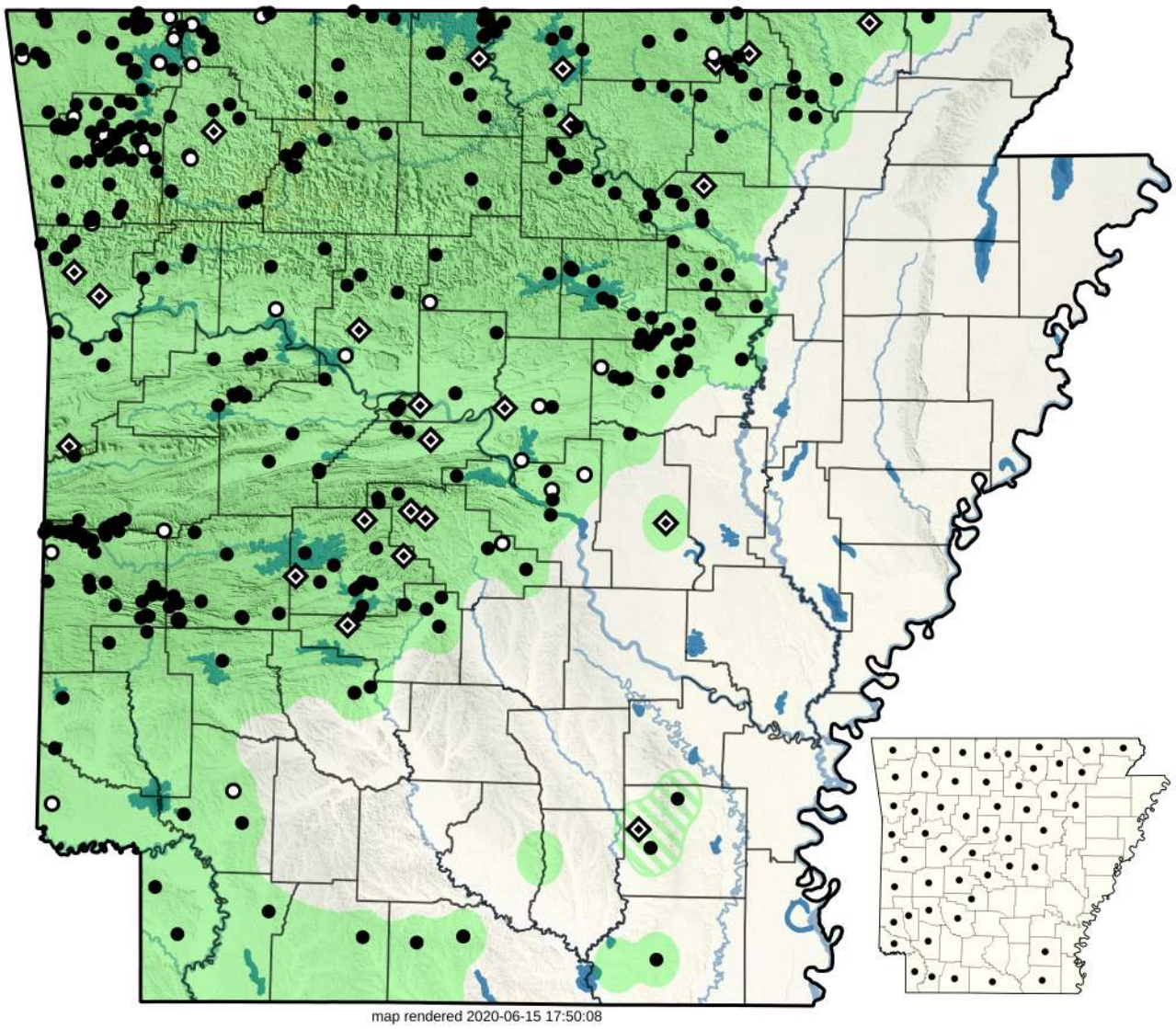



This species is represented by 20 records from 7 sources: 18 museum (●), 0 literature (□), 0 research (△), and 1 observation (○), with 1 additional Trauth et al. (2004) locality point remaining unsourced (◈). It has been museum vouchered for 8 of 75 counties (●). Years of collection range from 1934 to 2018.

This species is essentially confined to Crowley's Ridge. While this ecoregion extends into southeast Missouri, the northernmost recorded locality west of the Mississippi River comes from central Clay County (Trauth et al., 2004, unsourced). Occurrence south of the Marianna gap was not confirmed until two specimens were collected in 2005. Records from the lower White River valley in Arkansas County (FLMNH 48040-48041 from 1980 and FLMNH 50666 from 1981) warrant reexamination to confirm the identifications as *C. amoenus helenae* versus *C. vermis*.

# *Carphophis vermis* (Kennicott, 1859)

**Western Wormsnake**

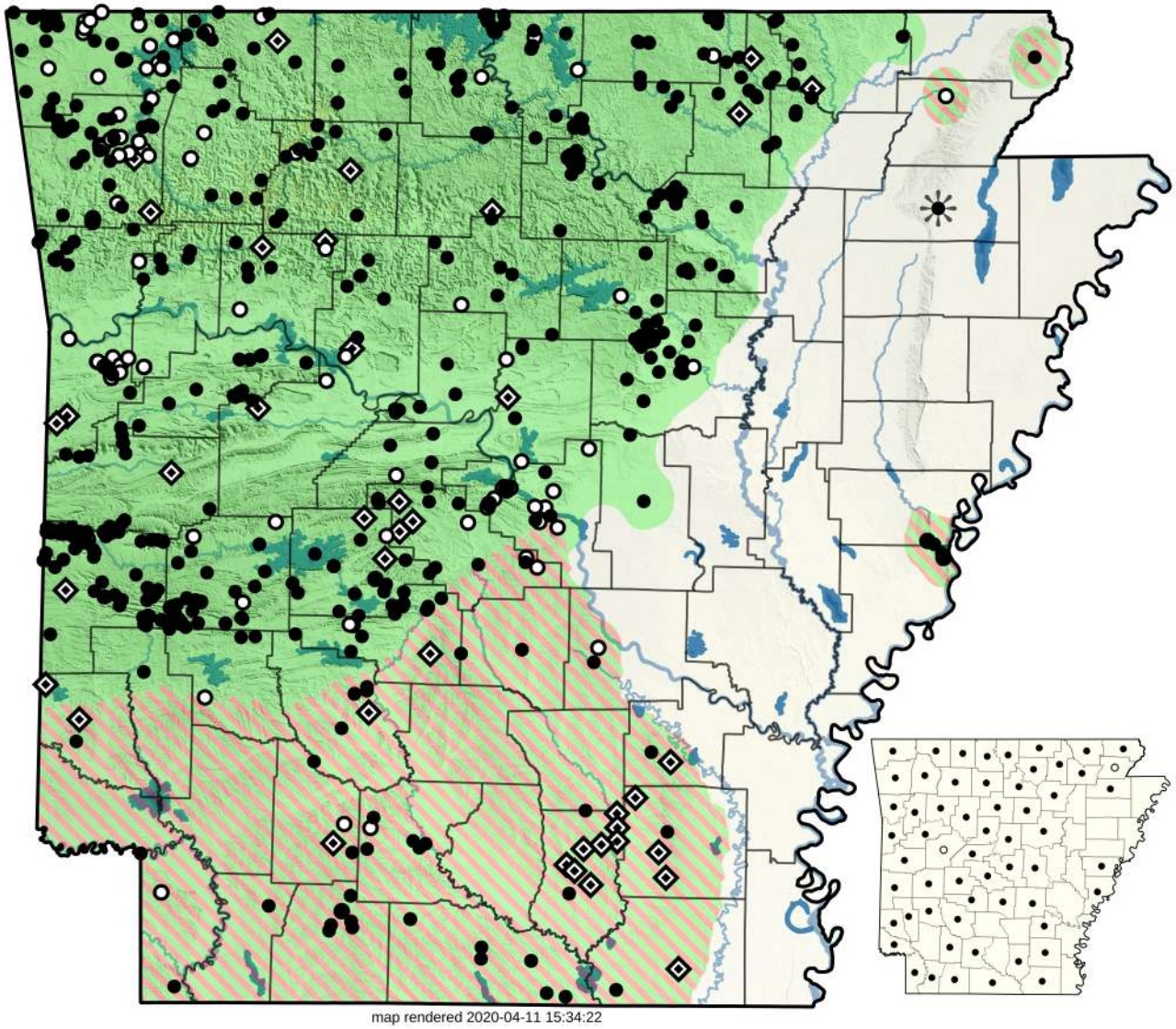



This species is represented by 685 records from 44 sources: 599 museum (●), 0 literature (□), 0 research (△), and 63 observation (○), with 23 additional Trauth et al. (2004) locality points remaining unsourced (◈). It has been museum vouchered for 51 of 75 counties (●). Years of collection range from 1895 to *present*.

This species occurs throughout the Interior Highlands and portions of the South Central Plains along the southwestern boundaries of the state. Historical records come from the vicinity of Monticello, Drew County. An isolated locality plotted by Trauth et al. (2004) from Lonoke County remains unsourced.

## *Diadophis punctatus* ssp. (Linnaeus, 1766)

**Ring-necked Snake**

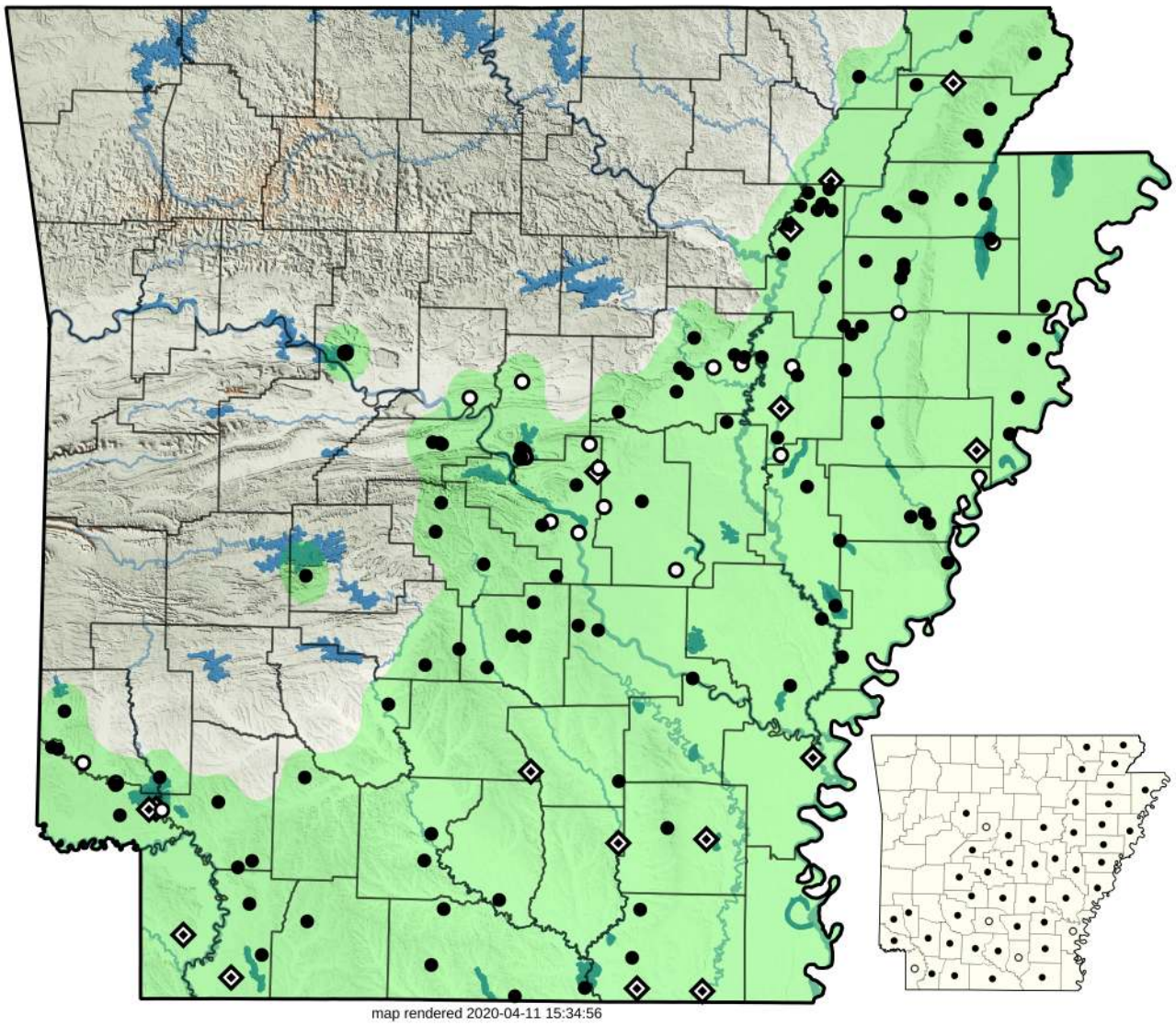



This species is represented by 1,285 records from 40 sources: 1,085 museum (●), 0 literature (□), 0 research (△), and 160 observation (○), with 40 additional Trauth et al. (2004) locality points remaining unsourced (◈). It has been museum vouchered for 57 of 75 counties (●), with 2 additional counties having other forms of reported occurrence (○). Years of collection range from 1855 to *present*.

This species occurs commonly throughout the Interior Highlands and more sporadically from the South Central Plains, with additional clusters of records from the northern and southern extents of Crowley's Ridge. Two records from Craighead County (ASUMZ 15160 from 1971 and ASUMZ 31353 from 2009) lack specific locality information. The currently recognized subspecies in Arkansas, *D. p. arnyi* (■) from the Interior Highlands and *D. p. stictogenys* (■) from the South Central Plains and Crowley's Ridge, have weak morphological differentiation and are not likely to represent phylogenetically meaningful taxa.

# *Farancia abacura reinwardtii* Schlegel, 1837

**Western Mudsnake**

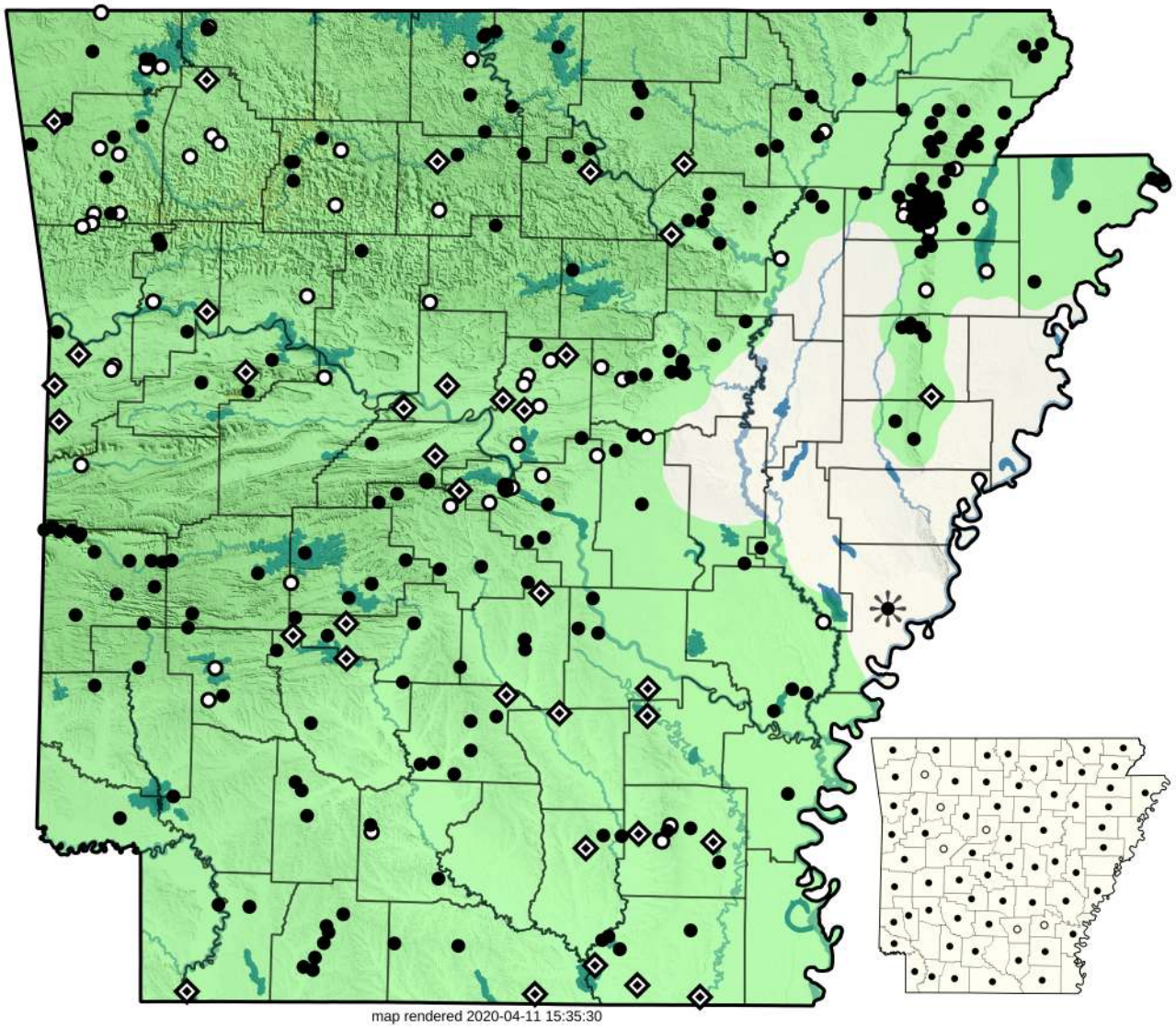



This species is represented by 175 records from 21 sources: 117 museum (●), 0 literature (□), 0 research (△), and 42 observation (○), with 16 additional Trauth et al. (2004) locality points remaining unsourced (◈). It has been museum vouchered for 43 of 75 counties (●), with 5 additional counties having other forms of reported occurrence (○). Years of collection range from 1898 to *present*.

This highly aquatic snake occurs throughout the Mississippi Alluvial Plain and South Central Plains, ascending the Arkansas valley and other stream basins draining the Interior Highlands. The record from south of Lake Ouachita, Garland County (WTSU 8897 from 1983), may represent a population that was isolated with the construction of the string of reservoirs along the Ouachita River.

# *Heterodon platirhinos* Latreille, 1801

**Eastern Hog-nosed Snake**

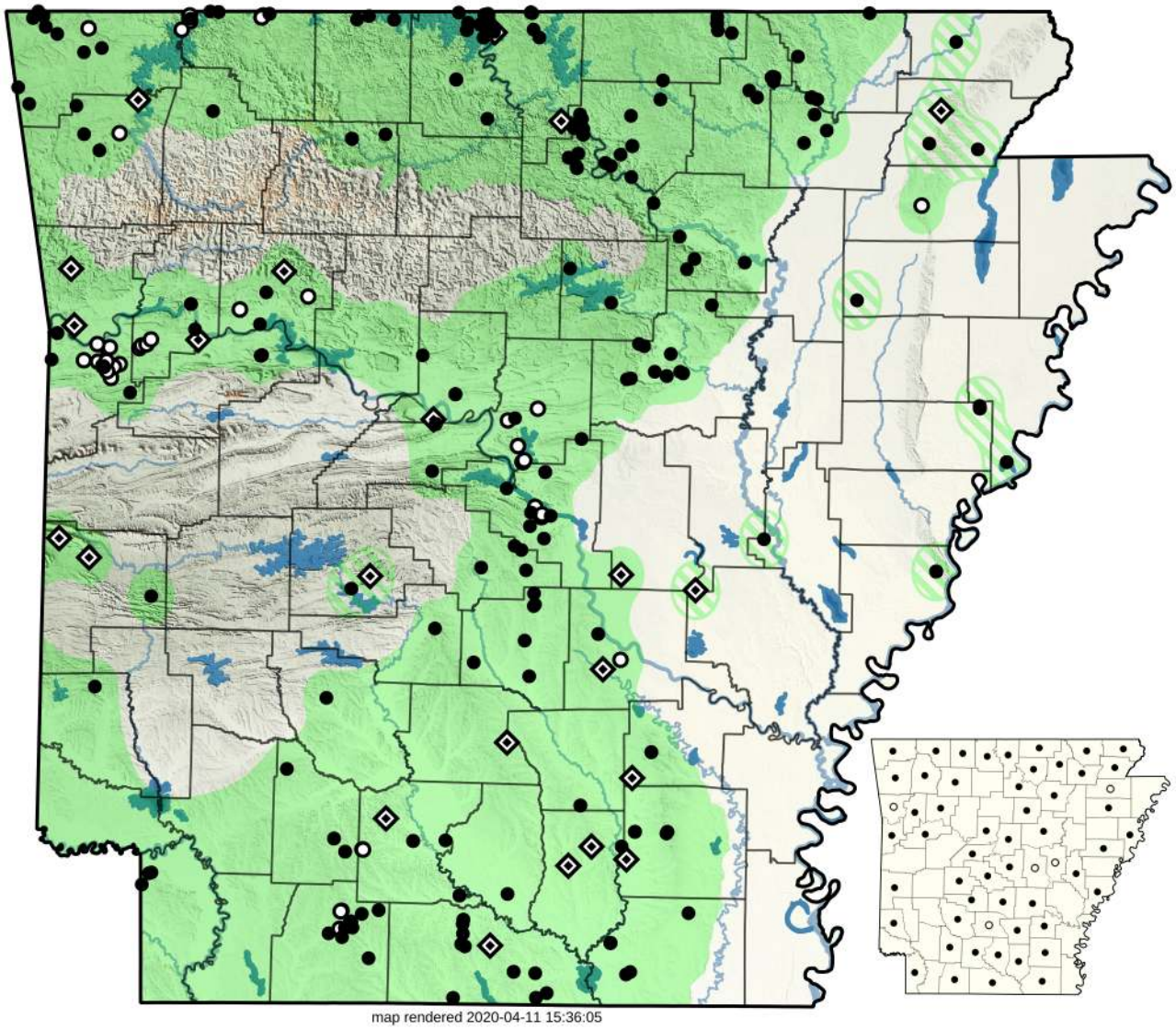



This species is represented by 409 records from 29 sources: 303 museum (●), 0 literature (□), 0 research (△), and 71 observation (○), with 35 additional Trauth et al. (2004) locality points remaining unsourced (◈). It has been museum vouchered for 61 of 75 counties (●), with 6 additional counties having other forms of reported occurrence (○). Years of collection range from 1855 to *present*.

This species occurs nearly statewide, except for portions of the Mississippi Alluvial Plain on the eastern, western, and southern flanks of Crowley's Ridge.

# *Haldea striatula* (Linnaeus, 1766)

**Rough Earthsnake**

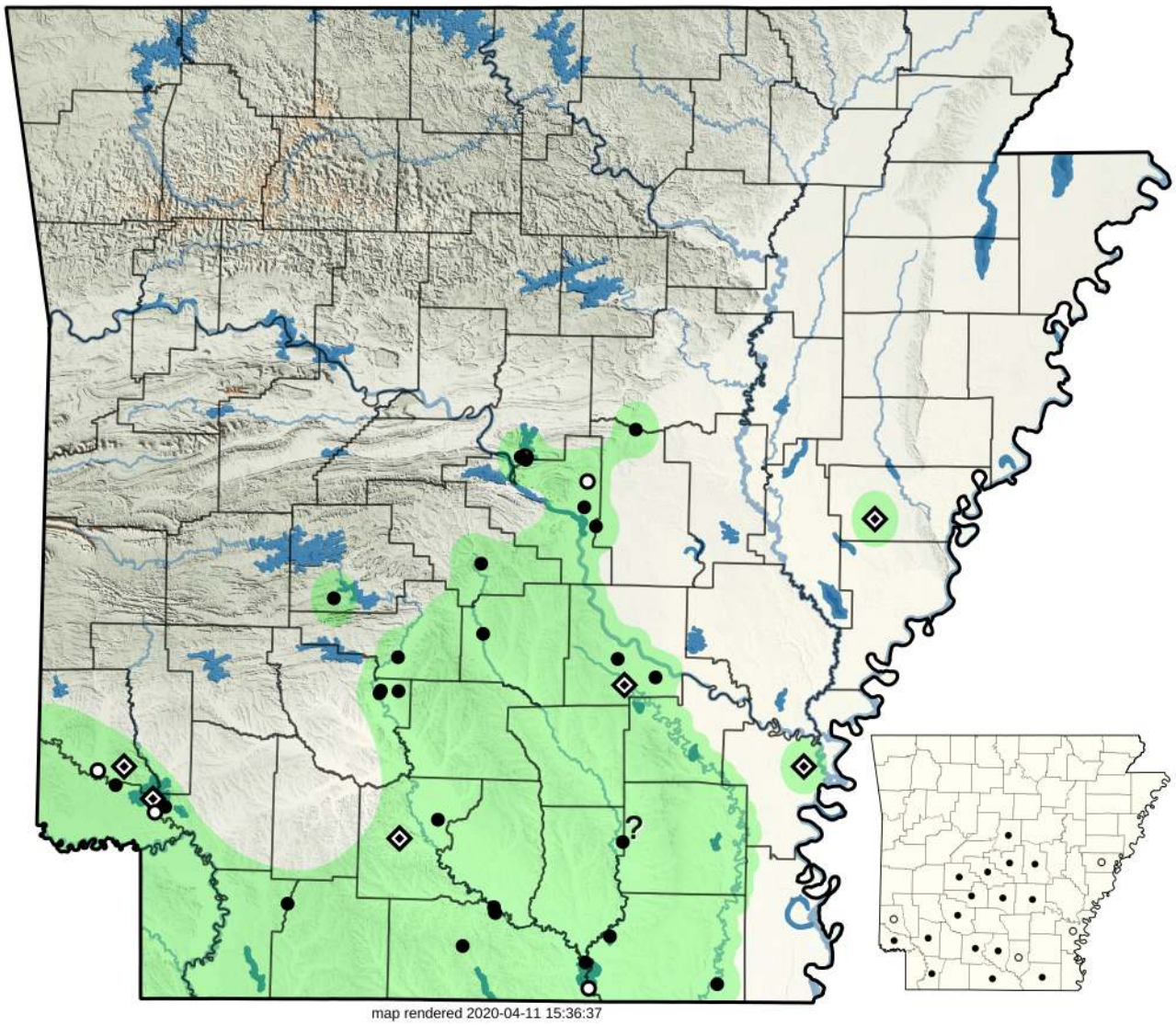



This species is represented by 461 records from 30 sources: 387 museum (●), 0 literature (□), 0 research (△), and 52 observation (○), with 22 additional Trauth et al. (2004) locality points remaining unsourced (◈). It has been museum vouchered for 51 of 75 counties (●), with 5 additional counties having other forms of reported occurrence (○). Years of collection range from 1897 to *present*.

