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RECENT MOLLUSCA OF ARKANSAS WITH ANNOTATIONS TO SYSTEMATICS AND ZOOGEOGRAPHY

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ABSTRACT

A total of 223 taxa of Mollusca are presently known from Arkansas. The geological history and geomorphology of the region, particularly the presence of the Interior Highlands, have been responsible for the development of a diverse molluscan fauna. Thirty regionally endemic forms are included among the 107 terrestrial gastropods, 36 aquatic gastropods, 65 unionacean mussels, and 15 sphaeriacean clams.

INTRODUCTION

The first survey of Arkansas Mollusca was Sampson's (1893, 1894) report of the Gastropoda and Sphaeriidae. The Unionidae were cataloged by Call (1895). Since these initial reports, there have been few comprehensive publications concerning Arkansas mollusks. During the interim, limited species surveys, several species descriptions, and various miscellaneous studies have appeared periodically (e.g. Ortmann and Walker, 1912; Wheeler, 1914, 1918; Rehder, 1932; Kraemer, 1970; Gordon et al. 1980a). Recently, Hubricht (1972) published a fairly comprehensive list (89 taxa) of terrestrial gastropods and Gordon et al. (1980b) presented a historical review and consideration of the regional distribution patterns of the Unionacea with respect to Arkansas.

METHODS AND RESULTS

The molluscan fauna of Arkansas has been investigated by personal collecting and examination of major museum collections (see Gordon et al. 1980a, b). This has been augmented by published records which are either based on museum reference collections or may be collaborated by more than one published account. Nomenclature follows Burch (1962) and Hubricht (1972) for the terrestrial Gastropoda; Baker (1911), Goodrich (1939), Clench (1962), Clench and Fuller (1965), Clarke (1973), and Thompson (*pers. comm.*) for aquatic Gastropoda; Ortmann and Walker (1922), Clarke (1973), and Gordon et al. (1980b) for the Unionacea; and Herrington (1962) and Burch (1975) for the Sphaeriacea.

A total of 223 taxa of Mollusca are presently known from Arkansas. This represents 107 terrestrial Gastropoda (Table 1), 36 aquatic Gastropoda (Table 2), and 80 Bivalvia (Table 3). The bivalves include 65 unionacean mussels and 15 sphaeriacean clams, five of which are listed provisionally. Fifteen terrestrial gastropods, seven aquatic gastropods, and eight unionaceans are endemic within the Interior Highlands. No endemic sphaeriaceans are known. Some annotations are necessary for several species. These are as follows:

1. Subspecific nomenclature represents geographic subspecies and not ecophenotypic variation.
2. Current research and revision of the Succineidae will probably result in a reduction of species through synonymy (Wu, *pers. comm.*).
3. *Somatogyrus wheeleri* and *S. amnicoloides* appear to be known only by the type specimens. These species were collected together at the same locality. Further study may show them to be conspecific. The type locality is now receiving hypolimnetic release from DeGray Reservoir.
4. Four ecophenotypes of *Goniobasis potosiensis* have been described as subspecies. The forms known as *plebeius* Anthony,

the typical form, and *crandalli* Pilsbry, a stunted form with rounded whorls from Mammoth Springs, Fulton County, occur in Arkansas.

