THE STATUS OF EPIOBLASMA PENITA (CONRAD, 1834)

(MOLLUSCA: BIVALVIA: UNIONOIDA)

bу

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for

Office of Endangered Species Fish and Wildlife Service U.S. Department of the Interior Jackson, Mississippi Office

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# EPIOBLASMA PENITA (CONRAD, 1834)

#### Southern Comb Shell

### Synonymy

Unio penitus Conrad, 1834.

Original Description: New fresh water shells of the United

States, with colored illustrations, and a monograph of the Genus Anculotus of Say: also a synopsis of the American naiades. Philadelphia, pp. 33-34, pl. 5, fig. 1.

Type Locality: "Inhabits the Alabama river [sic], near Claiborne [Monroe County], and is rare." (Conrad, 1834:34).

Type Material: "Figured holotype ANSP 59860." (Johnson and Baker, 1973:165).

Etymology: Conrad (1834:33-34) does not give his reason(s) for selecting the name penitus. The Latin word renitus, however, means "inward" or "interior" (Jaeger, 1955:187), and may be translated as referring to the interior of the shell. Conrad (1834:34), in fact, emphasizes characteristics of the cardinal teeth, cicatrices, nacre and cavity of the interior of the shell in his description of this species.

Margarita (Unio) penitus (Conrad, 1834).

(Lea, 1836:19)

Margaron (Unio) penitus (Conrad, 1834).

(Lea, 1852:24)

Truncilla penita (Conrad, 1834).

(Simpson, 1900:518)

Dysnomia\* penita (Conrad, 1834).

(Frierson, 1927:93)

Epioblasma\*\* penita (Conrad, 1834). (Stansbery in Boschung, 1976:48)

Plagiola (Plagiola) penita (Conrad, 1834) in partim

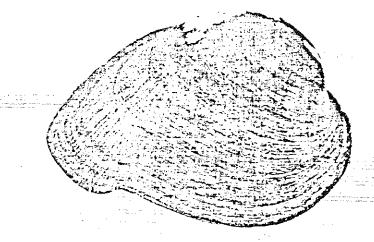
(Johnson, 1978:254-255)

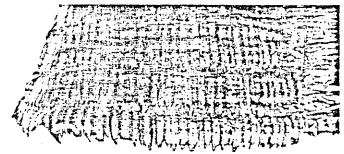
# Taxonomic Status

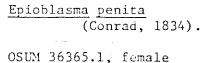
Taxonomic problems are not surprising when dealing with one or more of a series of sibling species. This is especially true when some or all of the species involved occupy different parts of the same drainage system. If one or more of the species is (are) rare the problems are even further compounded due to the lack of available material for study. Epioblasma penita belongs to a group having all of these characteristics.

<sup>\*</sup>The name Dysnomia Agassiz, 1852 was first used as a generic name in recent years by Ortmann and Walker, 1922:65.

<sup>\*\*</sup>The name Epioblasma Rafinesque, 1831 was first used in recent years by Clench in Edmondson, 1959:1157.

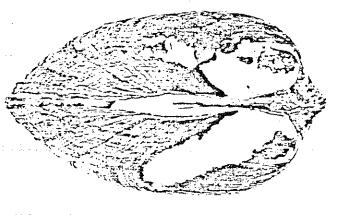


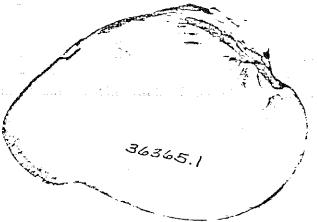


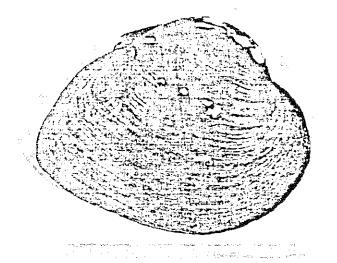


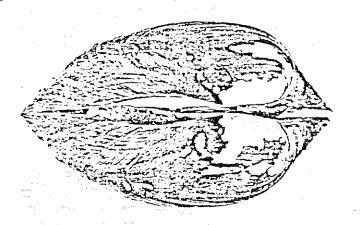
Tombigbee River about 5 mi. N of Gainesville, Sumter/Greene Co., -Alabama. 8 June 1972.

Length = 55 mm Height = 36 mmWidth = 31 mm









Epioblasma penita (Conrad, 1834).

OSUM 36365.2, male

Tombigbee River about 5 mi. N of Gainesville, Sumter/Greene Co., Alabama.
8 June 1972.

Length = 61 mmHeight = 44 mmWidth = 36 mm



Epioblasma penita is the type species of the subgenus Penita Frierson, 1927. The described forms within this subgenus are: Unio brevidens Lea, 1831; Unio penitus Conrad, 1834; Unio metastriatus Conrad, 1838 and Unio compactus Lea, 1859.

Obliquaria (Plagiola) interrupta Rafinesque, 1820, Unio othealoogensis Lea, 1857 and Unio modicellus Lea, 1859 were placed in this group by Johnson (1978:254-255) but are other taxa as follows:

Obliquaria (Plagiola) interrupta Rafinesque, 1820 is a synonym of Obliquaria (Ellipsaria) fasciolaris Rafinesque, 1820, as can be determined by a comparison of the original description with the characteristics of Ptychobranchus fasciolaris. This fact may require a different name for the Genus Ptychobranchus Simpson, 1900, but is not a matter to be dealt with here.

Unio othealoogensis Lea, 1857 is a distinct species (Epioblasma othealoogensis) which does not belong to the subgenus Penita.

Unio modicellus Lea, 1859 is a junior synonym of Unio othealcogensis. The figured holotype of U. othealcogensis is a young female while the figured holotype of U. modicellus is a male of this species.

The northern E. brevidens is morphologically distinct from the species of this subgenus in the Mobile River drainage and has a range which does not include any streams in this basin.

Of the three described forms of the subgenus Penita in the Mobile system, Unio compactus is generally agreed (Frierson, 1927:93) (Haas, 1969: 482) (Stansbery, 1976:49) to be a synonym of E. metastriata. Johnson (1978:254-255), however, places this name in the synonymy of Plagiola (Plagiola) penita along with that of Unio metastriatus and others dealt with above. A careful examination of E. penita and E. metastriata reveals the two to have consistent morphological differences. The posterior outline of female E. penita is diagonally straight and terminates at the postventral extreme of the shell. The posterior outline of female E. metastriata is rounded and terminates beneath the pallial expansion on the ventral margin of the shell anterior to the posterior extreme.

Thus the subgenus *Penita* has only two sibling species in the Mobile basin: *E. penita* and *E. metastriata*. The problem here appears to be one of discerning between sibling species where the available material is scant. There is little doubt, however, that *E. penita* is a valid species. The only question remaining in the minds of some is whether or not *Unio metastriatus*, *Unio othealoogensis*, *Unio modicellus* and *Unio compactus* are synonyms of *E. penita*. It is my opinion that they are not.

### Nomenclatorial Status

The name penita has been used for this species since the time of its original description by Conrad in 1834. The only older species in the subgenus Penita is brevidens, described by Lea in 1831. I know of no evidence that penita and brevidens are conspecific. Thus the specific part of the scientific name appears to be very stable.

As in most North American unionid species with complete hinge dentition,

Unio penitus was retained in the Genus Unio until Simpson's Synopsis of the Naiades ... in 1900. Since that time penita has been used in combination with four different generic names (Truncilla Rafinesque, 1820; Plagiola Rafinesque, 1820; Epioblasma Rafinesque, 1831; Dysnomia Agassiz, 1852) as systematists struggled to develop an accurate classification for a group of poorly known and highly variable animals. The generic names Truncilla and Plagiola are both typed upon species (truncata Rafinesque, 1820 and interrupta Rafinesque, 1820 respectively) which belong to different genera than does E. penita. Epioblasma Rafinesque, 1831 has priority over Dysnomia Agassiz, 1852, and both have the same species, Epioblasma flexuosa (Rafinesque, 1820) as their type.

