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A NEW SPECIES OF *ELACHOCHARAX* (TELEOSTEI: CHARACIDAE) FROM THE RÍO NEGRO REGION OF VENEZUELA AND BRAZIL

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Abstract.—*Elachocharax mitopterus* is described as a new species of the characid fish subfamily Characidiinae from the Río Negro system of Venezuela and Brazil. The new species is distintuished from *Elachocharax pulcher* Myers, *E. junki* (Géry), and *E. geryi* Weitzman and Kanazawa by a variety of color pattern, morphometric, and meristic characters outlined in the key and text. *Elachocharax pulcher* is the sister group of the other three species which form an unresolved trichotomy. Although some of these species have seemingly allopatric distributions, it is probable that their geographic ranges broadly overlap.

The three previously known species of *Elachocharax* Myers (1927:114) were treated most recently by Weitzman and Kanazawa (1978) and Weitzman and Géry (1981). The phylogeny of *Elachocharax* was discussed and a cladogram of the relationships of the recognized species was presented by Weitzman and Géry (1981:898–910). The genus is not confined to the Amazon region as stated by Géry (1984:356) since two species, *Elachocharax pulcher* Myers (1927: 115) and *Elachocharax geryi* Weitzman and Kanazawa (1978:173), previously were reported from both the Orinoco and Amazon basins. *Elachocharax junki* (Géry, 1971: 154) and the new species, *Elachocharax mitopterus,* are so far known only from Amazon drainages, but both species occur in the Río Negro (the new one in the upper portion of that system) and may be expected to be found at least in black water streams of the upper portions of the Río Orinoco.

Methods and Materials

Counts and measurements are recorded as described by Fink and Weitzman (1974: 1–2). Body depth is measured vertically from dorsal-fin origin. All measurements other than standard length (SL) are expressed as a percentage of SL except subunits of head which, unless otherwise stated, are recorded as a percentage of head length. Total vertebral counts, taken from radiographs and from one cleared, Alizarin and Alcian blue stained specimen, include all vertebrae of Weberian apparatus and with fused PU + U of caudal skeleton counted as a single vertebra. In text and table, count or morphometric character given first is of holotype unless otherwise noted; next series of figures is range of all specimens (given in parentheses in text). This is followed by mean ($\bar{x}$) of all specimens. Specimens examined for this study are deposited in Museo de Biologia, Instituto de Zoologia Tropical, Universidad Central de Venezuela (MBUCV-V), Museu de Zoologia da Universidade de São Paulo (MZUSP), and National Museum of Natural History, Smithsonian Institution (USNM).

Artificial Key to the Species of *Elachocharax* Myers

1. Premaxillary teeth tricuspid anteriorly followed by a few bicuspid and/or unicuspid teeth. Dentary with tricuspid teeth anteriorly followed by none, one, or a few bicus-

