

3-1-1993

## Number 27 (March 1993)

Southern Fishes Council

Follow this and additional works at: <https://trace.tennessee.edu/sfcproceedings>



Part of the [Marine Biology Commons](#)

---

### Recommended Citation

Southern Fishes Council (1993) "Number 27 (March 1993)," *Southeastern Fishes Council Proceedings*: No. 27.

Available at: <https://trace.tennessee.edu/sfcproceedings/vol1/iss27/1>

This article is brought to you freely and openly by Volunteer, Open-access, Library-hosted Journals (VOL Journals), published in partnership with The University of Tennessee (UT) University Libraries. This article has been accepted for inclusion in Southeastern Fishes Council Proceedings by an authorized editor. For more information, please visit <https://trace.tennessee.edu/sfcproceedings>.

---

## Number 27 (March 1993)

### Abstract

(March 1993) - A Status Survey of the Western Sand Darter, *Ammocrypta clara*, in the Big Black River, Mississippi. By F. Pezold, et al., 5 pp.

Museum Notes by B.M. Burr and M.L. Warren, 3 pp.

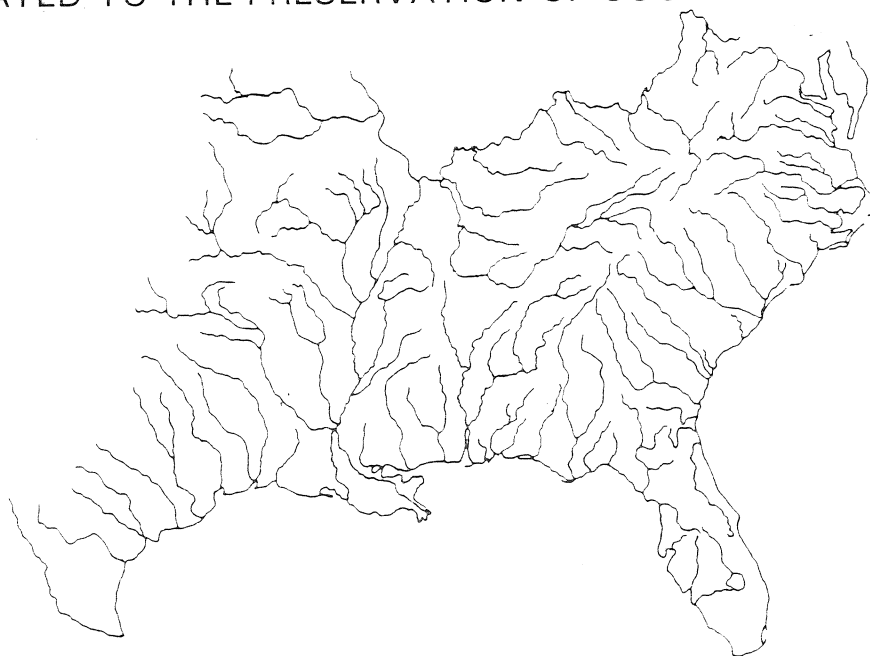
Minutes, Regional Reports and Announcements.

### Keywords

western sand darter, ammocrypta clara, big black river, mississippi

# *Southeastern Fishes Council* **PROCEEDINGS**

DEDICATED TO THE PRESERVATION OF SOUTHEASTERN FISHES



---

## Contents

A Status Survey of the Western Sand Darter, <i>Ammocrypta clara</i> , in the Big Black River, Mississippi. By <i>Frank Pezold, Neil H. Douglas and Steven G. George</i> .....	2
--	---

## Notes

The Southern Illinois University at Carbondale Ichthyological Research Collections. By <i>Brooks M. Burr and Melvin L. Warren, Jr.</i> .....	6
Minutes - Business Meeting, 18 <sup>th</sup> Annual Meeting, SFC .....	8
Regional SFC Reports .....	10
Announcements .....	14

# A STATUS SURVEY OF THE WESTERN SAND DARTER, *AMMOCRYPTA CLARA*, IN THE BIG BLACK RIVER, MISSISSIPPI

FRANK PEZOLD, NEIL H. DOUGLAS AND STEVEN G. GEORGE

Biology Department  
Northeast Louisiana University  
Monroe, LA 71209

## ABSTRACT

The western sand darter's occurrence in Mississippi is known from three specimens collected in the Big Black River. The last specimen was obtained in 1973. A survey of appropriate habitat in 1990 produced no additional specimens. *Ammocrypta clara* appears to be a peripheral species in Mississippi. Riparian and lotic habitat destruction would not favor the establishment of western sand darter populations in the Big Black River, and reduces suitable habitat for existing darter populations.

## INTRODUCTION

The western sand darter, *Ammocrypta clara*, is known in Mississippi from three specimens collected at two sites in Madison County over a span of 26 years (Williams, 1975). The last reported capture was of a single individual taken in 1973. One hundred thirty-nine naked sand darters, *A. beani*, and 3 scaly sand darters, *A. vivax*, were collected at those same localities over the same period. Collection records (Stauffer, 1980; Williams, 1975) and personal observations suggest that *A. clara* is predominantly a species of the upper Mississippi River drainage and of streams of the western Mississippi River embayment. *Ammocrypta clara* appears to prefer or be limited to larger streams (Page, 1983). In Louisiana, it is known from Bayou Bartholomew, Sabine and Red Rivers, being replaced by *A. vivax* in the smaller rivers and creeks of those drainages. Stauffer (1980) overlooked the records for the western sand darter in Mississippi.

Two of the three previously reported specimens of *A. clara* from the Big Black River were located, MSU 3548 (erroneously reported as MSU 3549 by Williams, 1975) and TU 81744. Both specimens are subadults, measuring 32.9 and 31.6 mm SL, respectively. The third specimen appears to have been lost (R. Weill, pers. comm.). Stephen T. Ross was also unable to locate the specimen (Af2925) in a recent examination of collections in the Mississippi Museum of Natural Science. Ross's review of historical collections of Mississippi fishes revealed no other specimens of *A. clara* from Mississippi in regional museums. Other *Ammocrypta* species in the Big Black River, *A. beani* and *A. vivax* were represented in collections from that drainage (outside of Tulane University holdings) by 219 and 23 specimens respectively.

This study was initiated to determine the current status of the western sand darter in the Big Black River by intensively sampling sandy areas in the main channel of the river.

## METHODS

Twelve collections were made at 10 different localities on the Big Black River from July 6 to October 10, 1990. Actual sampling time was 11.3 hrs total in the water with an average of 57 minutes per collection. July collections were made using 10 ft 3/16 in mesh and 10 ft 1/8 in mesh seines. Only the 1/8 in mesh seine was used in later collections because of its greater retention of slim-bodied *Ammocrypta* specimens.

Sample localities were chosen based upon accessibility, availability of appropriate habitat (sand substrate) and geographical location along the river. Collections were made along the length of the river to discern possible interspecific differences in longitudinal distribution. Sites chosen were below the Hwy 9 crossing S of Eupora because collections by the first author and Dr. Glenn Clemmer, housed in the Mississippi State University fish collection, showed that *Ammocrypta* species were taken infrequently and in small numbers at that locality. The 10 stations sampled (Fig. 1) and the dates of collection are listed below in upstream to downstream order.

1. Montgomery County. Big Black River 1/2 mi S of Stewart. 10 October 1990. 11:30 - 12:30.
2. Carroll County. Big Black River at Hwy 413 1 mi S of Kilmichael. 10 October 1990. 12:50 - 13:50.
3. Attala County. Big Black River at Hwy 19/440 0.5 mi E of West. 10 October 1990. 14:45 - 15:30.
4. Attala County. Big Black River at Hwy 14 E of Goodman, upstream of bridge on E bank. 6 July 1990. 14:30 - 15:20.
5. Madison County. Big Black River at Hwy 17/51 S of Picotus, about 1000 m downstream from bridge on east bank. 6 July, 13:10 - 14:10; 26 September, 13:15 - 14:20, 1990.
6. Madison County. Big Black River at Hwy 16 NNW of Canton, about 1000 m downstream from bridge on east bank. 6 July, 11:40 - 12:40; 26 September, 11:10 - 12:30, 1990.
7. Yazoo County. Big Black River at Hwy 49 NW of Flora, about 1000 m downstream of bridge on W bank. 7 July 1990. 8:35 - 9:35.
8. Warren County. Big Black River at Interstate Hwy 20, 14 mi E of Vicksburg, west bank. 15 July 1990. 13:30 - 14:00.
9. Hinds County. Big Black River at Hwy 27 about 1000 m upstream on E bank. 13 August 1990. 12:00 - 13:00.

