



Review of the African catfish genus *Andersonia* (Teleostei: Siluriformes)

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Abstract

Fishes of the catfish genus *Andersonia* (Amphiliidae, Doumeinae) are distributed widely across the northern sub-Saharan portion of Africa that is called the Nilo-Sudan Bioregion. Recent literature indicated that either one or two species of *Andersonia* occur in the four drainage basins (upper Niger, upper Nile, Omo, and Lake Chad) in which the genus has been found. Our study failed to find any differences in the samples from those basins, as we therefore treat them as populations of a single species, *A. leptura*, which is redescribed based on extensive series of specimens from across its range. The genus *Andersonia* is retained as valid at this time, based on the lack of clear evidence of the phylogenetic position of *A. leptura* within the Doumeinae. However, a broader sampling of taxa, especially among species currently placed in the genus *Phractura*, may require a change to that assignment.

Key words: Amphiliidae, Doumeinae, Nilo-Sudan Bioregion

Introduction

Andersonia leptura was proposed by Boulenger (1900) to accommodate a single small-sized specimen of a previously unnamed genus and species of amphiliid catfish from Sudan. Although Boulenger reported that the new form resembled species of *Phractura*, he distinguished it from members of that genus by having a spine at the anterior margin of the dorsal and adipose fins, a more posteriorly placed dorsal fin situated dorsal to the pelvic fin, a single pair of mandibular barbels, and edentulous jaws. As discussed below, subsequent studies have found that only some of those purported differences were accurate.

Soon thereafter, Werner (1906a) proposed the name *Slatinia mongallensis*, in a published abstract for a monograph on the fishes of the Nile River basin, based on three specimens collected in the White Nile River in Sudan. Werner compared his material to the description of *Andersonia leptura* and noted that *Slatinia* had two sets of mandibular barbels rather than the one reported for *Andersonia*. Although initially treated as a distinct genus and species, Werner apparently discovered that Boulenger's original report of only a single set of mandibular barbels in *Andersonia* was erroneous (see comments by Boulenger, 1907: 392, footnote). In a full account of the species, which appeared later in the same year, Werner (1906b) identified his sample as *Andersonia leptura*, with *Slatinia mongallensis* as a synonym. Subsequent discoveries of populations identified as *Andersonia leptura* were reported from the Omo River basin (Pellegrin, 1935) and the upper Niger River basin (Daget, 1959).

A second species of *Andersonia* was named by Boulenger (1918) based on a single specimen that originated in the Shari River of the Chad River basin in what was then French Equatorial Africa. The species was identified as *A. brevior* (n. sp.) in the introductory comments to that paper, but *A. pellegrini* in the account of the species. Boulenger (1918: 427) reported that *A. pellegrini* was distinguished from *A. leptura* by “the smaller eye and the different proportions of the [supra-] occipital process” (bracketed addition ours).

The two species of *Andersonia* were accepted as distinct by several authors (see synonymy, below) with material from the Nile River system, the Omo-Turkana basin and the Niger basin identified as *A. leptura* and that from the Chad basin as *A. pellegrini*. Blache *et al.* (1964) alternatively noted that proportional eye size for a sample of specimens from the Chad basin varied to a degree that it overlapped the size reported by Boulenger (1900) for *A.*

leptura and treated the two names as synonyms. Neither Blache *et al.* (1964) nor others who subsequently provided comments based on geographically limited samples attempted to analyze the other purported differences between the nominal forms. Similarly, there been no comprehensive comparison of specimens of the various populations across the broad range of *A. leptura*. In recent years, new collections of *Andersonia* from various locations across its range provides an opportunity for a critical analysis of the question.

This study has two goals. The first is to compare specimens of *Andersonia* from known populations to determine how many species exist in the genus. The second is to diagnose and redescribe *Andersonia* and the included species in detail as in other recent revisionary studies of other groups within the Doumeinae (Ferraris *et al.* 2010, 2011).

Methods

Counts follow the methods outlined by Skelton (1981, 2007), with fin-ray counts taken from whole specimens. Vertebral counts were taken from radiographs and include the five Weberian-complex centra that precede the first rib-bearing vertebra, and a single complex ural centrum. A summary of meristic characters is presented in Table 1. Meristics are reported with the number of specimens exhibiting each value in parentheses. Morphometric values do not demonstrate any geographic patterns across the range of the genus and are summarized for the species. Golubtsov and Dzerzhinskii (2003) found significant allometry in a series of specimens that they examined from the White Nile basin. Institutional codes are as listed in Ferraris (2007).

Results

Andersonia Boulenger, 1900

Andersonia Boulenger, 1900: 528 [Type species: *Andersonia leptura* Boulenger, 1900, by monotypy. Gender: Feminine].
Slatinia Werner, 1906a: 327 [Type species: *Slatinia mongallensis* Werner, 1906, by monotypy. Gender: Feminine].