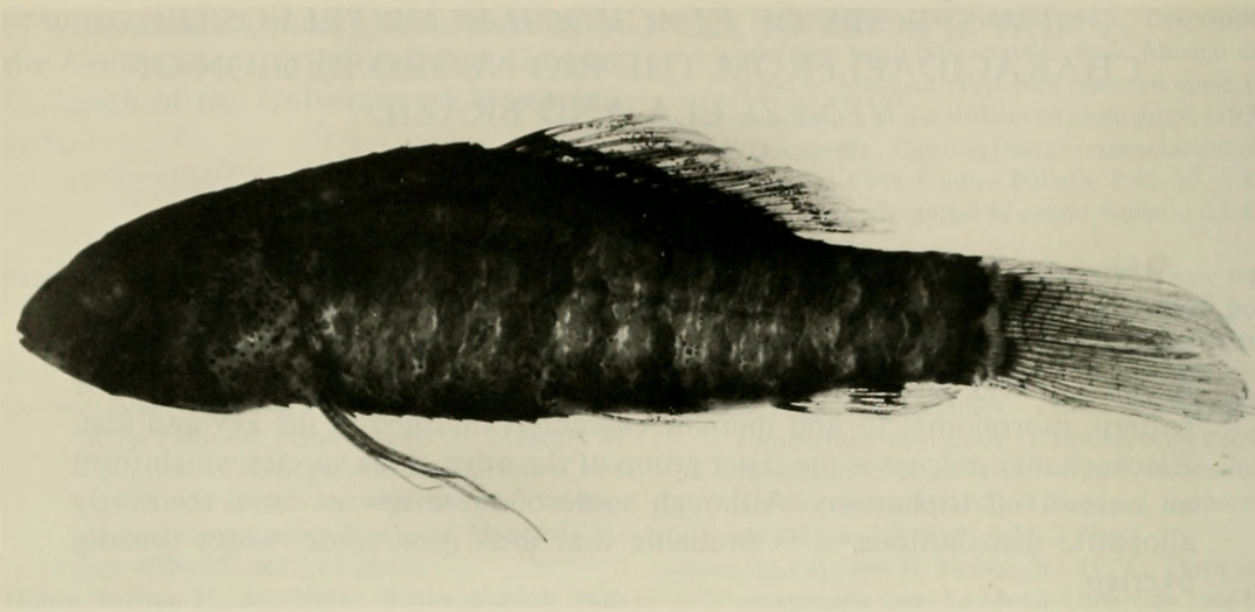

Fig. 1. *Elachocharax mitopterus,* new species, holotype MBUCV-V-15270, SL 13.9 mm, Caño Chola, Departamento Río Negro, Territorio Federal Amazonas, Venezuela, 5 Dec 1984.

pid teeth and then several unicuspid teeth lateroposteriorly. Adipose fin present ..... *Elachocharax pulcher*

– Premaxillary teeth and dentary teeth all unicuspid. Adipose fin absent 2

2. Total dorsal-fin rays 17 or 18, usually 18. Scales in lateral series to hypural joint 24 or 25. Branchiostegal rays 5. Horizontal scale rows between dorsal- and pelvic-fin origins 7. Total vertebrae 29 .... *Elachocharax mitopterus*

– Total dorsal-fin rays 19 to 22, usually 21 or 22. Scales in lateral series 27 to 33, usually 28 to 32. Branchiostegal rays 4. Horizontal scale rows between dorsal- and pelvic-fin origins 8. Total vertebrae 31 to 33, usually 31 or 32 3

3. Caudal fin without obvious vertical dark bars. Teeth on ectopterygoid 8 to 13. Inner row dentary teeth 19 to 20. Upper limb gill rakers 5 to 6. Anterior anal-fin origin in advance of a vertical line drawn through dorsal-fin base. Snout length about 5.4 to 6.1% of SL. Caudal peduncle length about 19.0 to 22.0% of SL ..... *Elachocharax junki*

– Caudal fin with 13 or 14 narrow vertical dark bars. Teeth on ectopterygoid 4 or 5. Inner row dentary teeth 13 to 16. Upper limb gill rakers 3. Anal-fin origin at or slightly posterior to a vertical line drawn through posterior termination of dorsal-fin base. Snout length about 6.0 to 8.0% of SL. Caudal peduncle length about 16.0 to 19.0% SL. . *Elachocharax geryi*

Elachocharax mitopterus, new species
Figs. 1–3, Table 1

Holotype.—MBUCV-V-15270, SL 13.9 mm, Venezuela, Territorio Federal Amazonas, Departmento Río Negro, Caño Chola, where crossed by road from San Carlos de Río Negro to Solano, about 01°58′N, 67°00′W, 5 Dec 1984, R. P. Vari, A. Machado-Allison, C. Ferraris, O. Castillo, J. M. Fernandez.

