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Endemic Flora and Fauna of Arkansas

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THE ENDEMIC FLORA AND FAUNA OF ARKANSAS

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ABSTRACT

Arkansas has an amazing diversity of plants and animals contained within its political boundaries. Forty-seven taxa are reported as Arkansas endemics, including seven plants, thirteen crustaceans (two amphipods, three isopods, eight crayfishes), nine insects (one mayfly, one caddisfly, three stoneflies, four beetles), ten snails, six fishes, and two salamanders.

INTRODUCTION

Arkansas has been richly blessed with an amazing diversity of plant and animal life. Primarily responsible for this rich diversity are the varied physiography and topography within the state, a sufficiently long geological history of favorable climates and habitats, and the fact that Arkansas was not affected greatly by Pleistocene glaciation.

Contained within the diversity of Arkansas' biological forms is an element identifiable as the "endemic" portion—those life forms confined to a particular geographic region or area. For example, the Interior Highlands region has long been recognized as an area of endemism for both plants and animals. Possibly 100-150 species may be endemic to this region of the Central United States. For practical purposes, the political boundaries of Arkansas have been delineated as the "endemic area" to be considered. A first effort at providing a list of state endemic forms was given by the Arkansas Department of Planning (1974) listing nine endemic species (four plants, four fishes, and one salamander). In this paper we list 47 taxa as endemic to Arkansas, including seven plants, 13 crustaceans (two amphipods, three isopods, eight crayfishes), nine insects (one mayfly, one caddisfly, three stoneflies, four beetles), 10 snails, six fishes, and two salamanders. Such endemic forms play a vital role in our state's natural heritage as they represent those biological entities whose entire populations have been fortuitously delineated within our state's political boundaries. This paper is presented to: 1) serve as a first compilation of all of those fauna and flora deemed endemic to Arkansas, 2) provide literature references to the original descriptions of such biota, 3) indicate geographic distributions of each form within the state, and 4) report general habitat occupied.

It is hoped that exposure of these life forms as state endemics may have a positive effect in stimulating future research on them as we presently know little about these state treasures, and concomitantly, to make persons aware of the special importance these organisms have as part of our state's natural heritage.

This list of endemic species is certain to change in years to come as several species are known from areas near state boundaries. Further, as intensive collecting continues this list will gradually increase. Finally, various undescribed species inhabiting Arkansas may eventually prove to be endemic to the state.

Because of their special intrinsic value to Arkansas, protection of all forms endemic to the state should be urged at the earliest opportunity.

ANNOTATED LIST OF ARKANSAS' ENDEMIC FLORA AND FAUNA

The following annotated list is provided with the names of the endemic forms, type localities, date of original collection, collector, and museum number of holotype, when known, as well as distribution and habitat. To save space the original literature reference for each taxon is given and combined with the name of the describer. The complete citation is provided in the "Literature Cited" section of the paper.

I. PLANTS

Class Angiospermae - Flowering Plants
Order Campanulales
Family Asteraceae - Sunflower Family

1. *Helenium campestre* Small (1903). A sneezeweed. The type locality is in low ground near Little Rock, Pulaski County. It has been found in prairies and roadsides in several central and eastern counties (Smith, 1978).

Order Fagales
Family Fagaceae - Beech Family

2. *Quercus shumardii* Buckl. var. *acerifolia* Palmer (1927). Maple-leaved Oak. Known only from the type locality along rocky bluffs where it grows as an arborescent shrub on the north side of Magazine Mountain, Logan County (Palmer, 1942).

Order Graminales
Family Cyperaceae - Sedge Family

3. *Carex bicknellii* var. *opaca* F. J. Hermann (1972). The type locality is Prairie County; river terraces (never plowed), rice region. The type specimen was collected on 10 May 1969 by Delzie Demaree (60141) and deposited in the United States National Museum. It is found in unplowed river terraces and low wet areas in Prairie and Lonoke counties.

Order Ranales
Family Ranunculaceae - Crowfoot Family

4. *Delphinium newtonianum* D. M. Moore (1939). Moore's Delphinium. Moore's delphinium was originally discovered 2 mi. S. Jasper, Newton County on 4 July 1935 by D. M. Moore (350074). The type specimen is deposited in the Missouri Botanical Garden. This species is restricted to the Boston Mountains in Johnson, Newton, Pope, and Searcy counties (Smith, 1978). It is usually found in light to heavy shade of the upland hardwood forest on moist, loamy clay with limestone influence (Moore, 1939). This is the only *Delphinium* in North America which has an inflorescence of cymose racemes.