Diagnosis. *Andersonia* is a member of the Doumeinae distinguished by the following combination of externally visible characters. The dorsal, pectoral and adipose fins each have a distinct spine anteriorly. A series of bony scutes cover the body posterior of the dorsal-fin origin. The lateral abdominal surface is not covered with superficial scutes. The scapulo-coracoid and clavicle lack superficial rugose plates.

Diogo (2003: 432) further diagnosed *Andersonia* by having a highly developed basioccipital that was larger than the prootic and a bony tube that extends transversely across the Weberian complex and attaches to the parapophyses.

Among the listed characters, the presence of spines on the dorsal and pectoral fins, and the absence of superficial scutes on lateral abdominal surface, scapulo-coracoid and clavicle are primitive states for the Doumeinae. Of the derived characters that have been proposed to diagnose *Andersonia*, only the large basioccipital appears to be unique to the genus within the Amphiliidae. Dorsolateral and ventrolateral extensions of the vertebrae that extend to the body surface and in many genera expand over the body surface as scutes that cover the posterior portion of the body are also found in *Belonoglanis*, *Doumea*, *Phractura*, *Trachyglanis* and appear to diagnose a clade within the Doumeinae consisting of all genera in the subfamily except *Congoglanis* (Ferraris *et al.*, 2011). A spine at the origin of the adipose fin is also found in *Trachyglanis* (Harry, 1953), and a transverse tube across the Weberian complex occurs in the genera *Leptoglanis* and *Zaireichthys* (Diogo, 2003) of the subfamily Leptoglanidinae in the Amphiliidae.

Included species. Based on the evidence summarized below, we recognize only a single species in *Andersonia*, *A. leptura*.

Number of species in *Andersonia*. Boulenger (1918) distinguished *Andersonia pellegrini* from *A. leptura* by differences in the size of the eye and shape and length of the supraoccipital process. These purported differences were based on examination of a single specimen of each nominal species. In their analysis of a sample of the genus from the Chad system, Blache *et al.* (1964) found that the range in orbital sizes overlapped the difference in that feature originally cited by Boulenger to differentiate the species. Our broader geographic comparison confirms that

the orbital size does not serve to delimit the nominal forms. Similarly the variation in the shape of the length of the supraoccipital process forms a continuum between populations in the Chad, Niger, Nile and Omo-Turkana basins. Direct comparisons of available samples of *Andersonia* from the four basins they inhabit revealed no differences in body shape or pigmentation pattern. A comparison of metric features readily amenable to examination similarly failed to reveal any between population differences (Table 1). As such, all populations are treated here as part of a single species, *A. leptura* that is widely distributed across the Nile, Omo-Turkana, Chad, and Niger basins.

TABLE 1. *Andersonia leptura* meristics arranged by drainage basins of occurrence. Data on Nile River specimens reported in Golubtsov and Dzerzhinskii (2003) in brackets, with the following notes: fin-ray counts did not note whether the last ray was branched and unbranched; plate counts were reported in a different fashion, but generally agreed with our results; vertebrae and rib counts were not reported.

		Niger	Nile	Chad
Dorsal-fin rays	i,5		1	
	i,5,i	2	9	12
	i,6	3	6 [56]	
	i,6,i			1
Pectoral-fin rays	i,5,i	5	12 [53]	11
	i,6,i		5 [2]	2
Pelvic-fin rays	i,4,i	5	17 [56]	13
Anal-fin rays	ii,6	1		1
	ii,6,i	2	5	4
	ii,7	1	4 [46]	6
	ii,7,i		4	
	ii,8		4 [10]	1
	ii,8,i	1		1
Caudal-fin rays	i,5,5,i		2 [1]	
	i,5,6,i	3	3 [5]	
	i,6,5,i	1	2	7
	i,6,6,i	1	10 [36]	6
Plates (dorsolateral/ventrolateral)	23/22	1	2	1
	23/23		1	
	24/23	1	8	7
	24/24		5	1
	25/24	3	1	3
	26/25	1		1
Vertebrae (including Weberian centra and 1 ural centrum)	34		1	2
	35	5	13	15
	36			1
Ribs	4	5	12	18
	5		2	