Paratypes.—1, MBUCV-V-15271, SL 13.8 mm.—2, USNM 270147, SL 12.3–12.7 mm (jaws and opercle of right side of one specimen cleared and stained).—1, cleared and stained, USNM 274101, SL 12.6 mm. All preceding paratypes with same collection data as holotype.—3, MZUSP 29871,

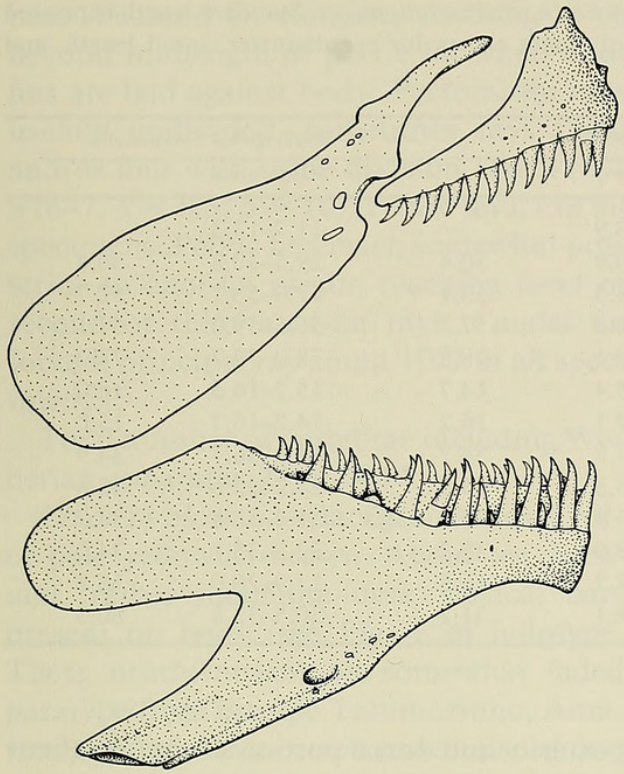

Fig. 2. *Elachocharax mitopterus,* new species, from a paratype, USNM 274101, SL 12.6 mm, Caño Chola, Departamento Río Negro, Territorio Federal Amazonas, Venezuela, 5 Dec 1984. Lateral view of premaxilla, maxilla, and dentary of right side; anterior to right. Outer dentary tooth row lies in a deep groove. Replacement teeth of this row develop within groove. Inner-row dentary teeth present posterior to or near visible dorsal border of ridge seen internal to outer-row dentary teeth. Note that third dentary tooth from midline partly eroded away and its replacement tooth (to its left) easily visible posterior and interior to it. Anterior to right.

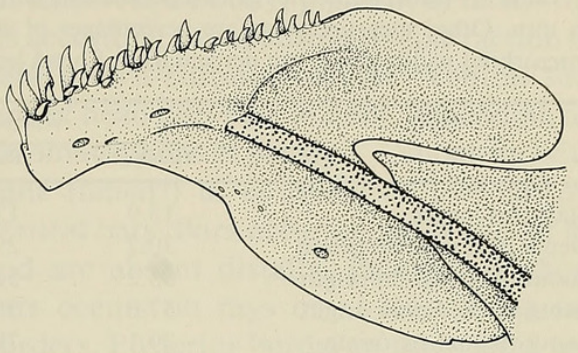

Fig. 3. *Elachocharax mitopterus,* new species, from a paratype, USNM 274101, SL 12.6 mm, Caño Chola, Departamento Río Negro, Territorio Federal Amazonas, Venezuela, 5 Dec 1984. Medial view of right dentary. Seventeen fully-developed inner-row teeth visible on dentary ridge. Five replacement teeth present interior to inner-row teeth. These teeth point inwards and not fully or not at all attached to dentary ridge. Full complement of inner-row teeth about 19, counting in-place fully-developed teeth and their replacement teeth as one. Anterior to left.