5. The taxonomy of *Anculosa arkansensis* is unclear. Goodrich (1939) stated that its general appearance was close to *Nitocris trilineata*. The shell of specimens I collected from tributaries of the North Fork of the White River are similar to *Nitocris*. Anatomical examination will be necessary before the generic position of this species can be confirmed. If a *Nitocris* species, this may represent a relict population of a previously described species.
6. Te (1975) has concluded that *Physa anatina* Lea is a form of *P. virgata*.
7. Clarke (1973) has concluded that *Fusconaia undata* (Barnes) is more than likely the large river ecophenotype of *F. flava*.
8. *Pleurobema cordatum* includes a complex group of ecophenotypes that have generally been given subspecific status. These include, by increasing inflatedness of the shell, *coccineum* Conrad (also known as *missouriensis* Marsh), *catillus* Conrad, *plenum* Lea, and *pyramidatum* Lea (Ortmann, 1919).
9. *Anodontia grandis* is a substantially variable species with several ecophenotypes. Synonymized here is the slough form *corpulenta* Cooper.
10. Strophitini is proposed as a new tribe within the unionid subfamily Anodontinae. The basis for this division is the digenae arrangement of the marsupium in the outer gill. Ortmann (1912) considered this to be the most advanced gill form in the Anodontinae. *Strophitus*, previously classified in the Anodontini (Clarke, 1973), is the only genus in the Unionacea that has this form of gill. Ortmann (1912) noted some similarities in the anatomy (primarily pigmentation) and the shell (beak sculpture and other undefined characters) to the *Alasmidonta*. The shell is not necessarily a good phylogenetic character (Heard and Guckert, 1970); however, the general outline of *Strophitus* often resembles that of the *Alasmidontini*. Vestigial swellings in the area of the pseudocardinals suggest an association with the *Alasmidontini* in which the pseudocardinals are single in both valves and the interdentum of the left valve is reflected into a tooth-like structure. These dental characters appear to hold true throughout the *Alasmidontini*. In *Strophitus*, the vestigial swellings correspond to the position of the single pseudocardinals and the reflected interdentum. The tribe is monogeneric — *Strophitus*.
11. *Actinonaia carinata* includes a form known as *gibba* Simpson. This is probably an ecophenotypic variation.
12. The shell of *Actinonaia ellipsiformis pleasii* is distinct from *A. e. ellipsiformis*. It is geographically restricted to the White River system of the Ozark Plateaus in which *A. e. ellipsiformis* is not distributed. *Actinonaia ellipsiformis pleasii* appears to be a true subspecies, if not a separate species.

13. *Lampsilis reeveiana* (Lea) is recognizable from its type description and lithograph. The holotype is extant in the U.S. National Museum of Natural History (USNMNH 8505). Previous difficulty in identifying this endemic Ozark Plateaus species has been partially due to Lea's (1852) mispublication of the type locality: Alexandria, Louisiana. This should be White River, Arkansas. *Reeveiana* has 35 years priority to Call's (1887) *brevicula*.
14. Most of the specimens of *Lampsilis ovata* found in Arkansas are the form known as *ventricosa* Barnes; although, some specimens are occasionally referred to as *satura* Lea. *Ventricosa* is the small river ecophenotype (Ortmann, 1919; van der Schalie, 1938). The relationship of *satura* is not presently known, it may be a southern cline of *ventricosa*. Clarke (1973) applies *ventricosa* only at an infraspecific level.
15. The taxonomy of *Lampsilis orbiculata* and *L. higginsii* is unclear. They are quite similar in appearance and have variously been considered separate species, subspecies, and the same species (Simpson, 1914; Ball, 1922; Baker, 1928; van der Schalie and van der Schalie, 1950; Parmalee, 1967). *Lampsilis higginsii* is the Mississippi River counterpart of *L. orbiculata* of the Ohio River system. Simpson (1914) identified a subspecies of *L. higginsii* that he considered intermediate between the two "species." Buchanan and Oesch (*pers. comm.*) recently have collected both forms from rivers in Missouri that flow into Arkansas (Little Black and St. Francis rivers). The presence of both forms in southern Missouri and Arkansas is quite possible when the former channels of the Mississippi and Ohio rivers are examined (see Gordon et al. 1980b). For the present, the two forms are listed as separate species.

Table 1. Arkansas Terrestrial Gastropoda.