This species has a patchy distribution in the state, with most records from the Ozark Highlands, Arkansas Valley, and South Central Plains. All records from the Mississippi Alluvial Plain are dated prior to 1970, with the exception of a single contemporary photographic record from Jonesboro, Craighead County. Some specimens, particularly those from the Ouachita Mountains, may warrant reexamination due to similarities in appearance with *Virginia valeriae elegans*. It is likely this species has a much broader range in Arkansas than is currently established.

# *Liodytes rigida sinicola* (Huheey, 1959)

**Gulf Swampsnake**

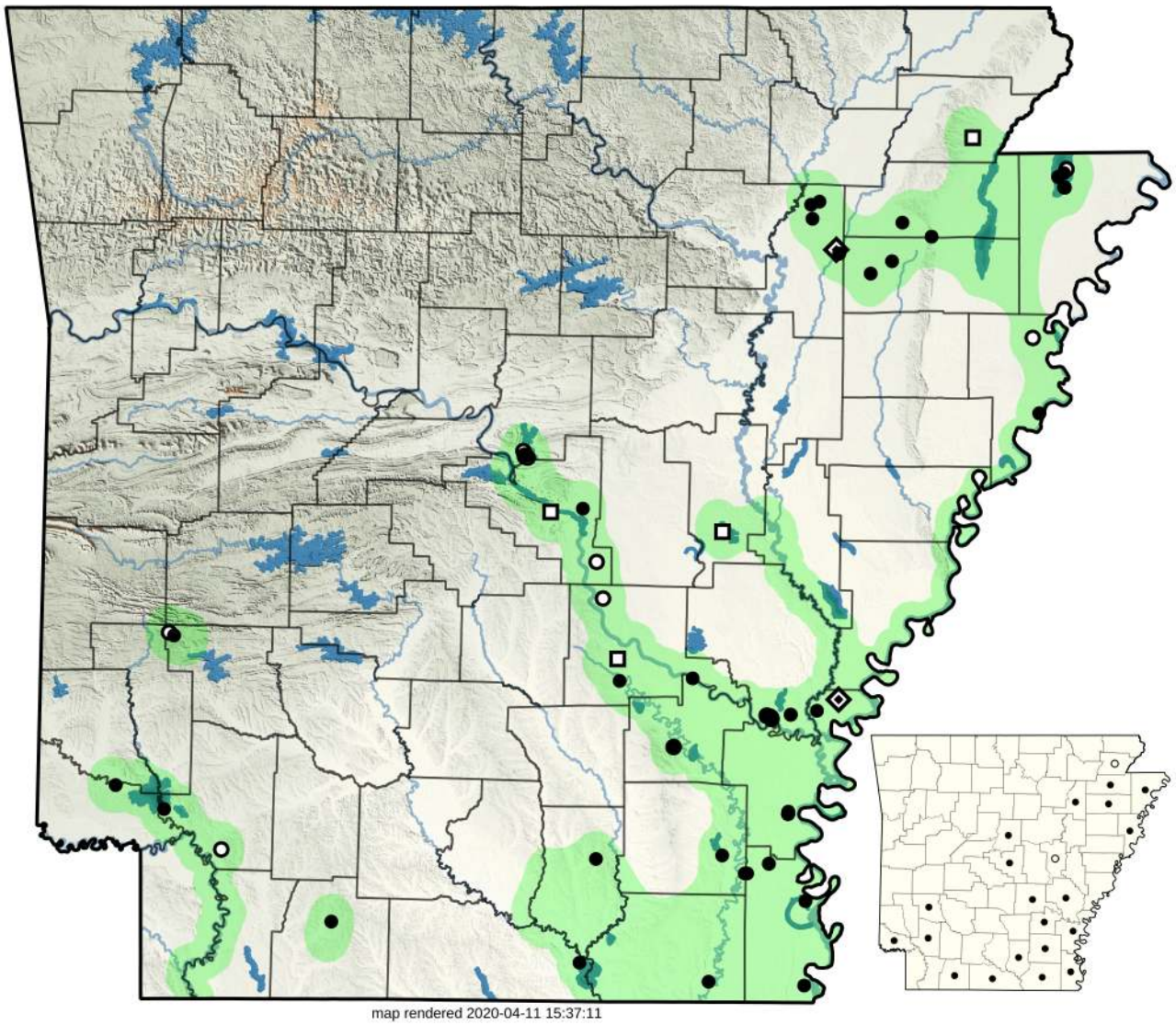



This species is represented by 39 records from 11 sources: 26 museum (●), 0 literature (□), 0 research (△), and 7 observation (○), with 6 additional Trauth et al. (2004) locality points remaining unsourced (◈). It has been museum vouchered for 16 of 75 counties (●), with 4 additional counties having other forms of reported occurrence (○). Years of collection range from 1930 to 2017.

This species occurs throughout the South Central Plains, predominantly along river and stream bottomlands such as the Arkansas, Little, Ouachita, and Saline rivers and Bayou Bartholomew. The record from west of Lake Hamilton, Garland County (HSU 1351 from 2004), may represent a population that was isolated with the construction of the string of reservoirs along the Ouachita River. Two isolated localities plotted by Trauth et al. (2004) from the Mississippi Alluvial Plain remain unsourced. A record from the vicinity of Warren, Bradley County (UAMN 693 from 1974), comes from a prairie habitat and may warrant reexamination due to similarities in appearance with *Regina grahamii*.

# *Nerodia cyclopion* (Duméril, Bibron, & Duméril, 1854)

**Mississippi Green Watersnake**

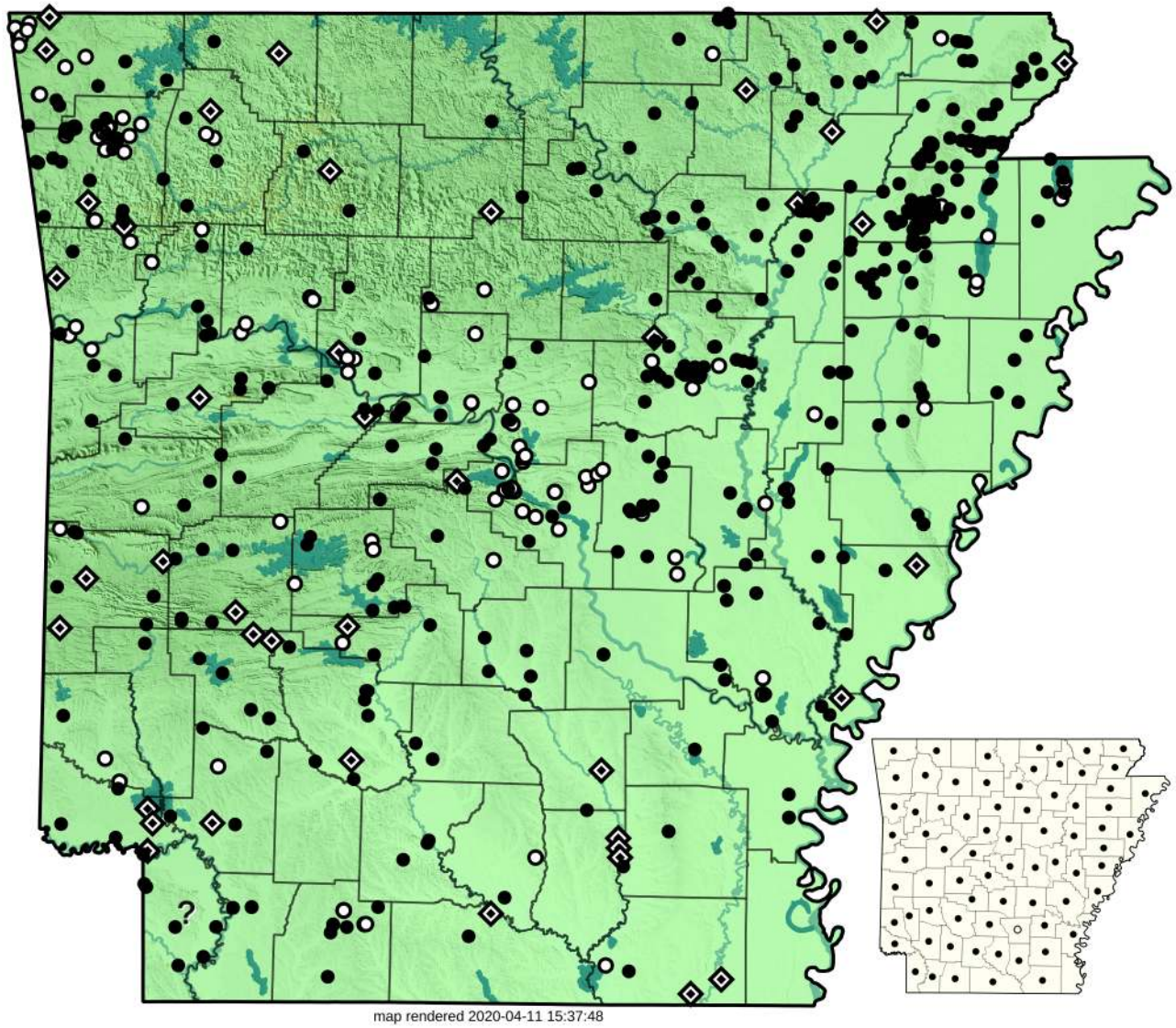



This species is represented by 205 records from 18 sources: 180 museum (●), 4 literature (□), 0 research (△), and 19 observation (○), with 2 additional Trauth et al. (2004) locality points remaining unsourced (◈). It has been museum vouchered for 20 of 75 counties (●), with 2 additional counties having other forms of reported occurrence (○). Years of collection range from 1912 to *present*.

This highly aquatic species has a limited distribution in the South Central Plains and Mississippi Alluvial Plain, with records in association with the following river systems: Arkansas, Little, Mississippi, Ouachita, Saline, and White rivers and Bayou Bartholomew. Records from northwestern Pike County (UAFMC 0068-0735-0688 and 0068-0735-2540 from 1953 and ANHC ARADB22010*020 from 1957) are suspect and warrant reexamination due to the similarities in appearance with *N. rhombifer rhombifer*.

# *Nerodia erythrogaster* (Forster, 1771)

**Plain-bellied Watersnake**

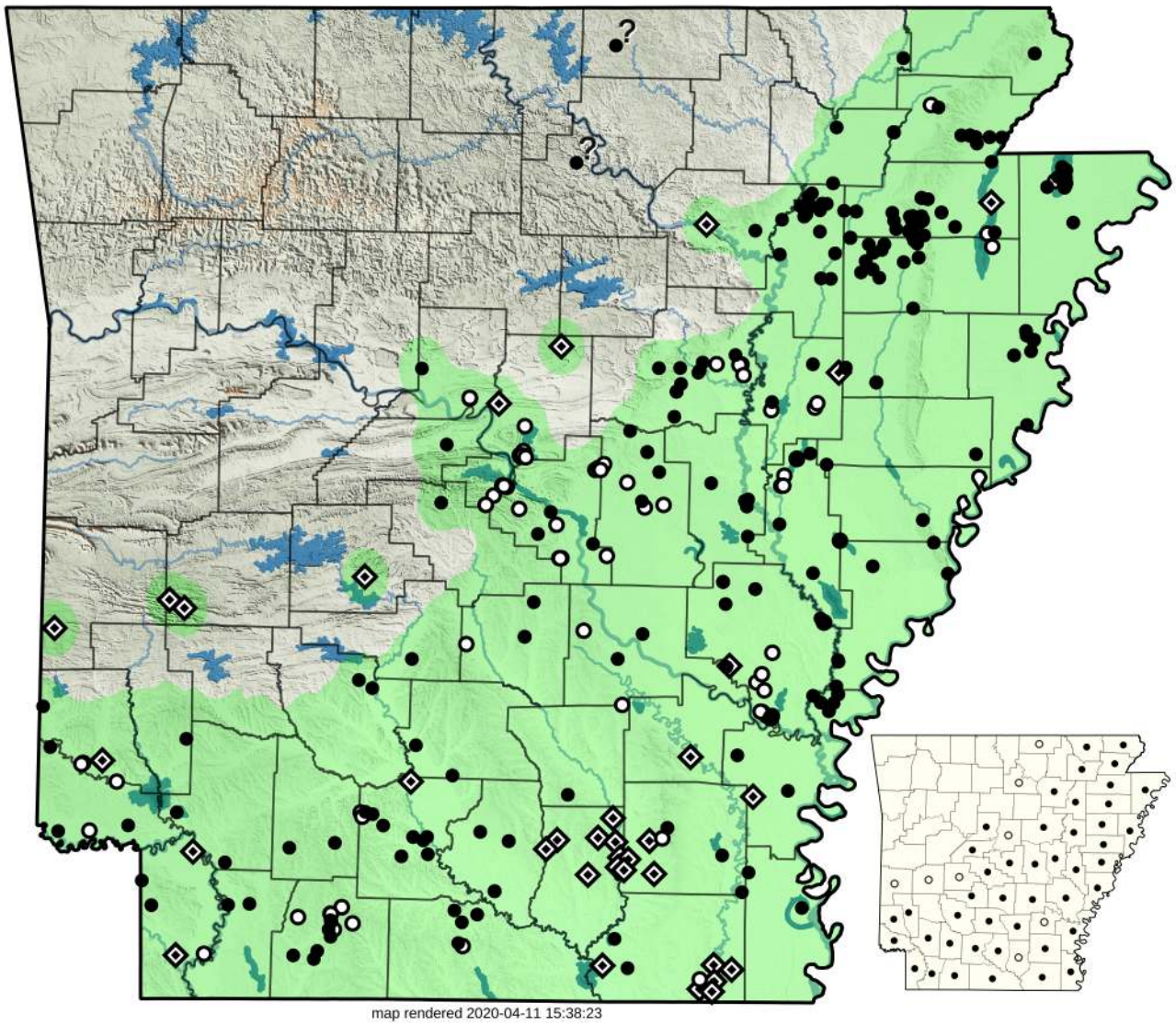



This species is represented by 866 records from 36 sources: 690 museum (●), 0 literature (□), 0 research (△), and 135 observation (○), with 41 additional Trauth et al. (2004) locality points remaining unsourced (◈). It has been museum vouchered for 71 of 75 counties (●), with 1 additional county having other forms of reported occurrence (○). Years of collection range from 1884 to *present*.

This species occurs statewide, although records from the Ozark Highlands in northcentral Arkansas (e.g., vicinity Bull Shoals and Northfork lakes) are relatively sparse.

# *Nerodia fasciata confluens* (Blanchard, 1923)

**Broad-banded Watersnake**

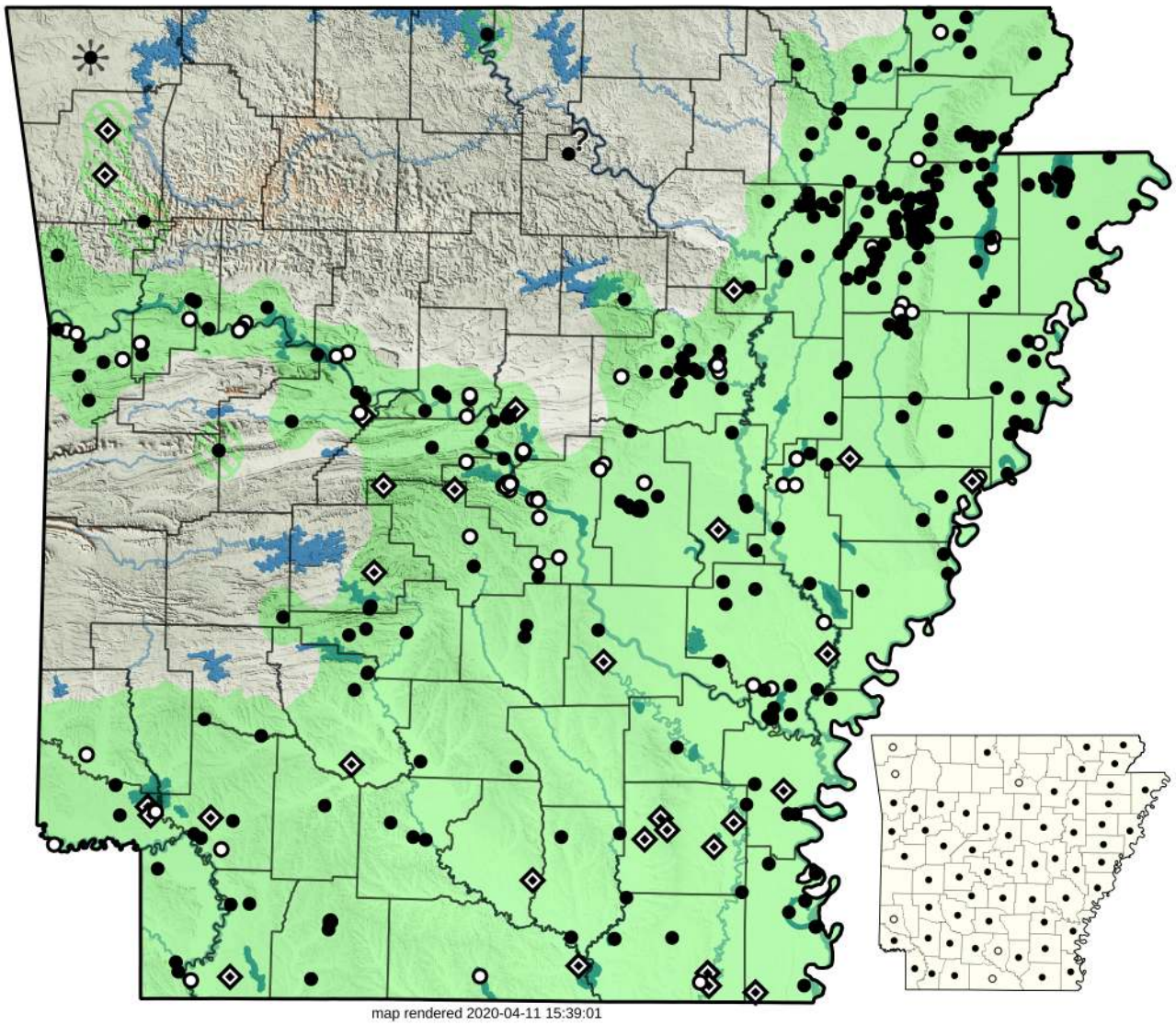



This species is represented by 555 records from 23 sources: 395 museum (●), 0 literature (□), 0 research (△), and 126 observation (○), with 34 additional Trauth et al. (2004) locality points remaining unsourced (◈). It has been museum vouchered for 45 of 75 counties (●), with 8 additional counties having other forms of reported occurrence (○). Years of collection range from 1889 to *present*.

This species occurs throughout the South Central Plains and Mississippi Alluvial Plain, ascending river and stream valleys into portions of the Interior Highlands. Isolated localities plotted by Trauth et al. (2004) in the Ouachita Mountains, northern Faulkner County, and central Independence County remain unsourced. Records from Fulton County (ASUMZ 28835 from 2004) and Stone County (ASUMZ 601 from 1962) are highly suspect and warrant reexamination.

# *Nerodia rhombifer rhombifer* (Hallowell, 1852)

**Northern Diamond-backed Watersnake**

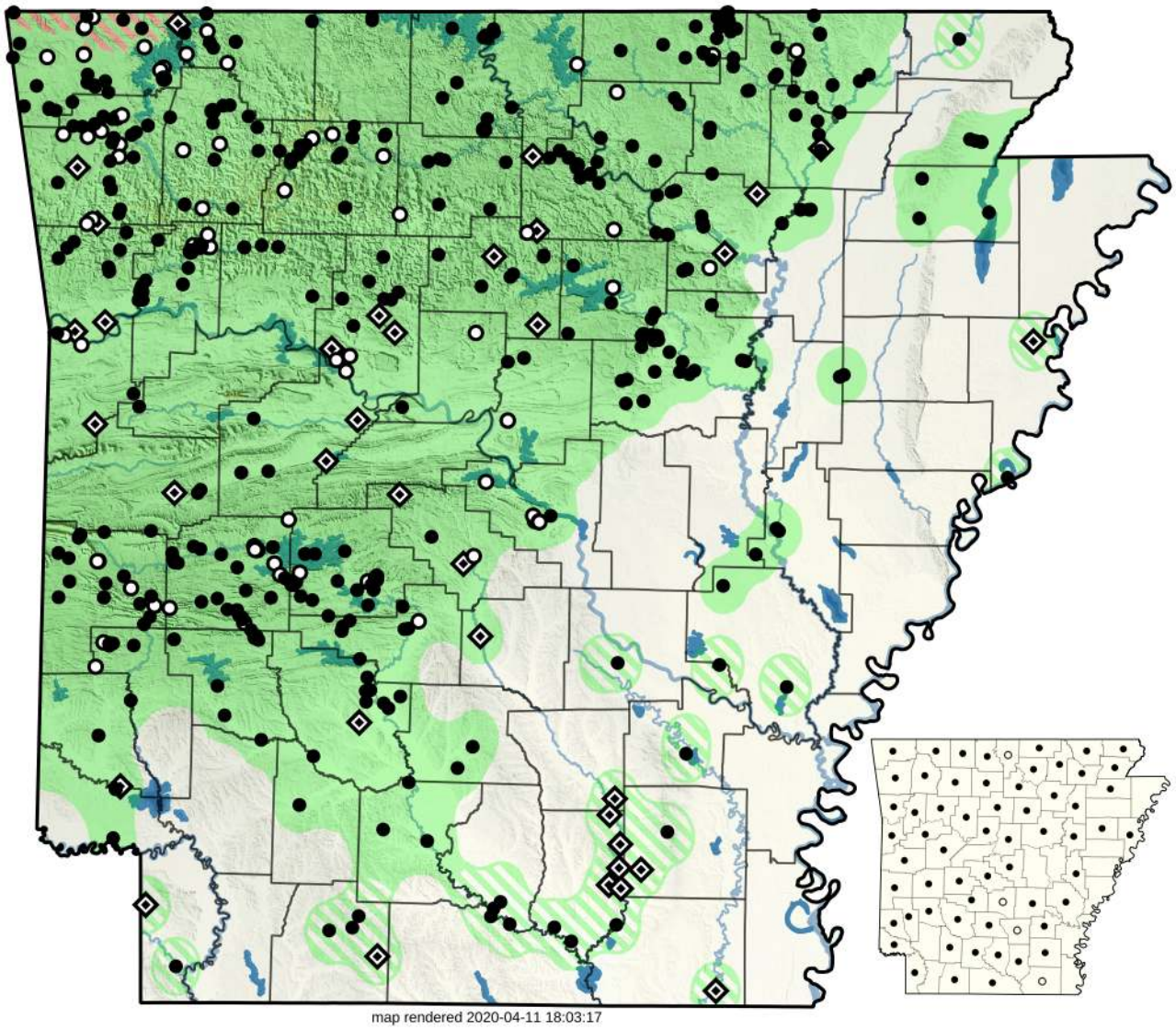



This species is represented by 963 records from 30 sources: 831 museum (●), 0 literature (□), 0 research (△), and 103 observation (○), with 29 additional Trauth et al. (2004) locality points remaining unsourced (◈). It has been museum vouchered for 56 of 75 counties (●), with 6 additional counties having other forms of reported occurrence (○). Years of collection range from 1897 to *present*.

This species occurs throughout the South Central Plains, Mississippi Alluvial Plain, and Arkansas Valley. Historical records from northwest Arkansas (UAFMC 0068-0735-0669 from 1953, LSUS 1528-1534 from 1971, and two Trauth et al., 2004 localities that remain unsourced) are questionable given recent surveys have failed to confirm its presence from this region (K. G. Roberts, pers. obs., and J. D. Willson, pers. comm.). However, records dated prior to 1966 in McDonald County, Missouri (Daniel and Edmond, 2020) and 2016 in southeastern Delaware County, Oklahoma (Sievert and Taggart, 2020) may offer some credence. Ascension up the White River valley in northcentral Arkansas is suggested by records from Bull Shoals Lake, Marion County (MPM 20332 from 1975), and northern Stone County (APSU 17898 from 1968), but additional confirmation is warranted.