SL 11.7–13.2 mm, Brazil, Amazonas, igarapé Tarumãzinho, about 45 km north of Manaus on road between Manaus, Amazonas and Caracarai, Roraima, about 2°42′S, 60°02′W, 25 Sep 1976, Ivanzier Vieira.—2, USNM 274100, SL 12.7–13.3 mm (jaws and opercle of right side of one specimen cleared and stained), with same collection data as MZUSP 29871.

Diagnosis.—Distinguished from all other species of *Elachocharax* by having 29 instead of 30 to 33 vertebrae, 7 instead of 8 scale rows between anterior base of dorsal fin and pelvic fin, and 24 to 26 scales in lateral series instead of 27 to 33. This species, *E. geryi,* and *E. junki* are distinguished from *E. pulcher* by having only conic teeth in jaws (no tricuspid or bicuspid teeth). *Elachocharax mitopterus* is similar to *E. geryi* and especially *E. pulcher* but unlike *E. junki* in having two strong black pigment bars on anal fin and one on pelvic fin. *Elachocharax mitopterus* has only five narrow dark bars on base of caudal fin rather than 13 to 14 of these bars as in *E. geryi.* As in *E. geryi,* anal fin of *E. mitopterus* originates at or near imaginary vertical line drawn through posterior basal termination of dorsal fin rather than anterior to such a line as in *E. junki* or slightly posterior to one as in *E. pulcher.*

Description.—See Table 1 for morphometric values. Body relatively short, as in other species of *Elachocharax*; greatest depth at dorsal-fin origin. Profile of head and back from snout tip to dorsal-fin origin gently convex. Dorsal-fin origin in advance of imaginary vertical line drawn through pelvic-fin origin. Anal-fin origin at or near imaginary vertical line drawn through posterior termination of dorsal-fin base. Profile of ventral surface of head somewhat convex. Belly slightly convex or nearly flat from

Table 1.—Morphometrics of two population samples of *Elachocharax mitopterus*. Standard length expressed in mm. Other measurements are percentages of standard length except for eye diameter, snout length, and interorbital width which are percentages of head length.

	Venezuela, Caño Chola			Brazil, igarapé Tarumãzinho	
	Holotype	Range, n = 5	$\bar{x}$	Range, n = 5	$\bar{x}$
Standard length	13.9	12.3–13.9		11.7–13.3	
Depth at dorsal-fin origin	30.2	29.7–30.9	30.4	29.5–30.8	30.4
Snout to dorsal-fin origin	53.2	52.2–54.3	53.1	52.0–53.1	52.7
Snout to pelvic-fin origin	57.6	55.8–58.3	57.2	56.3–59.0	57.1
Snout to anal-fin origin	79.1	78.3–79.1	78.8	78.0–79.7	78.7
Caudal peduncle depth	14.1	13.8–15.4	14.7	15.2–16.5	16.0
Caudal peduncle length	15.1	15.1–17.1	16.2	14.2–16.7	15.0
Pectoral-fin length	32.4	32.4–37.8	34.7	32.3–36.7	34.9
Pelvic-fin length	26.6	23.2–26.8	25.3	21.2–23.6	22.8
Bony head length	31.7	31.2–33.9	32.2	31.4–33.8	32.2
Horizontal eye diameter	33.0	31.4–33.0	32.5	32.2–35.1	34.0
Snout length	18.2	15.2–18.2	16.8	17.9–20.0	18.8
Least width interorbital	34.1	27.9–34.1	31.2	30.5–33.8	30.5

region of isthmus to pelvic-fin origin. Profile of body between pelvic-fin origin and anal-fin origin gently convex to nearly straight. Caudal peduncle short, deep. Both dorsal and ventral profiles of caudal peduncle slightly concave.

Head moderately long. Mouth terminal. Snout relatively blunt; eyes large, horizontal diameter exceeds snout length.

Teeth on dentary in two rows (Figs. 2, 3). Outer row with 11 (12–13) conic teeth. Inner row uncounted in holotype (18–19, 3 Alizarin preparations) conic teeth, Figs. 3, 4. Premaxilla with single row of 9 (12–12, 3 Alizarin preparations) conic teeth. Maxilla toothless. Ectopterygoid teeth uncounted in holotype (4–9, 3 Alizarin preparations) conic teeth in single row.