Phylogenetic position. Although Boulenger (1900) initially considered *Andersonia* to be closely related to *Phractura*, He *et al.* (1999) recovered *Andersonia* as the sister group of a clade consisting of *Belonoglanis*, *Doumea*, *Phractura* and *Trachyglanis* [no species of what is now *Congoglanis* were included in the study] in a single most-parsimonious tree based on a suite of osteological characters. Conversely, neighbor-joining of the same matrix brought together *Andersonia* only with *Belonoglanis* and *Trachyglanis*. In a subsequent study that emphasized osteology and myology of the head region, Diogo (2003) concluded that *Andersonia* was sister to a clade composed of *Belonoglanis* and *Trachyglanis*. That hypothesis was based on the shared presence of a well-developed lateral lamina of the parieto-supraoccipital, a well-developed posteromedial process of the scapulo-coracoid, and a greatly reduced and modified posterior ceratohyal. *Belonoglanis* and *Trachyglanis* exhibit the derived superficial ossifications on the ribs, scapulo-coracoid and clavicle that are absent in *Andersonia*, which supported Diogo's hypothesis that those genera were sister taxa. Diogo also proposed a more encompassing clade supported by numerous characters in which *Phractura* was the sister group to the clade formed by *Andersonia*, *Belonoglanis* and *Trachyglanis*. Problematically, the monophyly of *Phractura* in that phylogenetic scheme was supported solely on an unusual two-headed articulation between the hyomandibula and the opercle that was, however, observed in only one specimen of one species of *Phractura* (of the 13 species now recognized in the genus). That single observation, together with the lack of any additional reported derived characters in *Phractura*, leaves open a question of the monophyly of that genus.

One implication of the uncertainty as to whether *Phractura* represents a natural group is the possibility that *Andersonia* might be more closely related to a subset of the species of *Phractura* than to the remaining congeners. Such an eventuality might require a change in the definition and scope of *Andersonia*. A resolution of that issue requires a comprehensive phylogenetic analysis of the Doumeinae, which lies beyond the scope of this study and, more significantly, is being undertaken by another researcher. Based on published phylogenetic studies (He *et al.*, 1999; Diogo, 2003), *Andersonia leptura* fits into a clade within the Doumeinae that includes *Belonoglanis* and *Trachyglanis*. Furthermore, under present concepts *A. leptura* cannot be assigned to either of those genera. Thus, the continued recognition of *Andersonia* is required because of current hypotheses of the monophyly of the two related genera and furthermore satisfies the interest of nomenclatural stability.

Remarks. *Andersonia* was initially reported to lack teeth in the jaws (Boulenger, 1900) and that characterization had been repeated by several authors (e.g., Harry, 1953; Poll and Gosse, 1995). Blache *et al.* (1964), however, reported teeth on the premaxilla of specimens from the Lake Chad basin and Golubtsov *et al.* (2004) determined that teeth were uniformly present in both jaws in large series of specimens from the White Nile system. Our observations confirm the broad occurrence of such dentition in samples from the Chad, Niger and Nile basins.

***Andersonia leptura* Boulenger, 1900**

Figure 1; Tables 1&2

Andersonia leptura Boulenger, 1900: 529 [Type locality: a pond near Koshek, Soudan (=Sudan). Holotype: BMNH 1907.12.2.2545].—Boulenger, 1905: 50 [listing].—Werner, 1906b: 1139 [redescription].—Boulenger, 1907: 392, pl. 76, fig. 4 [based on Boulenger, 1900; oversight of inner mandibular barbel in original description corrected; comparison of holotype with that of *Slatinia mongallensis*; illustration of type].—Boulenger, 1911: 510, fig. 381 [based on Boulenger, 1910].—Pekkola, 1919: 118 [upper White Nile; noted as “not uncommon”].—Pellegrin, 1935: 136 [Omo River basin].—Pellegrin, 1936: 416 [occurrence in Lake Rodolphe =Turkana].—Worthington and Ricardo, 1936: 363 [in Lake Rudolf or Delta of Omo River, not collected and record based on literature].—Copley, 1941: 13 [Kenya, Lake Rudolf = Turkana].—Sandon, 1950: 48, fig. 5 [Nile River].—Harry, 1953: 195 [listing].—Poll, 1957: 125, figs. 251–253 [listing, illustration; Nile basin].—Copley, 1958: 106, (fig. 62) [upper Nile and Lake Rudolf (=Turkana); drawing poor representation of species].—Daget, 1959: 679, fig. 4 [Débo Lake, Upper Niger River basin].—Blache, 1964: 208, fig. 117 [redescription; Chad basin].—Mathiasson, 1964: 116–185 [White Nile].—Miton, 1965: 84 [Chad basin].—Daget and Iltis, 1965: 162 [distribution].—Monod, 1968: 422, fig. 500 [osteology].—Roberts, 1975: 296 [listing, Omo River basin].—Daget and Durand, 1981: 739, pl. 18, fig. 68 [listing, Nile and Chad basins].—Abu Gideiri, 1984: 86, fig. 55 [brief redescription and illustration, Nile basin, Sudan].—Skelton and Teugels, 1986: 60 [listing].—Burgess, 1989: 114 [listing].—Lévêque *et al.*, 1991: 136 [upper Niger River, Chad basin, Nile River, Turkana basin].—Skelton, 1992: 466, fig. 26.15 [West Africa, Tchad basin and lac Débo in central delta of Niger River].—Bailey, 1994: 956, fig. 6.1 [Sudan, Nile River].—Poll and Gosse, 1995: 189, fig. 342 [listing, illustration].—He *et al.*, 1999:117–146 [anatomical comparison and phylogenetic placement].—Golubtsov *et al.*, 2002: 167 [Ethiopia, White Nile].—Golubtsov and Dzerzhinskii, 2003: 161, fig. 1a [redescription, White Nile].—Diogo, 2003: 432 [listing].—Golubtsov *et al.*, 2004: 146 [dentition].—Moritz *et al.*, 2006: 99, 105,