Subclass Prosobranchia Edwards	Suborder Sigmurethra Pilsbry	Subfamily Gastrodantinae Tryon
Order Archaeogastropoda Thiele	Family Philomycidae Keferstein	<i>Ventridens demissus</i> (Binney)
Family Helicinidae Ferrussac	<i>Philomycus carolinianus</i> (Bosc)	<i>V. ligera</i> (Say)
<i>Helicina (Oligyra) orbiculata</i> (Say)	<i>Pallifera hemphilli marmorata</i> Pilsbry	<i>Zonitoides arboreus</i> (Say)
Subclass Pulmonata Cuvier	<i>P. mutabilis</i> Hubricht	<i>Striatura (Pseudohyalina) meridionalis</i>
Order Basommatophora Keferstein	<i>P. ragsdalei</i> (Webb)	(Pilsbry and Ferriss)
Family Carychiidae Jeffreys	Family Enodontidae Pilsbry	Family Haplotrematidae Baker
<i>Carychium exiguum</i> (Say)	Subfamily Enodontinae Pilsbry	<i>Haplotrema concavum</i> (Say)
Order Stylommatophora Schmidt	<i>Anguispira alternata</i> (Say)	Family Bulimulidae Pilsbry
Suborder Orthurethra Pilsbry	<i>A. strongyloides</i> (Pfeiffer)	<i>Bulimulus (Rhabdotus) dealbatus</i> (Say)
Family Cionellidae Koblet	<i>Discus patulus</i> (Deshayes)	Family Polygyridae Pilsbry
<i>Cionella lubrica</i> (Muller)	Subfamily Helicodiscinae Pilsbry	Subfamily Polygyrinae Pilsbry
Family Valloniidae Morse	<i>Helicodiscus (Helicodiscus) parallelus</i> (Say)	<i>Polygyra (Daedalochila) leporena</i> (Gould)
<i>Vallonia perspectiva</i> Sterki	<i>H. (Hebetodiscus) singleyanus</i> (Pilsbry)	<i>P. (D.) texasiana</i> (Moricand)
Family Pupillidae Turton	<i>H. (?) jacksoni</i> Hubricht	<i>P. (D.) tridentoides</i> (Bland)
Subfamily Pupillinae Pilsbry	<i>H. (?) notius</i> Hubricht	<i>P. (D.) dorfeuilliana</i> Lea
<i>Pupoides albilabris</i> (Adams)	Subfamily Punctinae Morse	<i>P. (D.) jacksoni</i> (Bland) ¹
Subfamily Gastrocoptinae Pilsbry	<i>Punctum (Punctum) minutissimum</i> (Lea)	<i>P. (D.) peregrina</i> Rehder ¹
<i>Gastrocopta (Gastrocopta) pellucida</i>	<i>P. (Toltecia) vitreum</i> Baker	<i>P. (?) lithica</i> Hubricht
<i>hordencella</i> (Pilsbry)	Family Limacidae Gray	<i>Stenotrema (Stenotrema) stenotrema</i>
<i>G. (G.) procera</i> (Gould)	Subfamily Limacinae Gray	(Pfeiffer)
<i>G. (G.) rupicola</i> (Say)	<i>Limax flavus</i> Linnaeus	<i>S. (S.) labrosum</i> (Bland) ¹
<i>G. (Albinula) armifera</i> (Say)	<i>Lehmannia poirieri</i> (Mabille)	<i>S. (S.) pilsbryi</i> (Ferriss) ¹
<i>G. (A.) contracta</i> (Say)	<i>Deroceras laeve</i> (Muller)	<i>S. (S.) blandianum</i> (Pilsbry) ¹
<i>G. (A.) holzingeri</i> (Sterki)	Subfamily Milacinae Cockerell	<i>S. (S.) unciniferum</i> (Pilsbry) ¹
<i>G. (Vertigopsis) tappaniana</i> (Adams)	<i>Milax gagates</i> (Draparnaud)	<i>S. (Euchemotrema) fraternum</i> (Say)
<i>G. (Privatula) corticaria</i> (Say)	Family Zonitidae Pilsbry	<i>S. (E.) leai</i> (Binney)
Subfamily Vertigininae Thiele	Subfamily Zonitinae Pilsbry	<i>Practicolella berlandieriana</i> (Moricand)
<i>Vertigo (Vertigo) ovata</i> Say	<i>Retinella (Glyphyalus) wheateleyi</i> (Bland)	<i>Mesodon (Mesodon) clausus</i> (Say)
<i>V. (V.) rugosula</i> Sterki	<i>R. (G.) lewisiana</i> (Clapp)	<i>M. (M.) thyroideus</i> (Say)
<i>V. (V.) tridentata</i> Wolf	<i>R. (Glyphalinia) indentata</i> (Say)	<i>M. (M.) zaleus</i> (Binney)
<i>V. (Angustula) milium</i> (Gould)	<i>R. (G.) laticola</i> Hubricht	<i>M. (M.) elevatus</i> (Say)
<i>V. (Vertillaria) oscariana</i> Sterki	<i>R. (G.) solida</i> (Baker)	<i>M. (M.) binneyanus</i> (Pilsbry) ¹
Family Strobilopsidae Jooss	<i>Mesomphix (Omphalina) capnodes</i> (Binney)	<i>M. (M.) clenchi</i> (Rehder) ¹
<i>Strobilops (Strobilops) aenea</i> Pilsbry	<i>M. (O.) cupreus</i> (Rafinesque)	<i>M. (M.) indianorum</i> (Pilsbry) ¹
<i>S. (S.) labyrinthica</i> (Say)	<i>M. (O.) friabilis</i> (Binney)	<i>M. (M.) kiowaensis</i> (Simpson) ¹
<i>S. (S.) texasiana</i> (Pilsbry and Ferriss)	<i>M. (?) globosus</i> (Macmillan)	<i>M. (M.) roemeri</i> (Pfeiffer)
Suborder Heterurethra Pilsbry	<i>Paravitrea (Paravitrea) significans</i>	<i>M. (Patera) perigraptus</i> Pilsbry
Family Succineidae Beck	(Bland)	<i>M. (Inflctarius) inflctus</i> (Say)
<i>Succinea (Novisuccinea) ovalis</i> Say	<i>P. (P.) simpsoni</i> (Pilsbry) ¹	<i>M. (I.) magazinensis</i> (Pilsbry and Ferriss) ¹
<i>S. (Calcisuccinea) concordialis</i> Gould	<i>P. (P.) aulacogyra</i> (Pilsbry and Ferriss) ¹	Subfamily Triodopsinae Pilsbry
<i>S. (C.) luteola</i> Gould	<i>P. (P.) petrophila</i> (Bland)	<i>Triodopsis (Triodopsis) cragii</i> Call ¹
<i>S. (?) indiana</i> Pilsbry	<i>P. (Paravitreops) multidentata</i> (Binney)	<i>T. (T.) neglecta</i> (Pilsbry) ¹
<i>S. (?) witteri</i> Shimek	<i>Hawaii minuscula</i> (Binney)	<i>T. (T.) vultuosa</i> (Gould)
<i>Catinella avara</i> (Say)	Subfamily Euconulinae Baker	<i>T. (Xolotrema) fosteri</i> (Baker)
<i>C. oklahomarum</i> (Webb)	<i>Euconulus chersinus</i> (Say)	<i>T. (X.) obstricta</i> (Say)
<i>C. texana</i> Hubricht	<i>Guppya sterkii</i> (Dall)	<i>T. (Neohelix) albolabris</i> (Say)
<i>C. vermeta</i> (Say)		<i>T. (N.) divesta</i> (Gould)
<i>C. wandae</i> (Webb)		<i>T. (N.) multilineata</i> (Say)
<i>Oxyloma (Neoxyloma) salleana</i> (Pfeiffer)		