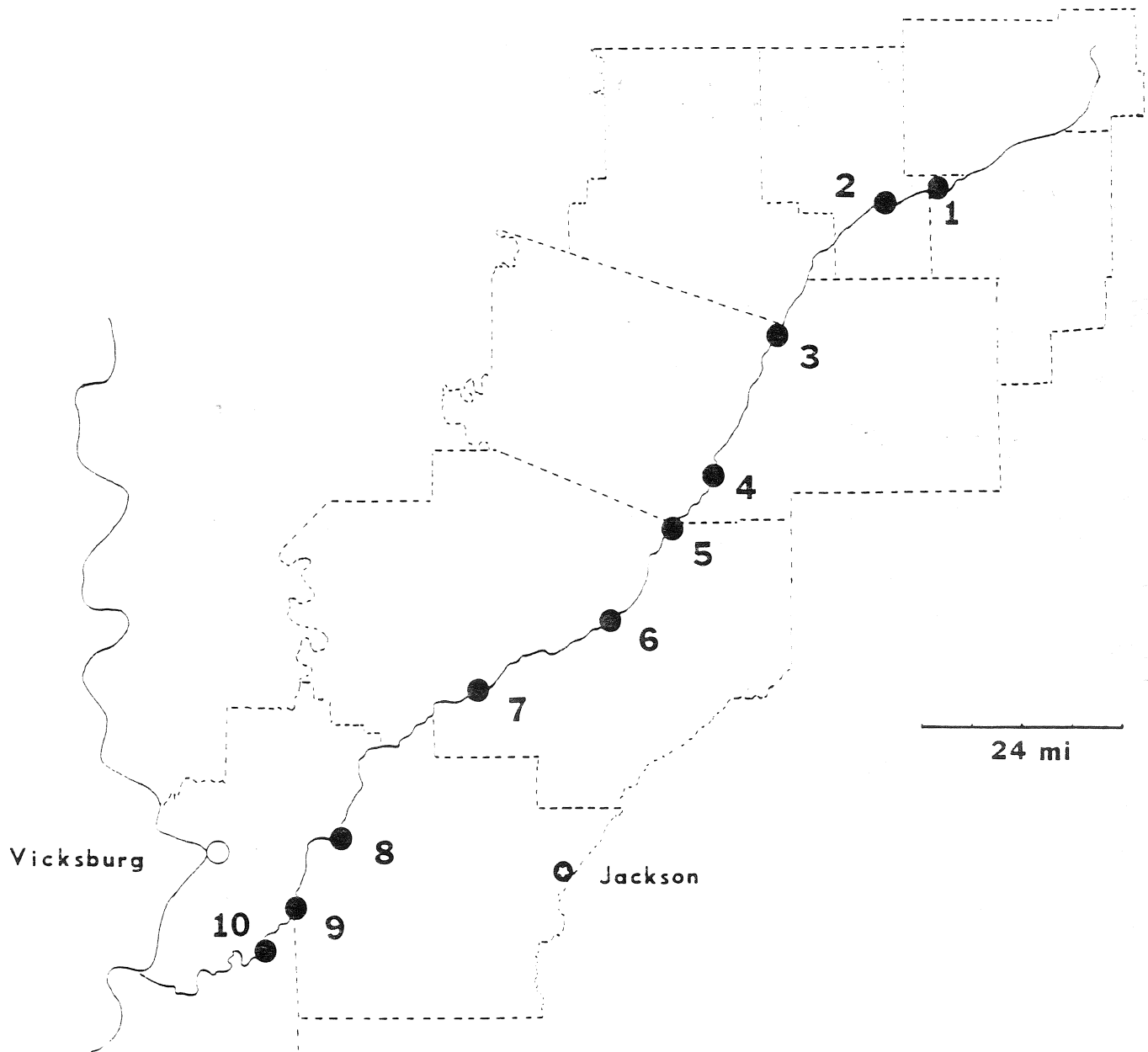


Figure 1. Map of collecting localities on the Big Black River.

10. Warren County. Big Black River at Fisher Ferry Road about 150 m upstream from road on W bank. 13 August 1990. 10:25 - 11:15.

Other sites attempted on the Big Black River, but not sampled because of inaccessibility were: Hwy 407 S of Kilmichael (Montgomery Co), Hwy 35 E of Vaiden (Carroll Co), Interstate Hwy 55 (Madison Co), Askew Ferry Road (Hinds Co), Hwy 80 (Warren Co), an unmarked crossing upstream from Hwy 61 (Warren Co) and Hwy 61 (Warren Co).

All species collected were retained. Most specimens were deposited in the NLU Museum of Zoology. Nomenclature follows Robins et al. (1991).

## RESULTS AND DISCUSSION

No *Ammocrypta clara* were taken. A total of 4,510 specimens of 50 fish species and a *Cyprinella* hybrid was collected (Table 1). Both *A. beani* and *A. vivax* were well-represented in collections by 365 and 57 individuals, respectively. *Ammocrypta vivax* were taken at all sites sampled from Hwy 16 and above (Table 2). *Ammocrypta beani* were captured at all sites sampled except the Interstate 20 crossing (Table 2), but were uncommon below the Hwy 16 site. *Ammocrypta beani* were most abundant during this study in the middle reach of the Big Black River from West to Hwy 16. Large series of *A. beani*, deposited in the University of

Table 1. Relative frequencies of fish species obtained at each site. Site numbers correspond to those listed in the text. To allow comparison between sites, collection time was standardized. Collections are reported as the number of individuals collected per 10 minutes of collecting time. Actual number of specimens captured can be computed by multiplying frequency (given in this table) by the minutes of total collection time/10. Total collection times are reported in the text for each site.

Species	Sites											
	1	2	3	4	5a	5b	6a	6b	7	8	9	10
<i>Lepisosteus oculatus</i>	.	.	.	.	.	.	.	.	0.17	.	.	.
<i>Dorosoma cepedianum</i>	.	.	.	.	1.00	.	.	0.25	0.50	.	.	.
<i>Cyprinella camura</i>	7.00	4.83	2.00	.	0.33	0.31	0.33	.	.	.	.	.
<i>C. lutrensis</i>	.	.	.	0.20	.	.	0.33	.	0.33	.	.	0.60
<i>C. venusta</i>	8.17	7.17	1.78	17.00	23.17	16.62	36.00	13.62	4.83	.	2.50	0.80
<i>C. venusta x lutrensis</i>	.	.	.	.	1.17	.	1.00	0.25	1.17	.	0.83	.
<i>Hybognathus nuchalis</i>	.	.	.	.	.	.	0.17	0.12	0.33	.	0.83	3.40
<i>Lythrurus roseipinnis</i>	0.67	0.17	.	.	.	.	.	.	.	.	.	.
<i>Macrhybopsis storeriana</i>	.	.	.	.	.	.	.	.	.	.	.	0.80
<i>Notemigonus crysoleucas</i>	.	.	.	.	0.33	.	.	.	.	.	.	.
<i>Notropis amnis</i>	.	0.33	0.44	.	.	.	.	0.12	.	.	.	.
<i>N. buchanani</i>	.	.	.	.	.	.	.	.	0.17	.	.	.
<i>N. maculatus</i>	.	.	.	.	.	.	.	0.25	.	.	.	.
<i>N. sabinae</i>	0.17	0.17	3.11	4.20	6.00	21.38	7.83	7.00	0.50	.	.	.
<i>N. texanus</i>	.	4.17	0.67	.	.	.	.	.	.	.	.	.
<i>N. volucellus</i>	.	.	.	.	.	0.31	.	0.38	.	3.33	0.67	.
<i>Opsopoeodus emiliae</i>	1.17	0.83	.	.	.	.	.	.	0.17	.	.	.
<i>Pimephales notatus</i>	0.83	3.00	0.67	.	.	.	.	.	.	.	0.50	.
<i>P. vigilax</i>	54.50	33.33	30.89	4.80	14.67	66.92	11.33	65.50	3.67	16.00	2.00	1.40
<i>Ictalurus furcatus</i>	.	.	.	.	.	.	.	.	.	5.00	0.33	.
<i>I. punctatus</i>	0.33	0.17	0.22	0.20	0.17	1.85	.	3.12	0.33	6.00	0.33	.
<i>Noturus hildebrandi</i>	.	.	0.67	.	.	.	.	.	.	.	.	.
<i>N. miurus</i>	6.50	3.83	.	.	.	.	.	.	.	.	.	.
<i>N. nocturnus</i>	0.17	.	.	.	.	.	.	.	0.17	.	.	.
<i>Pylodictus olivaris</i>	.	.	.	.	.	0.15	.	.	.	.	.	.
<i>Aphredoderus sayanus</i>	0.17	.	.	.	.	.	.	.	.	.	.	.
<i>Fundulus olivaceus</i>	0.17	0.17	.	.	.	.	.	0.50	.	.	.	.
<i>Gambusia affinis</i>	15.33	4.67	1.33	1.40	5.00	2.00	0.33	11.38	5.33	0.67	1.00	1.80
<i>Labidesthes sicculus</i>	2.83	1.67	0.22	.	.	.	.	0.75	.	.	.	.
<i>Lepomis cyanellus</i>	.	.	.	.	.	.	.	.	.	1.33	.	.
<i>L. gulosus</i>	.	.	.	.	.	.	.	0.25	.	.	.	.
<i>L. humilis</i>	.	.	.	.	.	.	.	.	.	2.33	.	.
<i>L. macrochirus</i>	0.17	0.67	.	.	.	.	.	3.62	.	.	.	.
<i>L. megalotis</i>	10.83	5.50	.	1.20	1.17	.	.	0.12	2.00	.	0.17	0.20
<i>L. microlophus</i>	.	0.33	.	.	.	.	.	.	.	.	.	.
<i>Micropterus punctulatus</i>	.	.	.	0.20	0.17	.	0.17	.	0.50	.	0.17	.
<i>M. salmoides</i>	0.17	.	.	0.20	.	.	0.17	.	0.33	.	.	.
<i>Pomoxis annularis</i>	.	.	.	.	.	.	.	.	0.17	.	.	.
<i>Elassoma zonatum</i>	0.50	0.17	.	.	0.17	.	.	.	.	.	.	.
<i>Ammocrypta beani</i>	2.00	1.17	17.78	5.60	4.67	13.85	10.33	5.75	1.67	.	0.17	0.20
<i>A. vivax</i>	0.83	1.50	1.78	2.00	1.33	0.62	1.00	0.88	.	.	.	.
<i>Etheostoma chlorosomum</i>	.	0.67	.	.	0.17	.	0.50	.	0.33	.	.	.
<i>E. gracile</i>	.	0.33	.	.	.	.	.	.	.	.	.	.
<i>E. histrio</i>	.	.	.	.	.	.	.	.	.	.	0.17	.
<i>E. nigrum</i>	1.00	.	.	.	.	.	.	.	.	.	.	.
<i>E. stigmaeum</i>	4.00	0.50	.	.	.	.	.	.	.	.	.	.
<i>E. swaini</i>	0.33	0.17	0.22	.	.	.	.	.	.	.	.	.

