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Two new species and one new subspecies of the South American catfish genus *Corydoras* (Pisces, Siluriformes, Callichthyidae)

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ABSTRACT

This paper contains descriptions and figures of two new species of *Corydoras* Lacépède, 1803, *C. weitzmani* from Peru, and *C. blochi* from Guyana, Brazil, and Venezuela. The latter species is represented by two subspecies, *C. blochi blochi* from the Amazonas, Branco, Orinoco, and Essequibo drainages, and *C. blochi vittatus* from the Itapecuru basin.

INTRODUCTION

The two new species described herein were found in the collections of the Field Museum of Natural History, Chicago, while visiting there with Dr S. H. Weitzman in the summer of 1969. *Corydoras weitzmani* was collected by Mr C. Kalinowski in 1949 in Peru. *Corydoras blochi* was found in Guyana by Mr Ledecky-Janacek, John G. Shedd Aquarium at Chicago. Subsequently, additional material of *C. blochi* was found in collections loaned by Mrs Dr R. H. Lowe-McConnell, British Museum (Natural History), London (BMNH), Mr H. A. Britski, Museu de Zoologia, Universidade de Sâo Paulo (MZUSP), Dr J. P. Gosse, Institut Royal des Sciences Naturelles de Belgique, Brussels (IRScNB), Dr P. H. Greenwood, British Museum (Natural History), London (BMNH), Dr P. Kähsbauer, Naturhistorisches Museum Wien, Vienna (NMW), and Mr F. Mago Leccia, Museo de Biologia, Universidad Central de Venezuela, Caracas (MBUCV). The author is grateful to all these persons and to Mr L. P. Woods, curator of the Field Museum of Natural History (FMNH) for permission to examine their material. Dr S. H. Weitzman of the Smithsonian Institution, National Museum of Natural History at Washington

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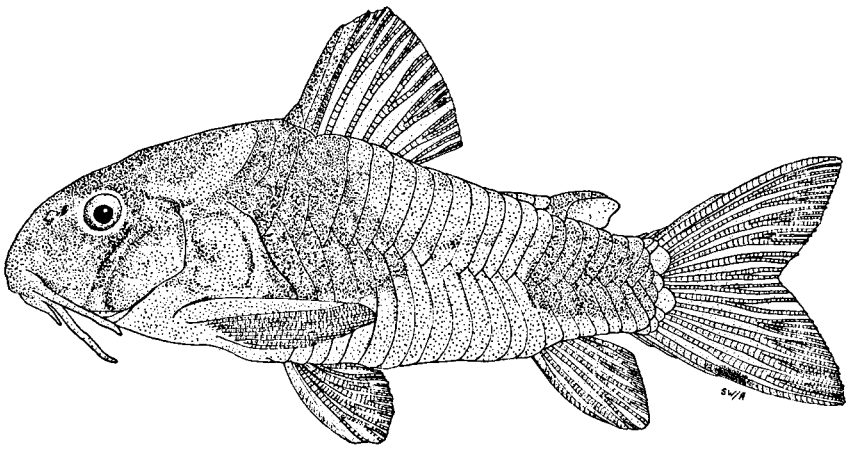

FIG. 1. *Corydoras weitzmani* new species, holotype, FMNH 69934, sl 45.7 mm, from Cuzco, Peru.

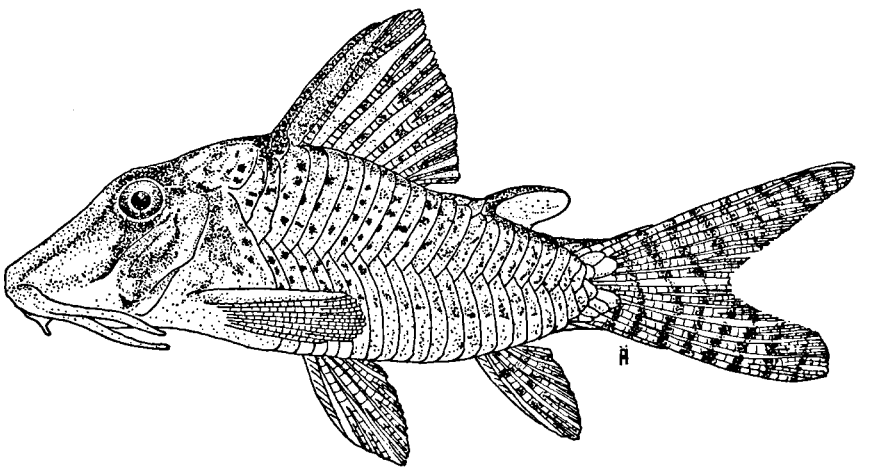

FIG. 2. *Corydoras blochi* new species, holotype, FMNH 75951, sl 37.0 mm, from Moco Creek, Guyana.