fig. 8a [Benin, Niger River, Malanville].—Ferraris, 2007: 24 [listing].—Seegers, 2008: 145, fig. [brief description].

Slatinia mongallensis Werner, 1906a: 327 [Type locality: Bahar-el-Gebel, bei Mongalla. Syntypes (3): NMW 79741 (1), ZMH 12016 (1), whereabouts of third specimen unknown; description appears to be based on single specimen].—Werner, 1906b: 1139, pl. 1, figs. 2–4 [more extensive description, assignment of name to synonymy of *A. leptura*].—Skelton and Teugels, 1986: 60 [listing, as synonym of *A. leptura*].—Ferraris, 2007: 24 [listing, as synonym of *A. leptura*].

Andersonia pellegrini Boulenger, 1918: 427 [Type locality: Shari River, Ubanghi-Shari Colony, French Equatorial Africa. Holotype: BMNH 1918.11.12.13].—Pellegrin, 1919: 664 [listing, Chad basin].—Pellegrin, 1921: 48 [listing, Chad basin].—Holly, 1930: 249 [listed for Kameruns = Cameroon, without documentation of basis for citation].—Harry, 1953: 195 [first reviser, selecting *A. pellegrini* as valid over *A. brevior*].—Poll, 1957: 125 [Chad basin].—Kähsbauer, 1962: 162 [listing, Chad Basin].—Blache, 1964: 208, fig. 117 [synonymy with *A. leptura*].—Daget and Iltes, 1965: 162 [as possible synonym of *A. leptura*].—Skelton and Teugels, 1986: 60 [listing, as synonym of *A. leptura*].—Ferraris, 2007: 24 [listing, as synonym of *A. leptura*].

Andersonia brevior Boulenger, 1918: 426 [Type locality: Shari River, Ubanghi-Shari Colony, French Equatorial Africa. Holotype: BMNH 1918.11.12.13].—Harry, 1953: 195 [first reviser, selecting *A. pellegrini* as valid over *A. brevior*].—Skelton and Teugels, 1986: 60 [listing, as synonym of *A. leptura*].—Ferraris, 2007: 24 [listing, as synonym of *A. leptura*].

Diagnosis. The same as the genus.

Description. Body elongate and progressively tapering vertically and transversely posteriorly. Greatest body depth located slightly anterior of dorsal-fin origin and greatest width at anterior limit of pectoral-fin insertion. Abdominal region transversely flattened. Dorsal and ventral profiles of body progressively converge from anal-fin origin to caudal-fin base. Caudal peduncle elongate, slender, and depressed over its length, but nearly as wide as high at caudal-fin base. Lateral line runs along midlateral surface of body and onto caudal-fin base. Surface of body penetrated by bony extensions of dorsolateral and ventrolateral processes extending from vertebral centra of abdomen and caudal peduncle. Exposed tips of dorsolateral vertebral processes visible from base of dorsal-fin origin to caudal-fin base. Processes on ventrolateral surface of body extend from slightly posterior of pelvic-fin origin to caudal-fin base. Exposed processes along abdomen appear as overlapping scutes, forming longitudinal ridges that do not meet along either dorsal or ventral midlines. Dorsolateral and ventrolateral processes on caudal peduncle form plates that extend to dorsal and ventral midlines, respectively, thereby encasing peduncle in bony cover. Total number of dorsolateral plates: 23 (5), 24 (22), 25 (7) or 26 (2). Total number of ventrolateral plates: 22 (4), 23 (17), 24 (13), or 25 (2). Anus and urogenital pore located immediately posterior of pelvic-fin base. Urogenital pore conical, of variable length. Vertebrae: 34 (3), 35 (33), or 36 (1). Ribs: 4 (35), or 5 (2).