Order Rosales
Family Saxifragaceae - Saxifrage Family

5. *Heuchera villosa* Michx. var. *arkansana* (Rydberg). E. B. Smith. Smith (1978). Arkansas alumroot. The original type locality is shady cliffs near Springdale, Benton County. The holotype was collected on 16 August 1895 by J. W. Blankenship and is deposited in the New York Botanical Garden. It occurs in Benton, Faulkner, Newton, and Washington counties (Smith, 1978) and is confined to ledges of calcareous or sandy rock along upland streams and rivers, usually in the shade of mixed hardwoods. Arkansas alumroot is considered by some taxonomists as a full species (Small and Rydberg, 1905; Rosendahl et al., 1936); however, Smith (1977) considered it only a variety of *H. villosa*, a plant common in the western United States.

Order Rubiales
Family Valerianaceae - Valerian Family

6. *Valerianella palmeri* Dyal (1938). A corn salad. The type locality is in Magnet Cove, Hot Spring County. It was collected on 19 April 1926 by E. J. Palmer (29726) and is deposited at the Missouri Botanical Garden. It is endemic to the Ouachita Mountains in Hot Spring, Howard, and Garland counties (Smith, 1978). The habitat is usually rocky ledges and banks in open woods.

Order Polemoniales
Family Polemoniaceae - Phlox Family

7. *Phlox bifida* Beck subsp. *arkansana* Marsh (1960). A sand phlox. The type locality is north of Withrow Spring (5 mi. N. of Huntsville) in Madison County. It was collected on 31 March 1957 by D. Marsh (318) and is deposited at the Univ. of Kansas. It is found in a variety of habitats in Benton, Madison, and Stone counties including roadsides, cedar glades, gravel banks near streams, bluffs, and crevices of rock overhangs.

II. ANIMALS

Class Crustacea - Crustaceans
Order Amphipoda - Amphipods
Family Crangonyctidae

1. *Stygobromus elatus* (Holsinger). Holsinger (1967). Leslie Hubricht collected the type specimens from a seep, 0.2 mi. E. of the lodge, Magazine Mountain, Logan County and the species is known only from this location.
2. *Stygobromus montanus* (Holsinger). Holsinger (1967). The type locality is unidentified springs, on Rich Mountain, Rich Mountain Station, Polk County. The type specimens were collected by L. Hubricht on 26 April 1936. To date *S. montanus* is known only from springs on Rich Mountain.

Order Isopoda - Isopods
Family Asellidae

3. *Lirceus bicuspidatus* Hubricht and Mackin (1949). The type locality is a spring on a small stream behind the college chapel, Clarksville, Johnson County. It is found in small seeps, springs, streams, and cave streams in the Ouachita and Ozark mountains in Conway, Jackson, Johnson, Logan, Newton, Pope, Pulaski, Saline, Searcy, and Yell counties.
4. *Lirceus bidentatus* Hubricht and Mackin (1949). This isopod is known only from the type locality, a seep in the Boston Mountains, 9 mi. SW of Harrison, Boone County.
5. *Caecidotea holti* (Fleming). Fleming (1972). This aquatic isopod is known only from the type locality, a small stream, 1.8 mi. E. of Casa, Perry County. The holotype (USNM 79308) was collected on 4 May 1940 by L. Hubricht.