Thus the current name <code>Epioblasma</code> penita is stable unless it becomes necessary to elevate the subgenus <code>Penita</code> to generic rank. The very fact that the <code>Genus</code> <code>Epioblasma</code> has been divided into subgenera (Simpson, 1900: 517-524) (Walker, 1918:80-83) makes this a stronger probability than otherwise but the fact that there is substantial uncertainty in this undertaking indicates that it may be some time before such action is taken. Even so the nomenclatorial change would simply be from <code>Epioblasma</code> penita to <code>Penita</code> penita. Stability in the species part of the name, where it is important, would be preserved.

#### Diagnostic Characteristics

Although Lea early (1863:440) described the gross anatomy of the soft parts of *E. penita*, so few of the *Epioblasma* have had their soft parts studied that this information is of little value currently for comparative diagnostic purposes. Lea (1863:440) does mention that the [female] mantle is "furnished below the branchial opening with minute papillae and with a small white fleshy mass, on each side, of a sigmoid form, rounded at the bottom and pointed at the top, and furnished with some crenulations in the middle, outside of which there is a small, expanded, nearly black flap." Unfortunately there is no drawing or photograph of this unusual structure. Ortmann (1912:357) notes that he has "not seen anything like it in *T. triquetra*," but I have seen similar structures in both *E. brevidens* and *E. metastriata* indicating that this feature may be diagnostic for the soft parts of the females of this subgenus.

Fortunately there are shell characters, at least in the case of female individuals, that appear to be diagnostic of this species. Walker (1910:77) characterizes these species through the construction of keys, one for male individuals and one for females. The summation of characteristics used to identify the  $E.\ penita$  in each key would constitute a diagnosis of each sex respectively of this species. Walker's summation (1910:79-80) for the female shell of  $E.\ penita$  is as follows:

- 3. Posterior ridge roundly inflated and curved forward . . . 5

5. Base of expansion distinctly projecting beyond

However, 2 and 3 above conflict with 6 and render this diagnosis confusing at best. A relatively simple diagnosis may be the best. I have noticed that each female of the subgenus Fenita has a different outline. They may be characterized as follows:

Posterior margin having an indentation or constriction Epioblasma brevidens (Lea, 1831).

Posterior margin rounded Epioblasma metastriata (Conrad. 1838).

Posterior margin a diagonal straight line Epioblasma penita (Conrad, 1834).

The above diagnosis could easily be expanded but only with the risk of becoming more involved and, perhaps, confusing.

#### Former Distribution

Conrad described *E. penita* from the Alabama River near Claiborne, Monroe County, Alabama in 1834. In 1870 in the fourth and last edition of his <u>Synopsis of the Family Unionidae</u> Lea includes a "Geographical Distribution..." and lists "penitus" as simply "Alabama river[sic]." Simpson (1900:518) has "penita" from "Alabama and Tombigbee river [sic] drainage." In his descriptive catalog of the naiades Simpson (1914:8-9) has the range as "Lower Alabama and Tombigbee River drainage." Haas (1969:481) seems to have simply translated Simpson's range into German: "Gebiete der Alabama - und Tombigbee-Flusse," while Burch (1975:18, 112) has copied Simpson verbatim. Hurd (1974) searched six of the major museums of the United States for unionid records in his work on the Coosa River fauna and found only 22 lots of penita. These persuaded him to list the range as "Mobile River system" and I find at least nine of these lots plotted on his Coosa River distribution map for this species. This constitutes a major addition to our knowledge of the range of penita.

The Smithsonian collection has five lots of one specimen each of this species (see appendix). Two are from the Tombigbee River, two are from the Alabama River and one is from the Cahaba River, Perry Co., Alabama. All were apparently collected at some time during the last century. Van der Schalie (1938) in his study of Cahaba River unionids did not record E. penita, leaving us with the single record for this river being the specimen in the National Museum.

Recent collections (1971-1975) by Williams, et al. and Yokley (1975) from the main stem of the Tombigbee and by Yokley (1978) from the Butta-hatchie River have established that  $E.\ penita$  was living there at the time of those studies.

All 37 lots of E. penita in OSUM are from the Tombigbee River or one

of its tributaries.

Johnson (1978) has recently completed a study of this genus (under the generic name Plagiola) in which he lists species records from seven major museum collections. This does not help here, however, since Johnson places both E. metastriata and E. otherwise into the synonymy of E. penita. His records are consequently for individuals of the subgenus Penita rather than for E. penita alone.

The above literature and museum records reveal *E. panita* to have been found entirely within the Mobile River basin. The greatest development and concentration was apparently in the Tombigbee River system but the range extended, however diffusely, into the Alabama River proper and up into the Cahaba and Coosa River tributaries of the Alabama. The paucity of records from the Alabama River and its tributaries may be due to the sustaining population being in the adjacent Tombigbee basin.

### Present Distribution

- The present distribution of any wild species should be based upon recent data if it is to be reasonably accurate. Recent survey studies on unionids within the range of E. penita include five major efforts as well as a number of casual collections. The major efforts are as follows:

River Collected	Year(s)	Collector(s)	Report(s)
Tombigbee River	1971–1975	James Williams, et al.	1982(in part)
Cahaba River	1972(Sept.,Oct.,Nov	.) James Williams, Charles Baldwin, et al.	··· ·-
Coosa River system	1972-1973	John C. Hurd	1974
Tombigbee River	1974(Sept., Oct.)	Paul Yokley	1975
Buttahatchie River	1977	Paul Yokley	1978

In all, the OSUM has 336 collections from the Mobile River system taken from 1962 to 1981. These were taken from a total of 77 different Mobile basin streams representing sites ranging from intermittent tributaries through master streams such as the Tombigbee and Alabama rivers including a very few collections from the Mobile River itself. It is interesting that *E. penita* appeared in only three of the 77 streams and that these are either the Tombigbee River proper, the East Fork Tombigbee River (in many ways the true upper Tombigbee River) and the Buttahatchie River, a main tributary of the Tombigbee.

The sister species of E. penita is E. metastriata which was also found in only three of the 77 streams collected. These are the Coosa River proper (1966), the Cahaba River main stem (1968) and Terrapin Creek (1968), a tributary of the Cahaba.

It would appear from these data that the range of E. penita is today restricted to the Tombigbee River system and this may be the case. Hurd (1974) did not find it among the unionids he collected from the Coosa River system nor did Williams and Baldwin (1972) find it in their Cahaba River collecting. It should be kept in mind, however, that the Alabama

River has never been carefully collected, much less in recent times, although none of the casual collections at known "E. penita sites" on the Alabama has yielded any evidence of its continued existence there within the past decade. Thus present evidence indicates that the present range of E. penita is the Tombigbee River system with that part of the species population in the Alabama River system having been extirpated.

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# Habitatens laser de mar que donne some de sema de la composition della composition d

Recent records of *E. penita* from the main stem of the Tombigbee River extend from just below the mouth of Bull Mountain Creek, about 12 miles south of Fulton, Itawamba County, Mississippi, downstream to a point about 2 miles north of Gainesville, Sumter County, Alabama. The 27 OSUM sites yielding specimens of this species within this stretch of river were, in nearly every instance at, or associated with, shallow, fast moving water over a stable, sand-gravel to gravel-cobble substrate; typical rifflerun or "shoal" habitat. Williams (1982:80), who participated in nearly all of these collections, characterizes the habitat as

"shoals with moderate to swift current. Substrate in shoal areas was predominantly gravel or gravel mixed with sand. The depth of the shoals was variable, ranging from 0.3 to 1.5 m."