Branchiostegal rays uncounted in holotype (5 in 3 Alizarin preparations); two slender anterior rays attached to anterior part of ceratohyal followed by broad ray attached to posterior part of ceratohyal; fourth broad ray attached to epihyal. Gill rakers 4 (3–4) on dorsal limb and 8 (7–8) on ventral limb. Range of gill raker counts based on 3 Alizarin preparations. Frontal-parietal foramen greatly reduced. A narrow antorbital bone present dorsal and posterolateral to posterior and dorsal portion of anterior (first) infraorbital. First infraorbital with laterosensory canal and anterior process extending dorsal and anterior to anterior dorsal slender process of maxillary bone. Second infraorbital bone primarily a laterosensory tube but some laminar bone present. Other infraorbital bones absent.

Scales cycloid, usually 4–5 radii on exposed field. Lateral line with 5 (5–6, $\bar{x}$ = 5.1, n = 10) perforated scales. Scales in lateral series 26 (24–26, $\bar{x}$ = 25.2, n = 10). Horizontal scale rows between dorsal and pelvic fins 7 (7, n = 10). Horizontal scale rows around caudal peduncle 10 (10, n = 5 in specimens from type locality; 12–14, $\bar{x}$ = 12.8, n = 5 in specimens from igarapé Tarumãzinho). (See section on population variation.) Predorsal scales 8 (8–9, $\bar{x}$ = 8.3, n = 10).

Dorsal-fin rays ii, 16 (ii,15, n = 2, ii,16, n = 8); total dorsal-fin rays 18 (17–18, $\bar{x}$ = 17.8, n = 10). Last dorsal-fin ray not split to its base. Adipose fin absent. Externally visible anal-fin rays ii,16 in all specimens. Extremely small, but not externally visible, third anterior unbranched ray revealed in 9 of 10 radiographed and cleared and stained specimens. Posterior anal-fin ray split to its

base. Pectoral fin elongate, reaching to or beyond midlength of pelvic fin when both fins are laid against body. Pectoral-fin rays usually undivided, sometimes rays three and/or four with some division. Total rays 6 (6–7, $\bar{x} = 6.5$, n = 10). Pelvic fin i,7 in all specimens. Pelvic fins reach somewhat posterior to anal-fin origin, reaching level of second or third anal-fin rays. Caudal fin forked, principal ray count 10/9 in all specimens.

Total number of vertebrae including Weberian apparatus 29, n = 10.

Color in alcohol.—Background body color pale yellowish-brown. About ten irregular, rather indefinite dark vertical bars present on body; see Fig. 1 of holotype. These nearly absent on somewhat faded paratype from igarapé Tarumãzinho, Amazonas. *Elachocharax mitopterus* also shows variability in body pigment noted by Weitzman and Géry (1981:898) for other three species of *Elachocharax*. Approximately ten dark vertical body bars of *E. mitopterus* similar to those of *E. pulcher* (8–10) and *E. geryi* (10–12) rather than those found in *E. junki* (16 to 18). Dark bars on body of *E. mitopterus* more distinct posteriorly than anteriorly and continuous with dark pigment of pelvic and anal fins. Belly with same color pattern as body sides.