D.C. (USNM), kindly read the manuscript. I wish to thank him and Mr I. J. H. Isbrücker of the Amsterdam Zoo "Natura Artis Magistra" (NAM) for many helpful discussions concerning *Corydoras*. Fig. 1 was prepared by Dr S. H. Weitzman and Mr P. P. O. H. Höhner, and fig. 2 by Mr Höhner. The photographs were made by Mr A. L. van der Laan. The author is greatly indebted to the Office of Academic Programs of the Smithsonian Institution at Washington D.C., and to the authorities of the University of Amsterdam for their financial support. Proportions are expressed in standard length (sl), and in head length (hl). Measurements are taken to one tenth of a millimeter (cf. Nijssen, 1970: 10—11, fig. 3).

Corydoras weitzmani new species
(figs. 1, 8a)

Holotype FMNH 69934, sl 45,7 mm, Peru, Est, Cuzco, at Cuzco (13°32'S, 71°57'W), Vilcanota river system. Coll. C. Kalinowski, 18-II-1949.

5 Paratypes FMNH 75955, sl 38.5—46.7 mm, same data as holotype (2 specimens of this series deposited in ZMA 110.391, and 1 specimen in USNM 206018).

Description. — Data of the holotype: sl 45.7 mm; bd (body depth at origin of dorsal spine) 16.7 mm (2.7 in sl); bw (body width at origin of pectoral spines) 13.3 mm (3.4 in sl); lds (length dorsal spine) 9.7 mm (4.7 in sl); lps (length pectoral spine) 13.4 mm (3.4 in sl); hl (head length) 13.6 mm (3.4 in sl); sn (snout length) 6.8 mm (2.0 in hl); lbo (length bony orbit) 3.7 mm (3.7 in hl); wi (least interorbital width) 6.2 mm (2.2 in hl); ca (width coracoid area between anteriormost ventral body scutes) 4.2 mm (3.2 in hl); dcp (least depth caudal peduncle) 6.8 mm (2.0 in hl); D (dorsal fin) I,7; P_1 (pelvic fin) i,5; A (anal fin) i,6; P_2 (pectoral fin) I,8; C (principal caudal fin rays) 7/7; dbs (dorsolateral body scutes) 24; vbs (ventrolateral body scutes) 21; pas (preadipose scutes) 3. Two pairs of rictal barbels and one pair of mental barbels. Inner edge of pectoral spines moderately serrated (fig. 8a). Fontanel length 2.7 mm. Skin of intercoracoid area naked.

Data based on 5 paratypes, sl 38.5 — 46.7 mm; bd 2.6 — 2.8; bw 3.3 — 3.7; lds 4.2 — 5.5; lps 3.5 — 3.8; hl 3.2 — 3.4; sn 2.0 — 2.2; lbo 3.2 — 3.6; wi 2.1 — 2.2; ca 2.5 — 2.7; dcp 1.9 — 2.0; D I,7; P_1 i,5; A i,6; P_2 I,8; C 7/7; dbs/vbs 24 — 25/21 — 22; pas 3 — 4.

Colour in alcohol (see fig. 1 of holotype). — Ground colour of head and body tan. Black pigment dorsal and ventral to eyes organized into a vertical mask. Remainder of head relatively pale but dorsum of snout dark. Dorsal rictal barbels greyish, ventral rictal barbels tan. Cleithrum with scattered black pigment, most dense on dorsoanterior portion. Two prominent brown to black blotches on sides of body, larger blotch below dorsal fin, smaller below adipose fin. Larger blotch covers dorsolateral scutes 2 through 5, including ventral portions of dorsolateral scutes 6 through 8, and ventrolateral scutes 1 through 3 including dorsal parts of ventrolateral scutes 4 through 7. Smaller blotch covers dorsolateral scutes 16 through 23 and dorsal parts of ventrolateral scutes 14 through 20. Black pigmentation on dorsolateral scutes, arranged principally in faint vertical bars in centre of scutes. Scattered pigmentation on dorsal parts of ventrolateral and on preadipose scutes. Belly region tan.