The Buttahatchie River was collected by Yokley (1978:tables 3-13) in a series of eleven float trips from the headwaters to the mouth. He found the river to have frequent log jams, down trees, sand and gravel bars and other obstructions to flow. These features, in my experience, create stable areas where unionids are protected and where they can grow to maturity and reproduce over a period of years. Streams cleared of such obstacles to flow typically have their unionid fauna greatly reduced if not eliminated. A tabulation of  $E.\ penita$  specimens taken from each of Yokley's collection areas indicates that the optimal stream habitat for this species in this river is in the lower reaches even though it is found for an impressive distance upstream.

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Yokley Table Number		3	4	5	6	7	8	9	10	11	12	13
Individuals of E. pen	ita	0	0	8	3	9	8	1	4	27	57	35

Combining these data with those from my own and Williams' observations we may conclude that the habitat of E. penita is the firm, relatively stable, sand-gravel to gravel-cobble substrate of the shallow riffles and runs ("shoals") of medium to large streams.

The fact that the type of habitat described above is found generally throughout the Mobile basin indicates that factors as yet unrecognized are probably active in restricting this species to its known range within the system. This emphasizes the fact that there is a critical difference between the habitat of a species and its ecological niche. One must be

familiar with the ecological niche of a species if he or she hopes to find those factors that limit range, population size or habitat.

# Potential Threats

The greatest threat to the continued existence of *E. penita* appears to be habitat destruction. The transformation of the major part of the Tombigbee River into a barge canal may eliminate all or most of the suitable habitat in that river's main stem. If the population(s) of this species in the Buttahatchie is self-sustaining it may survive there and/or in other such streams IF others exist. We do not know to what extent the Buttahatchie population(s) depends for its continued existence upon the Tombigbee population(s) — or the Tombigbee upon the Buttahatchie.

Populations of *E. penita* outside the Tombigbee River system appear to have been extirpated or reduced to very low numbers. If the Tombigbee habitat is also largely destroyed the species would be dependent upon the tributary population(s) that remain.

# Recommendations For Preservation In Nature

The preservation of any species in nature depends, first of all, upon our being familiar with its geographic distribution and having a clear knowledge of its requirements for individual survival and successful reproduction. Some measure of the genetic variability of the species and its geographic distribution is also necessary if care is to be taken to preserve maximum variability in order to enhance survival. We now know that a high degree of genetic homogeneity is reflective of a high susceptibility to extinction by any agent of selection to which all individuals are equally vulnerable.

Once the geographic range has been determined and the genetic variability of the species worked out, an effort should be made to preserve the elements of the habitat necessary for survival. In our present embarassing state of ignorance, with little in the way of time to gain the information needed, our best action is to "let it be" or, in other words, to preserve the habitat areas as the American pioneers found them. In the case of Epioblasma penita this translates into river preservation --- commonly admitted to be the most difficult natural area preservation ever attempted. But is there any other realistic choice? Attempted preservation in aquaria, zoos or artificially maintained habitats is flawed not only with dangerously low genetic diversity but has the additional hazard of dependency upon the continuing care and concern of another species, \*Homo sapiens\*. Our track record in such matters is poor at best.

And so our best action to preserve  $\mathcal{E}$ . penita at the present time is to seek out all of its populations and do what can be done to preserve these rivers or parts of rivers. Present evidence indicates that these rivers would include the Tombigbee and lower Alabama river systems. Relatively undamaged rivers within these systems should be carefully searched for the possible existence of populations as yet undiscovered.

#### Acknowledgements

Studies of this kind must, of necessity, be based upon collections of specimens and literature in conjunction with field observations. Even so, it is only those collections and related data that find their way into museums and libraries that are preserved and available for such use on into the future.

This paper is based almost entirely upon the collections of specimens made by Dr. James D. Williams, Mr. Randall Grace and their associates and upon the unionidalibrary assembled over many years at the O.S.U. Museum of Zoology.

Numerous student assistants labored long hours to remove the environment from the surface of the shells so that they could be processed into the research collection.

The Curatorial Assistant of the Bivalve Division, Kathy G. Borror, prepared the map and the tables and proof-read the manuscript with a perfectionism that has become second nature.

The pictures of specimens were taken, developed and printed by our photographic specialist, Mr. A.E. Spreitzer, with his characteristic care and concern for correctness and quality.

The United States Fish and Wildlife Service should be commended for their interest in preserving biological diversity for the benefit of society and for making this concern felt through their support of this study.

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EPIOBLASMA PENITA (CONRAD, 1834)

SPECIMENS DEPOSITED IN

THE UNITED STATES NATIONAL MUSEUM

AND

THE OHIO STATE UNIVERSITY MUSEUM OF ZOOLOGY

SPECIFS DISTRIBITION SHOP	STRIBLON	CIRGGEDY		***************************************		17 Mary 17 (17 m) 17 m	•
Museum Spec	simens or L	Museum Specimens or Literature Records	SPECIES	Epioblasma penita (Conrad,	(Conrad, 1834).	. (†	•
Drainage		Locality	Λ ‡ [	The state of the s			
System	State	County	Shorific	Collector	Catalog No.	Recorded as	Author
Mobile	"IV		"Cahawba R., Perry Co., Ala."	"Dr. Hartman"	USNM 84472	Specimens	Year: Page
				18		1 female	
Mobile	AL	100	"Selma, Ala."	"F.W. Witter" "Shimek Coll."	USNM 512400	femal f	
Mobile	AL		"Tombigbee R., Ala."	7.	USNM 159953		THE PARK WINDS AND THE PARK WIND
Mobile	S		"Columbus, Míss."	"Spillman"	USNM 84473		
Mobile	AL	THE PARTY OF THE P	"Alabama"	"Dr. Budd"	USNM 84471	- remare	
		- Appropriate the second secon		1.8		l male;5 juv.	
		***************************************	,				The same of the sa
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Date