# *Nerodia sipedon pleuralis* (Cope, 1892)

**Midland Watersnake**



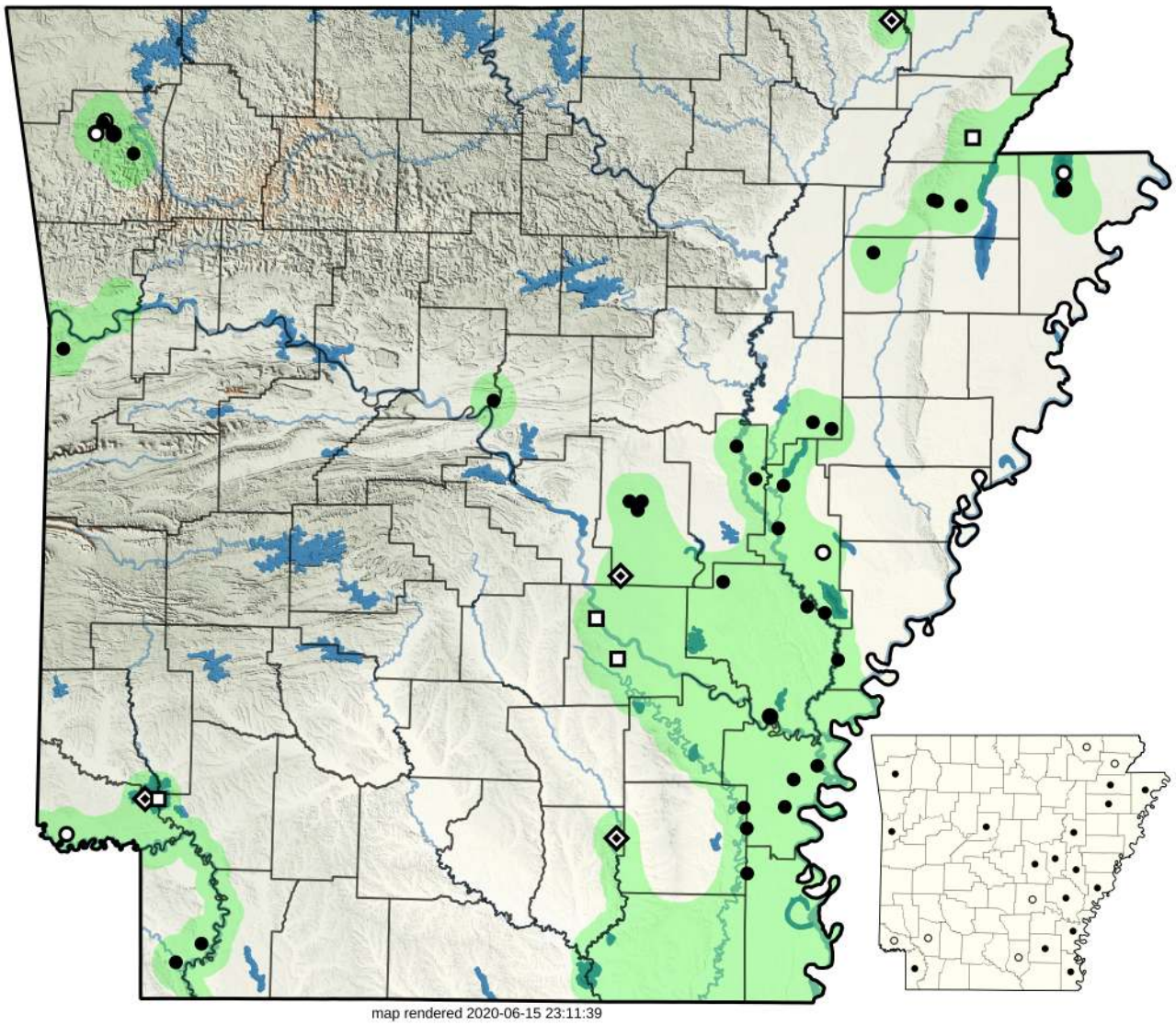

This species is represented by 903 records from 32 sources: 759 museum (●), 0 literature (□), 0 research (△), and 109 observation (○), with 35 additional Trauth et al. (2004) locality points remaining unsourced (◈). It has been museum vouchered for 59 of 75 counties (●), with 4 additional counties having other forms of reported occurrence (○). Years of collection range from 1897 to *present*.

This species commonly inhabits streams in the Interior Highlands, with a patchy distribution in the South Central Plains and Mississippi Alluvial Plain. Many of the records outside of the Interior Highlands are historic or were plotted by Trauth et al. (2004) and remain unsourced. Powell et al. (2016) show the *N. s. sipedon* subspecies (■) edging into the extreme northwest corner of the state.

# *Regina grahamii*

Baird & Girard, 1853

**Graham's Crayfish Snake**

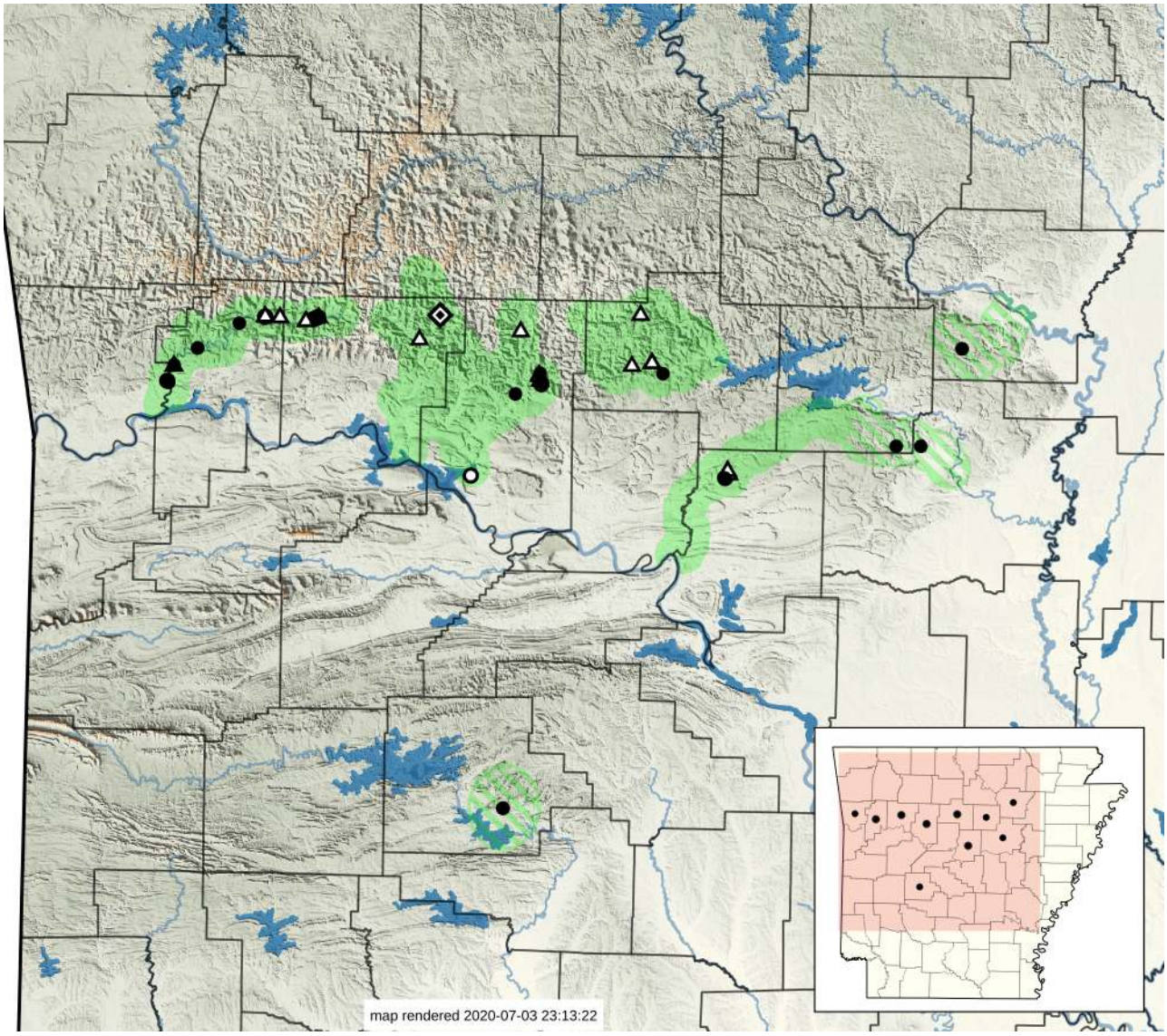



This species is represented by 111 records from 19 sources: 92 museum (●), 4 literature (□), 0 research (△), and 11 observation (○), with 4 additional Trauth et al. (2004) locality points remaining unsourced (◈). It has been museum vouchered for 16 of 75 counties (●), with 6 additional counties having other forms of reported occurrence (○). Years of collection range from 1935 to 2017.

This species has a spotty, widely disjunct, distribution in Arkansas. Most records come from the Mississippi Alluvial Plain along Bayou Bartholomew, the Grand Prairie region, and within the lower Arkansas and White river basins. A cluster of records comes from northeast Arkansas that extends into the Missouri Bootheel (Daniel and Edmond, 2020). In the western South Central Plains, records come from within the Red and Little river basins. Records from the Arkansas Valley come from west of Conway, Conway County, and Fort Smith, Sebastian County (unnumbered WCC from 1974; albeit misidentified as *Liodytes rigida*). More contemporary anecdotal photographic observations corroborate occurrence of this species in the Fort Smith area from both sides of the Arkansas River (A. Deshwal, D. Fairweather, R. Sanders, and A. Shaffer, pers. comm. and obs.). A concentrated, but thriving, population exists in northwest Arkansas near Fayetteville, Washington County (Baecher et al., 2018; J. D. Willson, pers. comm). Isolated localities plotted by Trauth et al. (2004) in northeastern Randolph County and northeastern Bradley County remain unsourced. It is likely this species has a much broader range in Arkansas than is currently established.

# *Regina septemvittata* (Say, 1825)

**Queensnake**



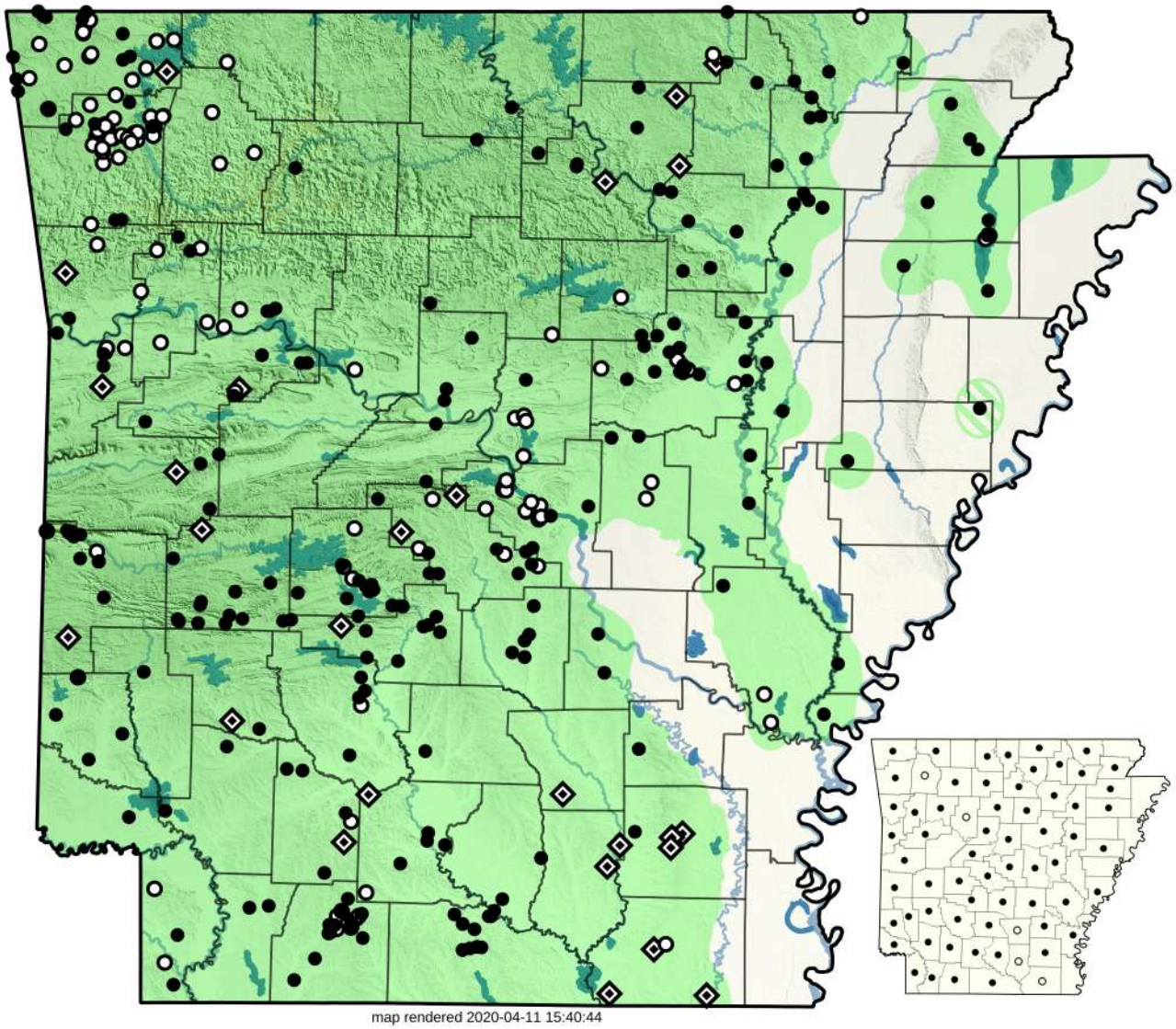

This species is represented by 68 records from 12 sources: 28 museum (●), 0 literature (□), 28 research (△), and 11 observation (○), with 1 additional Trauth et al. (2004) locality point remaining unsourced (◈). It has been museum vouchered for 10 of 75 counties (●). Years of collection range from 1895 to 2017.

This species inhabits southward- and eastward-flowing rivers and streams draining the Boston Mountains and portions of the Arkansas Valley north of the Arkansas River. Waterways of confirmed occurrence include the Mulberry River, Little Piney Creek, Big Piney Creek (Trauth et al., 2004, unsourced), Illinois Bayou, North Fork Illinois Bayou, Cadron Creek, South Fork Little Red River, Archey Creek, and historically from Big Creek (dated 1981 and 1982) and Salado Creek (dated 1967 and 1969). A 2016 photographic report of an adult specimen found amongst embankment riprap near the confluence of the Illinois Bayou with Lake Dardanelle suggests that further surveys around the margins of Lake Dardanelle may be warranted. Hints of more northerly occurrence in Arkansas come from an anecdotal in-hand observation from a small tributary of Holman Creek just west of Huntsville, Madison County (K. G. Roberts, pers. obs., 1980s) and a series of three museum voucher specimens from Stone County, Missouri (AMNH 46801-46803 from 1927). Multiple historical records come from Hot Springs, Garland County, where this species was reported to be common in 1895 (Strecker, 1924; Conant, 1960). However, it has no confirmed documentation from there, or elsewhere in the Ouachita Mountains, in the past 100 years.

# *Storeria dekayi*

(Holbrook, 1839 "1836")

**Dekay's Brownsnake**

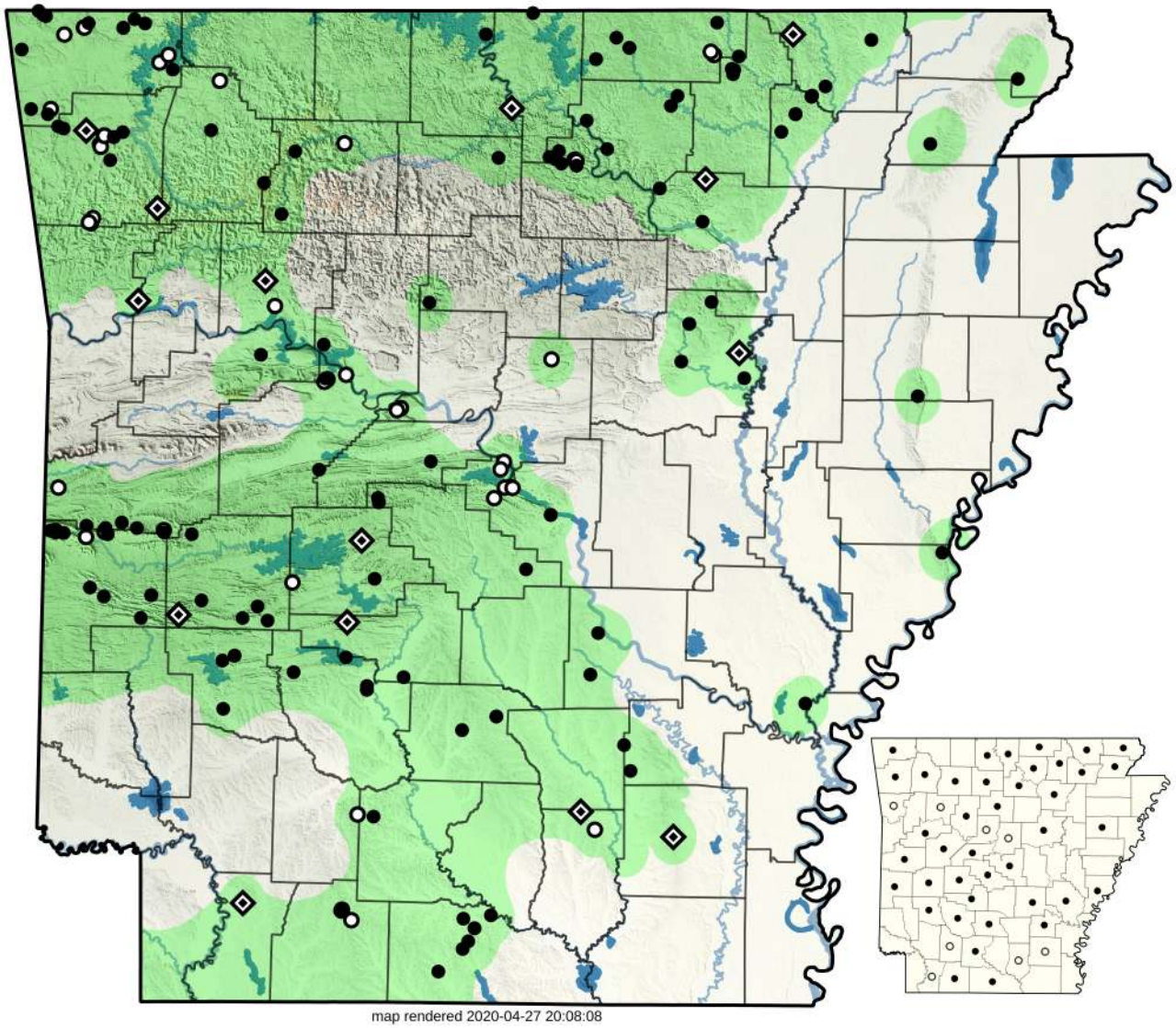



This species is represented by 451 records from 30 sources: 287 museum (●), 0 literature (□), 0 research (△), and 138 observation (○), with 26 additional Trauth et al. (2004) locality points remaining unsourced (◈). It has been museum vouchered for 61 of 75 counties (●), with 5 additional counties having other forms of reported occurrence (○). Years of collection range from 1895 to *present*.

This species may occur statewide, although the distribution is patchy for much of the Mississippi Alluvial Plain, where it may be less common. An additional distributional gap from the central Boston Mountains through the Ozark Highlands of northcentral Arkansas is likely an artifact of undersampling this area.

# *Storeria occipitomaculata* (Storer, 1839)

**Red-bellied Snake**



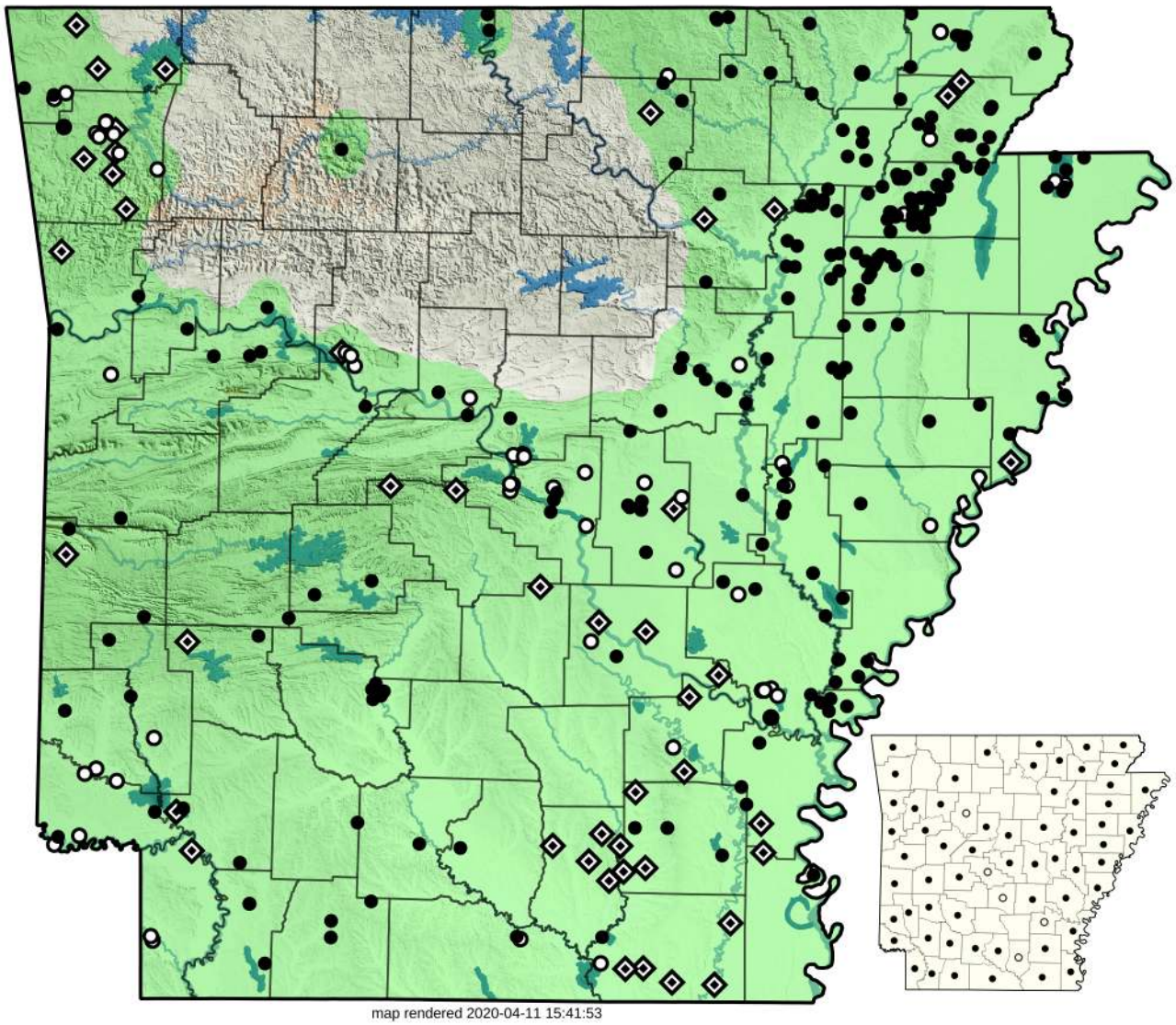

This species is represented by 210 records from 23 sources: 145 museum (●), 0 literature (□), 0 research (△), and 51 observation (○), with 14 additional Trauth et al. (2004) locality points remaining unsourced (◈). It has been museum vouchered for 40 of 75 counties (●), with 8 additional counties having other forms of reported occurrence (○). Years of collection range from 1924 to *present*.

This species may occur statewide, although the distribution is patchy for much of the Mississippi Alluvial Plain, where it may be less common. An additional distributional gap from the central Boston Mountains through the Ozark Highlands of northcentral Arkansas is likely an artifact of undersampling this area.

# *Thamnophis proximus proximus*

(Say in James, 1822 "1823")

**Orange-striped Ribbonsnake**

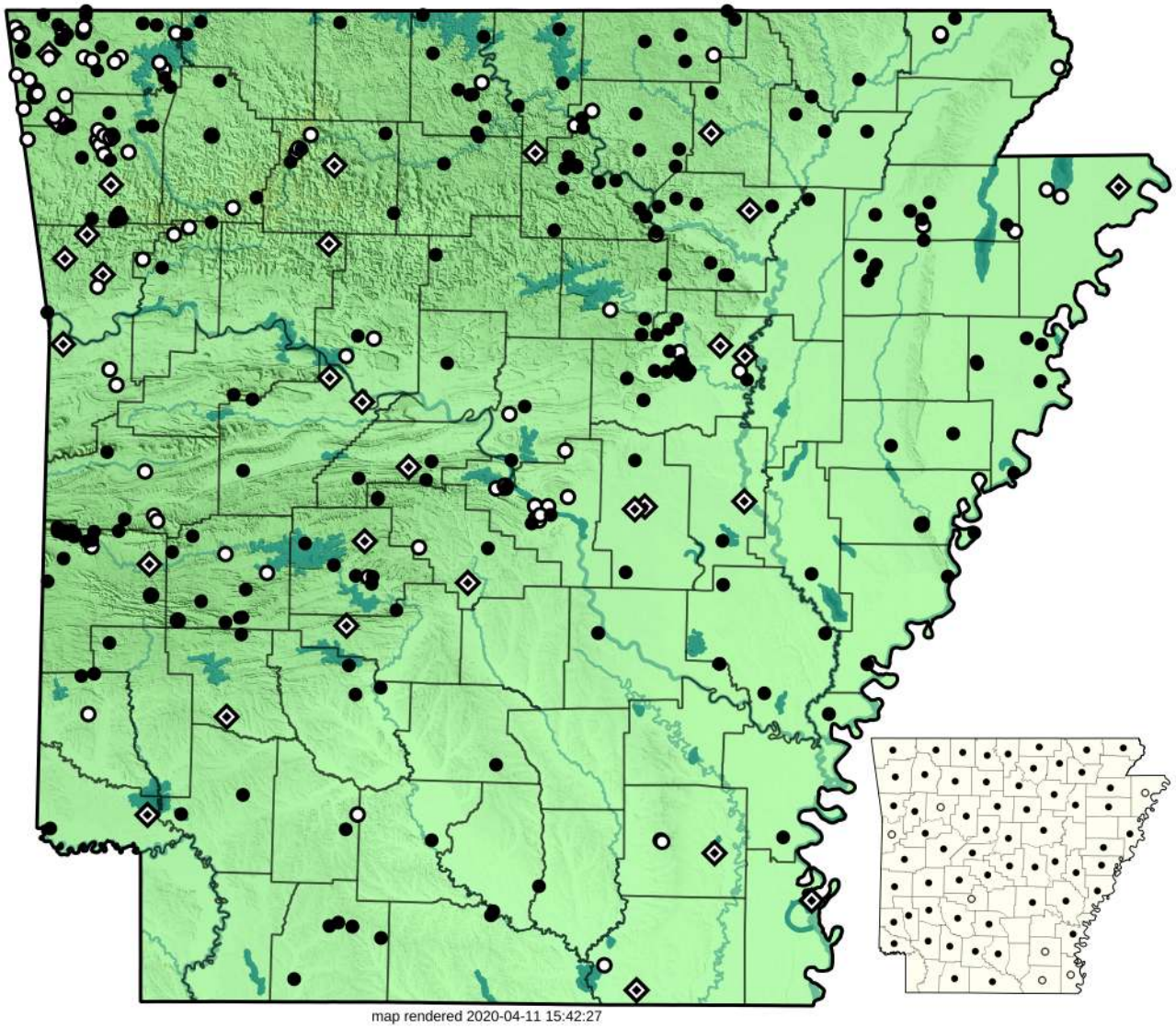



This species is represented by 464 records from 31 sources: 340 museum (●), 0 literature (□), 0 research (△), and 80 observation (○), with 44 additional Trauth et al. (2004) locality points remaining unsourced (◈). It has been museum vouchered for 59 of 75 counties (●), with 5 additional counties having other forms of reported occurrence (○). Years of collection range from 1894 to *present*.