Dorsal fin with scattered pigmentation most dense on spine, first and second soft ray, and on membrane between these rays. A small black blotch on distal part of fifth soft ray in holotype, not present in paratypes. Base of adipose spine and ventralmost part of adipose membrane black. Pectoral, pelvic, and anal fin with scattered pigmentation. Pigment in caudal fin confined to the rays. In holotype a short stripe of black pigment halfway from caudal base

to lower caudal fin lobe on ventral unbranched ray. This stripe is absent in paratypes.

Etymology. — Named in honour of Dr S. H. Weitzman who has had a long and continuing interest in the genus *Corydoras*.

Discussion. — *C. weitzmani* is a relatively short snouted species and resembles *C. aeneus* (Gill, 1858), perhaps its closest relative, in morphometric and meristic data. *C. weitzmani* differs from *C. aeneus* and other known species of *Corydoras* mainly in colour pattern. Compared with two series of *C. aeneus* from near the type locality of *C. weitzmani*, viz., CAS (ex IUM 16165), ZMA 110.433 from Peru (creek at Puerto Bermudez at junction of Chivis with Pichis Rivers, Rio Ucayali system, 10°14'S,74°56'W, 8 specimens measured, sl 34.1 — 42.5 mm) and UMMZ 66328, ZMA 110.421 from Bolivia (upper Rio Beni at Rurrenabaque, 14°30'S, 67°32'W, 11 specimens measured, sl 36.1 — 45.1 mm), *C. weitzmani* mainly differs in colour pattern with the two prominent brown to black blotches on the body and a mask across the eyes as described above (see also fig. 1). *C. weitzmani* appears to reach the highest altitude of any known species of *Corydoras*, somewhat over 3350 metres.

Corydoras blochi new species
(figs. 2—6, 8b-f)

Holotype FMNH 75951, sl 37.0 mm, Guyana, district Essequibo, Moco Creek near Lethem, tributary of Rio Tacutú, Rio Branco system. Coll. E. Ledecky-Janacek, XII-1968.

1 Paratype ZMA 110.675, sl 35.4 mm, same data as holotype.

2 Paratypes BMNH 1970.10.30.1, sl 35.6 mm, and ZMA 110.724, sl 32.2 mm, Guyana, district Essequibo, Sauriwau stream, tributary of Rupununi River, Essequibo river system. Coll. R. H. Lowe-McConnell, 28-IX-1957.

5 Paratypes MZUSP 8580, sl 31.6—43.3 mm, Brazil. Est. Roraima (= Rio Branco), tributary of Rio Uraricoera at Fazenda Canadá, Rio Branco system. Coll. T. R. Roberts, 15-II-1969 (2 specimens of this series deposited in ZMA 111.005).

3 Paratypes MBUCV V-4712, sl 29.6—37.4 mm, Venezuela, Est. Apure: Rio Capanaparo, Orinoco river system. Coll. F. Mago-Leccia, 8-III-1967 (2 specimens of this series deposited in ZMA 110.799).

5 Paratypes IRScNB 503, sl 38.5—47.5 mm, Brazil, Est. Amazonas, Furo do Cuia, tributary at left bank of Rio Solimoes, upstream of village de Cuia, 90 km upstream of Manacapuru. Coll. J. P. Gosse, 24-XI-1962 (2 specimens of this series deposited in ZMA 110.723).

11 Paratypes BMNH 1926.10.27.308—317, sl 35.1—40.9 mm, Brazil, Est. Para, Rio Amazonas at Monte Alegre. Coll. C. Ternetz, no date.

2 Paratypes FMNH 54848 (ex CM 3500), sl 36.1—39.7 mm, Brazil, Est. Para, Rio Amazonas at Santarem. Coll. J. D. Haseman, 15-XII-1909.