14 Feb. 1980

David H. Stansbery

Researched by

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SPECIES DIS Museum Spec	SPECIES DISTRIBUTION SUMMARY Museum Specimens or Literatu	SPECIES DISTRIBUTION SUMMARY Museum Specimens or Literature Records	SPECIES	Epioblasma penita (Conrad, 1834).	1834).		4
Drainage		Locality	lity	Collector	Catalog		79996
System	State	County	Specific	Coll. Date	Coll. No.	Specimens	Author
Mobile River	Alabama	Sumter	<u>چ</u> ا	7	35891		rear. rage
			T 23 N, R 2 W	21 Aug. 1974	0SUM: 1974: 203	. 2 d	
Mubile River	Alabama	Sumter	Tombigbee River about 2 mi. N of Gainesville, T 22 N, R 2 W	J.D. Williams, et al.	34965		74111111
				14 Sept. 1973	0SUM:1973:323	8 d.	
Mobile River	Mississippi	Lowndes	Tombigbee River, 50 yds. below U.S.RT.82 bypass bridge. 2.3 mi w of Columbia 11 R	J.O. Williams, et al.	27294		
		***************************************	mi. NE of Artesia, Sec. 30, 7194, R18E	2 Nov. 1971	OSUM:1971:244	1 1/2 d	
Mubile Kiver	Mississippi	Lowndes	Tombiguee River, E bank above mouth of Cak Stush Cr. 3.1 mi. Wast Columbia. 2.2 mi.	J.D. Williams, et al.	27355		
				11 Nov. 1971	OSUM:1971:256	4/2 d.	
Mobile River	Mississippi	Lowndes	Tembiguee River at island below mouth of Tibbee Cr., 4.4 mi. W of Columbus, 11.7 mi.	J.D. Williams, et al.	27410		AND
			NE of Artesia, Sec. 11, 7 19N, RI7E	11 Nov. 1971	0SUM:1971:257	2 2/2 d.	
KLile River	Mississippi	Lowndes	Tombigues River 1.2 mi. W of mouth of Kincaide Cr., 5.8 mi. ESE of Trinity 11 8 mi	J.D. Williams, et al.	27453		
			SSE of Columbus, Sec. 24, TI7M, R18E	16 Nov. 19/1	0SUM:1971:258	2 d	
Mcbile River	Alabama	Pickens	Tembiguee River at Pickensville, 300 yds. above boat landing, about 10 mi 199 of	D.H. Stansbery, et al.	32/26		
			Aliceville, Sec. 14, 7 21 S, R 3 W	23 June 1972	0SUM:1972:110	16 d.	
Mobile River	Mississippi	L.owndes	Tombigbee River about 0.5 mi. ubove Ms.Rt. 50 bridge, 7.3 mi. NW of Columbus, 11.8 mi.	Randall Grace	48421		
			SW of Caledonia, Sec. 14, 117S, R19W	22 Aug. 1976	050#1:1976:513	; =	
Nobile River	Alatama	Pickens	Tombigbee River about 300 yards above Pickensville boat landing, about 10 mi.HW	J.D. Williams, et al.	487.63		
			of Aliceville, Sec. 14, T215, R3W	4 June 1972	0SUN:1972:89	2 ď.	
Mobile River	А]араша	Pickens	Tombigbee River about 1.3 mi. atove mouth of Bonns Chitto Creek 6.7 mi. Mou. of	J.D. Williams, ct al.	भस्त्रप्रस		
			Aliceville, Sec. 1, T 24 N, R 3 W	6 June 1972	0SUM: 1972:91	2 d; 2 wd.	,
McLile River	Alabama	Suater	Tombigbee River about 3 mi. N of Gainesville 5 5 mi SSE of Manages	J.D. Williams, et al.	43.724		
			Sec. 26, T 22 M, R 2 W	26 Oct. 1973	050#1:1973:327	l vid.	
McLile River	Alabama	Sunter	Tombigbee River about 2 mi. N of Gainesville, 6.5 mi. SSE of Warsuw. Suc.	J.D. Williams, et al.	48346		
			26, T 22 N, R 2 W	26 Oct. 1973	050M:19/3:324	JB d.	- Carrier - Carr