Head broad from dorsal view with lateral margin slightly convex and narrowing anteriorly. Snout tip convex. Head broadly convex dorsally and nearly flat ventrally from lateral view. Snout long, approximately one-half head length and somewhat larger than interorbital width. Anterior margin of snout broadly rounded. Eye located entirely within posterior one-half of head. Anterior naris with short, rounded tube bearing high flap along posterior margin. Posterior naris ovoid, somewhat larger than anterior naris, and with low flap along anterior margin. Distance from posterior naris to anterior margin of eye less than distance between anterior naris and tip of snout. Posterior naris approximately equidistant between anterior naris and eye. Distance between anterior nares of each side equal to distance between anterior naris and tip of snout. Mouth ventral, moderately wide; width approximately one-third of head width. Lips smooth. Barbels moderately long, tuberculate along ventral margin and tapered distally. Maxillary barbel longest, reaching approximately to vertical through pectoral-fin origin. Inner mandibular barbel with base situated slightly lateral of midline; barbel extending posteriorly to margin of branchiostegal membrane. Outer mandibular barbel arises from angle of mouth and extends slightly beyond tip of inner mandibular barbel. Branchiostegal membrane continuous across midline with posterior limit of ventral portion of margin distinctly V-shaped. Gill slit extends posterodorsally to above pectoral-fin origin to horizontal through ventral margin of orbit. Humeral process acutely triangular with posterior tip rounded or pointed. Process very slender in smaller specimens. Epiotic process slender, extending parallel to supraoccipital spine, but only slightly more than one-half length of that process. Supraoccipital process moderately wide at base and tapering slightly posteriorly. Process with fine crest dorsally and separated posteriorly from small, trilobed nuchal shield by short gap.

Dorsal fin located anteriorly on body; fin origin at vertical through tip of adpressed pectoral fin and slightly anterior of vertical through pelvic-fin origin. Dorsal-fin margin convex, with first two branched rays longest. Dorsal-fin spinelet absent. First dorsal-fin ray segmented, unbranched; basal half of ray rigid, but ray flexible distally. Last dorsal-fin ray usually unbranched and without posterior membranous connection to body. Dorsal-fin rays: I,5 (1), I,5,i (23), I,6 (9), or I,6,i (1).