This species occurs throughout most of the state, with records lacking from the central Boston Mountains and Ozark Highlands of northcentral Arkansas. The isolated record from Newton County (ASUMZ 27283 from 2002) may warrant reexamination, but is likely valid.

# *Thamnophis sirtalis sirtalis* (Linnaeus, 1758)

**Eastern Gartersnake**

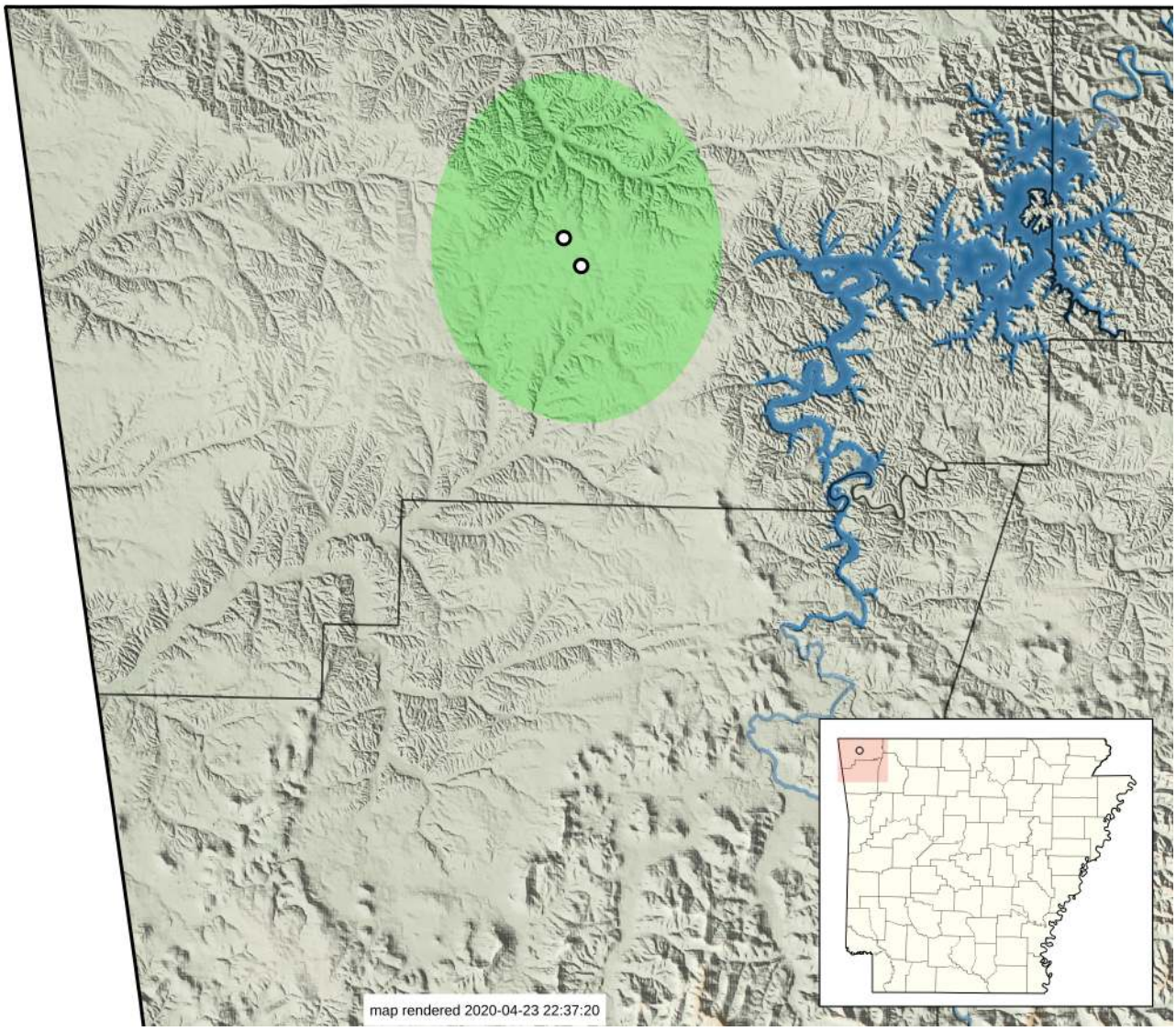



This species is represented by 455 records from 30 sources: 292 museum (●), 0 literature (□), 0 research (△), and 133 observation (○), with 30 additional Trauth et al. (2004) locality points remaining unsourced (◈). It has been museum vouchered for 59 of 75 counties (●), with 7 additional counties having other forms of reported occurrence (○). Years of collection range from 1855 to *present*.

This species occurs statewide. Powell et al. (2016) show an intergrade zone with the *T. s. parietalis* subspecies (not shown) just edging to the central Arkansas-Oklahoma border.

# *Tropidoclonion lineatum* (Hallowell, 1856)

**Lined Snake**

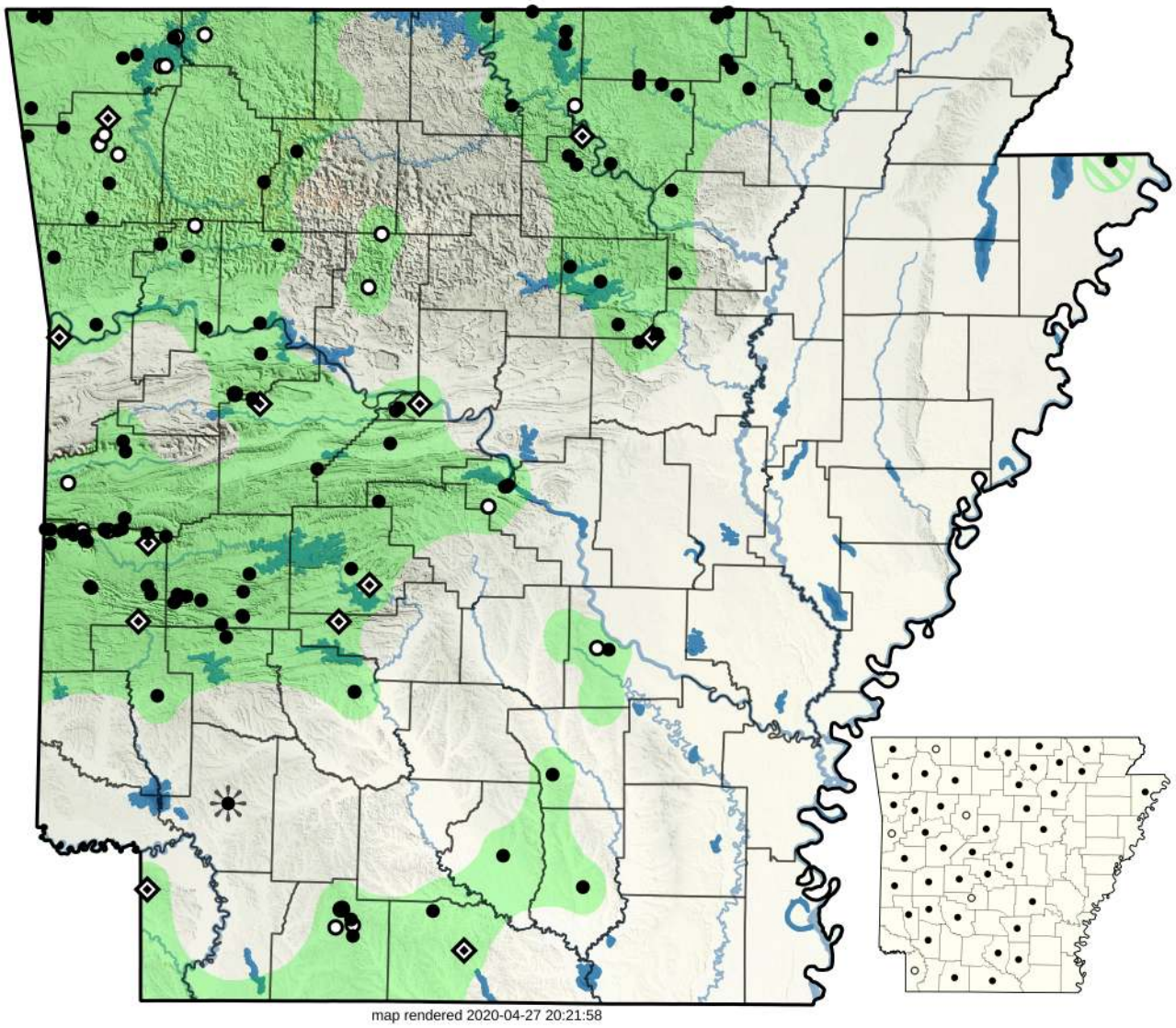



This species is represented by 2 records from 1 source: 0 museum (●), 0 literature (□), 0 research (△), and 2 observation (○). It has been museum vouchered for 0 of 75 counties (●), with 1 additional county having other forms of reported occurrence (○). Years of collection range from 2013 to 2014.

This species was first reported from Arkansas in 2013 (M. Morris and K. G. Roberts, unpublished data), based on a gravid female found within the city limits of Bentonville, Benton County. Another specimen from 2014 was taken at a different locality, but within the same general area. Residents at both localities claimed to have previously observed this species, lending legitimacy to the presence of an established population. Further occurrence could be expected along the western border of the state, based on a record from southeastern Cherokee County, Oklahoma (Sievert and Taggart, 2020), and in the southwest corner of the state, given it has been recorded from all bordering Texas counties in this region (Dixon, 2013). However, the species has not been reported from Louisiana (Boundy and Carr, 2017; Powell et al., 2016). A record traced to the Ozark Biological Laboratory, Imboden, Lawrence County (CUMV 1146 from 1929; not shown), is clearly in error, with the provided locality likely in reference to the institution source rather than collection site.

# *Virginia valeriae elegans* Kennicott, 1859

**Western Smooth Earthsnake**

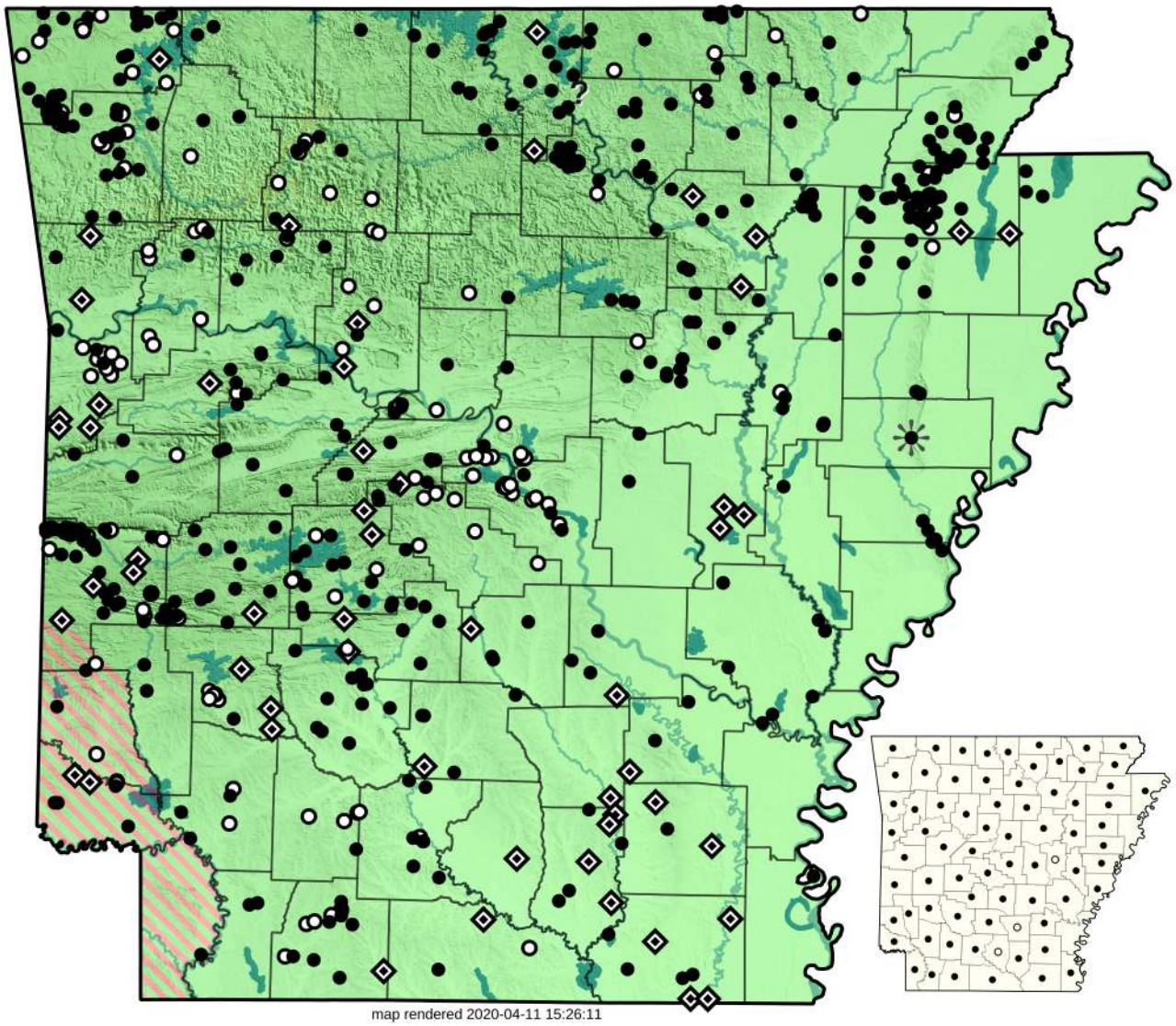



This species is represented by 188 records from 24 sources: 151 museum (●), 0 literature (□), 0 research (△), and 25 observation (○), with 12 additional Trauth et al. (2004) locality points remaining unsourced (◈). It has been museum vouchered for 39 of 75 counties (●), with 5 additional counties having other forms of reported occurrence (○). Years of collection range from 1903 to *present*.

This species occurs throughout much of the Interior Highlands and South Central Plains, with many of the large distributional gaps likely an artifact of undersampling. A questionable record from northern Mississippi County (MPM 5960 from 1970) warrants reexamination to confirm the species identification.

# *Agkistrodon contortrix* (Linnaeus, 1766)

**Eastern Copperhead**

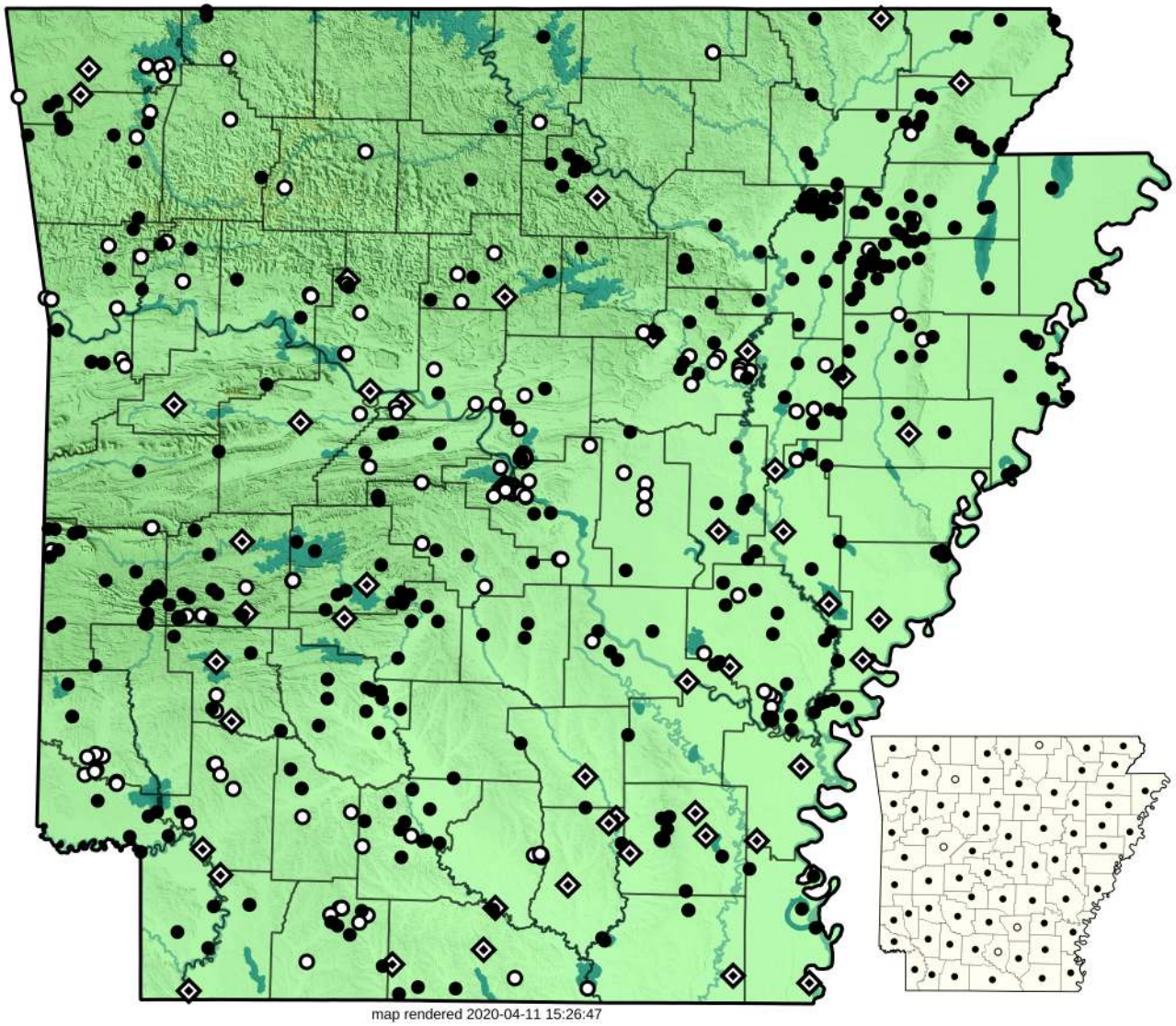



This species is represented by 903 records from 41 sources: 669 museum (●), 0 literature (□), 0 research (△), and 179 observation (○), with 55 additional Trauth et al. (2004) locality points remaining unsourced (◈). It has been museum vouchered for 70 of 75 counties (●), with 3 additional counties having other forms of reported occurrence (○). Years of collection range from 1861 to *present*.

This species occurs statewide. Some hybridization with *A. laticinctus* (■) may occur in the southwest corner of the state (Burbrink and Guiher, 2015; Powell et al., 2016), but the extent of this influence is not well established.

# *Agkistrodon piscivorus* (Lacépède, 1789)

**Northern Cottonmouth**

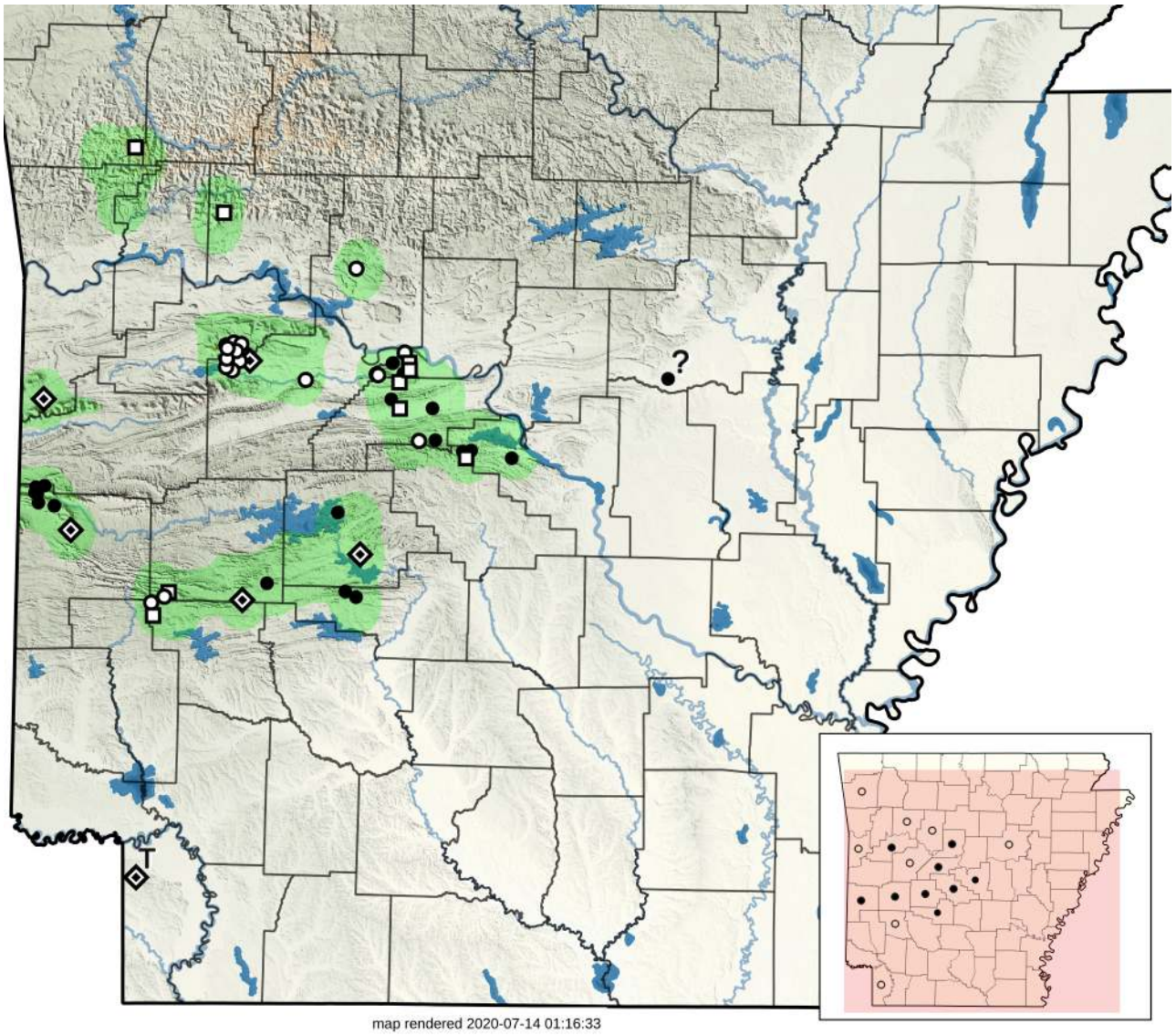



This species is represented by 896 records from 39 sources: 577 museum (●), 0 literature (□), 0 research (△), and 272 observation (○), with 47 additional Trauth et al. (2004) locality points remaining unsourced (◈). It has been museum vouchered for 66 of 75 counties (●), with 5 additional counties having other forms of reported occurrence (○). Years of collection range from 1892 to *present*.

This species occurs statewide.