Top of head pale brown to very dark brown. A dark bar from dorsoposterior border of eye to near nape present as in other species of *Elachocharax*. Snout pale to dark brown dorsally, a prominent dark stripe extends from oral border of premaxilla and anterior part of maxilla to anterior border of eye. Stripe complete in holotype (Fig. 1) but in some specimens stripe does not extend over premaxilla to snout tip although mottled dark pigment is present in this region. Anterior tip of lower jaw dark brown. Dark brown chromatophores ventral to eye organized into one broad or two more or less distinct, short vertical bars. Opercle with scattered dark chromatophores which may be expanded and coalesced into variable blotches. As on body, pigment of head varies according to expansion or contraction of dark brown chromatophores. Ventral surface of head also pale to dark, depending on chromatophore expansion. Caudal fin with none (faded?) to as many as five narrow vertical bars. Bars occur on basal area of fin and are absent distally. Pigment of these bars occurs on rays or at least along ray borders. Posterior border of three large terminal scales over base of caudal fin usually broadly covered with dark pigment (Fig. 1), producing a heavy, irregular vertical bar in addition to five or so narrow vertical bars on fin rays. Intraradial membranes of caudal fin nearly without pigment except immediately adjacent to fin rays. Dorsal fin with two prominent horizontal pigment rows in unfaded specimens. As in other species of *Elachocharax,* a dark horizontal band is present along length of dorsal fin near its base. More distal band also well developed in unfaded specimens of *E. mitopterus* but dark chromatophores less concentrated. In both bands, dark chromatophores occur both on rays and membranes between them. Distal one-fourth of dorsal fin appears free of dark chromatophores. Anal and pelvic fins with two broad dark vertical bars (Fig. 1). Pectoral fins dusky in unfaded specimens, pigment concentrated along ray borders. Dark band present at basal region of pectoral fin.

Relationships.—In this cladistic analysis, outgroup information is the same as that derived in Weitzman and Géry (1981:898–905). Outgroup analysis for additional characters is presented here. The reasons for placing the new species in *Elachocharax* are quite clear. These are the high number of dorsal-fin rays, 17 or 18 in this species, and the position of the origin of the anal fin at or near an imaginary vertical line drawn through the posterior termination of the dorsal fin. These features agree with characters one and two used as synapomorphies for *Elachocharax* by Weitzman and Géry (1981:898–901). Within *Elachocharax, E.*

mitopterus belongs to the group containing *E. junki* and *E. geryi* and consistently having unicuspid jaw teeth and no adipose fin.

Weitzman and Géry (1981:902) also used a reduction (from 5 to 4) of branchiostegal rays to diagnose *E. junki* and *E. geryi* as a group. *Elachocharax mitopterus* has five branchiostegal rays and would not fit a group diagnosed by four branchiostegal rays as a synapomorphy. Weitzman and Géry (1981: 902) note that the sample size of *E. junki* and *E. geryi* is small and that in characidiine outgroups there is variation in this character within genera and species and occasionally between the two sides of the head of a single specimen. If the character is at all useful as a synapomorphy within *Elachocharax* it would now allow recognition of *E. junki* and *E. geryi* as a sister group of *E. mitopterus.* This hypothesis is weakly supported by a synapomorphy consisting of an increased number of dorsal-fin rays, 19 to 21 in *E. junki* and 20 to 22 in *E. geryi. Elachocharax mitopterus* has 17 or 18 dorsal-fin rays, a number more nearly approaching that of most outgroup species in the Characidiinae, 11 to 14 rays. However, *E. pulcher,* the nearest outgroup to *E. mitopterus, E. junki,* and *E. geryi,* has 17 to 20 dorsal-fin rays, variously overlapping in full, or in part, the ranges of the rays of the other species of *Elachocharax.* With this much overlap and such small samples at hand it seems premature to suggest that a decreased number of branchiostegal rays and an increased number of dorsal-fin rays constitute synapomorphous evidence of a group formed by *E. junki* and *E. geryi.*

Regarding autapomorphies six and seven, the number and width of vertical body bars, in Weitzman and Géry (1981:903, 904), *E. mitopterus* has about 10 narrow, relatively uninterrupted vertical body bars. Thus the high number (16 or 17) and also the interrupted nature of each of the vertical body bars of *E. junki* appear to be autapomorphies for that species. *Elachocharax pulcher* has about 8 to 10 wide vertical body bars. *Elachocharax geryi* and *E. mitopterus* share 9 to 12 narrow body bars. The narrow nature and number of the bars in *E. geryi* and *E. mitopterus* appear to be plesiomorphic, more like the vertical bar pattern in outgroup genera such as *Characidium* Reinhardt and *Klausewitzia* Géry than the autapomorphous wide bars in *E. pulcher* or the relatively derived high number of interrupted autapomorphous bars in *E. junki.*