Table 1. Continued.

Species	Sites											
	1	2	3	4	5a	5b	6a	6b	7	8	9	10
<i>E. zonale</i>	.	.	0.67	.	.	.	.	.	.	.	.	.
<i>Percina maculata</i>	0.17	0.17	.	.	.	.	.	.	.	.	.	.
<i>P. sciera</i>	2.33	1.00	2.44	0.60	0.83	0.62	.	0.12	.	.	0.17	.
<i>Aplodinotus grunniens</i>	.	.	.	.	.	.	.	.	.	.	.	0.20

Table 2. Naked sand darters, *Ammocrypta beani*, and scaly sand darters, *A. vivax*, captured in the Big Black River. Locality number corresponds to the station numbers used in Fig. 1.

Locality	<i>A. beani</i>	<i>A. vivax</i>
1. Stewart	12	5
2. Kilmichael	7	9
3. West	80	8
4. Goodman	28	10
5a. Pickens, July	28	8
5b. Pickens, September	90	4
6a. Hwy 16, July	62	6
6b. Hwy 16, September	46	7
7. Hwy 49	10	-
8. I-20	-	-
9. Hwy 27	1	-
10. Fisher Ferry Rd	1	-

Tennessee collection, were taken in the 1980's by D.A. Etnier at the Hwy 413 crossing south of Kilmichael (S.T. Ross, pers. comm.).

Ross and Brenneman (1991) reported 114 species from the Big Black River system. The relatively low species diversity obtained in this study reflected our focus on sandy mainstream habitats and collection methods that targeted *Ammocrypta*. Species most commonly associated with the sand darters were *Cyprinella venusta*, *Notropis sabinae* and *Pimephales vigilax* (Table 1).

The decrease in numbers of representatives of *Ammocrypta* species in the lower reach of the river parallels a decrease in the amount of suitable habitat due to siltation and channelization. Although siltation is a problem at many sites on the Big Black River, silt deposits were noticeably greatest in the lower section (I-20 station 8 and below). Much of the siltation may be of agricultural or forestry origin, but during the study period several bridge construction projects were the most obvious contributors. Silt deposits were noticeably greater near most bridges, even where no construction was in progress.

There is no evidence to indicate that *A. clara* has ever had a strong population in the Big Black River. Western sand darters are uncommon in Arkansas, Louisiana and Missouri (Douglas, 1974; Pflieger, 1975; Robison and Buchanan, 1988). Kuehne and Barbour (1983) noted that this species appears to be declining throughout much of its range and may soon be regarded as endangered. Records for this species in Louisiana are from the Sabine River, much of which has been impounded to form Toledo Bend Reservoir, from the Red River, which is scheduled for channelization and impoundment in the near future and from Bayou Bartholomew, an unaltered tributary of the Ouachita River.

The most suitable habitat available for *A. clara* in the Big Black River would most likely be found in the middle and lower reaches as records for this species outside of Mississippi indicate they are inhabitants of large streams. Harlan and Speaker (1956) described the habitat needs for *A. clara* as deep channels with coarse sand or gravel substrates. Kuehne and Barbour (1983) noted that *A. clara* inhabits large streams to a depth of 1.5 m, occurring most often on sand substrate in edgewater regions with little to moderate current. Additional habitat references are given by Williams (1975). Pflieger (1975) reported that the species is intolerant of heavy siltation and turbidity. If the Big Black River is to retain habitat suitable for *Ammocrypta* and other darters, siltation must be controlled. Riparian habitat destruction during bridge construction should be minimized. Channelization of the lower Big Black River also disturbs natural substrate formations.

It appears that *Ammocrypta clara* is a peripheral species in Mississippi. Considering the western sand darter's range, future efforts to locate this species in Mississippi might focus on sand bars in the Mississippi River itself.

## ACKNOWLEDGMENTS

We thank J.H. Caruso (Tulane University) and M.S. Peterson (Mississippi State University) for allowing us to examine specimens in their care. R. Jones, S.T. Ross and R. Weil supplied information on other *Ammocrypta* collections from Mississippi. This study was funded by the Mississippi Wildlife Heritage Fund, Mississippi Department of Wildlife, Fisheries and Parks.

## LITERATURE CITED

- Douglas, N.H. 1974. Freshwater Fishes of Louisiana. Claitor's Publ. Div., Baton Rouge. 443 pp.
- Harlan, J.R. and E.R. Speaker. 1956. Iowa Fish and Fishing. Iowa State Cons. Comm., Des Moines. 237 pp.
- Kuehne, R.A. and R.W. Barbour. 1983. The American Darters. University Press of Kentucky. 177 pp.
- Page, L.M. 1983. Handbook of Darters. TFH Publ. 271 pp.
- Pflieger, W.L. 1975. The Fishes of Missouri. Missouri Dept. Of Conservation. 343 pp.
- Robins, C.R., R.M. Bailey, C.E. Bond, J.R. Brooker, E.A. Lachner, R.N. Lea, and W.B. Scott. 1991. Common and Scientific Names of Fishes from the United States and Canada, 5th ed. Amer. Fish. Soc. Spec. Publ. 20. 183 pp.
- Robison, H.W. and T.M. Buchanan. 1988. Fishes of Arkansas. The University of Arkansas Press, Fayetteville. 536 pp.
- Ross, S.T. and W.M. Brenneman. 1991. Distribution of Freshwater Fish in Mississippi. Mississippi Dept. Wildlife, Fisheries and Parks, Jackson. 548 pp.
- Stauffer, J.R. 1980. *Ammocrypta clara* Jordan and Meek, western sand darter, p. 618 in D.S. Lee et al. (eds.), Atlas of North American Freshwater Fishes. N.C. State Mus. Nat. Hist., Raleigh. 854 pp.
- Williams, J.D. 1975. Systematics of the percid fishes of the subgenus *Ammocrypta*, genus *Ammocrypta*, with descriptions of two new species. Bull. Alabama Mus. Nat. Hist. 1. 56 pp.

---

## MUSEUM NOTES

### The Southern Illinois University at Carbondale Ichthyological Research Collections

Brooks M. Burr and Melvin L. Warren, Jr.  
Department of Zoology  
Southern Illinois University  
Carbondale, IL 62901-6501

## HISTORY

The Southern Illinois University at Carbondale ichthyological research collections (standard symbolic code=SIUC, Leviton et al., 1985; address correction in Leviton and Gibbs, 1988: 282) began in 1977 when the first author and curator was hired by the Department of Zoology. A small teaching collection was then available for ichthyology and fisheries courses; however, it was limited in scope, and many specimens were dehydrated and subsequently discarded.

Collections made in the late 1970s were not catalogued initially (they have been subsequently). Early collecting in earnest began in order to obtain adequate distributional information on Kentucky fishes, and the collection subsequently grew dramatically in size. From these collections it was discovered that a number of species had not yet been recorded formally from Kentucky and at least 10 unnamed Kentucky species awaited taxonomic description. Also, during this period (late 1970s), regular collections were taken from the Mississippi River and the Ozark Uplands of Missouri. Early on, space limitations became apparent and large series of common species (e.g., common carp, creek chub, bluntnose minnow, central stoneroller, green sunfish, bluegill) were not desirable and have either been discarded or donated to other institutions.

Previous to 1981, the collection was maintained in a relatively small room, but was thereafter moved to one of the largest laboratories (470 square feet) in the department. The collection is officially part of the Department of Zoology and currently is housed in a modern facility (Life Science II Building) completed in 1970 and located on Lincoln Drive on the SIUC campus. The collection is open from 8:00 to 5:00 Monday through Friday, but advance notice of visits is appreciated.