Order Decapoda - Crayfishes and Shrimps
Family Cambaridae

6. *Bouchardina robisoni* Hobbs (1977). This monotypic species has its type locality in Lafayette County in a borrow ditch along Sunray Road, 4 mi. (6.4 km) N. of Lewisville, off State Route 29 (Sec. 14, R24W, T15S). It is known from Bayou Bodcaw (Red River Basin) in Lafayette County and other areas of Hempstead, Nevada, and Columbia counties.
7. *Cambarus causeyi* Reimer (1966). The type locality is a spring and natural pond 4 mi. W. of Sandgap on State Route 124 in Pope County. The holotype is USNM 116678. It inhabits complex burrows on a hillside and near the spring and pond at the type locality.
8. *Cambarus zophonastes* Hobbs and Bedinger (1964). This troglobite is known only from the type locality, Hell Creek Cave, Stone County (Sec. 30, R10W, T15N). The holotype is USNM 108356.
9. *Fallicambarus jeanae* Hobbs (1973). This burrowing form is known only from Hot Spring County in the area of the type locality, a seepage area, 1.8 mi. E. of Clark County line on State Route 84, Hot Spring County. The holotype was collected by H. H. Hobbs, G. Hobbs, and J. E. Pugh. It inhabits complex burrows with two or three openings to the surface in sandy clay with shallow pockets rich in organic material and some gravel. Grasses, sedges, and strands of *Acer, Juniperus,* and *Pinus* generally surround the burrows.
10. *Fallicambarus spectrum* Hobbs (1973) The type locality is a roadside ditch 2 mi. E. of Daisy on U. S. Highway 70, Pike County. The habitat is complex burrows in roadside ditches with grasses, sedges, *Pinus,* and *Cornus florida* nearby. It is known only from Pike County.
11. *Fallicambarus strawni* (Reimer). Reimer (1966). The holotype (USNM 116675) was collected by R. D. Reimer from a small marshy area in the Saline River drainage, 2.7 mi. N. of Dierks, Howard County. He reported it from both simple and complex burrows in sandy clay soil. Hobbs (1973) later collected specimens from seepage areas. Records exist from Sevier, Howard, and Pike counties.
12. *Procambarus reimeri* Hobbs (1979). The type specimen (USNM 148880) was collected by H. H. Hobbs, G. B. Hobbs, and J. E. Pugh on 18 April 1973, from a roadside ditch about 5 mi. NE of Mena, on an unnumbered road to Irons Fork River, Polk County. All specimens have been taken from comparatively simple burrows, ½ to 1 m deep in sandy clay soil. Most specimens are from roadside ditches and/or nearby burrows of the Ouachita River Basin in Polk County.

13. *Procambarus liberorum* Fitzpatrick (1978). The holotype is a first form male cataloged as USNM 148353 and the species is known only from the type locality in Bentonville, Benton County.

Class Insecta - Insects
Order Ephemeroptera - Mayflies
Family Ephemerellidae

14. *Dannella provonshai* McCafferty (1977). The holotype was collected on 2 June 1974 by W. P. McCafferty, L. Dersch, and A. V. Provonsha and records exist only from the type locality, Mulberry River, 1 mi. W. of Ozark, Ozark National Forest, Johnson County.

Order Trichoptera - Caddisflies
Family Psychomyiidae - Trumpet-net and Tube-making Caddisflies

15. *Paduniella nearctica* Flint (1967). The holotype (USNM 69209) was collected on 30 May 1966 by R. W. Hodges from Devil's Den State Park, Washington County. Records exist only from upper Lee Creek (Devil's Den State Park) and Cove Creek (southern Washington County), both clear, spring-fed, high-gradient, gravel-bottomed streams. *P. nearctica* was the first record of the tribe Paduniellini for the New World.

Order Plecoptera - Stoneflies
Family Capniidae - Winter Stoneflies

16. *Allocapnia jeanae* Ross (1964). The holotype was taken on 14 February 1961 by H. H. Ross from the West Fork of White River at Winslow, Washington County. The species is known only from rapid, cool, gravelly or rocky, and probably spring-fed creeks of the northwestern portion of the Ozark uplift (Ross and Ricker, 1971).
17. *Allocapnia ozarkana* Ross (1964). Type specimens were collected on 26 January 1962 by L. O. Warren from Cannon Creek, Madison County. Little is known concerning the habitat of this winter stonefly (Ross and Ricker, 1971) as it has been collected only at the type locality.
18. *Allocapnia warreni* Ross and Yamamoto (1966). Known only from a single male holotype collected along Clear Creek, Washington County (Ross and Ricker, 1971).

Order Coleoptera - Beetles
Family Carabidae - Ground Beetles

19. *Rhadine ozarkensis* Sanderson and Miller (1941). The holotype of this beetle, known only from the type locality, is in M. W. Sanderson's collection and was collected by Sanderson and A. Miller on 20 January 1940 from Fincher's Cave, Washington County (Sanderson and Miller, 1941).

Family Dytiscidae - Predaceous Diving Beetles

20. *Hoperius planatus* Fall (1927). Known only from a single male taken at a light in Hope, Hempstead County on 11 June 1926 by L. Knobel.

Family Pselaphidae - Short-winged Mold Beetles

21. *Arianops sandersoni* Barr (1974). The Illinois Natural History Survey holds the type specimen collected on 16 July 1949 by M. W. Sanderson from Magazine Mountain, Logan County. The species is known only from the type locality and inhabits damp debris at the base of a bluff. This is the only species of *Arianops* west of the Mississippi River (Barr, 1974).