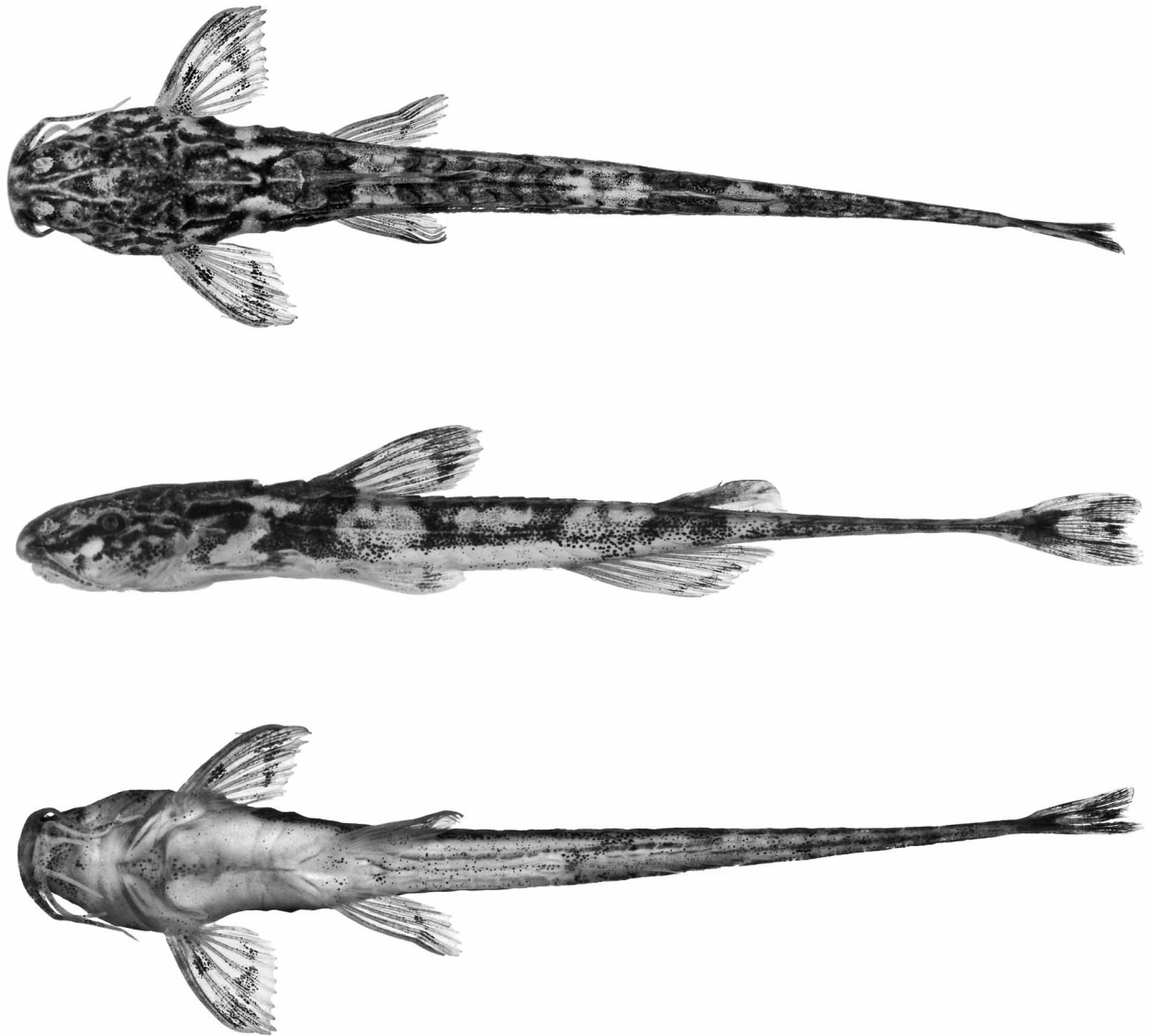


FIGURE 1. *Andersonia leptura*, CU 91440, 35 mm SL, Central African Republic, Nana-Grébiz, Gribingui-Chari Drainage, Gribingui River at Kunga Bandoro.

Adipose fin adnate and broadly triangular with slightly convex posterior margin. Fin origin situated above posterior portion of anal-fin base. Fin preceded by short spinous projection that extends approximately to middle of anterior margin of fin.

Caudal fin shallowly forked with rounded tips; fin symmetrical. Middle rays approximately three-fourths length of longest rays. Procurent rays short, few in number and not extending far anteriorly on peduncle. Principal caudal-fin rays: i,5,5,i (2), i,5,6,i (6), i,6,5,i (10) or i,6,6,i (17).

Anal fin moderately large, quadrangular. Fin base entirely located in posterior half of body; fin origin at approximately middle of total length. First branched ray longest, rays decreasing gradually in length posteriorly; distal margin of fin nearly straight. Last anal-ray with little, or no, posterior membranous extension. Adpressed fin reaching approximately to vertical through posterior terminus of adipose-fin base. Anal-fin rays: ii,6 (2), ii,6,i (11), ii,7 (11), ii,7,i (4), ii,8 (5) or ii,8,i (2).

Pelvic fin smaller than pectoral fin; fin margin convex, with first branched ray longest. Posterior ray without membranous extension posteriorly. Pelvic fin insertion located ventral to anterior half of dorsal-fin base. Pelvic-fin rays: i,4,i (35).

Pectoral fin moderate; tip of adpressed fin extends to vertical through dorsal-fin origin but falls short of pelvic-fin origin. Fin margin convex, first branched ray longest. Anterior ray stiff, not segmented and forming rigid non-serrate spine in largest specimens. Pectoral-fin rays: I,5,i (28) or I,6,i (7).

TABLE 2. Proportional measurements, expressed as a percentage, of *Andersonia leptura*. Mean and Ranges based on the holotype and 22 additional specimens.

	Holotype	Mean	Range
Standard length (mm)	45.7		29.3–45.7
Predorsal length/SL	30.0	30.2	27.9–33.1
Head length/SL	15.8	16.1	14.9–16.8
Body depth at dorsal-fin origin/SL	9.0	9.5	8.8–10.2
Body width at dorsal-fin origin/SL	-----	9.8	8.7–11.2
Caudal-peduncle length/SL	29.5	30.9	28.9–33.2
Caudal-peduncle depth/SL	1.2	1.3	1.1–1.5
Anal-fin base length/SL	13.1	12.5	11.0–13.2
Dorsal-fin length/SL	-----	16.5	15.8–17.9
Pectoral-fin length/SL	14.1	14.8	13.7–15.4
Pelvic-fin length/SL	12.3	12.9	12.3–14.6
Posterior limit of insertion pelvic-fin base to anus/SL	3.0	3.0	2.5–3.4
Head depth/HL	60.0	61.2	58.6–65.0
Head width/HL	79.3	83.2	78.1–93.2
Snout length/HL	47.6	50.2	47.4–53.3
Orbit diameter/HL	16.3	18.6	15.4–20.8
Interorbital width/HL	34.9	37.8	34.9–38.1
Postorbital length/HL	33.5	36.3	33.0–40.0
Postorbital Length/ Snout Length	70.5	74.6	70.0–82.9
Caudal-Peduncle Length/ Caudal-Peduncle Depth	244	243	200–270
Body Width/Body Depth	-----	105	96–111