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Problem   Specimens or Literature Records   Specific   Collector	SPECIES DISTRIBUTION SUPPLARY	RIBUTION	SUPPMARY			***************************************	A the state of the	
Fickers   Tombigbee River 2.5 mi. IM of Niconn, 7.3 mi. 5M of Aliceville, 7 24 m, R.2 W of Aliceville, 7 24 m, R.2 W of Aliceville, 7 22 m, R.2 W of Aliceville, 7 22 m, R.2 W of Aliceville, 7 22 m, R.2 W of Aliceville, 8cc. 15, 12 m, R.2 W of Aliceville, 8cc. 15, 1 22 m, R.2 W of Aliceville, 8cc. 15, 1 22 m, R.2 W of Carcollton, 8cc. 13, 1 23 m, R.2 W of Carcollton, 8cc. 13, 1 23 m, W of Carcollton, 8cc. 13, 1 23 m, W of Carcollton, 8cc. 13, 1 23 m, W of Carcollton, 8cc. 13, 1 22 m, W of Carcollton, 8cc. 13, 1 2 m, W of Carcollton, 8cc. 2, 1 1 2 m, W of Carcollton, 8cc. 2, 1 1 2 m, W of Carcollton, 8cc. 2, 1 1 2 m, W of Carcollton, 8cc. 2, 1 1 2 m, W of Carcollton, 8cc. 2, 1 1 2 m, M of Calcutuca, 2 m, M of Calcutuca,	Museum Speci	mens or L	iterature Rec	SPECIES	Epioblasma punita (Conrad, 1834).	14, 1834).		*
Fickens Fickens Trabigue River 2.5 u.i. FW of Vienne, 7.3 mi. SW of Aliceville, 124 n, R 2 W of Aliceville, 125 n, R 2 W of Aliceville, 125 n, R 2 W of Sinceshille, 125 n, W of Sinceshippi Clay Nonroe of Sinthylle, 125 n, R 2 W of Sinceshippi Clay Lowerder, 110, 2 n, R 2 W of Sinceshippi Clay Lowerder, 110, 2 n, R 2 W of Sinceshippi Clay Lowerder, 110, 2 n, R 2 W of Sinceshippi Clay Lowerder, 110, 2 n, R 2 W of Sinceshippi Clay Lowerder, 110, 2 n, R 2 W of Sinceshippi Clay Lowerder, 110, 2 n, R 2 W of Sinceshippi Clay Lowerder, 110, 2 n, R 2 W of Sinceshippi Clay Lowerder, 110, 2 n, R 2 W of Sinceshippi Clay Lowerder, 110, 2 n, R 2 W of Sinceshippi Clay Lowerder, 110, 2 n, R 2 W of Sinceshippi Clay Lowerder, 110, 2 n, R 2 W of Sinceshippi Clay Lowerder, 110, 2 n, R 2 W of Sinceshippi Clay Lowerder, 110, 2 n, R 2 W of Sinceshippi Clay R 2 W of Sinceshi	Drainage		Loca	lity	0.11	***************************************	A CONTRACTOR OF THE CONTRACTOR	
r Alabama Sumter Tombighee River 2.5 mi. RM of Victore, 7.3 mi. SM of Aliceville, 7.2 mi. RO Gaines- Alabama Sumter Tombighee River about 5 mi. No Gaines- Alabama Sumter Tombighee River 1 mi. above mouth of Coal Fire Creek, 3.7 mi. No of Dickensyille, 12.3 mi. No of Carrollton, Sec. 33, 7.23 No.  Nississippi Monroe Fire Creek, 3.7 mi. No of Pickensyille, 2.29 ni. No of Carrollton, Sec. 3, 7212,R17W  Rississippi Clay River Loudighee River at island 0.2 mi. above of Smithville, 10.6 mi. RE of Amer/J, RE Tombighee River at island 0.2 mi. above of Smithville, 10.5 mi. SE of Amer/J, RE Tombighee River at court 10.5 mi. SE of Amer/J, RE Tombighee River at court 10.5 mi. SE of Amer/J, RE Tombighee River at court 10.5 mi. SE of Amer/J, RE Tombighee River at court 10.5 mi. SE of Amer/J, RE Tombighee River across from mouth of Siln- Son Cr., 2 mi. NW of Columbus, C7.7  Mississippi Itawamba Sunter Tombighee River at Cont. Nof Cont. Net Cont. N	System	State	County	Specific	Coll Date	Catalog No.	Recorded as	Author
er Alabama Sumter/Greene ville, Sec. 19, T 22 H, R 2 W  Alabama Sumter lombighee River about 5 mi. R of Gaines- Alabama Sumter lombighee River and saland of Coal Fire Creek, 37 mi. Ma of Gainesville, Sec. 33, T 23 N, R 2 W  I Combighee River at saland 0.2 mi. above mouth of Coal Fire Creek, 3.7 mi. Ma of Gainesville, Sec. 28, T 23 H, R 2 W  I Combighee River at saland 0.2 mi. above Mursan, 7.8 mi. HW of Gainesville, Sec. 28, T 23 H, R 2 W  I Cambighee River at saland 0.2 mi. above Mursan, 7.8 mi. HW of Gainesville, Sec. 28, T 23 H, R 2 W  I Cambighee River at saland 0.2 mi. above D Smithville, C6 mi.HE of Ameryl, HE T 23 H, R 2 W  I Cambighee River about 10.5 mi. SEc of Aberdeen, Eluz mi. He of Macryl, HE T 24 Sec. 19, T 16 S, R 8 E T Combighee River about 2.7 mi. Mis of Smithville, L6.0 mi.HE of Amuryl Mississippi I Itawamba Cast Fork Tombighee River stept 1/4 mi. belc v  Mississippi I Itawamba Cast Fork Tombighee River stept 1/4 mi. belc v  Mississippi I Itawamba Cast Fork Tombighee River stept 1/4 mi. belc v  Mississippi I Itawamba Cast Fork Tombighee River stept 1/4 mi. belc v  Mississippi I Itawamba Cast Fork Tombighee River stept 2 mi. Ho of Gaines- Alabama Sumter Ville, Sec. 3, T 12 S, R 8 E T T 22 N, R 2 W  I Cabbighee River about 2 mi. Ho of Gaines- Ville, Sec. 15, T 12 C N, R 2 W  I Combighee River about 2 mi. Hor of Gaines- Ville, Sec. 15, T 22 N, R 2 W	Mobile River	Alabama	Pickens	]	J.D. Williams, of al.	36342	Specimens	Year: Page
er Alabama Sumter/Greene ville, Suc. 19, T 22 H, R 2 W  Alabama Sumter River Gainesville, Sec. 33, T 23 N, R 2 W  Alabama Phickens Tombigbee River I mi. above mouth of Coal Tive Creek, 3.7 mi. tM of Packensville, Sec. 33, T 23 N, R 2 W  Tombigbee River at island 0.2 mi. above mouth of Coal Tive Creek, 3.7 mi. tM of Gainesville, Sec. 28, T 22 M, R 2 W  Tombigbee River at island 0.2 mi. above Mursan, 7.8 mi. HW of Gainesville, Sec. 28, T 23 N, R 2 W  Mississippi Monroe of Sultiville, LG,6 mi.HM of Gainesville, Sec. 28, T 23 N, R 2 W  Mississippi Clay, Lowndes Gailtville, LG,6 mi.HM of Gainesville, Sec. 21, 175, K194  Mississippi Clay, Lowndes Gaines, 19, T 16 S, R 8 E  Tombigbee River across from mouth of Sultiville, LG, mi.HE of Amory, LY, mi. NM of Colombus, Sec. 2, 175, K194  Mississippi Itawamba Clay, W of Smithville, LG,0 mi.HE of Amory, Rulabama Sumter Gast Fork Tombigbee River about 2 mi. NG of Gaines-Jim Combigbee River about 2 mi. NG of Gaines-J					7 June 1972	0SUM:1972:92	11/24	
Alabama Sunter   Iombiguee River O.2 mi. below Murcaw, 7.6 mi. filly of Gainesville, Sec. 33, T 23 N, R 2 W   Tombiguee River I mi. above mouth of Coal Fire Creek, 3.7 mi. NW of Pickensville, 12.3 mi. W of Carrollton, Sec. 3, T215,R17W   Tembiguee River at island O.2 mi. above 12.3 N, R 2 W   Tank N 2 M   Tank N 3.7 mi. M of Pickensville, Sec. 28, T 23 N, R 2 W   Tank N 3.7 mi. NW of Gainesville, Sec. 28, T 23 N, R 2 W   Tank N 3.7 mi. MW of Gainesville, Sec. 28, T 23 N, R 2 W   Tank N 3.7 mi. MW of Gainesville, Sec. 28, T 2 N, R 2 W   Tank N 3.7 mi. MW of Gainest Fork Tombiguee River about 2.7 mi. W of Smithville, T S, R 8 E   Tombiguee River across from mouth of Stinest N 3 mi. W of Smithville, C6.0 mi.NE of Amery, Mississippi Itawamba   Tank N 3.7 mi. N 3.7 mi. N 3.7 mi. M of Smithville 12.3 mi. N 4.4 Sec. 19, T 12.5 N 8 E   Tank N 3.7 mi. N	McLile River	Alabama	Sumter/Greene		J.D. Williams, et al.	36365	• 5 - 7 - 1	
Alabama Sumter an in MW of Gainesville, Sec. 33, T 23 N, R 2 W  I combiguee River 1 mi. above mouth of Coal Fire Creek, 3.7 mi. thw of Pickensville, 12.3 mi. W of Carrollton, Sec. 33, T 23 N, T 2 W  I combiguee River 1 mi. above mouth of Coal Fire Creek, 3.7 mi. thw of Pickensville, 12.3 mi. W of Carrollton, Sec. 34, T 21S, R17W  I combiguee River at island 0.2 mi. above warran, 7.8 mi. thw of Gainesville, Sec. 28, Warran, 7.8 mi. HW of Gaineville, Sec. 28, T 23 N, R 2 W, R 2 W of Smithville, LG, G Mi.HE OF Ameryl, HE 1/4 Sec. 3, T 12 S, R 8 E Tombigue River about 10.5 mi. SEc of Aberdeen, Eluz and Meryl, HE 1/4 Sec. 19, T 16 S, R 8 E Tombigue, Ely N					8 June 1972	08JM:1972:95	3 4.	