Family Staphylinidae - Rove Beetles

22. *Rimulincola divalis* Sanderson (1946). Known only from the type locality, Winslow, Devil's Den State Park, Washington County where it occurs in leaf litter in the bottom of deep rock crevices in caves (Arnett, 1971). The Illinois Natural History Survey holds the type specimen collected on 30 March 1941 by M. W. Sanderson.

Class Gastropoda - Snails
Order Mesogastropoda - Aquatic Snails
Family Hydrobiidae

23. *Amnicola cora* Hubricht (1979). Known only from the type locality, Foshee Cave 3 mi. W. of Locust Grove, Independence County. The holotype (FMNH 193762) was collected by N. and J. Youngsteadt and L. Hubricht.
24. *Pyrgulopsis ozarkensis* Hinkley (1916). Known only from the type locality, North Fork of the White River, 2-3 mi. above Norfolk, Baxter County; however, it may occur also in the White River in Missouri (M. Gordon, pers. comm.). The holotype (USNM 271765) was found in shallow water on bedrock on 14 August 1914.
25. *Somatogyrus amnicoloides* Walker (1915). Known only from the type locality, Ouachita River at Arkadelphia, Clark County, and collected by H. E. Wheeler. The type specimens (No. 40012) are retained by B. Walker. It is about the size and shape of *Amnicola* as suggested by the specific name (Walker, 1915).
26. *Somatogyrus crassilabris* Walker (1915). Type specimens (No. 38823, in the collection of B. Walker) were collected by A. A. Hinkley from Baxter County, North Fork of White River near Norfolk. It has been taken only from rocks on muddy banks of the North Fork.
27. *Somatogyrus wheeleri* Walker (1915). Known only from the type locality: Ouachita River at Arkadelphia, Clark County. Type specimens were collected by H. E. Wheeler but are in the collection of B. Walker (No. 33900).

Order Stylommatophora - Terrestrial Snails
Family Polygyridae

28. *Mesodon clenchi* (Rehder) (1932). The type locality is a White River bluff, 1 mi. below Calico Rock, Izard County. Known from Izard and Yell counties (Hubricht, 1972) where it has been found under ledges and around the edges of a rock slide (Hubricht, 1966).
29. *Mesodon magazinensis* Pilsbry and Ferris, 1906). Magazine Mountain Middle-toothed Land Snail. The holotype (ANSP 91314) was taken in a talus of large rocks under the cliff on the north side of the summit plateau, elevation about 2800 feet, Magazine Mountain, Logan County, on 28-30 March 1903 by H. A. Pilsbry and J. H. Ferris. The only other specimen was found dead on the south side of the mountain, near where the road ascends the cliff (Pilsbry and Ferris, 1906).
30. *Stenotrema unciferum* (Pilsbry). The only data available indicate restriction of this snail to Hot Spring, Montgomery, Pike, Polk, and Scott counties (Hubricht, 1972).
31. *Polygyra peregrina* Rehder. The only data available suggest this species inhabits rock bluffs in Izard, Marion, Newton, Searcy, and Stone counties (Hubricht, 1972).

Family Zonitidae

32. *Paravitrea (Vitrea) aulacogyra* (Pilsbry and Ferris, 1906). The holotype (ANSP 91334) was found in a talus on the north side of the summit of Magazine Mountain, Logan County

at about 2800 feet by H. A. Pilsbry. To date it has been collected only from the type locality.

Class Osteichthyes - Bony Fishes
Order Siluriformes - Catfishes
Family Ictaluridae - Freshwater Catfishes