In 1977, a program was initiated on the life histories of nongame fishes, and all collections made in association with this research are now deposited in the SIUC fish collection. To date, the life history program has resulted in extensive series of specimens representing most life stages of 22 species [Cyprinidae: *Notropis* (2); Ictaluridae: *Noturus* (9); Fundulidae: *Fundulus* (1); Elasmobranchidae: *Elassoma* (1); Percidae: *Etheostoma* (7), *Percina* (1); Cottidae: *Cottus* (1)]. Seven students have received Master's degrees from autecological research on these fishes. Annual field trips with ichthyology classes and numerous, extensive trips throughout the eastern United States to obtain critical material for doctoral dissertations has added significantly to the diversity and abundance of preserved and frozen fish collections. A small cleared and stained collection was begun in 1981, and an osteological collection was initiated in 1985.

Commencing in 1978, and thus contemporaneous with the beginning of the SIUC fish collection, was the extensive drainage surveys of Kentucky fishes (Harker et al., 1979; Harker et al., 1980; Harker et al., 1981; Hannan et al., 1984) coordinated by the second author under the auspices of the Kentucky State Nature Preserves Commission (KNPC). In 1981, the entire KNPC collection of fishes was transferred to SIUC. Although it took several years to sort and catalog this material (with material still coming in), these collections effectively tripled the size of the SIUC collection. As a result, the collection now contains representatives, and in most cases extensive series from all major drainages, of all native Kentucky fishes including many voucher specimens of species otherwise unknown from the state. Major independent collecting surveys to coastal North Carolina (1983-84) and New Mexico (1990-91) and contract surveys in Alabama (Warren and Burr, 1990), North Carolina (e.g., Burr and Lee,



1985), Kentucky (Warren and Burr, 1990; Warren and Burr, 1991), and Illinois (e.g., Phillippi et al., 1986; Burr and Warren, 1987; Warren and Burr, 1987; Warren, 1991) over the period of 1983-1991, plus additional smaller collections have contributed immeasurably to the geographic coverage of the collection. Many other collections have resulted from the long-term goal of producing a new "Fishes of Kentucky" (Burr and Warren, manuscript) and the continuous updating of "A Distributional Atlas of Kentucky Fishes" (Burr and Warren, 1986). Exchanges with colleagues in Japan and China have yielded a variety of Asian cyprinids and catfishes and even a *Psephurus gladius*! A large collection from Brazil donated by a former graduate student (Thomas E. Shepard) yielded an array of neotropical species. Contacts with commercial fishermen and fish biologists in both Kentucky and Illinois have provided significant distributional records for several riverine fishes. In recent years, tissues, extracts, and whole animals have been accumulated and maintained in ultrafreezers for use in molecular systematic studies.

## HOLDINGS

The bulk of the material in the collection is representative of the freshwater fishes of the eastern United States. For example, we have over 5,000 lots of cyprinids representing 203 species; 3,500 lots of percids representing 125 of the 165 known species; 800 lots of *Noturus* representing 23 of the 27 species; and 2,000 lots representing 29 of the 31 species of centrarchids. The collection is used extensively by SIUC faculty and students, and many colleagues and agencies request loans, distributional records, color transparencies, and other data associated with the collections. Over 80 published papers and agency reports are based, in part, on specimens deposited in the SIUC ichthyological collection. Since 1980, over 60 fish loans or gifts have been processed amounting to over 6,000 specimens.

In Illinois, the SIUC collection is the largest university collection and the third largest in the state after the Field Museum of Natural History and the Illinois Natural History Survey. It currently contains 20,880 catalogued lots and 250,000 specimens representing 175 families, 465 genera, and 1,120 species of freshwater and marine fishes. The cleared and stained collection contains 29 species in 30 lots (mostly darters); the osteological collection is represented by 18 species in 100 lots (mostly sunfishes). Paratypes of the following 20 species are represented: *Campostoma pauciradii* Burr and Cashner (4 lots), *Luxilus cardinalis* (Mayden) (1 lot), *Notropis cahabae* Mayden and Kuhajda (1 lot), *Notropis rupestris* Page (1 lot), *Fundulus bifax* Cashner and Rogers (1 lot), *Etheostoma baileyi* Page and Burr (1 lot), *Etheostoma barrenense* Burr and Page (1 lot), *Etheostoma brevirostrum* Suttkus and Etnier (1 lot), *Etheostoma chermocki* Boschung, Mayden, and Tomelleri (1 lot), *Etheostoma chienense* Page and Ceas (1 lot), *Etheostoma corona* Page and Ceas (1 lot), *Etheostoma crossopterygion* Braasch and Mayden (1 lot), *Etheostoma flavum* Etnier and Bailey (10 lots), *Etheostoma*

*nigripinne* Braasch and Mayden (1 lot), *Etheostoma oophylax* Ceas and Page (1 lot), *Etheostoma pseudovulatum* Page and Ceas (1 lot), *Etheostoma pyrrhogaster* Bailey and Etnier (1 lot), *Etheostoma rafinesquei* Burr and Page (1 lot), *Etheostoma tallapoosae* Suttkus and Etnier (1 lot), and *Etheostoma zonistium* Bailey and Etnier (1 lot). We currently maintain no primary types.

At present the frozen tissue collection contains geographic samples of several cyprinids (mostly *Lythrurus* and barbeled minnows), centrarchids (mostly *Lepomis*), percids (mostly *Etheostoma*), and cottids; frozen tissues are available for loan or exchange.

A unique aspect of the SIUC collection is the 2 x 2 color transparencies representing many specimens deposited in the collection. Nearly all species of North American darters (143 species), minnows (165 species), suckers (50 species), catfishes (32 species), and sunfishes (23 species) are included as well as numerous representatives of most of the other North American fish families. [A duplicate set of most of the fish slides also is maintained by Larry M. Page, Illinois Natural History Survey, Champaign]. We maintain the largest (over 3,000) collection of 2 x 2 slides of the history of ichthyology anywhere in the world, including pictures of nearly every prominent ichthyologist in North America and many others from around the world. In addition, slides of title pages and color plates from the classic works in natural history, some dating back to the 17th century, are part of the history of ichthyology slide set. [A duplicate set of historical slides also is maintained by Walter R. Courtenay, Jr., Florida Atlantic University, Boca Raton]. Also associated with the collection are numerous radiographs, over 8,000 catalogued reprints, sets of a number of journals, and several hundred fish books.

## CURATION

Growth of the collection varies from year to year depending on the activities of the curator and students but in recent years has averaged about 7,500 specimens or 5% per year. Specimens are stored in 70% ethyl alcohol in either glass jars with polypropylene lids; "ball" jars with rubber gaskets; "canning" jars with metal, screw-top lids; or stainless steel containers. Most of the jars are housed on nearly 2,000 square feet of open shelving or in metal cabinets in approximate phylogenetic order by family (sensu Nelson, 1984). Within a family, entries are shelved in alphabetical order by genus and within a genus by species. Species are further subdivided by state in separately labeled boxes. Collection data are maintained in file cabinets on "sorting sheets" by country, state, and county. Each sheet contains the zoological names of the species captured at a given site with catalog numbers, common and legal (if available) locality data, name(s) of collector(s), date, habitat notes, and other notations. None of the collections associated with the ichthyology program are presently computerized. Computerization of the collections is a priority, but it must await adequate funding and assignment of appropriate

personnel. A moderate backlog of material from the Missouri River drainage, Kansas; the Green and Cumberland river drainages, Kentucky; and a number of drainages of eastern Kentucky remain to be sorted and catalogued.

## SUMMARY

Although the SIUC collection is small relative to those of institutional museums, we are pleased with the extent of use of the collections by colleagues, with the interest that former graduate and ichthyology students have shown in adding to the collection, and with the support of the Department of Zoology in providing space, supplies, and student workers. In the future we hope to computerize the collection records, increase the size of the specimen preparation area, incorporate fire protection, and decrease light exposure to the storage shelves. A 38-page list of all fishes in the collection, with numbers of lots, specimens, and general location (by state or country) indicated, is available from BMB. We encourage loans, exchanges, and visits; please address queries to BMB.