¹Endemic to the Interior Highlands Region.

Table 2. Arkansas Aquatic Gastropoda.

<p>Subclass Prosobranchia Edwards Order Mesogastropoda Thiele Superfamily Viviparacea Family Viviparidae Gray Subfamily Viviparinae Gill <i>Viviparus subpurpureus</i> (Say) <i>V. intertextus</i> (Say) <i>V. georgianus</i> (Lea) Subfamily Lioplacinae Gill <i>Lioplax suculosa</i> (Menke) <i>Cameloma subsolidum</i> (Anthony) Superfamily Rissoacea Family Hydrobiidae Troschel Subfamily Hydrobiinae Troschel <i>Cincinnatia integra</i> (Say) <i>Probythinella binneyana</i> (Hannibal) <i>Pyrgulopsis ozarkensis</i> Hinkley¹ Subfamily Lithoglyphinae Fischer <i>Somatogyrus crassilabris</i> Walker¹ <i>S. subglobosus</i> (Say) <i>S. wheeleri</i> Walker² <i>S. amnicoloides</i> Walker²</p>	<p>Subfamily Amnicolinae Tryon <i>Amnicola cora</i> Hubricht¹ Family Pomatiopsidae Stimpson <i>Pomatiopsis lapidaria</i> (Say) Superfamily Cerithacea Family Pleuroceridae Fischer <i>Lithasia verrucosa</i> (Rafinesque) <i>Pleurocera alveare</i> (Conrad) <i>P. canaliculatum</i> (Say) <i>P. acuta</i> Rafinesque <i>Goniobasis potosiensis</i> Lea³ <i>Anculosa arkansensis</i> Hinkley¹ Subclass Pulmonata Cuvier Order Basommatophora Kieferstein Superfamily Lymnaea Family Lymnaeidae Rafinesque <i>Lymnaea (Pseudosuccinea) columella</i> (Say) <i>L. (Fossaria) humilis</i> (Say) <i>L. (F.) obrussa</i> (Say) <i>L. (Bakerilymnaea) bulimoides</i> (Lea)</p>	<p>Superfamily Physacea Family Physidae Fitzinger <i>Physa gyrina</i> Say <i>P. virgata</i> Say Superfamily Planorbacea Family Planorbidae Rafinesque Subfamily Planorbinae Rafinesque Tribe Planorbini <i>Gyraulus parvus</i> (Say) Tribe Helisomatini <i>Promenetus exacuus</i> (Say) <i>Menetus (Micromenetus) dilatatus</i> (Gould) <i>Helisoma (Helisoma) anceps</i> (Menke) <i>H. (Piersoma) trivolvis</i> (Say) Family Ancyliidae Rafinesque <i>Laevapex fuscus</i> (Adams) <i>L. diaphanus</i> (Haldeman) <i>Ferrissia rivularis</i> (Say) <i>F. walkeri</i> (Pilsbry and Ferriss) <i>F. fragilis</i> (Tryon)</p>
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¹Endemic Interior Highlands species restricted to the Ozark Plateaus.