Characters nine to twelve in Weitzman and Géry (1981:904) are autapomorphies for *E. geryi.* Two of these, numbers nine and eleven (number of inner-row dentary teeth and number of caudal-fin bars) remain clearly autapomorphous for that species. *Elachocharax mitopterus* has 18 or 19 teeth in the inner dentary row; *E. pulcher* has 20 to 24 and *E. junki* 19 to 20. *Elachocharax geryi* has a reduced number of 13 to 16. Similarly, *E. mitopterus, E. pulcher,* and *E. junki* have 0 to 5 caudal-fin bars. *Elachocharax geryi* has an increased number of 13 or 14. The remaining two characters, ten and twelve (number of ectopterygoid teeth and number of epibranchial gill rakers) are no longer clearly autapomorphous for *E. geryi* since *E. mitopterus* demonstrates character overlap. The number of ectopterygoid teeth in *E. pulcher* is 7 to 10, in *E. junki,* 8 to 12, in *E. mitopterus,* 4 to 9, and in *E. geryi* it is 4 or 5. Similarly, the number of epibranchial gill rakers in *E. pulcher* is 4 or 5, in *E. junki,* 5 or 6, in *E. mitopterus,* 3 or 4, and in *E. geryi* it is 3. There might be a synapomorphous "trend" towards reduction in these two characters shared by *E. mitopterus* and *E. geryi.* However, such "trends" are poor indicators of synapomorphy because of overlap and, especially in this case, because they are based on so few cleared and Alizarin stained or partly dissected samples, 3 in *E. mitopterus,* 2 in *E. junki,* 2 in *E. geryi,* and 10 in *E. pulcher.* Since the discovery of an additional taxon shows that these two characters are not as distinct as when utilized by Weitzman and Géry (1981:904), it now seems premature

to use them as synapomorphies or autapomorphies for these species.

Elachocharax mitopterus has several unique characters appearing to be autapomorphies, such as 29 vertebrae versus 30 to 33 in other species of *Elachocharax,* 24 to 26 scales in lateral series versus 26 to 33, 7 scale rows between the dorsal-fin origin and the pelvic-fin origin versus 8, and a tendency to have fewer scale rows around the caudal peduncle, 10 to 14 versus always 14 in the other species of *Elachocharax.* These unique reductions in meristic values in *E. mitopterus* make it unlikely that this species is a hybrid between other known species of *Elachocharax,* or that any one of them could be a hybrid between *E. mitopterus* and one of the other species. Also, these counts are low compared to most species in other genera of the Characidiinae with at least two exceptions. *Ammocryptocharax elegans* Weitzman and Kanazawa (1976:335) and *Klausewitzia aphanes* Weitzman and Kanazawa (1977:151) have 12 scale rows around the caudal peduncle. The most parsimonious cladogram of character distribution among characidiine taxa indicates that this similarity is homoplaseous.

Based on the above analysis, it seems that *E. pulcher* is the sister group of the other three species of *Elachocharax,* all characterized by two synapomorphies, unicuspid jaw teeth and loss of an adipose fin. Except for a reduced number of branchiostegal rays and perhaps a reduced number of dorsal-fin rays in *E. geryi* and *E. junki,* the only apomorphies that so far seem clear and distinct for *E. junki, E. geryi,* and *E. mitopterus* are a series of autapomorphies for each. As discussed above, two putative synapomorphies that might diagnose *E. junki* and *E. geryi* as a group seem somewhat dubious, especially the dorsal-fin ray count. Therefore *E. junki, E. geryi,* and *E. mitopterus* are currently considered to form an unresolved trichotomy.