## LITERATURE CITED

- Burr, B. M. and M. L. Warren, Jr. 1986. A distributional atlas of Kentucky fishes. Ky. Nat. Preserves Comm. Sci. Tech. Ser. No. 4. 398 pp.
- Burr, B. M. and D. S. Lee. 1985. Status survey of the Carolina madtom, *Noturus furiosus*. U. S. Fish and Wildlife Service, Office of Endangered Species, Asheville, North Carolina. 32 pp.
- Burr, B. M. and M. L. Warren, Jr. 1987. Wetland resources of the Ohio and lower Wabash rivers--An inventory of fishes, mussels, and crayfishes. Nongame Wildlife Conservation Fund, Division of Natural Heritage, Illinois Department of Conservation. 85 pp.
- Hannan, R. R., R. R. Cicerello, E. D. Keithan, M. L. Giovannini, and L. J. Andrews. 1984. Aquatic biota and water quality and quantity survey of the Kentucky oil-shale region. Kentucky Nature Preserves Commission, Technical Report, Frankfort, Kentucky. 557 pp.
- Harker, D. F., Jr., S. M. Call, M. L. Warren, Jr., K. E. Camburn, and P. Wigley. 1979. Aquatic biota and water quality survey of the Appalachian Province, eastern Kentucky. Kentucky Nature Preserves Commission, Technical Report, Frankfort, Kentucky. 1152 pp.
- Harker, D. F., Jr., M. L. Warren, Jr., K. E. Camburn, S. M. Call, G. J. Fallo, and P. Wigley. 1980. Aquatic biota and water quality survey of the upper Cumberland River basin. Kentucky Nature Preserves Commission, Technical Report, Frankfort, Kentucky. 679 pp.
- Harker, D. F., Jr., M. L. Warren, Jr., K. E. Camburn, and R. R. Cicerello. 1981. Aquatic biota and water quality survey of the western Kentucky coal field. Kentucky Nature Preserves Commission, Technical Report, Frankfort, Kentucky. 896 pp.
- Leviton, A. E., R. H. Gibbs, Jr., E. Heal, and C. E. Dawson. 1985. Standards in herpetology and ichthyology: Part I. Standard symbolic codes for institutional resource collections in herpetology and ichthyology. *Copeia* 1985(3):802-832.
- Leviton, A. E. and R. H. Gibbs, Jr. 1988. Standards in herpetology and ichthyology. Standard symbolic codes for institution resource collections in herpetology and ichthyology. Supplement No. 1: Additions and corrections. *Copeia* 1988(1):280-282.
- Nelson, J. S. 1984. Fishes of the world, second edition. John Wiley and Sons, New York. 523 pp.
- Phillippi, M. A., B. M. Burr, and R. A. Brandon. 1986. A preliminary survey of the aquatic fauna of the Cache River in Johnson and Pulaski counties, Illinois. Nongame Wildlife Conservation Fund, Division of Natural Heritage, Illinois Department of Conservation. 252 pp. + 2 app.
- Warren, M. L., Jr. 1991. Identification and enumeration of fishes collected for the Upper Illinois River Basin pilot study-national water quality assessment program. U.S. Geological Survey, Water Resources Division, Illinois District. 28 pp.
- Warren, M. L., Jr. and B. M. Burr. 1987. Evaluation of the distributional status and identification of critical habitat of the bigeye chub, *Hybopsis amblops*, in Illinois, with comments on the distribution of the pallid shiner, *Notropis amnis*. Illinois Endangered Species Protection Board, Division of Natural Heritage, Illinois Department of Conservation. 36 pp.
- Warren, M. L., Jr. and B. M. Burr. 1990. Status survey of the palezone shiner, *Notropis* sp., cf. *procne*, a federal candidate for listing. U. S. Fish and Wildlife Service, Office of Endangered Species, Asheville, North Carolina. 25 pp.
- Warren, M. L., Jr. and B. M. Burr. 1991. Status survey of the relict darter, *Etheostoma chienense* (family Percidae): a species endemic to Bayou du Chien, western Kentucky. U. S. Fish and Wildlife Service, Office of Endangered Species, Asheville, North Carolina. 33 pp.

Present Address (MLW): USDA Forest Service, Southern Experiment Station, Forest Hydrology Laboratory, Oxford MS 38655

---

## MINUTES

### Business Meeting 18th Annual Meeting Southeastern Fishes Council

The Southeastern Fishes Council met 9 April 1992 in the Wilson Room of the Paul W. Bryant Conference Center on the campus of the University of Alabama, Tuscaloosa. The meeting was called to order at 5:30 PM local time.

## Committee Reports

### Secretary's Report:

Minutes of the 1991 Business Meeting appeared in Issue 25 of the PROCEEDINGS. They were approved with corrections.

### Treasurer's Report:

Checking account established at the Tulane University Employee's Credit Union on 24 February 1992.

Balance brought forward from previous Treasurer	\$1,099.38
Dues and other contributions received (through 4/2/92)	\$1,070.00
Expenses (through 4/2/92)	
PROCEEDINGS	\$ 392.10
Mailing Labels	\$ 53.85
Buttons	\$ 265.96
Check fee	<u>\$ 12.35</u>
	\$ 742.26

Checking Balance (4/2/92) \$1,427.12

Paine Webber Cash Fund (4/2/92) \$2,167.92

TOTAL ASSETS (4/2/92) \$3,595.04

### Editor's Report:

Steve Stevenson sent regrets that a conflict with his teaching schedule, brought about by the change in the date of the Business Meeting, prevented him from attending and delivering his report in person. The following report was read on his behalf. Apologies for the close call on publication of Issue no. 25 (March 1992). At the time of the meeting, there were four manuscripts in various stages of review: two research articles, one technical report, and one museum review. George Sedberry of the Marine Resources Research Institute, Charleston SC has expressed a willingness to serve as "Desk-top Editor" for the PROCEEDINGS. Having this help would save approximately \$20 per page in setup charges (more of tables). We would then have only the cost of printing to contend with. [Steve] would be willing to stay on as Managing Editor, overseeing reviews of manuscripts and distribution of the PROCEEDINGS once in print. At the very least, if asked to step down as Editor, [he] would see the four manuscripts presently in preparation through to publication.

### Committee Reports:

**PROCEEDINGS Committee:** Prior to reporting on responses to the questionnaire he mailed to current SFC members, Herb Boschung pointed out his committee, charged by past-Chairman Snelson to consider improvements to the PROCEEDINGS, was improperly formed. The BYLAWS [Article III section 23] state that the Editor and five assistants of his choice shall compose the Proceedings Committee. He accepted responsibility for problems that arose as a result of the survey and apologized for any ill feelings that might have resulted, reserving a special apology for the Editor, Michael Stevenson. He added that the Committee would not make

recommendations, but would merely forward the survey results to the Editor to be used in any way the Editor saw fit, and that the committee would then be dissolved. He mentioned that there were 81 respondents to the survey and summarized the responses item by item.

**Resolution Committee:** Dave Etnier read the following resolution on the Cahaba River:

**Whereas** the Southeastern Fishes Council is dedicated to the preservation of southeastern fishes, and

**Whereas** the Cahaba River supports one of the largest freshwater fish faunas in North America for its size and an extraordinary number of habitats for this unique fish life, and

**Whereas** there are impending threats to this unique river and its constituent fish fauna regarding uncontrolled urban runoff, inadequate standards for industrial discharge, existing levels of heavy metals that are too high, and an extraordinarily high percentage of waste water discharge for the size of the river,

**Therefore** be it resolved that the Southeastern Fishes Council urges the Alabama Department of Environmental Management and the State of Alabama to move to establish regulations for the Cahaba River and other "Outstanding Alabama Waters" that are adequate to prevent any significant further lowering of water quality, and that will begin to restore the water quality of these waterways.

The resolution, which was authored by Rick Mayden, had been acted upon prior to the meeting. Four other resolutions dealing with proposed landfills on the Conasauga and Etowah Rivers, woodchipping in the Tennessee River drainage, and a proposed impoundment on the Pea River in Alabama were mentioned but not read. They were to be acted upon sometime during 1992.

### Old Business:

It was reported that no action had been taken of the issue of tax status since the last meeting. As indicated in Werner Wieland's lengthy report on the matter in the Minutes of the previous Business Meeting [Proceedings Issue no. 25], the only action that was required was filing of a new Taxpayer Identification Number (TIN). Herb Boschung moved that the CPA that investigated the matter for Werner Wieland also look into the matter of a new TIN. In the discussion that followed it was pointed out that a new TIN would not settle the issue of tax deductible contributions to the SFC. It was decided that SFC should continue to pursue tax exempt status.

### New Business:

It was announced that Mark Ferguson did the drawing of the pygmy sculpin for the 1992 button.

Chairman Bauer asked that if there were any amendments to the constitution please let him know.

Scott Mettee called attention to a flyer that had been distributed to members of the Mobile Chamber of Commerce affiliated with the maritime industry or affected in any way by water-related transportation, alerting them of the US Fish and Wildlife Service's proposed listing of the Alabama sturgeon

and the problems this might cause for dredging on the Alabama and Tombigbee Rivers, electric power generation at Mobile's Barry Steam Plant, and minimum flow standards on the rivers. The flyer encouraged anyone potentially affected by the situation to write the Alabama Department of Economic and Community Affairs requesting a study of the economic impact of such a listing, which would then be used to help block listing of the sturgeon.

#### Regional Reports:

Chairman Bauer commented that we have not been getting reports from the Northwest Region. Herb Boschung suggested that John Harris or Bill Matthews be contacted and asked to take over reporting for the region. Bob Cashner sent regrets that his involvement in a search for a new Dean at the University of New Orleans prevented him from preparing a report. Reports were read as follows:

Fritz Rohde -	Northeast
Noel Burkhead -	Southeast
Dave Etnier -	North-Central
Bernie Kuhajda -	South-Central

After accepting a motion to adjourn, Chairmen Bauer closed the meeting at 6:35 PM.