# *Crotalus atrox* Baird & Girard, 1853

**Western Diamond-backed Rattlesnake**

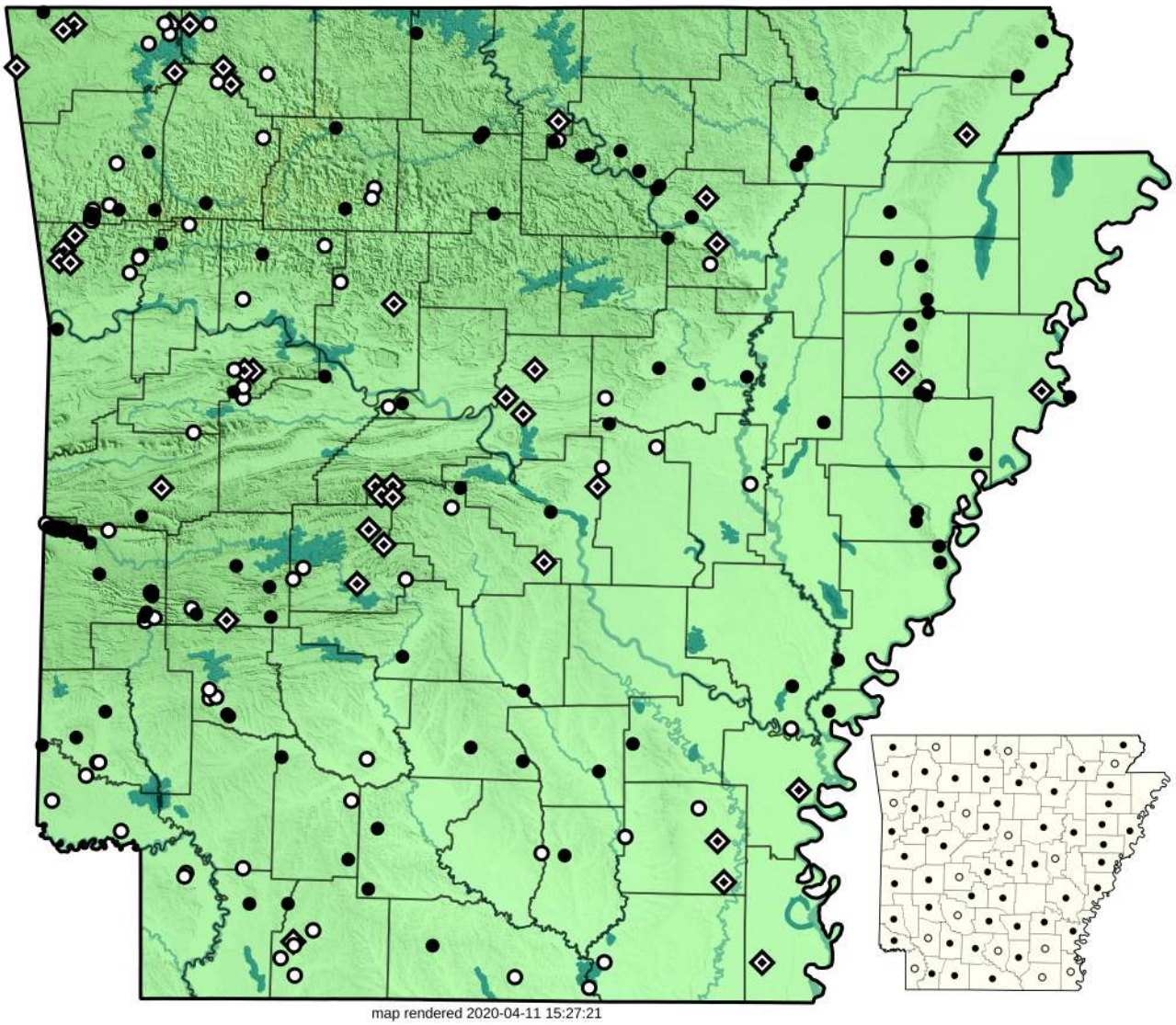



This species is represented by 58 records from 11 sources: 25 museum (●), 9 literature (□), 0 research (△), and 18 observation (○), with 6 additional Trauth et al. (2004) locality points remaining unsourced (◈). It has been museum vouchered for 9 of 75 counties (●), with 8 additional counties having other forms of reported occurrence (○). Years of collection range from 1927 to *present*.

This species has a spotty distribution in the Ouachita Mountains, mountainous portions of the Arkansas Valley, and southern Boston Mountains. It likely has a much wider distribution through the central Ouachita Mountains, but records are lacking. No museum vouchers exist north of the Arkansas River, though historical literature and contemporary observation reports clearly establish its presence in the southern Boston Mountains. Notably, a large female specimen from the vicinity of Mountainburg, Crawford/Franklin County, was radio-tracked by researchers from 2003-2005 (B. Birchfield, S. J. Beaupre, and K. G. Roberts, unpublished data), yet extensive surveys failed to locate additional individuals. A highly questionable record from White County (SDNHM 6550 from 1931) almost assuredly belongs to a set of 10 specimens collected in northern Saline County (Perkins, 1934). A Trauth et al. (2004) record from Miller County is based on a known transplanted specimen (K. J. Irwin, pers. comm.). From the historical literature, there are purportedly firsthand accounts of occurrences from northeast Arkansas, stretching even into Butler County, Missouri (Perkins, 1934), but the degree of reliability for such extraordinary claims is difficult to gauge.

# *Crotalus horridus* Linnaeus, 1758

**Timber Rattlesnake**

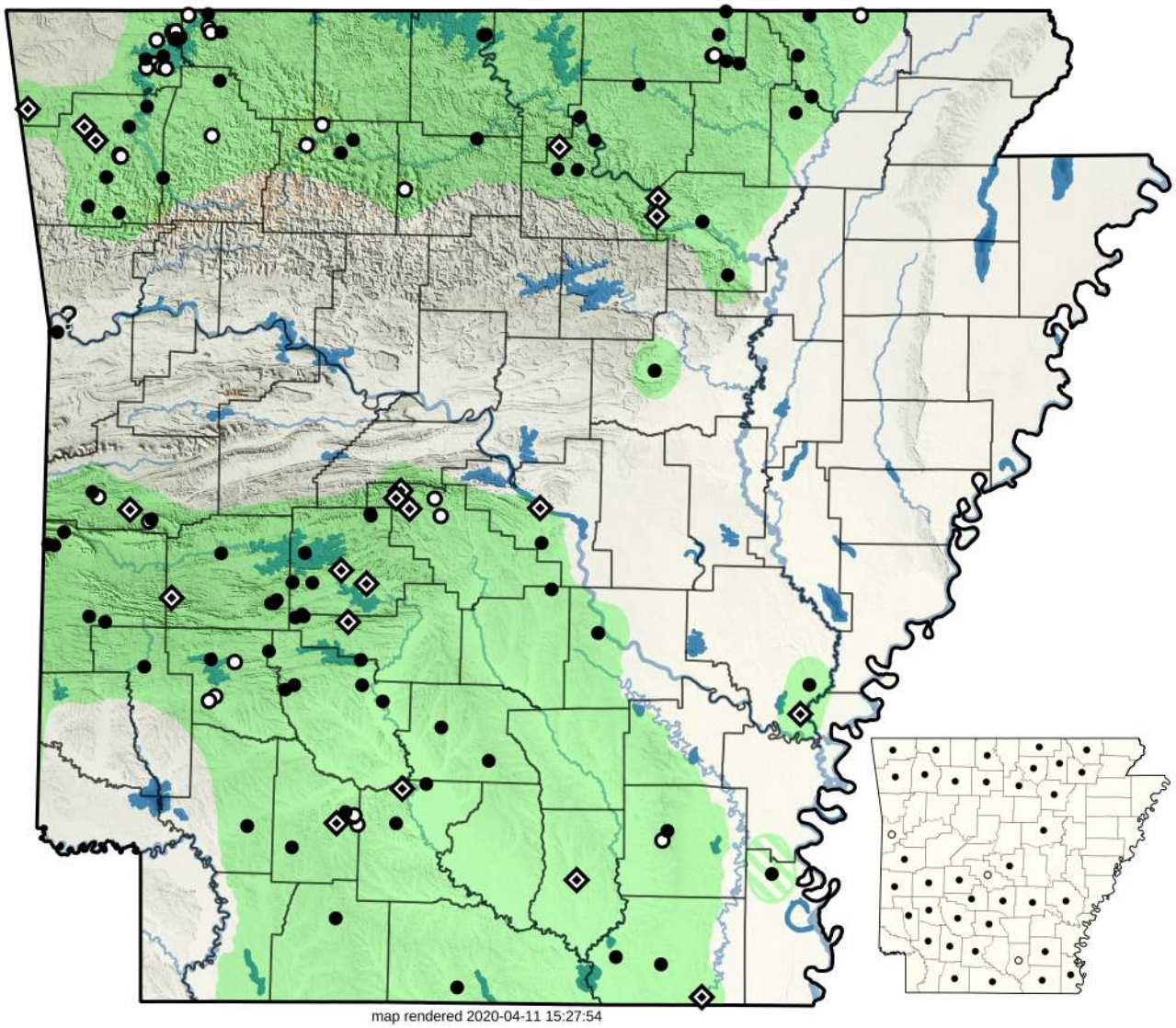



This species is represented by 270 records from 31 sources: 141 museum (●), 0 literature (□), 0 research (△), and 89 observation (○), with 40 additional Trauth et al. (2004) locality points remaining unsourced (◈). It has been museum vouchered for 49 of 75 counties (●), with 15 additional counties having other forms of reported occurrence (○). Years of collection range from 1861 to *present*.

This species essentially occurs statewide, but large gaps without verifiable records remain. Significant portions of its historical range in the Mississippi Alluvial Plain and South Central Plains have succumbed to major landscape level habitat loss/alteration via intensive agricultural and silvicultural practices.

# *Sistrurus miliarius streckeri* Gloyd, 1935

**Western Pygmy Rattlesnake**

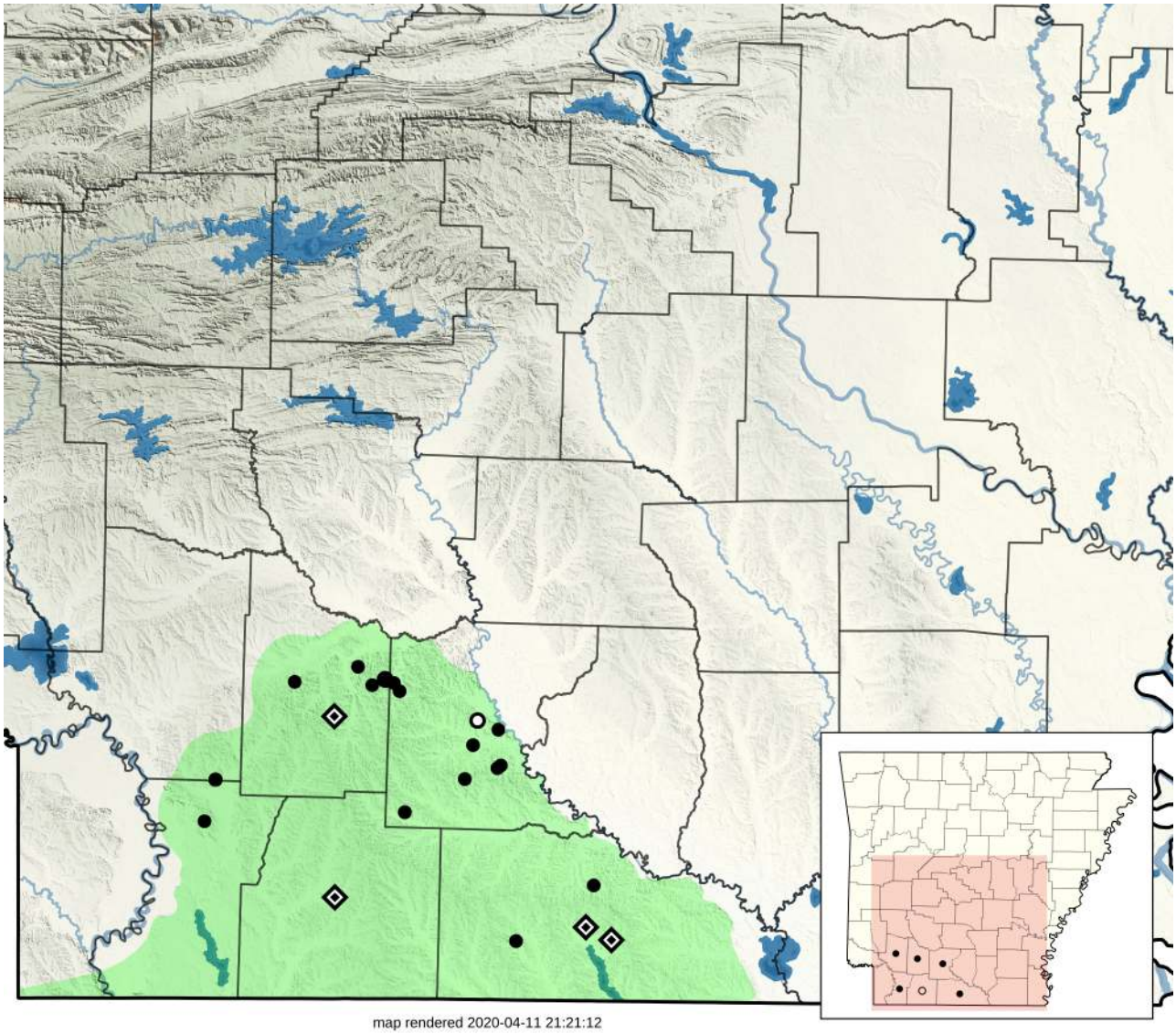



This species is represented by 173 records from 24 sources: 115 museum (●), 0 literature (□), 0 research (△), and 38 observation (○), with 20 additional Trauth et al. (2004) locality points remaining unsourced (◈). It has been museum vouchered for 36 of 75 counties (●), with 3 additional counties having other forms of reported occurrence (○). Years of collection range from 1928 to *present*.

This species occurs throughout much of the Ozark Highlands, northern Boston Mountains, Ouachita Mountains, and South Central Plains. Additional isolated records come from west of Searcy, White County; southeastern Arkansas County; and historically from northern Chicot County. It may have a much wider distribution than available records indicate. The questionable historic records attributed to Fort Smith, Sebastian County (USNM 489-490, undated), are likely in reference to the institution source rather than collection site, as no corroborating records from the Arkansas Valley exist for Arkansas nor Oklahoma (Sievert and Taggart, 2020).

# *Micrurus tener tener* (Baird & Girard, 1853)

**Texas Gulf-Coast Coralsnake**




This species is represented by 48 records from 15 sources: 41 museum (●), 0 literature (□), 0 research (△), and 3 observation (○), with 4 additional Trauth et al. (2004) locality points remaining unsourced (◈). It has been museum vouchered for 5 of 75 counties (●), with 1 additional county having other forms of reported occurrence (○). Years of collection range from 1934 to 2016.

This secretive, semifossorial species has uncommon occurrence in southern Arkansas. It is restricted to upland, hardwood-pine forests on sandy soils formed by Paleogene age deposits, ranging west of the Ouachita River and south of Interstate 30 and the Little Missouri River. While favorable habitats are still present in portions of Miller County, no confirmed records exist west of the Red River in the state. Much of the former habitat for this species has been converted to intensive pine plantation silviculture, which likely precludes optimal conditions for supporting populations.

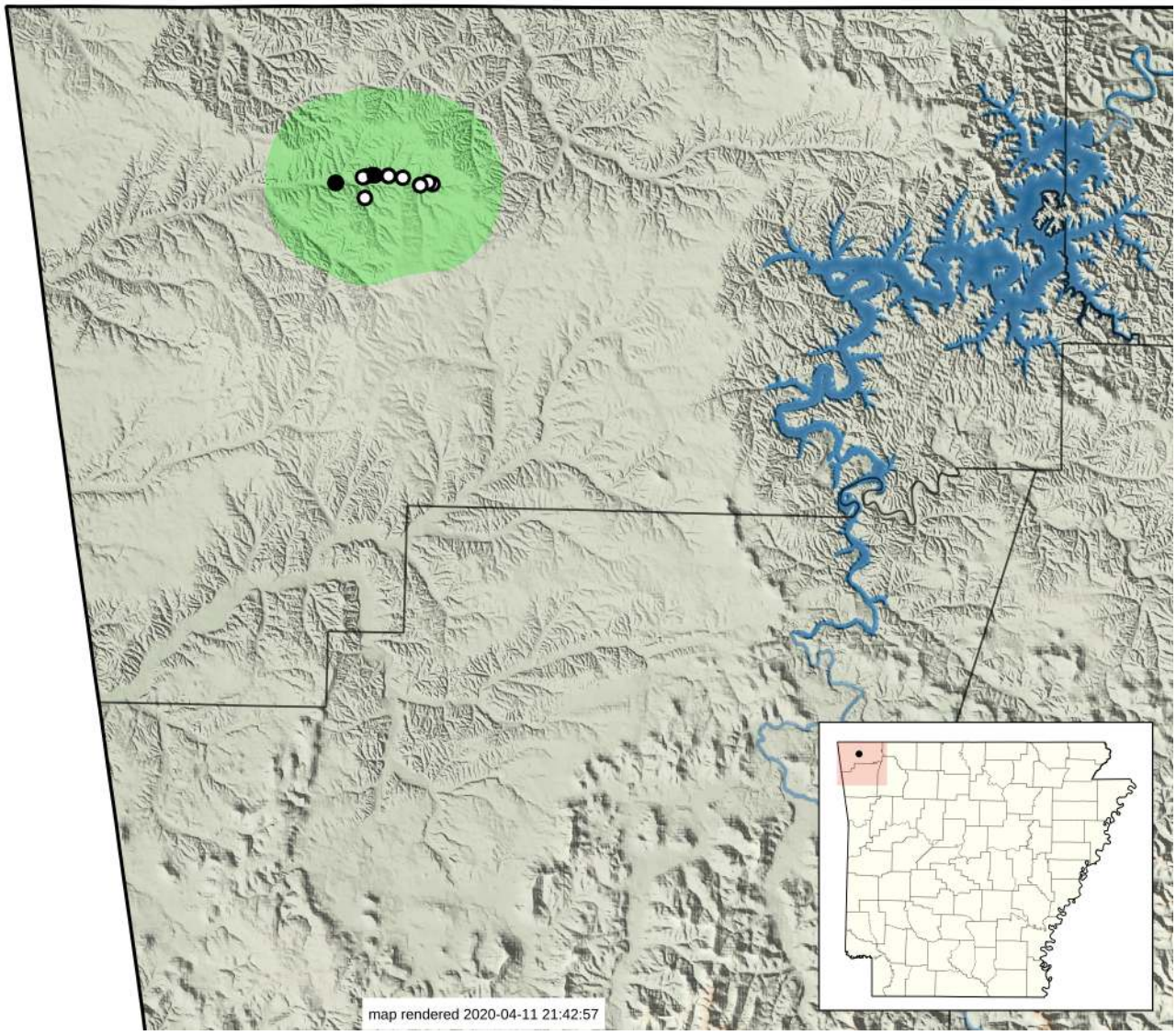
# 9. Introduced Species

There are two introduced species in Arkansas that have firm evidence of established breeding colonies in the wild.

**9.1 Plethodontidae (Lungless Salamanders)**
*Desmognathus monticola* . . . . . 137
**9.2 Gekkonidae (Typical Geckos)**
*Hemidactylus turcicus* . . . . . 138

# *Desmognathus monticola* Dunn, 1916

**Seal Salamander**

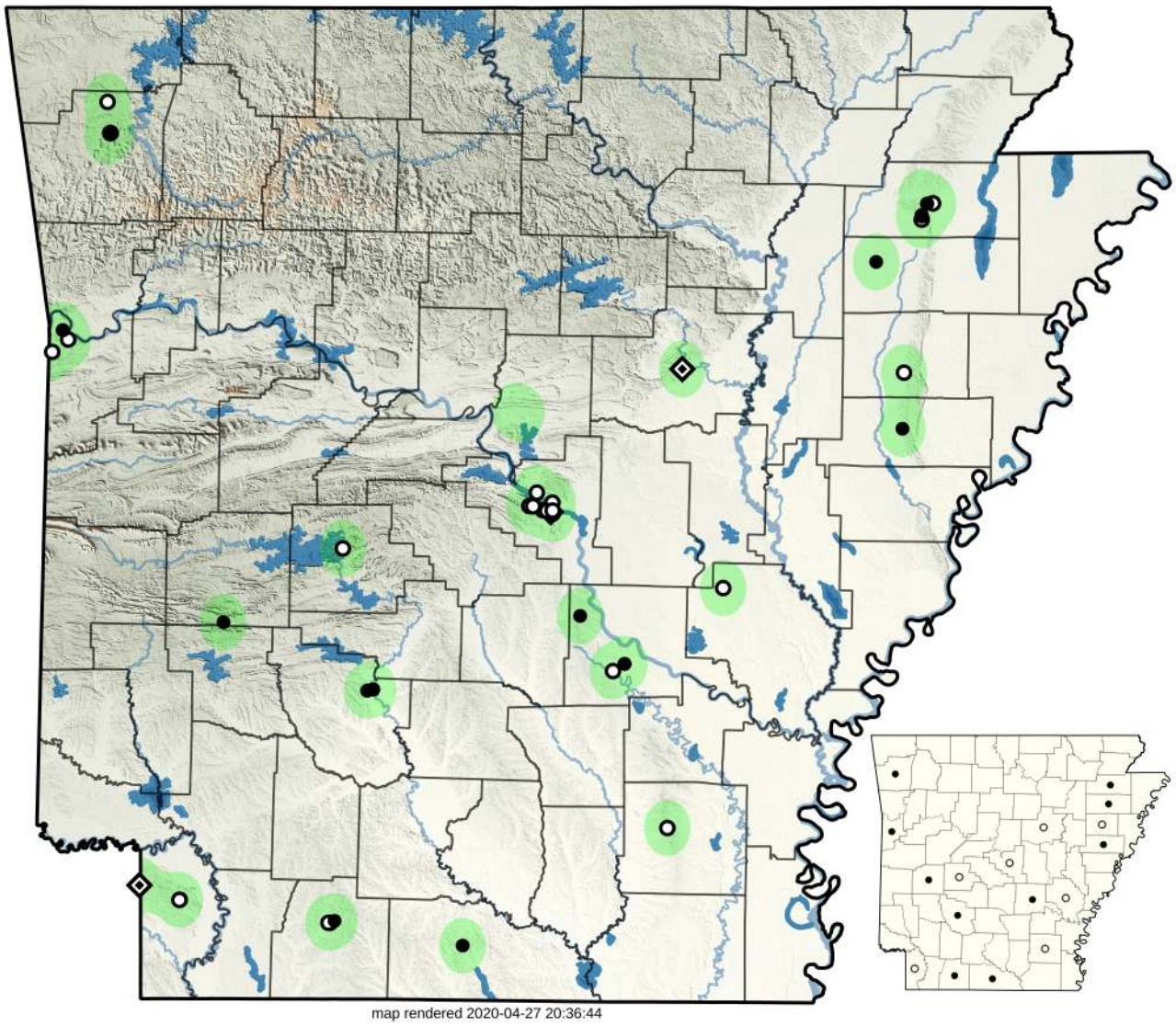



This species is represented by 33 records from 2 sources: 14 museum (●), 0 literature (□), 0 research (△), and 19 observation (○). It has been museum vouchered for 1 of 75 counties (●). Years of collection range from 2003 to 2017.

This transplanted invasive species, first reported from Arkansas in 2003 (Bonett et al., 2007), occurs as an established and robust population inhabiting the upper Spavinaw Creek, Benton County (Connior et al., 2013; Bush et al., 2017). The parental population has been genetically traced to northeast Georgia (Bonett et al., 2007), with introduction likely occurring between 1988-2002 in association with use as fish bait or from trout stocking. Extensive sampling for *Eurycea tynerensis* in area streams, including Spavinaw Creek, from 1989 to 2001 failed to report the presence of any *Desmognathus* (Tumlison et al., 1990; Cline and Tumlison, 2001). Population growth and expansion downstream, even potentially into Oklahoma, warrants continued monitoring (Bush et al., 2017). Eradication seems not possible at this point, given the porous chert streambed habitat and potential for secondary harm to native species.

# *Hemidactylus turcicus* (Linnaeus, 1758)

**Mediterranean Gecko**




This species is represented by 73 records from 7 sources: 45 museum (●), 0 literature (□), 0 research (△), and 25 observation (○), with 3 additional Trauth et al. (2004) locality points remaining unsourced (◈). It has been museum vouchered for 10 of 75 counties (●), with 7 additional counties having other forms of reported occurrence (○). Years of collection range from 1987 to *present*.

This exotic species is strongly associated with areas of human habitation. It was first reportedly observed in Arkansas in the early 1970s from Fort Smith, Sebastian County (Paulissen and Buchanan, 1990, 1991). Trauth et al. (2004) reported 8 known localities, while now there are about 20 localities confirmed by photographic records or specimens. In addition to urban areas, a number of state parks and at least one city park in Arkansas have known resident colonies.

# 10. Potential Species

There are 39 species that have been identified as having potential occurrence in Arkansas.


**10.1 Plethodontidae (Lungless Salamanders)**
*Eurycea cirrigera* . . . . . 140
*Eurycea guttolineata* . . . . . 140
*Eurycea longicauda* . . . . . 140
*Plethodon dorsalis* . . . . . 141
*Plethodon mississippi* . . . . . 141
*Plethodon sequoyah* . . . . . 141
**10.2 Proteidae (Mudpuppies and Waterdogs)**
*Necturus beyeri* . . . . . 142
**10.3 Bufonidae (True Toads)**
*Anaxyrus woodhousii woodhousii* . . . . . 142
*Incilius nebulifer* . . . . . 142
**10.4 Hylidae (Treefrogs)**
*Acris crepitans* . . . . . 143
*Acris gryllus* . . . . . 143
*Hyla gratiosa* . . . . . 143
*Pseudacris clarkii* . . . . . 144
*Pseudacris feriarum* . . . . . 144
**10.5 Emydidae (Box and Basking Turtles)**
*Chrysemys picta bellii* . . . . . 144
*Terrapene carolina* . . . . . 145
**10.6 Kinosternidae (Mud and Musk Turtles)**
*Kinosternon flavescens* . . . . . 145
**10.7 Dactyloidae (Anoles)**
*Anolis sagrei* . . . . . 145
**10.8 Lacertidae (Old World Runners)**
*Podarcis siculus campestris* . . . . . 146
**10.9 Phrynosomatidae (Spiny Lizards)**
*Sceloporus undulatus* . . . . . 146
**10.10 Phyllodactylidae (Phyllodactylid Geckos)**
*Tarentola mauritanica* . . . . . 146
**10.11 Scincidae (Skinks)**
*Plestiodon inexpectatus* . . . . . 147
**10.12 Teiidae (Whiptails, Racerunners, and Ameivas)**
*Aspidoscelis gularis gularis* . . . . . 147
**10.13 Colubridae (Harmless Egg-Laying Snakes)**
*Lampropeltis nigra* . . . . . 147
*Opheodrys vernalis* . . . . . 148
*Pantherophis guttatus* . . . . . 148
*Pantherophis spiloides* . . . . . 148
*Pituophis catenifer sayi* . . . . . 149
*Pituophis melanoleucus melanoleucus* . . . . . 149
*Pituophis ruthveni* . . . . . 149
*Tantilla coronata* . . . . . 150
**10.14 Dipsadidae (Rear-Fanged Snakes)**
*Heterodon gloydi* . . . . . 150
*Hypsiglena jani texana* . . . . . 150
**10.15 Leptotyphlopidae (Threadsnakes)**
*Rena dissecta* . . . . . 151
*Rena dulcis dulcis* . . . . . 151
**10.16 Natricidae (Harmless Live-Bearing Snakes)**
*Thamnophis marcianus marcianus* . . . . . 151
*Thamnophis saurita saurita* . . . . . 152
**10.17 Typhlopidae (Blindsnakes)**
*Indotyphlops braminus* . . . . . 152
**10.18 Crotalidae (Pitvipers)**
*Agkistrodon laticinctus* . . . . . 152

## *Eurycea cirrigera* (Green, 1831)

**Southern Two-lined Salamander**

This species has no documented records from Arkansas. It ranges east of the Mississippi River (Powell et al., 2016), with few records in close proximity to the river (Redmond and Scott, 1996). The closest known record comes from northwestern Shelby County, Tennessee (Redmond and Scott, 1996).