²Endemic Interior Highlands species restricted to the Ouachita Mountains.

³Endemic Interior Highlands species.

Table 3. Arkansas Bivalvia.

<p>Order Eulamellibranchia Superfamily Unionacea Family Margaritiferidae Subfamily Cumberlandiinae <i>Cumberlandia monodonta</i> (Say) Family Unionidae Subfamily Ambleminae Tribe Amblemini <i>Fusconaia flava</i> (Rafinesque) <i>F. ebena</i> (Lea) <i>F. ozarkensis</i> (Call)¹ <i>Amblema plicata</i> (Say) <i>Quadrula pustulosa</i> (Lea) <i>Q. nodulata</i> (Rafinesque) <i>Q. quadrula</i> (Rafinesque) <i>Q. metanevra</i> (Rafinesque) <i>Q. cylindrica</i> (Say) <i>Tritogonia verrucosa</i> (Rafinesque) <i>Plectomerus dombeyanus</i> (Valenciennes) Tribe Megalonaiaidini <i>Megalonaia gigantea</i> (Barnes) Subfamily Unioninae Tribe Pleurobemini <i>Cyclonaias tuberculata</i> (Rafinesque) <i>Pleurobema cordatum</i> (Rafinesque) <i>Elliptio dilatatus</i> (Rafinesque) <i>Unio merus tetralasmus</i> (Say) Subfamily Anodontinae Tribe Alasmidontini <i>Lasmigona (Pterosyna) complanata</i> (Barnes) <i>L. (Lasmigona) costata</i> (Rafinesque) <i>Alasmidonta (Pressodonta) calceola</i> (Lea) <i>A. (Decurambis) marginata</i> Say <i>Arcidens confragosus</i> (Say)</p>	<p><i>Arkansia wheleri</i> Ortmann and Walker² Tribe Anodontini <i>Anodonta (Pyganodon) grandis</i> Say <i>A. (Utterbackia) imbecilis</i> Say <i>A. (U.) suborbiculata</i> Say <i>Andontoides ferussacianus</i> (Lea) <i>Simpsoniconcha ambigua</i> (Say) Tribe Strophitini n. t. <i>Strophitus undulatus</i> (Say) Subfamily Lampsilinae Tribe Ptychogenini <i>Ptychobranhus occidentalis</i> (Conrad)³ Tribe Mesogenini <i>Obliquaria reflexa</i> Rafinesque <i>Cyprogenia aberti</i> (Conrad)³ Tribe Heterogenini <i>Obovaria olivaria</i> (Rafinesque) <i>O. jacksoniana</i> Frierson <i>Actiononaias carinata</i> (Barnes) <i>A. ellipsiformis ellipsiformis</i> (Conrad) <i>A. ellipsiformis pleasii</i> (Marsh)¹ <i>Truncilla truncata</i> Rafinesque <i>T. donaciformis</i> (Lea) <i>Plagiola lineolata</i> Rafinesque <i>Leptodea leptodon</i> (Rafinesque) <i>L. fragilis</i> (Rafinesque) <i>Proptera laevissima</i> (Lea) <i>P. purpurata</i> (Lamarck) <i>P. capax</i> (Green) <i>Carunculina parva</i> (Barnes) <i>C. texasensis</i> (Lea) <i>C. glans</i> (Lea) <i>Villosa arkansasensis</i> (Lea)² <i>V. lienosa</i> (Conrad) <i>V. iris</i> (Lea)</p>	<p><i>Ligumia subrostrata</i> (Say) <i>L. recta</i> (Lamarck) <i>Lampsilis anodontoides</i> (Lea) <i>L. radiata siliquoides</i> (Barnes) <i>L. hydiana</i> (Lea) <i>L. reeveiana</i> (Lea)¹ <i>L. streckeri</i> Frierson <i>L. rafinesquana</i> Frierson¹ <i>L. ovata</i> (Say) <i>L. orbiculata</i> (Hildreth) <i>L. higginsii</i> (Lea) <i>Dysnomia (Truncillopsis) triquetra</i> (Rafinesque) <i>D. (Torulosa) florentina</i> (Lea) <i>D. (T.) turgidula</i> (Lea) Superfamily Sphaeriacea Family Corbiculidae <i>Corbicula cf. fluminea</i> (Muller) Family Sphaeriidae <i>Sphaerium striatinum</i> (Lamarck) <i>Musculium lacustre</i> (Muller) <i>M. partumeium</i> (Say) <i>M. securis</i> (Prime) <i>M. transversum</i> (Say) <i>Pisidium (Cyclocalyx) casertanum</i> (Poli) <i>P. (C.) compressum</i> Prime <i>P. (C.) fallax</i> Sterki <i>P. (C.) variabile</i> Prime <i>P. (C.) adamsi</i> Stimpson (Hinkley, 1916) <i>P. (C.) nitidum</i> Jenyns (Burch, 1975) <i>P. (Neopisidium) cruciatum</i> Sterki (Sterki, 1916) <i>P. (N.) punctatum</i> Sterki (Hinkley, 1916) <i>P. (Pisidium) dubium</i> (Say) (Sampson, 1893, 1894; Hinkley, 1916)</p>
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¹Endemic Interior Highlands species restricted to the Ozark Plateaus and some adjacent areas.