Respectfully Submitted,  
Hank Bart, Jr., Secretary/Treasurer

## REGIONAL SFC REPORTS

### REGION I - Northeast

Two state books have been published. *Delaware's Freshwater and Brackish Water Fishes* by Maynard S. Raasch and Vaughn L. Atlemus, Sr. can be obtained for \$12 from Claude E. Phillips Herbarium, Delaware State College, Dover, Delaware 19901. *The Freshwater Fishes of North Carolina* by Ed Menhinick can be obtained from him at UNCC for \$37.50. We're still waiting for the appearance of Jenkins and Burkhead's tome.

There was a major fish kill on a tributary creek and in the South Fork of the Roanoke River, habitat for *Percina rex* caused by a spill of liquid manure. Instead of a fine, the violator agreed to a conservation easement. *Percina rex* is still present in the Roanoke at Salem. Bob Jenkins and students collected two adults (which were released) in March.

Paul Angermeir and Mel Warren have been working on recovery plans for Virginia state endangered species - Tennessee dace, blackbanded sunfish, sharphead darter, variegated darter, and duskytail darter. There is no field work involved, just assimilation of data and recommendations. The official list of Virginia threatened and endangered species (excluding federal species) was recently recognized. It includes five endangered and ten threatened species. Paul

recently collected *Etheostoma cinereum* in the Clinch River in Virginia.

Gene Maurakis and Bill Woolcott have a two part video on Phylogenetic Systematics available with an instructor's manual.

The North Carolina list of endangered fishes was officially approved in November 1991. It includes 9 endangered, 11 threatened, and 30 special concern fishes. I will be doing survey work on five of these fishes endemic to the upper Dan River in 1992.

F. Rohde

### REGION II - Southeast

#### Conservation Notes

Georgia.--An apparently undescribed redhorse sucker, the "bighead" redhorse, a *Moxostoma carinatum*-like species on the Atlantic slope, was, until recently, only known from two specimens: one from the Pee Dee in North Carolina (1985) and one from the Savannah River, Georgia/South Carolina, in 1980. Bud Freeman, University of Georgia, and Jimmy Evans, Georgia DNR, recently discovered a viable population in the Oconee River, Georgia. The National Fisheries Research Center-Gainesville (NFRC-G) is initiating a survey to document the distribution of this sucker to see if it merits federal conservation protection. Bob Jenkins, Roanoke College, has been enlisted to critically examine the putative specific status of this enigmatic sucker.

Conservation status surveys by the NFRC-G of two undescribed darters, the Cherokee darter, *Etheostoma (Ulocentra)* sp., and the Etowah darter, *E. (Nothonotus)* sp., both endemic to the Etowah River system, will be completed in summer 1992. Bruce Bauer, Breedlove, Dennis, & Associates, and Dave Etnier, University of Tennessee, will describe the Cherokee darter, and Rob Wood, University of Alabama, will describe the Etowah darter as part of his dissertation research. Preliminary analysis of distribution patterns and abundance suggests the Cherokee darter may merit listing as threatened and the Etowah darter as endangered. The Etowah River exhibits chronic degradation from a host of anthropogenic activities; perhaps seven species of fishes have been extirpated from the system, and possibly 35 species of freshwater mussels.

Noteworthy is the recent updating of the Georgia state list of fishes meriting state conservation protection from two species to a realistic 55 species. The efforts of Bud Freeman were pivotal in the formulation of the new list. State DNR officials met with a group of regional ichthyologists (Hank Bart, Tulane University; Noel Burkhead and Steve Walsh, NFRC-G; Dave Etnier, Bud and Mary Freeman, and Carter Gilbert, Florida Museum of Natural History) in November 1991 to develop a list of proposed species.

Florida.--The updated FCREPA (Florida Committee on Rare

and Endangered Plants and Animals) volume on fishes is due out in May 1992. This is updated from the 1978 fish volume, both edited by Carter Gilbert. Carter reports this new volume gives a more realistic assessment of levels of jeopardy for freshwater and euryhaline fishes in Florida. Changes in status rankings resulted from better inventory, taxonomic changes, and in one case, a new state record. The 1978 list had 43 species ranked at various levels of imperilment as opposed to 39 species on the current list. Of the 39 species (about 23% of Florida's native fauna), 36 are freshwater species and three are essentially marine.

Walt Courtenay reports that the peacock bass introduced to south Florida by state fisheries biologists is probably not *Cichla ocellaris*. The peacock bass introduced to Florida originated from Venezuela, via Texas, apparently outside the known range of *C. ocellaris*. At least it's not *Lates*.

Bill Loftus, Everglades National Park, has received reports of visual sightings of the peacock bass at a boundary of the ENP. Bill also reports that pike killifish, *Belonesox belizanus*, and the Mayan cichlid, *Cichlasoma urophthalmus*, have dramatically extended their ranges in the park and now occur in natural habitats as opposed to disturbed or man made habitats.

The Gulf sturgeon population in the Suwannee River is entering the fourth year of study by the NFRC-G. Movements and habitat use by juvenile and adult fish are fairly well understood from radio tagging studies, but remain a mystery for YOY sturgeons. Scant data suggest that YOY may use the headwater reaches of the system in Florida and possibly Georgia.

Of general interest to the SFC, the zebra mussel was just detected in Pickwick Reservoir of the Tennessee River. It is quite possible that the zebra mussel will enter the Mobile drainage via the Tenn-Tom Canal. It is feared that zebra mussels may well cause the extinction of some native mussels. The NFRC-G is responsible for the national tracking of the zebra mussel.

#### Research Notes

Gary Meffe, Savannah River Ecology Laboratory.--Continues to work on life history evolution of *Gambusia holbrooki* and on energetics relative to lipid storage. He is in the early planning stage of developing a college level textbook on conservation biology; hopes to complete life history study of *Aphredoderus* this year.

Bud and Mary Freeman, UGa.--Have been taking data on a curious new (?) *Percina* from the Chattahoochee system in Georgia. Mary has been studying movement in *P. nigrofasciata* in a Flint River tributary in south Georgia. Bud continues to be very active in Georgia ecopolitics. Bud, with Noel Burkhead, have a peculiar bass from the upper Savannah that is spotted bass-like, but has distinct pigmentation patterns in young and juveniles.

Carter Gilbert, FMNH.--Edited and contributed to the current FCREPA volume on fishes, expected to be out in May; is making good progress on the Florida fishes book with Jim Williams; all other studies are on hold until Florida fishes

book is completed.

Noel Burkhead, NFRC-G.--Authored with Bob Jenkins the chapter on fishes in the book Virginia's Endangered Species; reported with Jim Williams on the hybrid golden shiner X rudd; presently conducting conservation status surveys on the "bighead" redhorse sucker, and the Cherokee and Etowah darters; is analyzing data on spawning behavior of the endangered boulder darter.

Bill Smith-Vaniz has recently joined the NFRC-G on a part time basis. Bill will be working on exotic fishes with Jim Williams.

Steve Walsh, NFRC-G.--Recently began working for the USFWS; is responsible for global climate change studies in southern Appalachian fishes. Steve has about completed the construction of a temperature tolerance room as a part of this study.

Jim Williams, NFRC-G.--Authored with Glenn Clemmer the recent description of the Alabama sturgeon, *Scaphirhynchus suttkusi*; with Walt Courtenay and Dawn Jennings the Appendix 2 on exotic fishes in the Common and Scientific Names of Fishes; with Dawn Jennings the data base for exotic fishes in the Western U.S. Jim is trying to build a freshwater mussel group to study the highly imperiled freshwater mussel fauna in the southeast. Jim suspects we may be on the verge of witnessing a major extinction event of many southeastern mussels.

Buck Snelson, University of Central Florida.--About half finished with his phylogenetic revision of *Elassoma*; has a student studying the genetics of an apparently new *Elassoma* from Florida.

Bruce Bauer, B, D, & A.--Working with Dave Etnier on the description of the Cherokee darter.

Walt Courtenay, Florida Atlantic University.--A stalwart opponent to exotic species introductions, his energy continues unabated. He recently completed a major report on exotic fishes for the Office of Technological Assessment (a research arm of the Continental Congress), which will be utilized in further actions by Congress in addressing exotic species problems.

Bill Loftus, ENP.--Continues to monitor the effects of the three-year drought on marsh fishes. He reports that species diversity has recovered, numbers and biomass are still greatly reduced. Is working with Grant Gilmore, Harbor Branch, to document the specialized freshwater/marine ecotonal fauna of Florida.

N. Burkhead

---

### REGION III - North-Central

Attempts to reintroduce smoky and yellowfin madtoms into Abrams Creek were continued (data provided by Pat Rakes and Peggy Shute of Lifespace Technologies, Knoxville) during 1991. Only one yellowfin madtom nest was harvested,

and only 9 of the 150 eggs survived. These were added to the captive brood stock. For the smoky madtom, percent survival was 32%, with 134 juveniles released into Abrams Creek below the campground. An additional 17 juveniles were added to the captive stock. Reasons for higher than usual egg mortality have been identified and corrected. A May survey of Abrams Creek at the transplant site revealed two adults that were presumably survivors of earlier releases. One was a male under a potential nest rock, and the other was a large, gravid female that had recently died.