## *Eurycea guttolineata* (Holbrook, 1838)

**Three-lined Salamander**

This species has no documented records from Arkansas. It ranges east of the Mississippi River (Powell et al., 2016), with few records in close proximity to the river (Redmond and Scott, 1996). The closest known records comes from eastern and northwestern Shelby County, Tennessee (Redmond and Scott, 1996).

## *Eurycea longicauda* (Green, 1818)

**Long-Tailed Salamander**

This species has no confirmed documented records from Arkansas. Also see *E. melanopleura*.

## *Plethodon dorsalis* Cope, 1889

**Northern Zigzag Salamander**

This species has no documented records from Arkansas. It ranges east of the Mississippi River (Powell et al., 2016), with the closest known record from northwestern Obion County, Tennessee (Redmond and Scott, 1996), just outside of map view.

## *Plethodon mississippi* Highton, 1989

**Mississippi Slimy Salamander**

This species has no documented records from Arkansas. It ranges east of the Mississippi River (Powell et al., 2016), with the closest known records from eastern Tennessee (Redmond and Scott, 1996). Also see *P. albagula* complex.

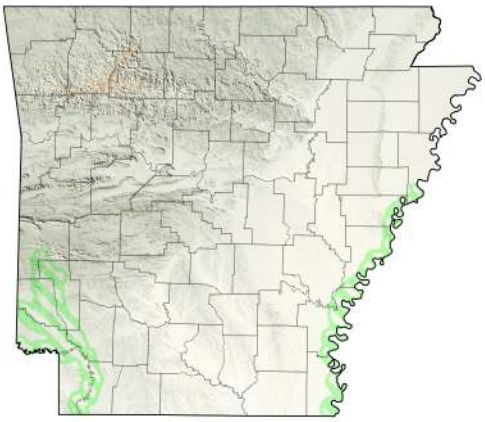
## *Plethodon sequoyah* Highton, 1989

**Sequoyah Slimy Salamander**

This species has no confirmed documented records from Arkansas. Trauth et al. (2004) reported a single specimen from its purported range in southwest Arkansas, but recent genetic studies tentatively place all confirmed specimens in the vicinity of Beavers Bend State Park, McCurtain County, Oklahoma (D. B. Shepard, pers. comm.). Also see *P. albagula* complex.

## *Necturus beyeri* Viosca, 1937

**Gulf Coast Waterdog**

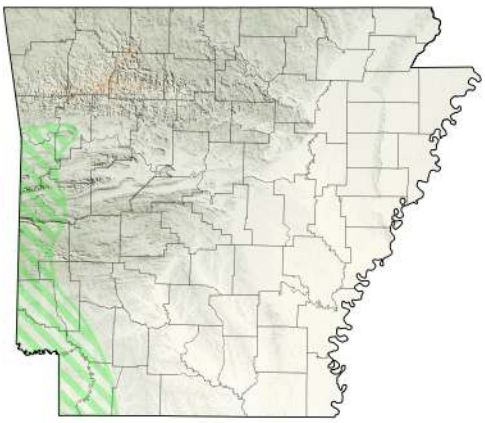


This species has likely occurrence in Arkansas, but has not been verified. Also see *N. maculosus*.

## *Anaxyrus woodhousii woodhousii* (Girard, 1854)

**Rocky Mountain Toad**

This species occurs in Arkansas through purported hybridization. Also see *A. fowleri*.



## *Incilius nebulifer* (Girard, 1854)

**Gulf Coast Toad**


This species has historical documentation in Arkansas on the basis of a single specimen collected near Calion, Union County (UIMNH 591 from 1948). It is highly probable this individual was transplanted in association with fish stocking, as additional surveys over the intervening years have failed to turn up corroborating specimens. The closest firmly established populations to Arkansas are from Rapides and Vernon parishes, Louisiana, (150+ km away; Boundy and Carr, 2017) and Gregg and Panola counties, Texas (100 km away; Dixon, 2013).

## *Acris crepitans* Baird, 1854

**Eastern Cricket Frog**

This species has no documented records from Arkansas. It ranges east of the Mississippi River (Powell et al., 2016) and is essentially indistinguishable in the field from *A. blanchardi*. Habitats along the Mississippi River may well harbor this species.

## *Acris gryllus* (LeConte, 1825)

**Southern Cricket Frog**

This species has no documented records from Arkansas. It ranges east of the Mississippi River along most of the western state boundary (Powell et al., 2016). Habitats along the Mississippi River may well harbor this species.

## *Hyla gratiosa* LeConte, 1856

**Barking Treefrog**

This species has no documented records from Arkansas. It ranges east of the Mississippi River (Powell et al., 2016), with the closest known occurrences from southwest Tennessee (Redmond and Scott, 1996) and northern Mississippi (Powell et al., 2016). It does not appear to occupy habitats in close proximity to the Mississippi River (Redmond and Scott, 1996), so the potential for occurrence in Arkansas is low.

## *Pseudacris clarkii* (Baird, 1854)

**Spotted Chorus Frog**

This species has no documented records from Arkansas. The closest known occurrences are from Morris and Red River counties, Texas (Dixon, 2013).

## *Pseudacris feriarum* (Baird, 1854)

**Upland Chorus Frog**

This species has possible occurrence in Arkansas, but has not been verified. Also see *P. fouquettei* complex.

## *Chrysemys picta bellii* (Gray, 1831)

**Western Painted Turtle**

This species has no documented records from Arkansas. The closest known records come from the Eleven Point and Spring River watersheds, Howell and Oregon counties, Missouri (Daniel and Edmond, 2020). Descension into Arkansas seems possible, but these rivers have been surveyed heavily on the Arkansas side without reported sighting of this species (K. J. Irwin, pers. comm.). Additional records come from just outside of map view in southwest Missouri, including Newton and Lawrence counties (Daniel and Edmond, 2020), although no corroborating records exist for northeast Oklahoma ( Sievert and Taggart, 2020).

## *Terrapene carolina* (Linnaeus 1758)

**Eastern Box Turtle**

This species has a questionable occurrence record from Arkansas. As currently attributed, it ranges east of the Mississippi River into Tennessee, with its sister taxon, *T. triunguis*, continuing southeastward south of Tennessee ( Powell et al., 2016). An observation record from near Helena-West Helena, Phillips County, is currently attributed as a likely transplant (iNat 16589014 from 2016). Also see *T. triunguis*.

## *Kinosternon flavescens* (Agassiz, 1857)

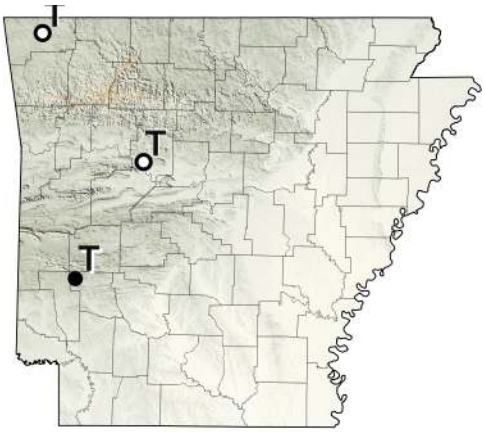
**Yellow Mud Turtle**

This species has no documented records from Arkansas. Outside of its core range through central Kansas, eastern Oklahoma, and much of central Texas, the distribution becomes increasingly spotty and disjunct (Powell et al., 2016). The closest known occurrence comes from Barry County, Missouri (Daniel and Edmond, 2020), but it has also been reported just outside of map view from western Oklahoma (Sievert and Taggart, 2020) and northeast Texas (Dixon, 2013). It is not currently recognized as having occurrence in Louisiana (Boundy and Carr, 2017).

## *Anolis sagrei* Duméril & Bibron, 1837

**Brown Anole**

This exotic species was first reported from Arkansas in 2003 (McAllister et al., 2003). There is no firm evidence of established breeding colonies outside of association with plant nurseries, although this situation warrants continued monitoring. Separate photographic posts to the Arkansas Wildlife group on Facebook from 2016-2019 may provide evidence of an untethered colony in Greene County (R. Wood, pers. obs.; not shown), but the locality has never been fully disclosed.



## *Podarcis siculus campestris* (De Betta, 1857)

**Northern Italian Wall Lizard**

This exotic species has no documented records from Arkansas. The closest known records, just outside of map view, are from an isolated, though thriving, colony in Joplin, Jasper County, Missouri (Briggler et al., 2015). Since first reported in 2013 at this locality, there has been no evidence of further spread or transplantation beyond the relatively small urban area.

## *Sceloporus undulatus* (Bosc & Daudin in Sonnini & Latreille, 1801)

**Eastern Fence Lizard**

This species has no documented records from Arkansas. It ranges east of the Mississippi River (Powell et al., 2016), with the closest known records from southwest Tennessee (Scott and Redmond, 2019). It is essentially indistinguishable in the field from *S. consobrinus*, which continues southeastward south of mid-Tennessee (Powell et al., 2016).

## *Tarentola mauritanica* (Linnaeus, 1758)

**Moorish Gecko**

This exotic species has only one documented record from Arkansas, as a 2019 photographic report of a single specimen from Greenwood, Sebastian County (iNat 31382236). Evidence of an established breeding colony is lacking, but warrants monitoring. It may also raise questions of potential misidentifications among existing records of *Hemidactylus turcicus*, due to similarities in appearance.

## *Plestiodon inexpectatus* (Taylor, 1932)

**Southeastern Five-lined Skink**

This species has no documented records from Arkansas. It ranges east of the Mississippi River (Powell et al., 2016), with the closest known occurrences from northwest Mississippi (Powell et al., 2016) and southwest Tennessee ( Scott and Redmond, 2019).

## *Aspidoscelis gularis gularis* (Baird & Girard, 1852)

**Texas Spotted Whiptail**

This species has no documented records from Arkansas. The closest known occurrences are from northeast Texas (Dixon, 2013) and, tentatively, southwest Oklahoma (Sievert and Taggart, 2020). Due to similarities in appearance with *A. sexlineatus viridis*, specimens of this genus from southwest Arkansas may warrant close examination.

## *Lampropeltis nigra* (Yarrow, 1882)

**Eastern Black Kingsnake**

This species has no documented records from Arkansas, but may have occurrence in the northeast corner. Also see *L. holbrooki*.

## *Opheodrys vernalis* (Harlan, 1827)

**Smooth Greensnake**

This species has no documented records from Arkansas. The closest known record, just outside of map view, is a 1947 literature record from Crawford County, Kansas (Taggart, 2020). Outside of its core range across the northeastern United States, the distribution becomes spotty and disjunct farther south (Powell et al., 2016), with a pocket of occurrence even, somewhat inexplicably, in southeast Texas (Dixon, 2013; Powell et al., 2016).

## *Pantherophis guttatus* (Linnaeus, 1766)

**Red Cornsnake**

This species has no documented records from Arkansas. It ranges east of the Mississippi River (Powell et al., 2016), with the closest known records from southwest Tennessee (Scott and Redmond, 2019).

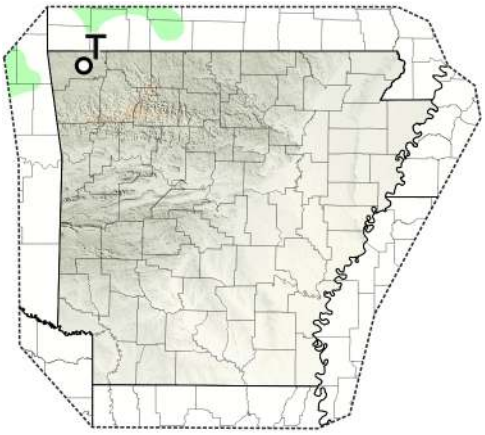
## *Pantherophis spiloides* (Duméril, Bibron, & Duméril, 1854)

**Gray Ratsnake**

This species may occur in Arkansas through hybridization. Also see *P. obsoletus*.

## *Pituophis catenifer sayi* (Schlegel, 1837)

**Bullsnake**



This species has no firmly documented records from Arkansas indicating natural occurrence, but two reports remain unresolved. In 2008, a large adult male was killed by a local resident within the city limits of Rogers, Benton County (deposited to HSU), and in 2013, an anecdotal photographic report of a juvenile killed by a local resident just southeast of Siloam Springs, Washington County, was shared on social media (T. J. Jones, pers. comm.). The closest confirmed records come from Barry and Taney counties (dated prior to 1966) and Newton and Lawrence counties (dated after 1986), Missouri (Daniel and Edmond, 2020), and in 1989 from Delaware County, Oklahoma (Sievert and Taggart, 2020). While historical occurrence in northwest Arkansas seems probable, recent concerted surveys of suitable habitats have failed to produce evidence of this species (J. D. Willson, pers. comm.).

## *Pituophis melanoleucus melanoleucus* (Daudin, 1803)

**Northern Pinesnake**

This species has no documented records from Arkansas. It ranges east of the Mississippi River (Powell et al., 2016), with the closest known isolated record dated 1979 from northern Shelby County, Tennessee (Scott and Redmond, 2019); recovered somewhat inexplicably as a partially digested specimen from the stomach contents of a road-killed coyote (Jacob and Smith, 1980). Additional known range picks up another 3-4 counties farther east in Tennessee ( Scott and Redmond, 2019).

## *Pituophis ruthveni* Stull, 1929

**Louisiana Pinesnake**

This species has no documented records from Arkansas. The closest known occurrences, just outside of map view, are from Bienville and Jackson parishes, Louisiana (Boundy and Carr, 2017), and Wood County, Texas (Dixon, 2013). This species had a much broader range historically and it may well have extended into southern Arkansas before silvicultural practices resulted in loss of high quality longleaf pine savannas.

## *Tantilla coronata*

Baird & Girard, 1853

**Southeastern Crowned Snake**

This species has no documented records from Arkansas. It ranges east of the Mississippi River (Powell et al., 2016), with the closest known records from northeastern Shelby County, Tennessee (Scott and Redmond, 2019). Existing *Tantilla* records from Crowley's Ridge and eastward (ASUMZ 26045 and 26117 from 2001, ASUMZ 27994 from 2003, and FMNH 38111 from 1941) may warrant reexamination to confirm identifications as *T. gracilis* versus this species.

## *Heterodon gloydi*

Edgren, 1952

**Dusty Hog-nosed Snake**

This species has no documented records from Arkansas. A purported specimen collected in 1975 from Rich Mountain (FLMNH 34807; Means, 1976) was later reexamined and determined to be a subadult *H. platirhinos* (Irwin, 2001). The closest known occurrences are from Bowie and Titus counties, Texas ( Dixon, 2013), and Bollinger, Mississippi, and Scott counties, Missouri (Daniel and Edmond, 2020). The *H. gloydi* / *nasicus* complex is generally considered a species of the Great Plains, with additional disjunct populations isolated on relic sand prairies. Potential occurrence in Arkansas is most likely in the northeast and southwest corners, where open sandy habitats may persist.

## *Hypsiglena jani texana*

(Stejneger, 1893)

**Texas Nightsnake**

This species has no firmly documented records from Arkansas. An anecdotal photographic report in 2014 of a *Hypsiglena* captured on a dry, rocky, south-facing mountainous slope near Hot Springs, Garland County (D. Seger, pers. comm.), remains unresolved. The site was surveyed in 2015 and the habitat looked superficially suitable for this species (K. G. Roberts, pers. obs.). Confirmation would represent a range extension of nearly 240 km from its next closest known occurrences along the eastern edge of Pittsburg County, Oklahoma (Sievert and Taggart, 2020; A. Short, pers. obs.), at the western extent of the Ouachita Mountains.

## *Rena dissecta* (Cope, 1869)

**New Mexico Threadsnake**

This species has no documented records from Arkansas. The closest known record comes from just outside of map view in northwestern Cherokee County, Oklahoma (Sievert and Taggart, 2020), in 1939. *Rena* species are known to be collected by Eastern Screech-Owls and deposited alive into their nests (Gehlbach and Baldridge, 1987) and transplanted via horticultural activities, leaving open the potential for dispersal into the state.

## *Rena dulcis dulcis* (Baird & Girard, 1853)

**Plains Threadsnake**

This species has no documented records from Arkansas. The closest known occurrence, outside of map view, comes from Smith County, Texas (Dixon, 2013). *Rena* species are known to be collected by Eastern Screech-Owls and deposited alive into their nests (Gehlbach and Baldridge, 1987) and transplanted via horticultural activities, leaving open the potential for dispersal into the state.

## *Thamnophis marcianus marcianus* (Baird & Girard, 1853)

**Marcy's Checkered Gartersnake**

This species has no documented records from Arkansas. The type specimen is reported from Red River, Arkansas, in Baird and Girard (1853), but this is presumed to reference the greater Arkansas Territory which would have encompassed most of Oklahoma as well. The source materials (Marcy and McClellan, 1853) appear to have been reexamined with a narrowed locality of near Hollister, Tillman County, Oklahoma, in Cochran (1961). A recent anecdotal photographic report posted to Facebook of a likely specimen from the vicinity of Mount Pleasant, Titus County, Texas (G. Morton, pers. comm., 2020), just outside of map view, may hint toward potential occurrence in extreme southwest Arkansas.

## *Thamnophis saurita saurita* (Linnaeus, 1766)

**Common Ribbonsnake**

This species has no documented records from Arkansas. It ranges east of the Mississippi River (Powell et al., 2016), with the closest known records from southwestern Shelby County, Tennessee (Scott and Redmond, 2019).

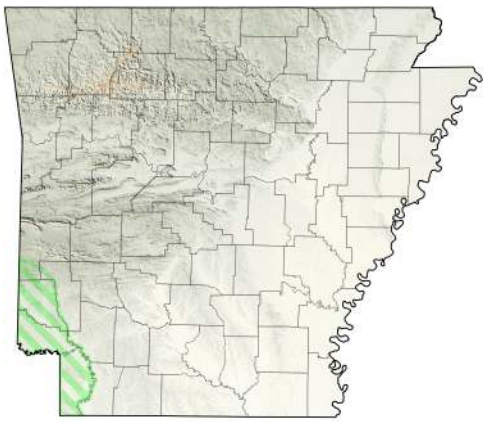
## *Indotyphlops braminus* (Daudin, 1803)

**Brahminy Blindsnake**

This exotic species has no documented records from Arkansas. The closest known record comes from Nacogdoches County, Texas (Dixon, 2013), still some 150 km from Arkansas. However, this parthenogenetic species is a known hitchhiker with tropical plants and has expanded its range, from Florida in 1979 (Wilson and Porras, 1983), now throughout the southern United States in spotty occurrences (Powell et al., 2016).

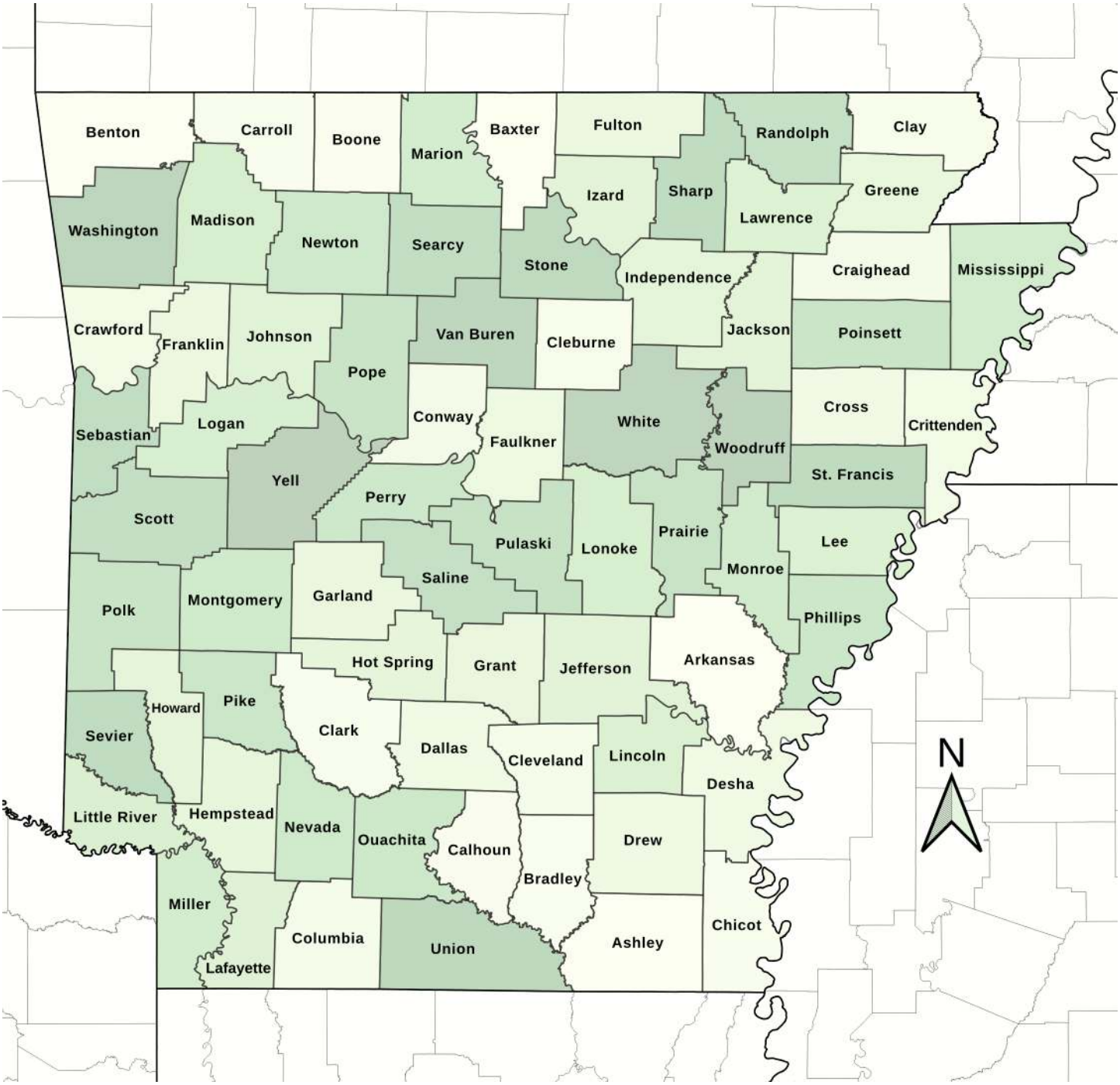
## *Agkistrodon laticinctus* Gloyd & Conant, 1934

**Broad-banded Copperhead**



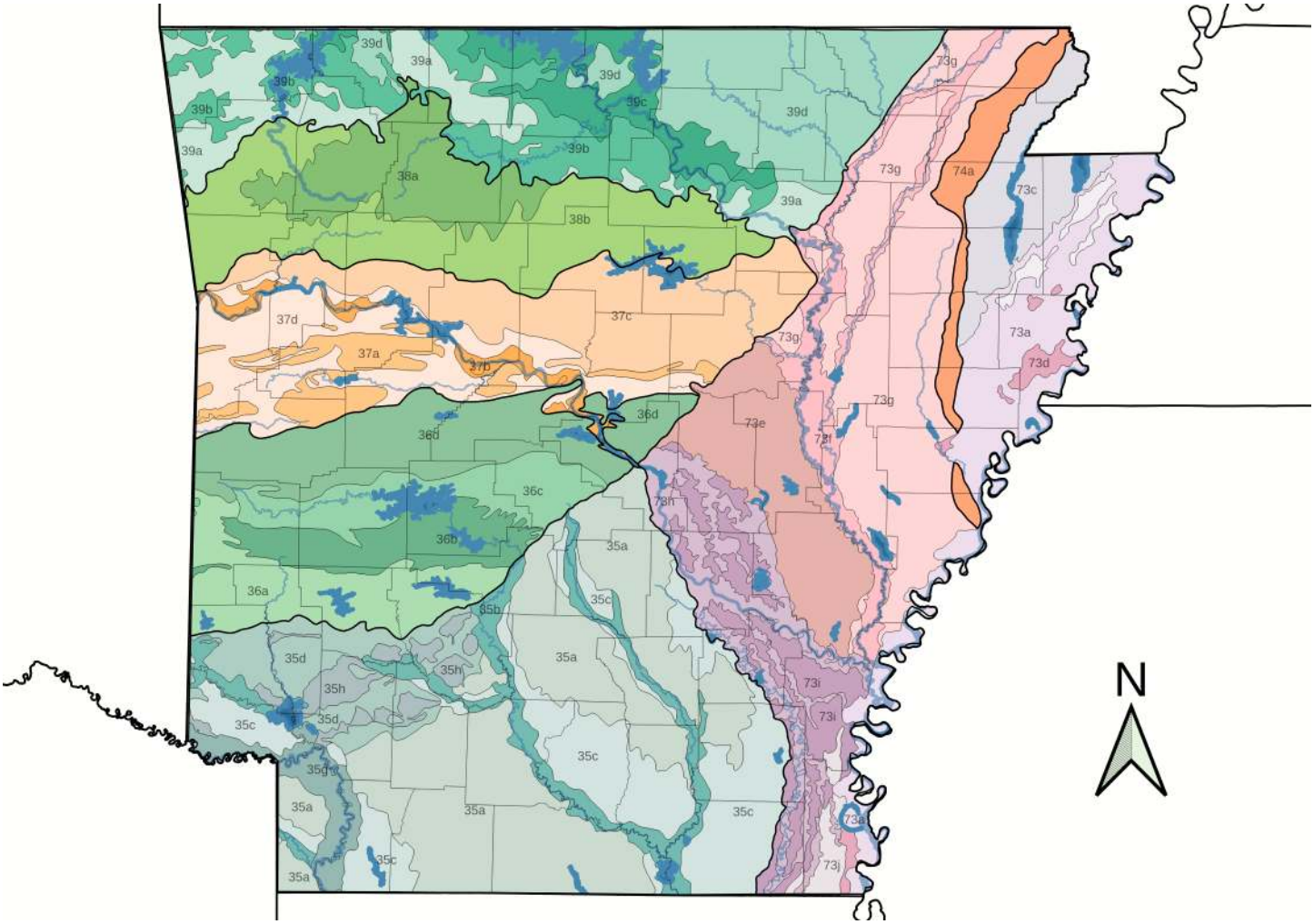
This species may occur in Arkansas through hybridization. Also see *A. contortrix*.