Alabama Pickens From River I mi. above mouth of Coal Fire Greek, 3.7 mi. ThW of Girkensville, 12.3 mi. W of Carrollion, Sec. 3, T21S, R17w Tombigbee River at island 0.2 mi. atove Warsar, 7.8 mi. NIW of Gaincaville, Sec. 28, T23 N, R 2 w. NW of Gaincaville, Sec. 28, T23 N, R 2 w. NW of Gaincaville, Sec. 28, T23 N, R 2 w. NW of Gaincaville, Sec. 28, T23 N, R 2 w. T12 S, R 8 E Tombigbee River about 10.5 mi. SE of Twississippi Clay/Lowndes Tombigbee River about 10.5 mi. SE of Twississippi Clay/Lowndes Tombigbee River about 10.5 mi. SE of Twississippi Monroe Tombigbee River across from mouth of Stinestrand area, about 10.5 mi. WW of Columbas), Sec. 2, 1775, R194 Nississippi Itawamba East Fork Tombigbee River island area, about 12.9 mi. NW of Smithville, LC.0 mi.NE of Amery) NE 1/4 Sec. 3, T12 S, R 8 E East Fork Tombigbee River stout 1/4 mi.bulce and the Smithville, LC.0 mi.NE of Amery) NE 1/4 Sec. 3, T12 S, R 8 E East Fork Tombigbee River about 2 mi. N of Gainestrand area, about 11.5 mi.N of Epes, Sec. 25, T12 N, R 2 W Towbigbee River about 2 mi. N of Gainestrand area, and the Smithville, LC.0 mile of Smithville, LC.0 mi.NE of Amery Nille, Sec. 25, T22 N, R 2 N, R	McLile River	Alabama	Sumter	Tombiguee River 0.2 mi. below Marcaw, 7.6 mi. MWW of Gainesville, Sec. 33, T 23 N,		36389		A STATE OF THE STA
Alabama Pickens Freek, 3.7 mi. th of Pickensville, 12.3 mi. w of Carrollton, Sec.3, T2S, R17W  Rississippi Nonce East Fork Tombigue River about 2.7 mi. W of Sainesville, Sec.28, T23 kg & Warsaw, 7.8 mi. HW of Gainesville, Sec.28, T23 kg & Warsaw, 7.8 mi. HW of Gainesville, Sec.28, T23 kg & Warsaw, 7.8 mi. HW of Gainesville, Sec.28, T23 kg & E Tombigue River about 0.7 mi. W of Smithville, E6.6 mi.NE of Ameryl, RE 1/4 Sec. 3, T12 S, R & E Tombigue River about 10.5 mi. SSE of Aberdeen, E10.2 mi. RE of West Pointl, NE 1/4 Sec. 19, T16 S, R & E Tombigue River across from mouth of Stinson Gr., 2 mi. MK of Mark Do bridge, E7.7 mi. Mw of Smithville, E6.0 mi.NE of Amoryl RE 1/4 Sec. 2, T17S, R194 East Fork Tombigue River about 2 mi. Nof Gaines- Unite, about 11.5 mi. Nof Gaines- Unite, Bout 11.5 mi. Nof Gaines- Unite, Sec. 25, T22 N, R 2 W  Alabama Sumter T22 N, R 2 W  T22 N, R 2 W  Ta2 N, R 2 W					8 June 1972	0SUM:1972:96	5 3/2 d.	
Alabama Sumter Trombigue River at island 0.2 m. above Warsasippi Monroe of Smithwille, IG.6 mi.NHE of Amcr.j, NE 17 12 S, R 8 E  Tembigue River about 10.5 mi. W of Sainthville, IG.6 mi.NHE of Amcr.j, NE 17 12 S, R 8 E  Tembigue River about 10.5 mi. SE of Aberdeen Clay Aberdeen Clay Abordee River about 10.5 mi. SE of Aberdeen Clay Abordee River about 10.5 mi. SE of Abordeen Clay Abordeen Clay Abordeen Columbus; Sec. 2, 1175, R19M  Mississippi Clay/Lowndes Son Cr., 2 mi. W of Smithville, IG.0 mi.NHE of Abordeen Columbus; Sec. 2, 1175, R19M  East Fork Tombigue River about 2 mi. N of Gaines- Unite, about 11.5 mi. N of Gaines- Unite, about 11.5 mi. N of Gaines- Unite, about 11.5 mi. N of Gaines- Unite, Sec. 25, T 22 N, R 2 W  Alabama Sumter Tombigue River about 2 mi. N of Gaines- Unite, Sec. 15, T 22 N, R 2 W  Tombigue River about 2 mi. N of Gaines- Unite, Sec. 15, T 22 N, R 2 W  Tombigue River about 2 mi. N of Gaines- Unite, Sec. 15, T 22 N, R 2 W  Tombigue River about 5 mi. N of Gaines- Unite, Sec. 15, T 22 N, R 2 W	Mobile River	Alabama	Pickens	Fire Creek, 3.7 mi. 1M of Pickensville,	J.D. Williams, ot al.	કુનહ		
Alabama Sumter Warsan, 7.8 mi. HAW of Gainerville, Sec.28, T23 N, R2 wi. HAW of Gainerville, Sec.28, T23 N, R2 wi. HAW of Gainerville, Sec.28, T23 N, R2 withville, LG.6 mi.NiE of Amcryl, HE 1/4 Sec. 3, T12 S, R8 E Tombigue River about 10.5 mi. SSE of Abbrdeen, L10.2 mi. HE of West Pointly, ME 1/4 Sec. 19, T16 S, R8 E Tombigue River across from mouth of Stin-son Cr., Z mi. MR of M.Rt. 50 bridge, L7.7 mi. MW of Columbus], Sec.2, T175, R194 East Fork Tombigue River island aren, alcut 3 mi. MW of Smithville, L2.3 mi. Sec. 25, T115, R8 E Tombigue River about 2 mi. Nof Gaines— Janean Sumter ville, about 11.5 mi. Nof Gaines— Janean Sumter ville, about 11.5 mi. Nof Gaines— Janean Sumter ville, Sec. 15, T22 N, R2 W Tombigue River about 5 mi. NWN of Gaines— Janean Sumter ville, Sec. 15, T22 N, R2 W				Test mi. w of carrollton, Sec. 3, 1215, R17W	4 June 1972 .	05UH:1972:87	lsf.	
First Fork Tombiguee River about 2.7 mi. W of Smithville, [6.6 mi.NtE of Ameryl], NE 1/4 Sec. 3, 7 12 S, R B E Tombiguee River about 10.5 mi. SSE of Aburdeen, El0.2 mi. NE of West Point], NE 1/4 Sec. 19, 7 16 S, R B E Tombiguee River across from mouth of Slinson Cr., 2 mi. MKE of Nu.Rt. 50 bridge, E7.7 mi. MW of Columbus], Sec. 2, 775, R15M mi. M.W of Columbus], Sec. 2, 775, R15M mi. M.W of Smithville, L6.0 mi.NiE of Amory) NE 1/4 Sec. 3, 7 12 S, R B E East Fork Tombiguee River about 1/4 mi.belc, 2 mi. NW of Smithville, 12.3 mi. Sof Fulton, SW 1/4 Sec. 26, 7115, RBE Tombiguee River about 2 mi. N of Gaines-Ville, about 11.5 mi.N of Gaines-Ville, R2 W Tombiguee River about 5 mi. NWW of Gaines-Ville, Sec. 15, 7 22 N, R 2 W Tombiguee River about 5 mi. NWW of Gaines-Ville, Sec. 15, 7 22 N, R 2 W Tombiguee River about 5 mi. NWW of Gaines-Ville, Sec. 15, 7 22 N, R 2 W Tombiguee River about 5 mi. NWW of Gaines-Ville, Sec. 15, 7 22 N, R 2 W Tombiguee River about 5 mi. NWW of Gaines-Ville, Sec. 15, 7 22 N, R 2 W Tombiguee River about 5 mi. NWW of Gaines-Ville, Sec. 15, 7 22 N, R 2 W Tombiguee River about 5 mi. NWW of Gaines-Ville, Sec. 15, 7 22 N, R 2 W Tombiguee River about 5 mi. NWW of Gaines-Ville, Sec. 15, 7 22 N, R 2 W Tombiguee River about 5 mi. NWW of Gaines-Ville, Sec. 15, 7 22 N, R 2 W Tombiguee River about 5 mi. NWW of Gaines-Ville, Sec. 15, 7 22 N, R 2 W Tombiguee River about 5 mi. NWW of Gaines-Ville, Sec. 15, 7 22 N, R 2 W Tombiguee River about 5 mi. NWW of Gaines-Ville, Sec. 15, 7 22 N, R 2 W Tombiguee River about 5 mi. NWW of Gaines-Ville, Sec. 15, 7 22 N, R 2 W Tombigueer River about 5 mi. NWW of Gaines-Ville, R 2 W Tombigueer River about 5 mi. NWW of Gaines-Ville, R 2 W Tombigueer River about 5 mi. NWW of Gaines-Ville, R 2 W Tombigueer R 2 M R 2 W Tombigueer R 2 M R 2	Mcbile River	Alabama	Sumter	Turning over M. Island 0.2 mi. above Warsaw, 7.8 mi. NUM of Gainesville, Sec.28,		36745		
Mississippi Monroe of Smithville, [6.6 mi.NiE of Amcryl, RE 1/4 Sec. 3, T 12 S, R 8 E Tombigbee River about 10.5 mi. SE of Aberdeen, [10.2 mi. RE of West Point], NE 1/4 Sec. 19, T 16 S, R 8 E Tombigbee River across from mouth of Stin- son Cr., 2 mi. NiK of Nu.Rt. 50 bridge, [7.7] mi. NIM of Columbus], Sec. 2, T17S, R19M Mississippi Monroe 3 mi. N M of Smithville, L6.0 mi.NE of Ameryl NE 1/4 Sec. 3, T 12 S, R 8 E East Fork Tombigbee River acout 1/4 mi.belc, NE 1/4 Sec. 3, T 12 S, R 8 E East Fork Tombigbee River acout 1/4 mi.belc, bridge, 2.7 mi. N of Smithville, 12.3 mi. S of Fulton, SW 1/4 Sec. 26, T11S, R8E Tombigbee River about 2 mi. N of Gaines- ville, about 11.5 mi. N of Gaines- Jombigbee River about 5 mi. NNW of Saines- Jombigbee River about				1 23 N, R 2 W	8 June 1972	05/W:1972:97	1/2 sf.	