On 18 October we made our annual visit to the Little Tennessee River above Fontana Reservoir, North Carolina, to harvest spotfin chubs (*Cyprinella monacha*). We caught 129 spotfin chubs and transported them to Abrams Creek where they were released near the footbridge below the campground. There was no mortality.

People involved in both the above projects are in general agreement that 1992 will be a year to spend more time assessing the results of the previous three or more years of attempted introductions, and evaluating additional transplant sites. Madtom nests will not be harvested from Citico Creek this year, but population monitoring will continue there, and will be increased in Abrams Creek where snorkelers will be looking for both madtoms and spotfin chubs from the campground downstream to Chilhowee Reservoir. In recent years there has been an indication that smoky madtom populations are increasing in Citico Creek (perhaps due to closure of some fords and "car washing" sites); yellowfin madtoms, on the other hand, appear to be decreasing, and may be at dangerously low population levels. An attempt will be made to produce young madtoms from the brood stock of both species currently being held at Lifespace Technologies. If spotfin chubs are harvested from the Little Tennessee again this fall, a new transplant site will be chosen.

Lifespace Technologies is now a non-profit association that has split off of Aquatic Specialists, and is hoping to build a facility near Melton Hill Reservoir (John Tullock's property) for captive propagation of jeopardized southeastern fish species. In addition to the two madtoms mentioned above, plans are underway to propagate *Etheostoma* (*Catonotus*) sp., the duskytail darter.

Hank Bart, Noel Burkhead, Dave Etnier, Carter Gilbert, and Steve Walsh joined Bud and Mary Freeman and representatives of the Georgia DNR in drafting and recommending a new list of jeopardized fish species for Georgia. A similar update is planned for Tennessee.

Status survey work has been active, with Mel Warren's survey of the undescribed palezone shiner; Steve Layman on the undescribed *Doration* from the upper Caney Fork and the undescribed *Catonotus* related to *E. nigripinne* from the same area; Brooks Burr and Jim Grady are starting on middle Duck River species *Etheostoma aquali*, *E. striatulum*, and the *Noturus elegans* representative(s) of that area; Pat Rakes will be working with *Fundulus julisia*; Noel Burkhead and Jim Williams are likely to be conducting additional studies on *Etheostoma wapiti*. Requests for information to list the palezone shiner and the Caney Fork *Doration* have been made

by Melvin and Steve, respectively.

Charley Saylor reports that final approval is virtually certain for an attempt to establish lake sturgeon (*Acipenser fulvescens*) in the Clinch River above Norris Reservoir.

The university of Tennessee 1991 regional faunas trip to west Tennessee produced some interesting finds, including (1) a remarkable site for fish collection on the Hatchie River, at Big Eddie on the eastern edge of Hatchie National Wildlife Refuge in the southeast corner of Haywood County--*Noturus stigmosus* was abundant, *Etheostoma histrio* and *E. lynceum* were both present, we got 33 species, and the site is probably collectable at most water levels; (2) *Cyprinella venusta* showed up in the Tennessee River below Pickwick--surely via the Tenn-Tom Waterway; (3) *Cyprinella camura* has appeared in large numbers in the Big Sandy system farther downstream--previously it was known from only a few western tribs to the lower Tennessee River near the Mississippi border; and (4) we found a population of *Cottus bairdi* or something in a tributary to the Red River (lower Cumberland drainage) north of Clarksville--the nearest Cumberland drainage *bairdi* types are in the Caney Fork system far upstream.

Snail darters continue to appear in the lower Holston and lower French Broad rivers in Knoxville, apparently the result of an earlier transplant effort in the Holston. These populations may be the source of the two snail darters found in Little River. Larry Stark, the conceptual artist who visited Tennessee to "fish" for a snail darter, was rewarded for his efforts in lower Big Sewee Creek, where we got several for him to photograph and conceptualize over. Wayne Starnes and Dick Bryant recently found several specimens of *Noturus stanauli* at the Clinch River type locality, where it had not been seen for a worrisome time. Hopefully *Hybopsis cahnii* will follow the same pattern, and reappear in good numbers. A population of *Etheostoma luteovinctum* has been located in Nashville in Brown's Creek, downstream from the mouth of Stones River.

The Tennessee Aquarium is scheduled to open May 1 in Chattanooga. It will feature mostly freshwater fishes and the habitats you might see by following the Tennessee River from the mountains of east Tennessee to the Mississippi River and thence into the Gulf of Mexico. Also featured will be "Rivers of the World" featuring freshwater fishes from major rivers of other regions of North America, Africa, South America, and Eurasia. I have been and continue to be very impressed with this venture, the attention to accurate detail constantly being demonstrated by the staff, and the tremendous educational experience it will be.

The Tennessee fish book galleys have been corrected twice, and layout of pages will begin shortly. Publication guess is the same as I reported it to be last year--a year from this fall.

D. Etnier



## REGION IV - South-Central

Jim Stewart of the U.S. Fish & Wildlife Endangered Species Office at Jackson, MS reports that the listing of *Percina aurolineata* and *Cyprinella caerulea* as threatened is pending a ruling and is expected out soon. A survey of populations of *Notropis cahabae* is underway, and the Alabama Geological Survey is studying water quality at several stations in the Cahaba River. Eleven mussels in the Mobile Basin will soon be listed, eight as endangered and three as threatened. The Gulf sturgeon in the Pearl River will be fitted with a transmitter by the state of MS and tracked, if some can be captured. A status review on *Crystallaria asprella* was just finished, and it was determined it does not warrant protection, but should still be listed as a category 3.

Listing of *Scaphirhynchus suttkusi* as endangered is awaiting a signature in Washington. Carl Couret of the U.S. Fish and Wildlife Service in Daphne, AL reports lots of media coverage on the listing of the Alabama sturgeon. Big opposition efforts are coming from the local chamber of commerce. The reason for the uproar may be due to the Service declaring critical habitat for the sturgeon at the same time it is listed, rather than doing so afterwards. He also reports that his office is going to study the effects of channel maintenance by the Corps of Engineers on the mussel fauna in the East Fork Tombigbee River. Adequate flows are needed to flush the system, but must not harm the mussel fauna.

Carl also stated that Alabama is suing Georgia over water rights due to a proposed reservoir on the upper Tallapoosa, and Alabama is at odds with the Corps of Engineers over proposed water reallocation from hydroelectric dams to downstream municipalities. A tristate comprehensive study of systems in AL, GA, and FL by several federal agencies is pending. This study will include the Alabama River from its junction with the Mobile River upstream, including all of its tributaries, and the Flint, Chattahoochee, and the Apalachicola rivers, including Apalachicola Bay.

Allen Mueller of the U.S. Fish & Wildlife Service in Vicksburg, MS reports that an abandoned sand & gravel mining operation captured the Buttahatchee River, shortened its length, and is causing head-cutting. The main concern is for the mussel fauna.

Scott Mettee from the Alabama Geological Survey is finishing studies on coalbed methane gas produced water and its effect on biota in streams of the Black Warrior Drainage. The Survey is also monitoring water quality on the Cahaba River. *Alosa alabamiae* and the Gulf sturgeon are alive and well in south Alabama. New *Cycleptus elongatus* records have been located in the lower Tallapoosa, and *Crystallaria asprella* and *Moxostoma carinatum* were found in the Conecuh River. Steve Harris and Pat O'Neil have a book just out on the caddis flies of Alabama; it covers 350 species with dot distribution maps.

Bill Birkhead from Columbus College, GA recently finished a survey of fishes of Fort Benning Military Reservation, looking for rare, threatened, and endangered

species. He found a few specimens of *Alosa chrysochloris*, and specimens of *Cyprinella callitaenia* were found in impounded sections of the Chattahoochee and in a few lower tributaries, where it was outnumbered by *C. venusta* 50 or 100 to one. *Pteronotropis euryzonus* was widespread in blackwater streams and found in pH as low as 3.8. It was variably present in higher pH streams, and missing from Fall Line streams. Four specimens of *Etheostoma parvipinne* were collected in the Fall Line streams. Shifting sand substrate due to natural instability, and perhaps due to military activities, was noted in many streams on the reservation. Bill recommended establishing buffer zones along the streams.

Steve Ross of the University of Southern Mississippi just completed a preliminary atlas of Mississippi fish distributions with Bill Brenneman. They are currently working on the book of Mississippi fishes. Recent funding was acquired from the U.S. Forest Service to look at flood plain and fish interactions in the Pascagoula Drainage.