# A. County Map




Counties color-coded alphabetically, A to Z .

# B. Ecoregions




### 35 South Central Plains

- 35a Tertiary Uplands
- 35b Floodplains and Low Terraces
- 35c Pleistocene Fluvial Terraces
- 35d Cretaceous Dissected Uplands
- 35g Red River Bottomlands
- 35h Blackland Prairie

### 36 Ouachita Mountains

- 36a Athens Plateau
- 36b Central Mountain Ranges
- 36c Central Hills, Ridges, and Valleys
- 36d Fourche Mountains
- 36e Western Ouachitas

### 37 Arkansas Valley

- 37a Scattered High Ridges and Mountains
- 37b Arkansas River Floodplain
- 37c Arkansas Valley Hills
- 37d Arkansas Valley Plains

### 38 Boston Mountains

- 38a Upper Boston Mountains
- 38b Lower Boston Mountains

### 39 Ozark Highlands

- 39a Springfield Plateau
- 39b Dissected Springfield Plateau-Elk River Hills
- 39c White River Hills
- 39d Central Plateau

### 73 Miss. Alluvial Plain

- 73a Northern Holocene Meander Belts
- 73b Northern Pleistocene Valley Trains
- 73c St. Francis Lowlands
- 73d Northern Backswamps
- 73e Grand Prairie
- 73f Western Lowlands Holocene Meander Belts
- 73g Western Lowlands Pleistocene Valley Trains
- 73h Arkansas/Ouachita River Holocene Meander Belts
- 73i Arkansas/Ouachita River Backswamps
- 73j Macon Ridge

### 74 Crowley's Ridge

- 74a Bluff Hills

### Interior Highlands

- 36 Ouachita Mountains
- 37 Arkansas Valley
- 38 Boston Mountains
- 39 Ozark Highlands

Model and styling based on Woods et al. (2004).

# C. Species List

## Caudata (Salamanders)

Ambystomatidae (Mole Salamanders)

*Ambystoma annulatum*
Ringed Salamander

*Ambystoma maculatum*
Spotted Salamander

*Ambystoma opacum*
Marbled Salamander

*Ambystoma talpoideum*
Mole Salamander

*Ambystoma texanum*
Small-mouthed Salamander

*Ambystoma tigrinum*
Eastern Tiger Salamander

Amphiumidae (Amphiumas)

*Amphiuma tridactylum*
Three-toed Amphiuma

Cryptobranchidae (Hellbenders)

*Cryptobranchus bishopi*
Ozark Hellbender

Plethodontidae (Lungless Salamanders)

*Desmognathus brimleyorum*
Ouachita Dusky Salamander

*Desmognathus conanti*
Spotted Dusky Salamander

*Eurycea braggi*
Grotto Salamander, Southern Clade

*Eurycea lucifuga*
Cave Salamander

*Eurycea melanopleura*
Dark-sided Salamander

*Eurycea multiplicata* E clade
Many-ribbed Salamander, Eastern Clade

*Eurycea multiplicata* W clade
Many-ribbed Salamander, Western Clade

*Eurycea nerea*
Grotto Salamander, Northern Clade

*Eurycea paludicola*
Western Dwarf Salamander

*Eurycea spelaea*
Grotto Salamander, Western Clade

*Eurycea subfluvicola*
Ouachita Streambed Salamander

*Eurycea tynerensis* E clade
Oklahoma Salamander, Eastern Clade

*Eurycea tynerensis* W clade
Oklahoma Salamander, Western Clade

*Hemidactylium scutatum*
Four-toed Salamander

*Plethodon albagula*
Western Slimy Salamander

*Plethodon angusticlavius*
Ozark Zigzag Salamander

*Plethodon caddoensis*
Caddo Mountain Salamander

*Plethodon fourchensis*
Fourche Mountain Salamander

*Plethodon kiamichi*
Kiamichi Slimy Salamander

*Plethodon kisatchie*
Louisiana Slimy Salamander

*Plethodon ouachitae*
Rich Mountain Salamander

*Plethodon serratus*
Southern Red-backed Salamander

Proteidae (Mudpuppies and Waterdogs)

*Necturus maculosus*
Mudpuppy complex

Salamandridae (Newts)

*Notophthalmus viridescens louisianensis*
Central Newt

Sirenidae (Sirens)

*Siren intermedia nettingi*
Western Lesser Siren

## Anura (Frogs)

Bufonidae (True Toads)

*Anaxyrus americanus charlesmithi*
Dwarf American Toad

*Anaxyrus fowleri*
Fowler's Toad

Hylidae (Treefrogs)

*Acris blanchardi*
Blanchard's Cricket Frog

*Hyla avivoca avivoca*
Western Bird-voiced Treefrog

*Hyla chrysoscelis*
Cope's Gray Treefrog

*Hyla cinerea*
Green Treefrog

*Hyla squirella*
Squirrel Treefrog

*Hyla versicolor*
Gray Treefrog

*Pseudacris crucifer*
Spring Peeper

*Pseudacris fouquettei*
Cajun Chorus Frog

*Pseudacris illinoensis*
Illinois Chorus Frog

*Pseudacris maculata*
Boreal Chorus Frog

*Pseudacris streckeri*
Strecker's Chorus Frog

Microhylidae (Microhylid Frogs and Toads)

*Gastrophryne carolinensis*
Eastern Narrow-mouthed Toad

*Gastrophryne olivacea*
Western Narrow-mouthed Toad

Ranidae (True Frogs)

*Lithobates areolatus* ssp.
Crawfish Frog

*Lithobates blairi*
Plains Leopard Frog

*Lithobates catesbeianus*
American Bullfrog

*Lithobates clamitans*
Green Frog

*Lithobates palustris*
Pickerel Frog

*Lithobates sphenocephalus utricularius*
Coastal Plains Leopard Frog

*Lithobates sylvaticus*
Wood Frog

Scaphiopodidae (North American Spadefoots)

*Scaphiopus holbrookii*
Eastern Spadefoot

*Scaphiopus hurterii*
Hurter's Spadefoot

*Spea bombifrons*
Plains Spadefoot

## Crocodilia (Alligator)

Alligatoridae (Alligators and Caimans)

*Alligator mississippiensis*
American Alligator

## Testudines (Turtles)

Chelydridae (Snapping Turtles)

*Chelydra serpentina*
Snapping Turtle

*Macrochelys temminckii*
Alligator Snapping Turtle

Emydidae (Box and Basking Turtles)

*Chrysemys dorsalis*
Southern Painted Turtle

*Deirochelys reticularia miaria*
Western Chicken Turtle

*Graptemys geographica*
Northern Map Turtle

*Graptemys ouachitensis*
Ouachita Map Turtle

*Graptemys pseudogeographica kohnii*
Mississippi Map Turtle

*Pseudemys concinna concinna*
Eastern River Cooter

*Terrapene triunguis*
Three-toed Box Turtle

*Terrapene ornata*
Ornate Box Turtle

*Trachemys scripta elegans*
Red-eared Slider

Kinosternidae (Mud and Musk Turtles)

*Kinosternon subrubrum hippocrepis*
Mississippi Mud Turtle

*Sternotherus carinatus*
Razor-backed Musk Turtle

*Sternotherus odoratus*
Eastern Musk Turtle

Trionychidae (Softshells)

*Apalone mutica mutica*
Midland Smooth Softshell

*Apalone spinifera* ssp.
Spiny Softshell

## Squamata (Lizards)

Anguidae (Glass Lizards and Alligator Lizards)

*Ophisaurus attenuatus attenuatus*
Western Slender Glass Lizard

Crotaphytidae (Collared and Leopard Lizards)

*Crotaphytus collaris*
Eastern Collared Lizard

Dactyloidae (Anoles)

*Anolis carolinensis*
Green Anole

Phrynosomatidae (Spiny Lizards)

*Phrynosoma cornutum*
Texas Horned Lizard

*Sceloporus consobrinus*
Prairie Lizard

Scincidae (Skinks)

*Plestiodon anthracinus pluvialis*
Southern Coal Skink

*Plestiodon fasciatus*
Common Five-lined Skink

*Plestiodon laticeps*
Broad-headed Skink

*Plestiodon obsoletus*
Great Plains Skink

*Plestiodon septentrionalis obtusirostris*
Southern Prairie Skink

*Scincella lateralis*
Little Brown Skink

Teiidae (Whiptails, Racerunners, and Ameivas)

*Aspidoscelis sexlineatus viridis*
Prairie Racerunner

## Squamata (Nonvenomous Snakes)

Colubridae (Harmless Egg-Laying Snakes)

*Cemophora coccinea copei*
Northern Scarletsnake

*Coluber constrictor* ssp.
North American Racer

*Lampropeltis calligaster*
Prairie Kingsnake

*Lampropeltis gentilis*
Western Milksnake

*Lampropeltis holbrooki*
Speckled Kingsnake

*Lampropeltis triangulum*
Eastern Milksnake

*Masticophis flagellum flagellum*
Eastern Coachwhip

*Opheodrys aestivus aestivus*
Northern Rough Greensnake

*Pantherophis emoryi*
Great Plains Ratsnake

*Pantherophis obsoletus*
Western Ratsnake

*Pantherophis slowinskii*
Slowinski's Cornsnake

*Sonora episcopa*
Great Plains Groundsnake

*Tantilla gracilis*
Flat-headed Snake

Dipsadidae (Rear-Fanged Snakes)

*Carphophis amoenus helenae*
Midwestern Wormsnake

*Carphophis vermis*
Western Wormsnake

*Diadophis punctatus* ssp.
Ring-necked Snake

*Farancia abacura reinwardtii*
Western Mudsnake

*Heterodon platirhinos*
Eastern Hog-nosed Snake

Natricidae (Harmless Live-Bearing Snakes)

*Haldea striatula*
Rough Earthsnake

*Liodytes rigida sinicola*
Gulf Swampsnake

*Nerodia cyclopion*
Mississippi Green Watersnake

*Nerodia erythrogaster*
Plain-bellied Watersnake

*Nerodia fasciata confluens*
Broad-banded Watersnake

*Nerodia rhombifer rhombifer*
Northern Diamond-backed Watersnake

*Nerodia sipedon pleuralis*
Midland Watersnake

*Regina grahamii*
Graham's Crayfish Snake

*Regina septemvittata*
Queensnake

*Storeria dekayi*
Dekay's Brownsnake

*Storeria occipitomaculata*
Red-bellied Snake

*Thamnophis proximus proximus*
Orange-striped Ribbonsnake

*Thamnophis sirtalis sirtalis*
Eastern Gartersnake

*Tropidoclonion lineatum*
Lined Snake

*Virginia valeriae elegans*
Western Smooth Earthsnake

## Squamata (Venomous Snakes)

Crotalidae (Pitvipers)

*Agkistrodon contortrix*
Eastern Copperhead

*Agkistrodon piscivorus*
Northern Cottonmouth

*Crotalus atrox*
Western Diamond-backed Rattlesnake

*Crotalus horridus*
Timber Rattlesnake

*Sistrurus miliarius streckeri*
Western Pygmy Rattlesnake

Elapidae (Coralsnakes, Cobras, and Kraits)

*Micrurus tener tener*
Texas Gulf-Coast Coralsnake

## Introduced Species

Plethodontidae (Lungless Salamanders)

*Desmognathus monticola*
Seal Salamander

Gekkonidae (Typical Geckos)

*Hemidactylus turcicus*
Mediterranean Gecko

## Potential Species

Plethodontidae (Lungless Salamanders)

*Eurycea cirrigera*
Southern Two-lined Salamander

*Eurycea guttolineata*
Three-lined Salamander

*Eurycea longicauda*
Long-Tailed Salamander

*Eurycea tynerensis* SW clade
Oklahoma Salamander, Southwestern Clade

*Plethodon dorsalis*
Northern Zigzag Salamander

*Plethodon mississippi*
Mississippi Slimy Salamander

*Plethodon sequoyah*
Sequoyah Slimy Salamander

Proteidae (Mudpuppies and Waterdogs)

*Necturus beyeri*
Gulf Coast Waterdog

Bufonidae (True Toads)

*Anaxyrus woodhousii woodhousii*
Rocky Mountain Toad

*Incilius nebulifer*
Gulf Coast Toad

Hylidae (Treefrogs)

*Acris crepitans*
Eastern Cricket Frog

*Acris gryllus*
Southern Cricket Frog

*Hyla gratiosa*
Barking Treefrog

*Pseudacris clarkii*
Spotted Chorus Frog

*Pseudacris feriarum*
Upland Chorus Frog

Emydidae (Box and Basking Turtles)

*Chrysemys picta bellii*
Western Painted Turtle

*Terrapene carolina*
Eastern Box Turtle

Kinosternidae (Mud and Musk Turtles)

*Kinosternon flavescens*
Yellow Mud Turtle

Dactyloidae (Anoles)

*Anolis sagrei*
Brown Anole

Lacertidae (Old World Runners)

*Podarcis siculus campestris*
Northern Italian Wall Lizard

Phrynosomatidae (Spiny Lizards)

*Sceloporus undulatus*
Eastern Fence Lizard

Phyllodactylidae (Phyllodactylid Geckos)

*Tarentola mauritanica*
Moorish Gecko

Scincidae (Skinks)

*Plestiodon inexpectatus*
Southeastern Five-lined Skink

Teiidae (Whiptails, Racerunners, and Ameivas)

*Aspidoscelis gularis gularis*
Texas Spotted Whiptail

Colubridae (Harmless Egg-Laying Snakes)

*Lampropeltis nigra*
Eastern Black Kingsnake

*Opheodrys vernalis*
Smooth Greensnake

*Pantherophis guttatus*
Red Cornsnake

*Pantherophis spiloides*
Gray Ratsnake

*Pituophis catenifer sayi*
Bullsnake

*Pituophis melanoleucus melanoleucus*
Northern Pinesnake

*Pituophis ruthveni*
Louisiana Pinesnake

*Tantilla coronata*
Southeastern Crowned Snake

Dipsadidae (Rear-Fanged Snakes)

*Heterodon gloydi*
Dusty Hog-nosed Snake

*Hypsiglena jani texana*
Texas Nightsnake

Leptotyphlopidae (Threadsnakes)

*Rena dissecta*
New Mexico Threadsnake

*Rena dulcis dulcis*
Plains Threadsnake

Natricidae (Harmless Live-Bearing Snakes)

*Thamnophis marcianus marcianus*
Marcy's Checkered Gartersnake

*Thamnophis saurita saurita*
Common Ribbonsnake

Typhlopidae (Blindsnakes)

*Indotyphlops braminus*
Brahminy Blindsnake

Crotalidae (Pitvipers)

*Agkistrodon laticinctus*
Broad-banded Copperhead

# D. Sources

| Code(s) | Description | Records* | Year(s) |
|---|---|---|---|
| AMNH-AMPHIB, AMNH-REP | American Museum of Natural History, New York, NY | 1,991 | 1853 - 2016 |
| ANHC | Arkansas Natural Heritage Commission, Little Rock, AR | 246 | 1962 - 2015 |
| ANSP | Drexel University, Academy of Natural Sciences of Drexel University, Philadelphia, PA | 282 | 1902 - 1984 |
| APSU | Austin Peay State University, David Hilton Snyder Museum of Zoology, Clarkesville, TN | 2,238 | 1900 - 1986 |
| ASNHC | Angelo State University, Angelo State Natural History Collection, San Angelo, TX | 14 | 1965 - 2001 |
| ASU | Arizona State University, School of Life Sciences, Tempe, AZ | 67 | 1954 - 1965 |
| ASUMZ | Arkansas State University, Museum of Zoology, Jonesboro, AR | 29,450 | 1954 - 2019 |
| ATU† | Arkansas Tech University, Russellville, AR | 26 | 1974 - 1983 |
| AUM | Auburn University, Natural History Museum and Learning Center, Auburn, AL | 407 | 1958 - 2013 |
| BLAIR1965† | Blair, A. P., and Lindsay, H. L., Jr. 1965. Color pattern variation and distribution of two large Plethodon salamanders endemic to the Ouachita Mountains of Oklahoma and Arkansas. Copeia.1965(3):331–335. | 1 | 1961 |
| BLANCHARD1921† | Blanchard, F. N. 1921. A revision of the king snakes genus Lampropeltis. Bulletin of the United States National Museum. 114:1-260. | 1 | 1921 |
| BONETT2015 | Bonett, R. M. 2015. Eurycea research records from Arkansas. Department of Biological Science, University of Tulsa, Tulsa, OK. | 62 | 2015 |
| BYU | Brigham Young University, Monte L. Bean Life Science Museum, Provo, UT | 119 | 1935 - 1974 |
| CALDWELL1993† | Caldwell, J., Certain, D. L., Creighton, J. C., Cruze, P. B., Gelwick, F. P., Kornkven, A. B., Matthews, W. J., Pogue, D. W., Schnell, G. D., Vaughn, C. C., Vitt, L. J., and Watson, L. E. 1993. Rare and endangered plant and animal survey of Fort Chaffee, Arkansas. Oklahoma Biological Survey, University of Oklahoma, Norman. ii + 41 pp. | 1 | 1993 |
| CAS-HERP, CAS-SUA, CAS-SUR | California Academy of Sciences, San Francisco, CA | 205 | 1894 - 2002 |

| Code(s) | Description | Records* | Year(s) |
|---|---|---|---|
| CASH2017 | Cash, B. 2017. Occurrence of the chicken turtle, Deirochelys reticularia, on Arkansas Wildlife Management Area Lands. AGFC SWG Final Project Report. 24 pp. | 3 | 2015 |
| CHAS | Chicago Academy of Sciences, Peggy Notebaert Nature Museum, Chicago, IL | 230 | 1924 - 1955 |
| CLINE1988† | Cline, G. R., Tumlison, R., and Zwank, P. 1988. Report of the study of the Oklahoma salamander (Eurycea tynerensis). Final report to the U.S. Fish & Wildlife Service. 143 pp. | 1 | 1988 |
| CLO | Cornell University, Cornell Lab of Ornithology, Macaulay Library, Ithaca, NY | 161 | 1992 - 2005 |
| CM | Carnegie Museum of Natural History, Pittsburgh, PA | 1,533 | 1895 - 1987 |
| CMC | Museum of Natural History and Science, Geier Collections & Research Center, Cincinnati Museum Center at Union Terminal, Cincinnati, OH | 17 | 1928 |
| CMN | Canadian Museum of Nature, Ontario, Canada | 7 | 1961 - 1975 |
| CONNIOR2008† | Connior, M. B., Guenther, I., Risch, T. S., and Trauth, S. E. 2008. Amphibian, reptile, and small mammal associates of Ozark pocket gopher habitat. Journal of the Arkansas Academy of Science 62:45-51. | 2 | 2007 - 2008 |
| CRCM | Washington State University, Charles R. Conner Museum, Pullman, WA | 9 | 1928 - 1996 |
| CRCMZ† | Crowley's Ridge College, Museum of Zoology, Paragould, AR | 1 | 1977 |
| CRT† | Private Collection of C. Renn Tumlison, Department of Natural Sciences, University of Arkansas at Monticello, Monticello, AR | 2 | 1976 |
| CUMV | Cornell University, Museum of Vertebrates, Ithaca, NY | 78 | 1894 - 2000 |
| CUSC | Clemson University, Bob and Betsy Campbell Museum of Natural History, Clemson, SC | 1 | 1980 |
| DELLINGER1938† | Dellinger, S. C., and Black, J. D. 1938. Herpetology of Arkansas, part one: the reptiles. Occasional papers of the University of Arkansas Museum. 1:1-47. | 6 | 1938 |
| DINKELACKER2014 | Dinkelacker, S. A., and Hilzinger, N. L. 2014. Demographic and reproductive traits of Western Chicken Turtles, Deirochelys reticularia miaria, in Central Arkansas. Journal of Herpetology. 48(4):439-444. | 1 | 2007 |
| DOWLING1958 | Dowling, H. G. 1958. The Groundsnake, Sonora episcopa, in Arkansas. The Southwestern Naturalist 3(1):231-233. | 3 | 1945 |

| Code(s) | Description | Records* | Year(s) |
|---|---|---|---|
| DUNIVAN1982† | Dunivan, J. D., Tumlison, C. R., and McDaniel, V. R. 1982. Cave fauna of Arkansas: Further records. Proceedings of the Arkansas Academy of Science. 36:87-88. | 2 | 1982 |
| EM | Uppsala University, Museum of Evolution, Uppsala, Sweden | 1 | *undated* |
| FHSM | Fort Hays State University, Sternberg Museum of Natural History, Hays, KS | 274 | 1966 - 2012 |
| FILIPEK2016 | Filipek, D. M. 2016. Phylogeography and historical demography of the Queensnake (Regina septemvittata), M. S. thesis. xi+140 pp. | 28 | 2016 |
| FLMNH | University of Florida, Florida Museum of Natural History, Gainesville, FL | 5,581 | 1904 - 2004 |
| FMNH | The Field Museum, Chicago, IL | 1,777 | 1887 - 1996 |
| FULMER2004† | Fulmer, T., and Tumlison, R. 2004. Important records of the bird-voiced treefrog (Hyla avivoca) in the headwaters of the Ouachita River drainage of southwestern Arkansas. Southeastern Naturalist 3(2):259-266. | 9 | 2004 |
| GDT† | Private Collection of Glyn Turnipseed, Department of Biology, Arkansas Tech University, Russellville, AR | 2 | 1978 |
| GenBank† | National Center for Biotechnology Information, U.S. National Library of Medicine, Bethesda, MD | 14 | 2017 |
| GILLIP2007† | Gillip, J. G. 2007. The effects of land use change on water quality and speleogenesis in Ozark cave systems—A paired cave study of Civil War and Copperhead Caves, northwestern Arkansas. M. S. thesis. University of Arkansas, Fayetteville. 57 pp. | 1 | 2007 |
| GRAENING2001† | Graening, G. O., Slay, M., and Brown, A. V. 2001. Subterranean biodiversity in the Ozark Plateaus of Arkansas. A Final Report submitted to the Arkansas Game & Fish Commission, Little Rock. 29 pp + appendices. | 27 | 1999 - 2001 |
| GRAENING2003† | Graening, G. O., Slay, M. E., and Tinkle, K. N. 2003. Subterranean biodiversity of Arkansas, Part 1: bioinventrory and bioassessment of caves in the Sylamore Ranger District, Ozark National Forest, Arkansas. Journal of the Arkansas Academy of Science. 57:44-58. | 8 | 2001 - 2003 |
| GRAENING2006† | Graening, G. O., Koppelman, J. B., Wagner, B. K., Slay, M. E., and Brickey, C. L. 2006. Range extension and status update of the endangered Hell Creek Cave crayfish, Cambarus zophonastes (Decapoda: Cambaridae). The Southwestern Naturalist. 51(3):392-396. | 3 | 2002 - 2003 |

| Code(s) | Description | Records* | Year(s) |
|---|---|---|---|
| GRAENING2006B† | Graening, G. O., Slay, M., and Bitting, C. 2006. Cave Fauna of the Buffalo National River. Journal of Cave and Karst Studies. 68(3):153–163. | 27 | 1977 - 2006 |
| GSU | Georgia Southern University, Savannah Science Museum, Statesboro, GA | 18 | 1969 - 1971 |
| GUZY2016 | Guzy, J. C. 2016. Research records of Plethodon caddoensis related to streamside management zones in southwest Arkansas. Department of Biological Sciences, University of Arkansas, Fayetteville, AR. | 36 | 2014 - 2016 |
| HEIDT1996† | Heidt, G. A., and Karlin, A. A. 1996. Final report: Camp Joseph T. Robinson Military Installation: faunal inventory: 1994-1996: amphibians, reptiles and mammals. Department of Biology, University of Arkansas at Little Rock. 81 pp. | 3 | 1996 |
| HERMAN2005 | Herman, T. A. 2005. Collection of Hemidactylium scutatum (Four-toed Salamander) from Arkansas for MS thesis: Herman, Timothy A. 2009. Range-wide Phylogeography of the Four-toed Salamander (Hemidactylium scutatum): Out of Appalachia and into the Glacial Aftermath. M. S. Thesis, Bowling Green State University. 57 pp. | 10 | 2005 |
| HIGHTON1989 | Highton, R., Maha, G. C., and Maxson L. R. 1989. Biochemical evolution in the slimy salamanders of the Plethodon glutinosus complex in the eastern United States. Illinois Biological Monographs. 57:1-153. | 1 | 1989 |
| HSU | Henderson State University, Collection of Vertebrates, Arkadelphia, AR | 1,471 | 1953 - 2018 |
| HUHC† | Harding University, Herpetological Collection, Searcy, AR | 3 | 1976 - 1982 |
| iNat† | iNaturalist (www.inaturalist.org), California Academy of Sciences, San Francisco, CA | 7,919 | 1990 - 2019 |
| INHS | University of Illinois, Illinois Natural History Survey, Champaign, IL | 421 | 1897 - 1997 |
| IRWIN2014 | Irwin, K. J. 2014. Personal observation records of Chicken Turtle, Deirochelys reticularia, in Arkansas. Arkansas Game & Fish Commission, AR. | 3 | 2006 - 2014 |
| ISM | Illinois State Museum, Springfield, IL | 2 | 1954 - 1956 |
| JFBM | University of Minnesota, James Ford Bell Museum of Natural History, Minneapolis, MN | 38 | 2002 - 2012 |
| KU | University of Kansas, Biodiversity Institute and Natural History Museum, Lawrence, KS | 4,112 | 1906 - 2006 |