²Endemic Interior Highlands species restricted to the Ouachita Mountains.

³Endemic Interior Highlands species.

16. The first four listed *Pisidium* (see Table 3) are confirmed identifications (Gordon et al. 1980c). The remaining species are provisionally included on the authority of the references following the species name.

DISCUSSION

The geographical distribution of species richness in mollusks is similar to that of crayfish (see Hobbs in Pennak, 1978). The development of the North American molluscan fauna appears to have been centered in the highlands (Cumberland Region) of the southeastern United States (Walker, 1917; van der Schalie and van der Schalie, 1950); although, an old world derived fauna is prevalent west of the Continental Divide (Simpson, 1895; van der Schalie and van der Schalie, 1950). The number of species that have inhabited the Cumberland Region has been illustrated by Ortmann (1924, 1925) and van der Schalie (1939). Walker (1917), van der Schalie and van der Schalie (1950), Johnson (1978), and Gordon et al. (1980b) have shown that the Cumberland Region and the Interior Highlands are geologically related, have been physically connected, and were influenced by similar factors (e.g. geological uplifts, isolation, geographical shift of river systems). The past connection with the Cumberland Region, the geological age of the Interior Highlands, and their function as a biological refugium during the Cretaceous and Pleistocene (Gordon et al. 1980b) have resulted in the development of a diverse molluscan fauna in Arkansas. This fauna is distinguished by endemic species and relict populations.

The primary component of the present Arkansas mollusks is from the Interior Basin or Mississippian fauna. Endemism of the Mollusca within the Interior Highlands has been somewhat limited when compared to the Cumberland Region. However, distinct trends are represented for several groups. Fifteen terrestrial gastropods have been listed as endemic (see Table 1). Of these, the majority of species are from the family Polygyridae and are primarily restricted to the Ouachita Mountains. Species, such as *Masodon magazinensis* and *Stenotrema pilsbryi*, are restricted to single mountains (e.g. Mt. Magazine and Rich Mountain, respectively). The Hydrobiidae contains most of the endemic aquatic Gastropoda. In the Ozark Plateaus, several endemic hydrobiids have adapted to cave environments (Hubricht, 1950, 1979; Nordstrom et al. 1977). The endemic, epigeal hydrobiids appear to be known only from their type localities. At present, no endemic sphaeriids are known. However, a varied endemic unionid fauna has persisted, primarily within the Lampsiliinae. This is fairly consistent with the Cumberland fauna; although, to a lesser degree. The Cumberland association is supported by the endemic *Fusconia ozarkensis*, which Ortmann (1917) grouped with the Cumberlandian *F. barnesiana*. Other Cumberland affinities include relict populations of *Cumberlandia monodonta*, *Dyonmia triquetra*, *D. florentina* (formerly *Truncilla curtisii* Frierson and Utterback), *D. turgidula* (formerly *T. lefevrei* Utterback), and the presence of several pleurocerid species, including the endemic *Goniobasis potosiensis*. Other relicts, but of a southern origin, may include *Lampsilis streckeri* and *Arkansia wheeleri*. Needs for further study are indicated by recent faunal additions (Hubricht, 1979; Gordon et al. 1980c) and have been addressed by Gordon et al. (1980b).

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