Herb Boschung at the University of Alabama has finished a catalog of the freshwater and marine fishes of Alabama, which is being published through the Alabama Museum of Natural History Bulletin. This work covers 950 species and 2500 nominal species. It is due out anytime. Progress is on schedule with the Alabama fishes book that Bo is working on with Rick Mayden. Bo and Rick also recently discovered a snubnose darter in the upper Black Warrior River different from the Warrior darter. Graduate student Rob Wood and Rick are completing a morphological study of the *Etheostoma jordani* complex in the Mobile Drainage, where they have found four different forms.

Hank Bart at Tulane University has found a different form of *Etheostoma parvipinne* found above the Fall Line in the Locust and Sipsey Forks of the Black Warrior River. He is working on it with Mike Taylor, who is the new collections manager at Tulane, formerly the collections manager at Auburn. Hank and Royal Suttkus are collecting material to revise the buffalo fishes and carpsuckers, *Ictiobus* and *Carpiodes*. They have collected material from the Mississippi River to the Altamaha River. As far as Hank knows, Auburn is planning to hire another ichthyologist to fill his vacated position.

Jim Williams of the U.S. Fish and Wildlife Service in Gainesville, FL is working on a mussel survey in the Apalachicola, Chatahoochee, and Flint rivers. He sampled 150 localities last summer, and plans to look at more this summer. From preliminary data, it appears that six to eight species need to be listed. He is also working on mussels in the Escambia River, especially looking for one species, the Alabama pearlshell, which deserves listing.

Malcolm Pierson from Alabama Power is working with Paul Hartfield of the U.S. Fish and Wildlife Service on a mussel survey of the main channel of the Sipsey River. In the summer and fall of 1991, a diverse assemblage of mussels was observed in the lower main channel below U.S. Hwy 82 near Tuscaloosa downstream to the backwaters of the Tenn-Tom Waterway. The bad news is that only one specimen of the endangered *Pleurobema taitianum*, the heavy pigtoe, and no

specimens of *Quadrula stapes*, the stirrup-shell, were observed. A cooperative effort to determine the status of the snail population in the Cahaba River system is underway. Participants are Malcolm, Paul, and Art Bogan of the Philadelphia Academy of Science.

Mike Howell at Samford University, AL reports that the specimens of *Etheostoma nuchale* that were transplanted into Tapawingo Spring three years ago have become an established population; the project is a success! Tapawingo Spring is a tributary to Turkey Creek in the upper Black Warrior River at Pinson in Jefferson Co., AL.

B. Kuhajda

fauna of the Red River, LA.

The Basics of the Basin Research Symposium was held at the University of New Orleans on May 14-15, 1992. The focus of most of the presentations was on the development, pollution and fisheries of the Lake Pontchartrain estuary. Bruce A. Thompson, Louisiana State University, reported on the paucity of fish collection data for the wetlands region since 1975. Michael Farabee and Bob Cashner (University of New Orleans) presented a paper on the fishes of Bayou Lacombe and, among a number of changes in the fish fauna since a 1975 study, noted a complete absence of the previously dominant *Cyprinella venusta*. Bob Cashner, Bill Matthews (University of Oklahoma) and Fran Gelwick (OU) are completing a study on persistence and stability of the fish community of the LaBranche wetlands area on the southwestern shore of Lake Pontchartrain.

R. Cashner

## REGION VI - Southwest

Neil Douglas, Northeast Louisiana University, is currently studying longitudinal differences in size distribution for various species of madtoms in some Louisiana streams. He is also directing the research projects of six M.S. students, including: M'Lee Hoyt - "Instream flow preferences of fishes in the Sunflower River, MS"; Madelon Carter - "Range expansion of *Cyprinella lutrensis* in northeast LA"; Steven George - "Life history of *Crystallaria asprella*"; and Sherry Harrel - "Flow velocity preferences of *Percina maculata* and *P. sciera*".

Frank Pezold (also of NLU) reports a mystifying continued interest in the gobiid genus *Oxyurichthys*, and that he is directing the research studies of the following students: Pat Bergeron - "Male/female diet selectivity of *Etheostoma collettei* during reproductive periods"; Wheeler Flaherty - "Seasonal use of Ouachita Mountain headwater streams by smallmouth bass and effects of headwater fish communities on benthic macroinvertebrate population densities"; Chris Metcalf - "Comparison of fish community structure between naturally variable headwater stream environments"; Scott Raborn - "The effect of disturbance and removal on resident oyster reef fish community structure"; Fei Li - "Karyotype evolution in selected gobioid fishes"; Sherry Harrel - "Species composition and age structure of the commercial buffalofish fishery in the lower Ouachita River". Frank is also collaborating with Betty Cochran and Alan Clingenpeel of the USDA Forest Service on a feeding study of introduced rainbow trout in the Little Missouri River.

Ronnie Pitman, Texas Parks and Wildlife Department, had encouraging news about the Texas' Paddlefish Recovery Program. The program is in its third year of stocking and monitoring the re-establishment of *Polyodon* in East Texas rivers. In addition, faculty and students at three Texas universities have been contracted to determine paddlefish responses to salinity as well as characterize water quality and zooplankton in potential paddlefish habitats.

Hank Bart, Tulane University, is directing the M.S. thesis research of Joe Buckley, who is examining changes in the

## EDITOR'S NOTE

The "new" format of the PROCEEDINGS comes partially from the suggestions provided in the group survey generated by Herb Boschung. This number and the last are from entirely self-generated camera-ready copy from the efforts of George Sedberry and graphic artist Karen Swanson at the Marine Resources Research Institute in Charleston SC. Printing and postage are now our only major expenses for publication. We have, therefore, moved somewhat into the modern era of desk-top publishing and George has become the desk-top editor designate. In the revamped Information for Contributors it will be noted that we are now requesting, if possible, a PC disk copy to be submitted with the final revised/corrected hard copy to the editor. This will certainly expedite (and cost reduce) our publication of the PROCEEDINGS.

We hope this new format and publishing procedure meets with the approval of the membership. Future anticipated changes include the use of high quality recycled paper stock.

**SFC ANNUAL MEETING**  
15 April 1993, 5-6 PM, Oceans  
Room, The Cavalier Hotel, Virginia  
Beach, VA

**Meeting Announcement and Call for Papers**  
47<sup>th</sup> Annual Conference, Southeastern Association of Fish and Wildlife Agencies, Atlanta, GA, 10-13 October 1993. Host Agency: Georgia Fish and Game Division, 1358 Floyd Towers East, 205 Butler Street, S.E., Atlanta GA 30334



# **Southeastern Fishes Council PROCEEDINGS**

## **Information For Contributors**

The primary purpose of the PROCEEDINGS is to publish research papers, critical reviews of activities, area reports and other pertinent information pertaining to the biology and conservation of Southeastern fishes

Manuscripts should be submitted in duplicate. A good guide for manuscript preparation is the Fifth Edition of the CBE Style Manual available from the Council of Biology Editors, One Illinois Center, Suite 200, 111 East Wacker Drive, Chicago, IL 60601-4298.

The entire manuscript including the abstract (required for feature articles only), text, Literature Cited, tables, headings and legends must be double-spaced. The title, author's name and author's address should be centered on the first page. Indicate a suggested running head of less than ten words at the bottom of the first page. An abstract (if necessary) will be placed at the beginning of the text. Acknowledgements will be cited in the text immediately before the Literature Cited. All references cited in the paper will follow the standard format of using the last name of the author(s) followed by the year of publication of the paper. In the Literature Cited, the references will be alphabetical by the author's last name and chronological under a single authorship. The entire reference should be given with the complete name of the journal spelled out if possible.

Tables should be typed on a separate page, consecutively numbered and should have a short descriptive heading. Figures (to include maps, graphs, charts, drawings and photographs) should be consecutively numbered and if grouped as one figure each part block lettered in the lower left corner. In general, high quality prints or photocopies are preferred to the original line art. Legends for figures must be on a separate sheet and each figure must be identified on the back. The desired location of each table or figure should be indicated in the margin of the manuscript.

Manuscripts will subject to editing and will be reviewed by at least two anonymous persons knowledgeable in the subject matter. The edited manuscript and page proofs ("galley") will be furnished to the author. Upon returning the reviewed and corrected manuscript to the editor, a PC disk copy of the final form is also requested. Specific formatting information for the disk will be sent to the author with the edited manuscript. Reprints will be available at a nominal cost.

Regional reports, new notes and other short communications will also be edited and included when possible in the next number.

Only manuscripts from members of The Southeastern Fishes Council will be considered for publication. There is no charge for publishing in the PROCEEDINGS. All manuscripts and short communications should be sent to the editor:

Michael M. Stevenson  
Department of Biological Sciences  
University of New Orleans  
Lakefront  
New Orleans, LA 70148  
(504) 286-7057

PROCEEDINGS is a publication of the Southeastern Fishes Council, Inc, and is published in Charleston, South Carolina. Officers are Bruce Bauer, Chairman; David Heins, Chairman-elect; Hank Bart, Secretary/Treasurer. Co-Editors for the PROCEEDINGS are Michael M. Stevenson, Biological Sciences, University of New Orleans, LA 70148, (504)286-7057; and George R. Sedberry, Marine Resources Research Institute, P.O. Box 12559, Charleston, SC 29422-2559, (803)762-5045.