Coloration in alcohol. Body-pigmentation intensity highly variable across examined specimens, perhaps reflecting time in preservative and/or water conditions at collection localities. Pigmentation darker dorsally with dark brown coloration extending to ventral of lateral line on abdomen and caudal peduncle. Boundary between dark and paler pigmented regions generally distinct and straight, especially in specimens with well-developed darker coloration. Dark pigmentation over body interrupted by three distinct, pale saddles. First saddle extends from posterior half of dorsal-fin base ventrally beyond lateral line; second saddle extends dorsally from anterior to middle portions of anal-fin base, but not reaching adipose-fin origin; third saddle extends ventrally from posterior half of adipose-fin base to lateral line. Pale ovoid spot extends across dorsolateral region between head and dorsal-fin origin; spot usually, but not always, confined to region dorsal of lateral line. Ventral and ventrolateral parts of abdomen with few scattered dark chromatophores, with distinct concentrations of pigment extending across pelvic-fin base and anal-fin origin. Head dark dorsally and dorsolaterally, with irregular lighter patches at nares, along snout margin, ventral to anterior part of orbit, on opercle, and along dorsal midline between orbits. Ventral part of head with scattered chromatophores most concentrated anteriorly, especially along margin of lower lip. Barbels pale ventrally and with some dark pigmentation dorsally at bases; dark pigmentation extends nearly to tip of maxillary barbel.

Dorsal fin hyaline, with basal and subdistal bands of dark pigmentation, as well as scattered chromatophores between bands. Subdistal band broad anteriorly, tapering gradually posteriorly. Distal margin of fin pale. Adipose fin darkly pigmented anteriorly and distally, pale posteroventrally, with distinct demarcation between dark and pale areas. Caudal fin with dark basal spot extending distally onto each lobe. Caudal-fin lobes with subdistal ovoid dark

spot; spots in darkly pigmented individuals blend with each other and/or with extensions of basal spot. Anal fin pale, with subdistal band of variable width and some dark pigmentation on fin origin. Pelvic fin pale, with broad subdistal band that covers all, or all but last, rays; fin with basal spot on dorsal surface of fin base and bases of first two branched rays. Pectoral fin pale, with broad irregular basal blotch of dark pigment on dorsal surface of fin base and, in darkly pigmented specimens, onto bases of middle rays; fin with broad subdistal band extending across dorsal surface of membranes; band decreasing in width posteriorly.

Coloration in life. A live specimen of *Andersonia leptura* was illustrated in Moritz *et al.* (2006, fig. 8a) in which the coloration pattern is much as in preservative other than for a reddish abdomen and a whitish coloration on the remaining portions of the body lacking dark pigmentation.

Distribution. *Andersonia leptura* has been found in the upper Niger and upper Nile river systems, tributaries of the endorheic Lake Chad basin as well as the Omo River, the principal tributary of the endorheic Lake Turkana (formerly Lake Rudolf) basin. Much of the distribution of *Andersonia leptura* fits the Nilo-Sudan Bioregion defined by Thieme *et al.* (2005) and is shared with various other groups of fishes. The presence of the species in the Omo River system presumably predates the isolation of Lake Turkana from the Nile system to the north approximately 7500 years BP (Beadle, 1981: 179).