Population variation.—Only small numbers, five each, of two population samples are available, making population variation study nearly impossible. However, one striking difference is present in the two samples. Specimens from near San Carlos, Venezuela always had 10 horizontal scale rows around the caudal peduncle, a very reduced number compared to the other species. The sample from igarapé Tarumãzinho, Brazil had 12 to 14, $\bar{x} = 12.8$. This appears to be an absolute difference in the two population samples of *E. mitopterus.* However, the samples are small and the possible magnitude of the variation is unknown. That variation of this sort occurs at all is surprising. Usually in *Elachocharax* the caudal peduncle scale row count is a constant 14. I would expect a count of 10 to be constant in *E. mitopterus,* as it appears to be in the San Carlos sample. The variation in the count in the igarapé Tarumãzinho sample does not appear to be due to hybridization with other species of *Elachocharax* because this sample is like the San Carlos sample in having the other low meristic values characteristic for this species. An analysis of the caudal row scale count variation in *E. mitopterus* must await collection of larger samples. At this time it would seem premature to recognize the two samples at hand as representing separate taxa.

Ecological notes.—The specimens from Caño Chola were taken in a black water forest stream with a temperature of 28.0°C. The stream flow was slow to moderate and the depth of the water was to 1.5 meters. The bottom was sand and logs. Other forest detritus was present as well as filamentous algae and emergent aquatic vegetation. No field notes accompany the specimens from igarapé Tarumãzinho but when I visited the stream at this locality in January 1976 I found it to be a clear, slightly brown, terra firmae stream surrounded by forest. It was similar to the description here for Caño Chola except the water was less dark.

Etymology.—The specific name *mitopterus* is from the Greek *mitos* meaning thread

and *pteron* meaning wing, hence fin. The name is given in reference to the long thread like rays of the pectoral fin.

Additional Locality Records for Other Species of *Elachocharax*

Weitzman and Géry (1981:890) reported a few locality records for *E. pulcher* additional to those recorded by Weitzman and Kanazawa (1978:162–164). Since then a few new locality records have come to hand. One specimen of *E. pulcher,* USNM 270142, SL 14.8 mm was found in the same collection as the type locality of *E. mitopterus,* Caño Chola, between San Carlos de Río Negro and Solano, Departamento Río Negro, Territorio Federal Amazonas, Venezuela. A short distance away, four specimens of *E. geryi,* USNM 270146, SL 10.7–13.8 mm, were taken from Caño Manu, a tributary of the Casiquiare Canal, about 250 meters upstream of Solano, at about 02°00′N, 60°59′W. These were taken on 7 Dec 1984 by Richard P. Vari and Antonio Machado-Allison. This locality was a blackwater forest stream. The water temperature was about 27.5°C and the water was moving very slowly. The bottom was sand and forest detritus, the water depth to about 0.5 meter at the capture site. It seems very likely that *E. pulcher, E. geryi, E. mitopterus,* and probably *E. junki,* are sympatric in at least part of their range. All four species are known to live in black acid waters of terra firmae and all have locality records near the Rio Negro, Amazonas, see Weitzman and Kanazawa (1978:162–164, 173) and Weitzman and Géry (1981:890).

In addition, nine specimens of *Elachocharax pulcher,* Naturhistoriska Riksmuseet, Stockholm (NHM SOK) 1984312.3974, SL 9.7–14.7 mm, were collected from Peru, Departamento Loreto, Río Yavari (Javari) system, a quebrada tributary to Río Gálvez, about 25 minutes upstream from Colonia Angamos, about 05°16′S, 73°00′W, by Sven O. Kullander, A. Urteaga C., N. Buendía Y., and A. Hogeborn-Kullander on 31 Jul 1984. This population sample has some specimens with lateral tooth cusps on jaw teeth reduced in size, making them difficult to see except in stained examples. An adipose fin is present in all specimens.

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