Mississippi Clay Chave about 10.5 mi. SSE of J.D. Williams, burdeen, El0.2 mi. HE of West Point], HE Aburdeen, El0.2 mi. HE of West Point], HE Aburdeen, El0.2 mi. HE of West Point], HE Aug. 1974  Tombiybee River across from mouth of Stin-J.D. Williams, mi. NIM of Columbus], Sac.2, T175, R194  Mississippi Monroe Smithville, E6.0 mi.HiE of Amory, E7.7  Mississippi Itawamba East Fork Tombigbee River about 2 mi. N of Gaines-Soc. 25, T185, R8E  Alabama Sumter Tombigbee River about 2 mi. N of Gaines-Soc. 25, T122 N, R 2 W  Alabama Sumter Tombigbee River about 2 mi. N of Gaines-Soc. 25, T Aug. 1974  Tombigbee River about 2 mi. N of Gaines-Soc. 25, T Aug. 1974  Tombigbee River about 2 mi. N of Gaines-Soc. 25, T Aug. 1974  Tombigbee River about 2 mi. N of Gaines-Soc. 25, T Aug. 1974  Tombigbee River about 5 mi. NWW of Gaines-Soc. 25, Williams, ville, Sec. 15, T 22 N, R 2 W  Tombigbee River about 5 mi. NWW of Gaines-Soc. 25, Williams, ville, Sec. 15, T 22 N, R 2 W  Tombigbee River about 5 mi. NWW of Gaines-Soc. 25, Williams, ville, Sec. 15, T 22 N, R 2 W  Tombigbee River about 5 mi. NWW of Gaines-Soc. 25, Williams, ville, Sec. 15, T 22 N, R 2 W  Tombigbee River about 5 mi. NWW of Gaines-Soc. 25, Williams, ville, Sec. 15, T 22 N, R 2 W  Tombigbee River about 5 mi. NWW of Williams, Williams, ville, Sec. 15, T 22 N, R 2 W  Tombigbee River about 5 mi. NWW of Saines-Soc. 25, Williams, Williams, Ville, Sec. 15, T 22 N, R 2 W  Tombigbee River about 5 mi. NWW of Saines-Soc. 25, Williams, W	Mobile River	Mississippi	Monroe	East Fork Tombiguee River about 2.7 mi. W of Smithville, L6.6 mi.N.E of Amcryl, RE	J.O. Williams, R.Grace	35305		
Mississippi Clay Aberdeen, Elu2 mi. NE of West Pointl, NE Aug. 1974  I /4 Sec. 19, T 16 S, R 8 E  Mississippi Clay/Lowndes Son Cr., 2 mi. NNE of NL.RL. JO bridge, E7.7 mi. NNE of Smithville, LG.O mi. NiE of Amer. J. D. Williams, NE 1/4 Sec. 3, T 12 S, R 8 E  Alabama Sumter Ville, about 11.5 mi. N of Gaines—  Alabama Sumter Tombigbee River about 2 mi. NNW of Gaines—  Alabama Sumter Ville, about 11.5 mi. N of Gaines—  Lombigbee River about 5 mi. NNW of Gaines—  J.D. Williams, Ville, Sec. 15, T 22 N, R 2 W  Lombigbee River about 5 mi. NNW of Gaines—  J.D. Williams, Ville, Sec. 15, T 22 N, R 2 W  Lombigbee River about 5 mi. NNW of Gaines—  J.D. Williams, Ville, Sec. 15, T 22 N, R 2 W  Lombigbee River about 5 mi. NNW of Gaines—  J.D. Williams, Ville, Sec. 15, T 22 N, R 2 W  Lombigbee River about 5 mi. NNW of Gaines—  J.D. Williams, Ville, Sec. 15, T 22 N, R 2 W  Lombigbee River about 5 mi. NNW of Gaines—  J.D. Williams, Ville, Sec. 15, T 22 N, R 2 W  Lombigbee River about 5 mi. NNW of Gaines—  J.D. Williams, Ville, Sec. 15, T 22 N, R 2 W  Rabama Sumter Ville, Sec. 15, T 22 N, R 2 W  Lombigbee River about 5 mi. NNW of Gaines—  J.D. Williams, Ville, Sec. 15, T 22 N, R 2 W  Lombigbee River about 5 mi. NNW of Gaines—  J.D. Williams, Ville, Sec. 15, T 22 N, R 2 W  Lombigbee River about 5 mi. NNW of Gaines—  J.D. Williams, Ville, Sec. 15, T 22 N, R 2 W				1/4 Sec. 3, T 12 S, R 8 E	28 July 1974	0SUM:1974:131	——————————————————————————————————————	
Mississippi Clay/Lowndes Tombiybee River across from mouth of Stin-son Cr., 2 mi. MKE of MRt.50 bridge, [7.7] mi. M.W of Columbus], Sec.2, 1175, Right East Fork Tombigbee River island area, about Mississippi Itawamba bridge, 2.7 mi. MW of Smithville, 12.3 mi. Rel 14 Sec. 3, 7 12 S, R B E East Fork Tombigbee River about 2 mi. N of Gaines-son Tombigbee River about 2 mi. N of Gaines-son Tombigbee River about 5 mi. NW of Gaines-ville, Sec. 15, 7 22 N, R 2 W Tombigbee River about 5 mi. NW of Gaines-ville, Sec. 15, 7 22 N, R 2 W Tombigbee River about 5 mi. NWW of Gaines-ville, Sec. 15, 7 22 N, R 2 W		Mississippi	Clay	Aberdeen, Elo.2 mi. RE of West Point], ME	J.D. Williams, R.Grace	35581		
Mississippi Clay/Lowndes son Cr., 2 mi. MKE of MRt.50 bridge, [7.7]  Mississippi Monroe East Fork Tombigues fiver island arch, about Mississippi Itawamba East Fork Tombigues fiver island arch, about Mississippi Itawamba East Fork Tombigue River stent 1/4 mi.belch.  Mississippi Itawamba East Fork Tombigue River stent 1/4 mi.belch.  Mississippi Itawamba East Fork Tombigue River stent 1/4 mi.belch.  Mississippi Itawamba East Fork Tombigue River stent 1/4 mi.belch.  Mississippi Itawamba East Fork Tombigue River stent 1/4 mi.belch.  Mississippi Itawamba East Fork Tombigue River stent 1/4 mi.belch.  Mississippi Itawamba East Fork Tombigue River about 2 mi. N of Gaines.  T 22 N, R 2 W  T 22 N, R 2 W  T 22 N, R 2 W  Tombigue River about 5 mi. NNW of Gaines.  T 22 N, R 2 W  Tombigue River about 5 mi. NNW of Gaines.  Tombigue River about 5 mi. NNW of Gaines.  Tombigue River about 5 mi. NNW of Gaines.				1/4 Scc. 19, 1 16 S, R 8 E	8 Aug. 1974	08.M:1974:150	1/2 sf.	
Mississippi Monroe East Fork Tombigbee River island area, about  Mississippi Monroe 3 mi. W of Swithville, LG.O mi. Lüfe of Amory, NE 1/4 Sec. 3, T 12 S, R B E  East Fork Tombigbee River about 1/4 mi. belcy, bridge, 2.7 mi. tW of Smithville, 12.3 mi. S of Fulton, SW 1/4 Sec. 26, T11S, RBE  Tombigbee River about 2 mi. N of Gaines-ville, about 11.5 mi.N of Epes, Sec. 25, T 22 N, R 2 W  Tombigbee River about 5 mi. NWW of Gaines-ville, Sec. 15, T 22 N, R 2 W	····	Mississippi	Clay/Lowndes	Tombigue River across from mouth of Stin- son Cr., 2 mi. MXE of Mw.Rt.50 bridge, E7.7	J.D. Williams, R.Grace	35/48		
Mississippi Monroe Sani, W of Smithville, LG.O mi. MiE of Amory, ME 1/4 Sec. 3, T 12 S, R 8 E  East Fork Tombigue River steet 1/4 mi. belcy, bridge, 2.7 mi. MW of Smithville, 12.3 mi. S of Fulton, SW 1/4 Sec. 26, T11S, R8E  Tombigue River about 2 mi. N of Gaines— ville, about 11.5 mi. N of Epes, Sec. 25, T 22 N, R 2 W  Tombigue River about 5 mi. N W of Gaines— ville, about 15.7 mi. N of Gaines— ville, Sec. 15, T 22 N, R 2 W				mr. M.W of Columbus], Sec. 2, 7175, R19W	10 Aug. 1974	0800119741154	, c	
Mississippi Itawamba East Fork Tombigbee River atout 1/4 mi.belc.  Alabama Sumter ville, about 11.5 mi. N of Gaines.  Alabama Sumter ville, about 11.5 mi. N of Gaines.  T22 N, R 2 W  Tombigbee River about 5 mi. NNW of Gaines.  T22 N, R 2 W  Tombigbee River about 5 mi. NNW of Gaines.		Mississippi	Monroe	East Fork lombigbee Kiver island area about 3 mi. W of Smithville, E6.0 mi.fm.E of Amory WE 1/4 Sec. 3 T 19 S R E	J.D. Williams, R.Grace	35.173		
Alabama Sunter Tombigbee River about 2 mi. NAW of Gaines.  Alabama Sunter Tombigbee River about 2 mi. N of Epes, Sec. 25, Tabama Tombigbee River about 11.5 mi.N of Epes, Sec. 25, Tabama Sunter Tombigbee River about 5 mi. NAW of Gaines.				13	J. D. William P. G.	USUM:1974:153	17 d,	
Alabama Sumter Tombigbee River about 2 mi. N of Gaines. T 22 N, R 2 W Tombigbee River about 5 mi. N of Gaines. T 22 N, R 2 W Tombigbee River about 5 mi. NAW of Gaines. ville, Sec. 15, T 22 N, R 2 W		Mississippi	•		Dag for the transfer of the tr	1000		
Alabama Sumter lowbigbee River about 2 mi. N of Gaines.  7 22 N, R 2 W  Tombigbee River about 5 mi. NWW of Gaines.  Alabama Sumter ville, Sec. 15, T 22 N, R 2 W				+	28 July 1974	USUH: 1974:124	1 d.	
Alabama Sumter ville, Sec. 15, T 22 N, R 2 W		Alabama		mi.N of Epes, Sec. 25,	J.D. Williams, et al.	3,500,5		
Alabama Sunter ville, Sec. 15, T 22 N, R 2 W				1 22 N, R 2 W	21 Aug. 1974	0SUM:1974:205	1/2 sf	
	<u></u>	Alabama			J.D. Williams, et al.	35,870		And the state of t
21 Aug. 19/4			***************************************		21 Aug. 1974	05UM; 1974; 206	, a	