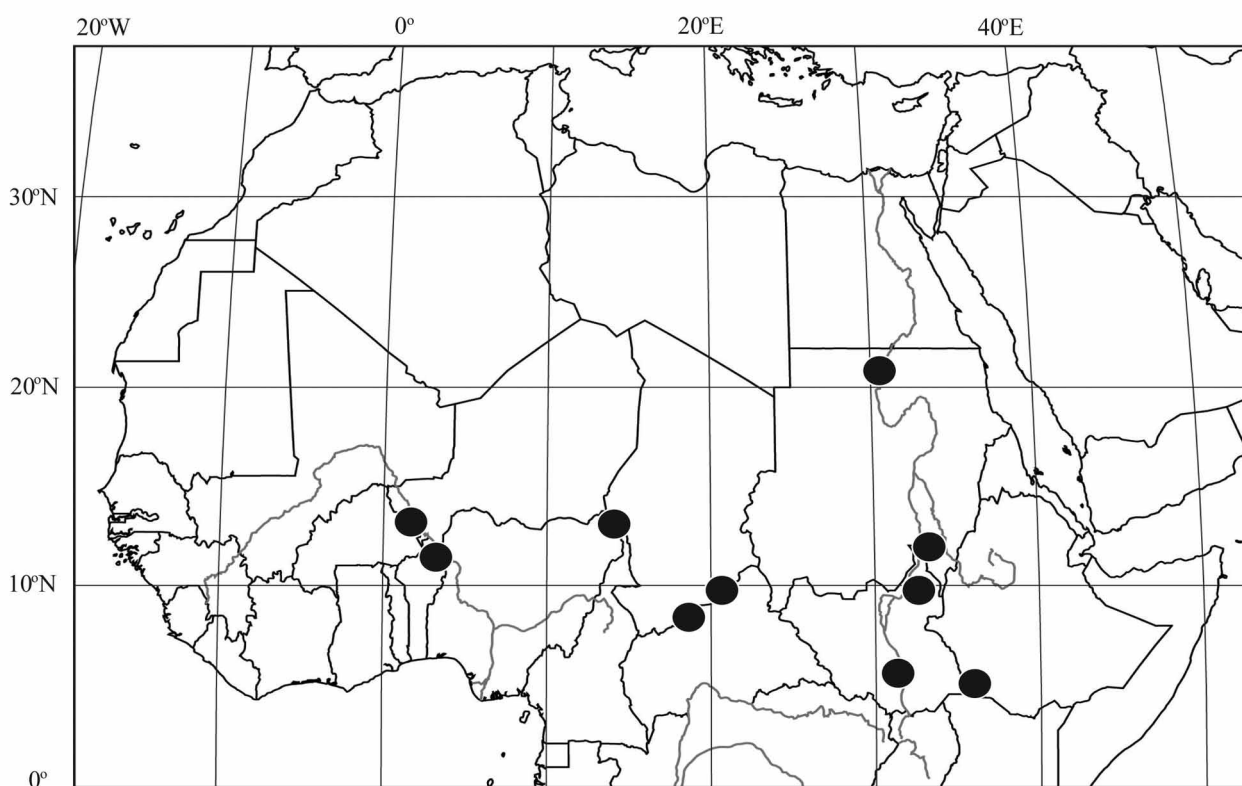


FIGURE 2. Map of the northern half of Africa, showing the distribution of *Andersonia leptura*. Dots, which may represent more than a single collection locality, indicate locations of specimens examined in this study.

Habitat. Found in standing water, along the margin of a lake, on a muddy substratum (Daget, 1959: 680).

Remarks. Harry (1953) appears to be the first to have noted the two alternate names proposed in Boulenger (1918) for the species and, therein, he treated *A. pellegrini* as valid.

Golubtsov and Dzerzhinskii (2003) reported on a large series of specimens from the Alvero River [sic, for Alwero River], of the White Nile basin in southwestern Ethiopia that we were unable to examine. Not unexpectedly, those samples revealed greater variation in some meristics than had been reported previously, but agreed with our own data based on geographically more extensive samples (Table 1). They reported statistically significant allometry in several characters notwithstanding the relatively small range of 22–37 mm SL among examined specimens, including negative allometric growth in the length of the head, paired fins, caudal fin, and distance from the snout to the pectoral-fin origin, and positive allometry in the distance from the tip of the snout to the anal-fin origin.

The presence of *Andersonia leptura* in the Omo River basin is based on a single collection of two specimens first reported by Pellegrin (1935: 136). We examined one of those specimens, which was delicate and did not radiograph well enough to obtain any meristic data. The specimen was otherwise comparable in overall body proportions to the samples from other basins, and we consider the Omo River population as conspecific with *A. leptura*.

Material examined. Chad Basin: BMNH 1918.12.11.13 (1, 38 mm, holotype of *Andersonia pellegrini*), Chad, Shari River. MNHN 1958-0135 (4, 25–29 mm), Chad, Lake Chad. CAS 74839 (7, 30–34 mm), Central African Republic, Chad River basin, Gounda [Gounda River], near border with Chad (9°18' N, 21°12' E). ZSM 26910 (5, 28–35 mm) Central African Republic, Chad River basin, Gounda [Gounda River] (9°18' N, 21°12' E). CU 91440 (8, 29–35 mm), Central African Republic, Nana-Grébiz, Gribingui-Chari Drainage, Gribingui River at Kunga Bandoro. CU 91441 (5, 30–38 mm), Central African Republic, Nana-Grébiz, Gribingui-Chari Drainage, Gribingui River at bridge in Kunga Bandoro.

Nile River basin: BMNH 1907.12.2.2454 (1, 46 mm, holotype of *Andersonia leptura*), Sudan, Nile River south of Wadi Halfa. ZMH 12016 (1, 26 mm, syntype of *Slatinia mongalensis*) and NMW 79741 (1, 30 mm, syntype of *Slatinia mongalensis*), South Sudan, Bar el Gebel, near Mongalla. NRM 16402 (1, 24 mm), South Sudan, White Nile, Tonga. ZSM 39755 (3, 29–33 mm), ZSM 39756 (3, 32–40 mm), ZSM 39757 (4, 28–38 mm), ZSM 39758 (3, 29–38 mm); South Sudan, Nile River at Taraq Island.

Niger River basin: BMNH 2006.4.18.37 (1, 33 mm), Benin, Moshe River. MNHN 1961-0600 (4 [of 10], 24–26 mm), Mali, Niger River basin, Lidebo.

Omo River basin: MNHN 1933-0110 (1 [of 2], 24 mm), Ethiopia, Lake Turkana.

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