33. *Noturus lachneri* Taylor (1969). Ouachita madtom. The holotype (USNM 201592) was taken on 27 May 1967 by Leslie and B. Knapp from the Middle Fork of the Saline River at Arkansas Highway 7 Crossing, 11.2 mi. N. of Mountain Valley. It is known from only the headwaters of the Saline River system and one location in the Ouachita River system (both systems in the Ouachita River Basin) in Garland, Saline, and Hot Spring counties and inhabits rather quiet, backwater areas with substrates ranging from cobblestone-sized rocks to small gravel to softer substrates in basically high-gradient, clear, gravel-bottomed streams.
34. *Noturus taylori* Douglas (1971). Caddo madtom. The holotype was collected on 5 March 1971 by N. H. Douglas, S. W. Fruge, D. Head, and J. Lindley from the South Fork of the Caddo River, 1.6 km SE of Hopper and 0.8 km S. of Arkansas Highway 240, Montgomery County. It has been found in the Caddo River system (its center of distribution), south in the Little Missouri River, and north in the upper Ouachita River including the South Fork of the Ouachita River in Montgomery, Pike, Polk, and Clark counties. Douglas (1972) described the habitat as clear, shallow water flowing over small rocks or gravel which produce shoals near the shoreline. Robison and Harris (1978) found *N. taylori* in shallow, gravel-bottomed pools in regions of moderate current. *N. taylori* seems to prefer moderate-sized streams (10-40 feet width).

Order Perciformes - Perches
Family Percidae

35. *Etheostoma moorei* Raney and Suttkus (1964). Yellowcheek darter. The holotype (USNM 188357) was collected on 26 April 1962 by L. W. Knapp and R. V. Miller from the Devil's Fork of the Little Red River, at a county road crossing 2.5 mi. SW of Woodrow and 6 airline mi. W. of Drasco, Cleburne County. *E. moorei* is known from the Middle Fork, South Fork, Archey Fork, and Devil's Fork of the Little Red River system above Greer's Ferry Lake where it prefers the faster section of riffles over gravel, rubble, and boulder-strewn bottoms in water depths of a foot or more (Raney and Suttkus, 1964).
36. *Etheostoma pallididorsum* Distler and Metcalf (1962). Paleback darter. The holotype was collected on 28 June 1961 by D. A. Distler and A. L. Metcalf from the Caddo River, 13.7 km (8.5 mi.) W. of Black Springs (Sec. 25, T3S, R27W), Montgomery County. The species is endemic to the upper Caddo River and upper Ouachita River system in Montgomery and Garland counties, where it inhabits tributary streams or small (4-12 ft. wide) portions of the upper Caddo River. It prefers slackwater habitats available along the edges of clear, spring-fed gravel-bottomed streams. In smaller rivulets it is found over soft-bottomed substrates of leaf litter, twigs and decaying detritus.
37. *Etheostoma spectabile fragi* Distler (1968). Strawberry River Darter. The holotype (KU 7481) was collected on 10 April 1963 by D. A. Distler and J. F. Downhower from Spring Creek, a tributary of Big Creek (Sec. 36, T16N, R5W), Sharp County. Distler (1968) reported it limited to the Strawberry River and its upland tributaries in northeastern Arkansas where it inhabits spring-fed, high-gradient, gravel-bottomed streams of the Strawberry River system.
38. *Etheostoma whipplei montanus* Hubbs and Black (1941). Mountain Redfin Darter. The holotype (UMMZ 127777) was collected on 17 June 1939 by J. D. Black and J. Yerton from Blue Hole Creek, a tributary of Clear Creek, 1 mi. S. of Winslow, Washington County. This percid is confined to Clear Creek (also called Frog Bayou), Arkansas River drainage, in Washington and Crawford counties where it is relatively abundant in upper, headwater reaches (Hubbs and Black, 1941). These environs are spring-fed, high-gradient, and shallow with small gravel to cobblestone-sized substrates.

Class Amphibia - Amphibians
Order Caudata - Salamanders
Family Plethodontidae - Lungless Salamanders

39. *Plethodon caddoensis* Pope and Pope (1951). Caddo Mountain Salamander. The holotype (CNHM 61959) was collected by S. H. Pope from Polk Creek Mountain (Caddo Mountains) at an elevation of 1200 feet. It is known from the Novaculite Uplift area in Howard, Montgomery, and Polk counties (Blair and Lindsay, 1965; pers. records) and is limited to mixed pine-oak forest on slopes with exposed rocky talus projecting through the soil (Pope and Pope, 1951).
40. *Plethodon fourchensis* Duncan and Highton (1979). Fourche Mountain Salamander. The holotype (USNM 204835) was taken from 1.5 km W., 0.3 km S. of the top of Wolf Pinnacle Mountain, Polk County on 9 October 1976 by R. Beatson, S. B. Hedges, R. Highton, and D. M. Rosenberg. *P. fourchensis* is known only from Fourche Mountain and Irons Fork Mountain, Polk and Scott counties (Duncan and Highton, 1979) where it occurs in mixed pine-oak forest under talus and decaying logs.

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