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David H. Stansbery

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Museum Spec	imens or L	Museum Specimens or Literature Records	SPECIES	Epioblasma penita (Conrad, 1834).	1834).		•
Drainage		Loca	Locality	Collector	- M 1 M-	- 1	
System	State	County	Specific	Coll, Date	Coll No	Specifiens	Author
Mcbile River	Аласапа	Pickens	ee River at Vien	J.D. Williams, et al.	40967		rear, rage
			VILLE, J	25 May 1977	0SUM:1977:191	7/2 wd.	
Mobile River	Alabama	Pickens	Tombigbee River about 300 yds. above Pick-ensville bout landing, about 10 mi. NW of	J.D. Williams, et al.	41341		
			Aliceville, Sec. 14, T 21 S, R 17 W	20 Aug. 1974	0SUM:1974:202	1 1/2 wd.	
Motile River	Mississippi	Lowndes	Tombiguee River at mouth of Buttahatchie River, 12 mi. NUM of Columbus, 11 mi. WSW	J.O. Williams, et al.	34016		
			of Caledonia, Sec. 22/27, 7165, R17E	25 July 1972	OSUM:1972:301	2 w.	
Hobile River	Alabana	Sumter	Tombigbue River about 2 mi. N of Gaines— ville, about 11.5 mi. N of Fous. Sec. 95	D.H. Stansbery, et al.	34351		
			T 22 N, R 2 W	24 June 1972	OSUM:1972:112	2 w; 31 2/2 d.	
Mubile River	Alabama	Pickens	Tombiguee River about 4 mi. S of Pickens-ville, 8 mi, WHW of Aliceville, Sec. 2.	J.D. Williams, et al.	34424		
				.28 July 1972	09JM:1972:297	3 1/2 d.	
Mobile River	Alabama	Pickens	Tombigbee River about 0.5 mi. E of Memphis, 8 mi. W of Aliceville, Sec. 14, T 22 S.	J.D. Williams, et al.	34500		
	THE PROPERTY OF THE PROPERTY O	100000000000000000000000000000000000000	R 17 W	28 July 1972	0SUN:1972:315	12 1/2 d.	***************************************
Mobile River	Mississippi	Lowndes	Tombiguee River about 9.5 mi. S of Columbue 14 mi. ENE of Crawford, Sec. 11. I 17 N.	P. Mundy, T. Jandebeur	34741	The state of the s	
			RIBE	July 1972	0S/M:1972:335	1 d.	
Mobile River	Mississippi	Lowndes	island below mouth of mi.NW of Columbus, 11.7	D.H. Stansbery, et al.	37905	The state of the s	
	-	and the state of t	mi. NE of Artusia, Sec. 11, T 19 N, R 17 E	29 May 1972	0SUM: 1972: 100	3 2/2 d.	
Mobile Kiver	Missiscippi	Lowndes	Buttahatchie River about 0.5 mi. above its . mouth, [12 mi. NWW of Columbus]. T 16 S.	J.D. Williams, R.Grace	36270	The state of the s	
				4 Oct. 1974	0SUM: 1:774:300	1 w; 1 d.	
Mobile River	Alabama	Pickens	~	J.D. Williams, R.Grace	,36238	A community of the comm	
			Aliceville], NW 1/4 Sec. 35, 1215, R17W	19 Aug. 1974	OSUM:1974:204	2 d.	
Mobile River	Alabama	Pickens	sland above mouth of N of Vienna 4 4 mi SW	J.D. Williams, et al.	36267		
			of Aliceville, Sec. 10, T24N, B2W	7 June 1972	09JM:1972:93	1/2 sf.	
Ectile River	Alabama	Pickens	Tembigbee River about 1 mi. above mouth of J Sipsey R., just below Vienna. 8.3 mi. SSW	J.D. Williams, et al.	36270		
			of Aliceville, Sec. 34, I 24 II, R 2 W	7 June 1972	. 08JM:1972:94	8 2/2 sf.	

David H. Stansbery

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	Jonrad, 1834).		Coll. No. Sn	48602	OSUM:1972:111	v.				Age of the state o			 							-
	Epioblasma penita (Conrad, 1834).	Collector	Coll. Date	D.H. Stansbery, et al.	24 June 1972		The state of the s									**************************************				
	SPECIES	Lity	Specific	Tombiguee River 0.2 mi. above mouth of Moxubee River. Il. 4 mi. My of Gainewille	Sec. 34, 1 22 H, R 2W]		A SAME AND		:					Marijana reprinte programa de la marijana de la mar			The state of the s			
SPECIES DISTRIBUTION SUMMARY Museum Specimens or Literature Records	ורבים וחוב עבני	Locality	County	Sumter		-												The state of the s		
SPECIES DISTRIBUTION SUMMARY Museum Specimens or Literatu	1		State	Alutama																
SPECIES DIS		Drainage	System	Mobile Kiver												-			4*	

20 March 1981

Date

D.H. Stansbery

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