| Code(s) | Description | Records* | Year(s) |
|---|---|---|---|
| KUDA† | University of Kansas, Biodiversity Institute and Natural History Museum, Digital Archives, Lawrence, KS | 25 | 2008 - 2016 |
| LACM | Natural History Museum of Los Angeles County, Los Angeles, CA | 168 | 1928 - 1998 |
| LSUMZ | Louisiana State University, Louisiana Museum of Natural History, Baton Rouge, LA | 747 | 1932 - 2011 |
| LSUS | Louisiana State University at Shreveport, Museum of Life Sciences, Shreveport, LA | 502 | 1955 - 2013 |
| MCZ | Harvard University, Museum of Comparative Zoology, Cambridge, MA | 141 | 1853 - 2000 |
| MMNS | Mississippi Museum of Natural Science, Jackson, MS | 105 | 1954 - 1997 |
| MNHN | French National Museum of Natural History, Paris, France | 3 | 1966 |
| MPM | Milwaukee Public Museum, Vertebrate Zoology, Milwaukee, WI | 6,646 | 1875 - 1986 |
| MS† | Mississippi State University, Starkville, MS | 1 | 1976 |
| MSB | University of New Mexico, Museum of Southwestern Biology, Albuquerque, NM | 141 | 1900 - 1989 |
| MSUM | Michigan State University, MSU Museum, East Lansing, MI | 33 | 1929 - 1972 |
| MVZ | University of California at Berkeley, Museum of Vertebrate Zoology, Berkeley, CA | 430 | 1925 - 2004 |
| NC† | Navarro College, Corsicana, TX | 6 | 1979 - 1982 |
| NCSM | North Carolina Museum of Natural Sciences, Raleigh, NC | 128 | 1924 - 2011 |
| NHMUK | Natural History Museum, London, United Kingdom | 2 | 1861 |
| NLU | University of Louisiana at Monroe, Museum of Natural History, Monroe, LA | 1,770 | 1926 - 1992 |
| OMNH-AMPHIB, OMNH-REP, SNOMNH | University of Oklahoma, Sam Noble Oklahoma Museum of Natural History, Norman, OK | 1,558 | 1904 - 2017 |
| OMNH-OCGR | University of Oklahoma, Sam Noble Oklahoma Museum of Natural History, Oklahoma Collection of Genomic Resources, Norman, OK | 37 | 2005 - 2008 |
| OS | Oregon State University, Corvallis, OR | 31 | 1995 - 2001 |
| OSUCOV, OSUCOV-AMPHIB, OSUCOV-REP | Oklahoma State University, Collection of Vertebrates, Stillwater, OK | 359 | 1947 - 2003 |

| Code(s) | Description | Records* | Year(s) |
|---|---|---|---|
| OSUM | The Ohio State University, Museum of Biological Diversity, Museum of Zoology, Columbus, OH | 28 | 1934 - 1987 |
| PARKER1947† | Parker, M. V. 1947. Notes on the herpetology of Clay and Greene counties. Arkansas Proceedings of the Arkansas Academy of Science. 2:15-30. | 2 | 1947 |
| PMNS | Perot Museum of Nature and Science, Dallas, TX | 2 | 1957 - 1966 |
| POLECHLA1987† | Polechla, P. J., Jr. 1987. Distribution of the Oklahoma salamander (Eurycea tynerensis) in Arkansas. Final report to the Arkansas Natural Heritage Commission, Little Rock. 18 pp. | 6 | 1987 |
| PSM | University of Puget Sound, James R. Slater Museum of Natural History, Tacoma, WA | 3 | 1942 |
| RAD | Radford University, Natural History Collection, Radford, VA | 74 | 1937 - 1969 |
| RF† | Private Collection of Randy Frazier, Village Creek State Park, Wynne, AR | 1 | 1977 |
| RMMU | McGill University, Redpath Museum, Montreal, Quebec, Canada | 11 | 1957 |
| ROBISON1997† | Robison, H. R. 1997. An inventory of the amphibians and reptiles of Pine Bluff Arsenal, Jefferson County, Arkansas. Final report to the Nature Conservancy, Little Rock. 108 pp. | 1 | 1997 |
| ROM | Royal Ontario Museum, Toronto, Ontario, Canada | 15 | 1878 - 1974 |
| SAMA | South Australian Museum, Herpetology Collection, Adelaide, South Australia, Australia | 4 | 1957 |
| SAU† | Southern Arkansas University, Department of Biology, Magnolia, AR | 3 | 1970 - 1977 |
| SAUGEY1991 | Saugey, D. A., and Trauth, S. E. 1991. Distribution and Habitat of Utilization of the Four-toed Salamander, Hemidactylium scutatum, in the Ouachita Mountains of Arkansas. Journal of the Arkansas Academy of Science. 45(1):88-91. | 14 | 1983 - 1991 |
| SDNHM | San Diego Natural History Museum, San Diego, CA | 81 | 1924 - 1971 |
| SHEPARD2010, DBS | Shepard, D. B. 2010. Research records of Plethodon serratus, 2004-circa 2010. School of Biological Sciences, Louisiana Tech University, Ruston, LA. | 106 | 2006 - 2010 |
| SLU | Southeastern Louisiana University, Vertebrate Museum, Hammond, LA | 119 | 1951 - 2009 |
| SMF | Senckenberg: World of Biodiversity, Frankfurt am Main, Germany | 38 | 1906 - 1950 |
| SMNS | State Museum of Natural History, Stuttgart, Germany | 1 | 1962 |

| Code(s) | Description | Records* | Year(s) |
|---|---|---|---|
| SUTTON1979† | Sutton, K. B. 1979. Unusual concentration of scarlet snakes (Cemophora coccinea) in Village Creek State Park, Arkansas. Arkansas Academy of Science Proceedings. 33:92. | 1 | 1978 |
| TCWC | Texas A&M University, Biodiversity Research and Teaching Collections, Department of Wildlife and Fisheries Sciences, College Station, TX | 187 | 1905 - 2008 |
| TNHC | University of Texas at Austin, Texas Memorial Museum, Texas Natural Science Center, Texas Natural History Collections, Austin, TX | 332 | 1940 - 2013 |
| TRAUTH1992 | Trauth, S. E., Wilhide, J. D., and Daniel, P. 1992. Geographic distribution: Cryptobranchus bishopi (Ozark Hellbender). Herpetological Review. 23 (4):121. | 1 | 1992 |
| TRAUTH1992B† | Trauth, S. E., Wilhide, J. D., and Daniel, P. 1992. Status of the Ozark Hellbender, Cryptobranchus bishopi (Urodela: Cryptobranchidae), in the Spring River, Fulton County, Arkansas. Proceedings of the Arkansas Academy of Science. 46:83-86. | 1 | 1985 |
| TRAUTH1992C | Trauth, S. E., and Cochran, B. G. 1992. In search of western diamondback rattlesnakes (Crotalus atrox) in Arkansas. Bulletin of the Chicago Herpetological Society. 27:89-94. | 9 | 1927 - 1991 |
| TRAUTH1993† | Trauth, S. E., Cochran, B. G., Saugey, D. A., Posey, W. R., and Stone, W. A. 1993. Distribution of the mole salamander, Ambystoma talpoideum (Urodela: Ambystomatidae), in Arkansas with notes on paedomorphic populations. Proceedings of the Arkansas Academy of Science. 47:154-156. | 1 | 1987 |
| TRAUTH2004‡ | Trauth, S. E., Robison, H. W., and Plummer, M. V. 2004. The Amphibians and Reptiles of Arkansas. University of Arkansas Press, Fayetteville. Xviii + 421 pp. | 3,527 | 2004 |
| TU† | University of Tulsa, Herp Collection, Tulsa, OK | 44 | 2017 |
| UADZ† | University of Arkansas, Department of Zoology, Fayetteville, AR | 1 | 1987 |
| UAFMC | University of Arkansas, Collections Facility, Fayetteville, AR | 2,591 | 1891 - 2005 |
| UAHC | University of Alabama, Alabama Museum of Natural History, Tuscaloosa, AL | 185 | *undated* |
| UALR† | University of Arkansas at Little Rock, Biology Department, Little Rock, AR | 4 | 1971 - 2007 |
| UAM, UAMN† | University of Arkansas at Monticello, Turner Neal Museum of Natural History, Monticello, AR | 38 | 1963 - 1979 |
| UAZ | University of Arizona, Museum of Natural History, Tucson, AZ | 76 | 1928 - 1984 |

| Code(s) | Description | Records* | Year(s) |
|---|---|---|---|
| UCAM† | University of Central Arkansas, Museum, Conway, AR | 13 | 2004 - 2006 |
| UCM | University of Colorado, Museum of Natural History, Boulder, Colorado, CO | 346 | 1939 - 1989 |
| UIMNH | University of Illinois, Museum of Natural History, Champaign, IL | 457 | 1890 - 1967 |
| UMMZ | University of Michigan, Museum of Zoology, Ann Arbor, MI | 850 | 1858 - 1996 |
| UMNH | University of Utah, Natural History Museum of Utah, Salt Lake City, UT | 49 | 1926 - 1979 |
| UNR | University of Nevada at Reno, Museum of Natural History, Reno, NV | 2 | 1928 |
| UNSM | University of Nebraska, State Museum, Lincoln, NE | 37 | *undated* |
| USNM | National Museum of Natural History, Smithsonian Institution, Department of Vertebrate Zoology, Washington D.C., DC | 3,831 | 1875 - 1997 |
| UTA-AMPHIB, UTA-REP | University of Texas at Arlington, Amphibian and Reptile Diversity Research Center, Arlington, TX | 875 | 1947 - 2009 |
| UTEP | University of Texas at El Paso, Biodiversity Collections, El Paso, TX | 58 | 1961 - 1998 |
| UWBM | University of Washington, Burke Museum of Natural History and Culture, Seattle, WA | 15 | 1927 - 1928 |
| UWZM | University of Wisconsin, Zoological Museum, Madison, WI | 7 | 1956 - 1976 |
| VCSP† | Private Collection of Village Creek State Park, Wynne, AR | 1 | 1979 |
| VRM† | Private Collection of V. Rick McDaniel, Division of Biological Science, Arkansas State University, Jonesboro, AR | 13 | 1976 |
| WAGNER1996 | Wagner, B. K., Urbston, D., and Leek, D. 1996. Status and Distribution of Alligator Snapping Turtles in Arkansas. Proceedings of the annual conference, Southeastern Association of Fish & Wildlife Agencies. 50:264-270. | 133 | 1996 |
| WAGNER2005† | Wagner, B. K., Kampwerth, D., and Slay M. 2005. Descriptions and taxonomic determinations of new cave invertebrates. Final report to Arkansas Game & Fish Commission, Little Rock. 6 pp. | 1 | 2004 |
| WAM | Western Australian Museum, Museum Collections and Research Centre, Welshpool, Western Australia, Australia | 24 | 1927 |
| WATT2002 | Watt, C. L., Tappe, P. A., and Roth, M. F. 2002. Concentrations of American Alligator Populations in Arkansas. Journal of the Arkansas Academy of Science. 56:243-249. | 44 | 2002 |

| Code(s) | Description | Records* | Year(s) |
|---|---|---|---|
| WCC† | University of Arkansas at Fort Smith, Fort Smith, AR | 4 | 1973 - 1974 |
| WELBOURN1979† | Welbourn, W. C., and Lindsley, R. P. 1979. Survey and assessment of cave resources at Buffalo National River, Arkansas. A final report to the National Park Service. Cave Research Foundation, Dallas, Texas. 145 pp. | 1 | 1978 |
| WELBOURN1980† | Welbourn, W.C. 1980. Summary report for the cave resource inventory on the Sylamore District, Ozark-St. Francis National Forest. Prepared for the US Department of Agriculture, Forest Service, Mountain View, Arkansas. Cave Research Foundation, Dallas, Texas. | 4 | 1980 |
| WTSU† | West Texas A&M University, Canyon, TX | 86 | 1969 - 1983 |
| YPM | Yale University, Peabody Museum of Natural History, New Haven, CT | 93 | 2003 - 2007 |

* Valid, unique (i.e., not duplicated) record count.
† Incomplete collection coverage; often due to records coming from secondary sources (e.g., Herpetological Review).
‡ Isolated, unsourced Trauth et al. (2004) records only.

# E. Changelog

**2020-08-11 00:57:02** Public release 2019.

**2020-07-25 00:36:02** Developed and generated county lists supplement, as a companion to the atlas public release 2019. Further debugged and refined database stats views.

**2020-07-18 14:38:56** Reconstructed and regenerated entire atlas manuscript in LaTeX, with innumerable edits and revisions from the April draft. Shared preview manuscript with selected individuals.

**2020-07-09 14:09:34** Installed research data sets: Guzy 2016 (Plethodon caddoensis), Filipek 2016 (Regina septemvittata), and Shepard 2010 (Plethodon serratus).

**2020-05-29 16:09:05** Installed updated UAFMC (previously ARK) catalog. No changes affect the atlas manuscript (in review) significantly, but a couple of maps rerendered, etc., to account for anything more noteable.

**2020-05-02 23:18:51** Repaired some faulty geometries in range polygons. Updated ranges for species complexes to match dissolved ranges for inclusive species. Ran integrety checks on data and made a few minor corrections.

**2020-04-26 19:08:19** Added appendix with species lists by county to atlas manuscript. Shared back atlas data for ASUMZ and HSU.

**2020-04-23 22:55:29** Completed release notes for atlas manuscript. All remaining assests, including heat maps, etc., exported for atlas manuscript. Exported draft manuscript to PDF and emailed to first reviewers.

**2020-04-17 00:15:45** All range maps updated and exported for atlas manuscript. Summary stats revised and exported for atlas manuscript.

**2020-03-08 20:07:49** Produced partial draft atlas manuscript (Anura) for review.

**2020-01-28 23:39:58** Added additional Deirochelys reticularia literature and observation records from Dinkelacker 2014, Irwin 2014 (personal notes), and Cash 2017.

**2020-01-11 16:24:21** Cleaned up atlas ”records graveyard” of duplicated and suspected invalid records.

**2020-01-03 00:48:28** Added all observation records from the iNaturalist Herps of Arkansas project and additional museum records from ASUMZ and HSU. Added additional Herpetological Review (HR) records.

**2019-12-27 20:57:52** Made minor adjustments to Wagner 1996 Macrochelys temminckii points to match waterways.

**2019-12-27 19:20:00** Human georeferenced all remaining records.

**2019-12-07 12:48:45** Added all iNaturalist records allowable to the Herps of Arkansas project, messaged recent users with suitable observations, and messaged users with observations that no longer fully meet the project rules to resubmit those. Data should mostly be ready for export and inclusion into the atlas now.

**2019-11-23 17:05:30** Human georeferenced all Benton and Washington County records.

**2019-11-07 19:48:44** Messaged all users with suitable iNaturalist observations for inclusion into the Herps of Arkansas project.

**2019-04-14 12:58:06** Combed all suitable iNaturalist observations for inclusion into the Herps of Arkansas project.

**2019-03-24 14:24:44** Combined all record sources (museum, literature, observation, and research) into single table.

**2019-03-18 23:14:45** GeoLocate script run on all records not already human georeferenced. Human georeferencing of all records with no/low confidence score. Reviewed county and state level records and narrowed localities where possible. Record duplicates resolved where possible between ASUMZ and MPM; and ANHC, ASUMZ, and Saugey 1991. Records of Byron C. Marshall, Ozark Biological Laboratories, Imboden, reviewed and notated. Invalid records table tidied up. Many, many minor updates!

**2018-02-24 19:20:19** Fully georeferenced all species with state rank of S3 and lower.

**2018-02-18 22:13:15** Fully georeferenced UTA (UT Arlington) catalog.

**2018-02-13 22:07:24** Cross-checked all records with Herp Review and ANHC, adding notations for cross-referencing.

**2018-02-13 22:05:58** Added additional museum records from UTA (UT Arlington).

**2017-10-02 19:06:49** Added additional museum records from CUSC and SLU.

**2017-10-01 14:11:44** Updated species list and taxonomic nomenclature, mostly following Crother 2017 SSAR list, 8th ed.

**2017-09-30 22:31:51** Added additional museum records from EM, JFBM (Univ. of Minnesota), MNHN, and UWZM.

**2017-09-27 22:12:55** Added additional observation records from CLO.

**2017-09-25 22:48:50** Added additional museum records from CRCM (Washington State Univ.), LSUMZ, and NCSM.

**2017-09-17 16:54:35** Added additional museum records from ASU (AZ State Univ.).

**2017-09-17 15:23:16** Renamed some db tables to remove portal name (ex: vertnet) and cat.

**2017-09-10 22:01:22** Added additional museum records from NHMUK, SAMA, SMF, and WAM.

**2017-09-07 20:56:34** Reviewed and added sources (i.e. museums) from List of Natural History Museums in the United States.

**2017-08-20 11:23:47** Updated georeferencing of records by automated script based on those human checked (HGEX).

**2017-08-19 19:30:25** Updated some source catalogs to replace empty fields with NULL.

**2017-08-19 18:09:55** Divided out vertnet_cas into separate catalogs to resolve some duplicate museum numbers.

**2017-08-13 03:38:09** Added additional museum records from AMNH, INHS, FLMNH, FMNH, TNHC, and UIMNH.

**2017-08-12 21:50:25** Updated georeferencing of records by automated script based on those human checked (HGEX).

**2017-08-08 11:50:03** Updated AR lookup features from US Board on Geographic Names (last edited 2017-06-01).

**2017-08-07 15:18:06** Updated BYU/BYUH records, now with specific localities.

**2017-08-05 18:03:35** Updated taxonomic nomenclature, including some corrections to species authorities and added cites, federal, and state statuses.

**2017-08-04 01:04:43** Added additional museum records from Phillips, J., et. al., 2017, related to the phylogeny of Grotto Salamanders. Fully georeferenced records for the Grotto Salamander complex.

**2017-08-03 01:32:36** Added additional museum records from ASUMZ, through 2016.

**2017-08-01 00:53:21** Updated ASUMZ records with missing dates by inferring collection year using contiguous records. Also, checked oddities such as blank/missing catalog numbers, etc.

**2017-07-23 15:55:09** Added additional literature records from Watt, C., et. al., related to the Arkansas distribution of Alligator mississippiensis.

**2017-07-23 01:08:54** Thorough record integrity checks and corrections.

**2017-07-22 21:50:08** Fully georeferenced records for Western Bird-voiced Treefrog (Dryophytes avivocus avivocus), Western Slender Glass Lizard (Ophisaurus attenuatus attenuatus), Western Dwarf Salamander (Eurycea paludicola), and Wood Frog (Rana sylvatica).

**2017-07-09 15:32:30** Fully georeferenced records for Eastern Collared Lizard (Crotaphytus collaris), Four-toed Salamander (Hemidactylium scutatum), Strecker's Chorus Frog (Pseudacris streckeri), Eastern Spadefoot (Scaphiopus holbrookii), and Hurter's Spadefoot (Scaphiopus hurterii).

**2017-07-07 19:27:29** Fully georeferenced and checked/rechecked records for all species with state rank of SH or S1.

**2017-07-07 18:13:14** Fully georeferenced records for Crawfish Frog (Lithobates areolatus), Caddo Mountain Salamander (Plethodon caddoensis), Fourche Mountain Salamander (Plethodon fourchensis), slimy salamanders from S AR that could be Louisiana Slimy Salamander (Plethodon kisatchie), Rich Mountain Salamander (Plethodon ouachitae), Alligator Snapping Turtle (Macrochelys temminckii), and Three-toed Box Turtle (Terrapene triunguis).

**2017-07-06 18:30:48** Minor updates to w_localities view to show localities with underscore (_) dividers.

**2017-06-07 03:58:13** Fully georeferenced records for Ringed Salamander (Ambystoma annulatum), Mole Salamander (Ambystoma talpoideum), and Tiger Salamander (Ambystoma tigrinum). Partially georeferenced records for other Ambystoma.

**2017-02-07 21:34:51** Thorough check/recheck of invalid and questionable records.

**2017-02-04 15:10:24** Added additional Herpetological Review (HR) records.

**2017-02-03 23:00:21** Updated taxonomic nomenclature.

**2017-02-03 22:59:04** Added additional research records from Bonett, R. related to a study of Eurycea.

**2017-02-02 23:38:27** Added additional museum records from ANHC, ASUMZ, FHSM, and OSUCOV.

**2017-01-30 19:03:36** Organized To Do document.

**2017-01-20 22:47:57** Changed some column names and a bit of tidy up.

**2016-09-10 17:08:23** Added additional literature records from Wagner, B., et. al., related to Arkansas Game and Fish Commission sampling of Macroclemys temminckii.

**2016-09-05 01:11:00** Added additional research records from Herman, T. related to his MS thesis on Hemidactylium scutatum.

**2016-08-23 23:02:47** Scanned and converted all Trauth 2004 dot locality map records to georeferenced database table.

**2016-08-23 23:02:08** Created georeferenced Trauth 2004 database.

**2016-07-25 16:03:28** Erroneous records moved to invalid table.

**2016-07-25 15:18:06** Updated ranges database with additional columns.

**2016-07-25 15:17:16** Updated all species names. Added additional potential species.

**2016-07-22 15:09:25** Simplified and updated lookups, including associated SQL queries.

**2016-07-21 16:55:03** Updated database view: stats_species.

**2016-07-21 16:53:43** Created new database view: species_list_sorted.

**2015-06-09 18:03:23** Cataloged all Herpetological Review (HR) records for Arkansas into a database table. Added all HR records into the atlas that were otherwise unnaccounted for.

**2015-06-05 18:55:29** Updated taxonomic nomenclature to match CNAH/SSAR North American Checklist of Scientific and Common Names, plus split additional Eurycea clades based on latest research.

**2014-08-02 17:01:07** Fully georeferenced records for Spotted Dusky Salamander (Desmognathus conanti).

**2014-02-22 12:04:18** Added additional museum records from AMNH, APSU, ASU (Angelo State Univ.), ASUMZ, BYUH, CHAS, CMC, CUMV, FLMNH, GSU, KU, MCZ, MMNS, MSB, NLU, OMNH, PMNS, RAD, UAHC, UCM, UMMZ, UNR, UNSM, UTA, UWBM, and YPM. Made significant updates to existing ANSP, ASUMZ, and OMNH records. Fully georeferenced new records for species previously processed.

**2014-02-02 11:32:35** Fully georeferenced records for Illinois Chorus Frog (Pseudacris illinoensis).

**2014-01-09 19:18:02** Fully georeferenced record for Squirrel Treefrog (Hyla squirella).

**2013-12-31 22:06:12** Added/updated HerpNet source databases.

**2013-12-30 12:58:51** Updated taxonomic nomenclature to match Scientific and Standard English Names of Amphibians and Reptiles of North America North of Mexico, With Comments Regarding Confidence in Our Understanding, Seventh Ed. (2012).

**2013-08-26 22:03:57** Fully georeferenced records for Graham's Crayfish Snake (Regina grahamii).

**2013-06-27 12:46:06** Ornate Box Turtle records updated (3 White County records confirmed as invalid, 1 Polk County record confirmed as valid, additional range added to Lonoke County based on unpublished observational/photographic record).

**2013-02-25 23:26:51** Fully georeferenced records for Ozark Hellbender (Cryptobranchus alleganiensis bishopi).

**2013-02-23 16:51:13** Fully georeferenced records for Great Plains Ratsnake (Pantherophis emoryi).

**2013-02-19 19:55:00** Fully georeferenced records for Eastern Tiger Salamander (Ambystoma tigrinum).

**2013-02-17 21:59:10** Fully georeferenced records for Queensnake (Regina septemvittata), Western Diamond-backed Rattlesnake (Crotalus atrox), Mediterranean Gecko (Hemidactylus turcicus), Kiamichi Slimy Salamander (Plethodon kiamichi), American Alligator (Alligator mississippiensis), and Northern Scarletsnake (Cemophora coccinea copei).

**2013-02-12 22:32:07** Fully georeferenced records for Ornate Box Turtle (Terrapene ornata ornata) and Gulf Crayfish Snake (Regina rigida sinicola).

**2013-02-11 22:36:39** Added additional ASUMZ museum records through 2012.

**2013-02-02 23:20:58** Fully georeferenced records for Midwestern Wormsnake (Carphophis amoenus helenae), Texas Horned Lizard (Phrynosoma cornutum), Western Narrow-mouthed Toad (Gastrophryne olivacea), Western Chicken Turtle (Deirochelys reticularia miaria), and Texas Coralsnake (Micrurus tener tener).

**2013-01-26 23:48:36** Fully georeferenced records for the following species: Brown Anole (Norops sagrei), Gulf Coast Toad (Incilius nebulifer), Plains Leopard Frog (Lithobates blairi), Lined Snake (Tropidoclonion lineatum), Slowinski's Cornsnake (Pantherophis slowinskii), Great Plains Skink (Plestiodon obsoletus), Boreal Chorus Frog (Pseudacris maculata), Plains Spadefoot (Spea bombifrons), Variable Groundsnake (Sonora semiannulata semiannulata), Seal Salamander (Desmognathus monticola), and Southern Prairie Skink (Plestiodon septentrionalis obtusirostris).

**2013-01-26 20:17:41** Added additional OMNH museum records provided by Don B. Shepard and Herpetological Review records up to 43(4), 2012.

**2012-06-05 19:22:13** Initial public release; skeleton draft.