Description. — Data of the holotype: sl 37.0 mm; bd 13.3 mm (2.8 in sl); bw 8.5 mm (4.4 in sl); lds 9.7 mm (3.8 in sl); lps 9.7 mm (3.8 in sl); hl 12.8 mm (2.9 in sl); sn 7.9 mm (1.6 in hl); lbo 3.6 mm (3.6 in hl); wi 3.7 mm (3.5 in hl); ca 3.4 mm (3.8 in hl); dcp 5.3 mm (2.4 in hl); D I,7; P_1 i,5; A ii,5; P_2 I,10; C 7/7; dbs/vbs 24/22; pas 3. Two pairs of rictal barbels and one

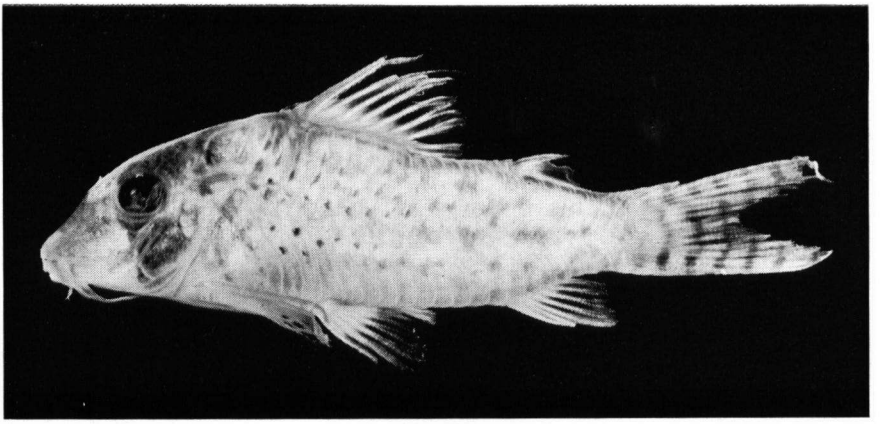

FIG. 3. *Corydoras blochi* new species, paratype, MZUSP 8580, sl 36.0 mm, from Rio Uraricoera. Brazil.

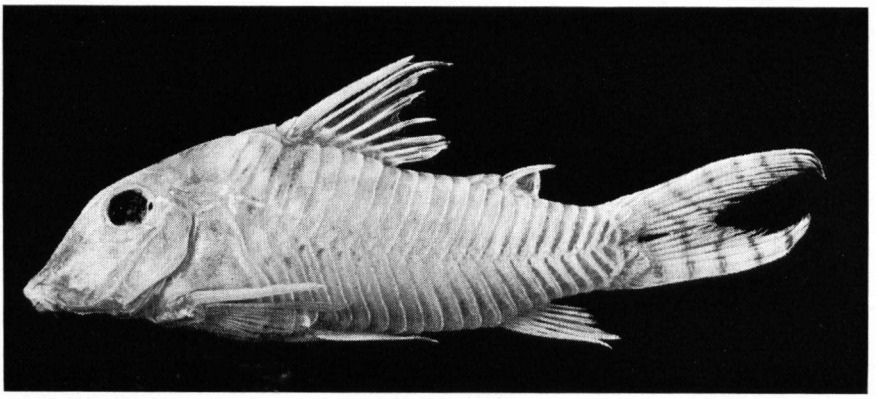

FIG. 4. *Corydoras blochi* new species, paratype, MBUCV V-4712, sl 37.4 mm, from Rio Capanaparo, Venezuela.

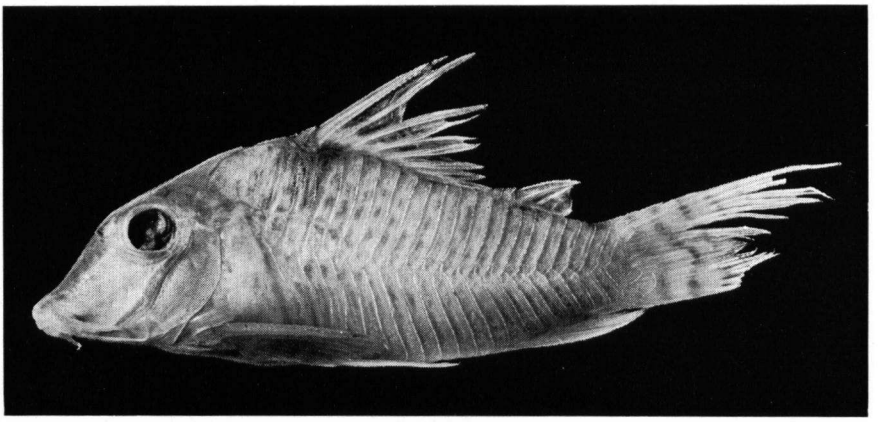

FIG. 5. *Corydoras blochi* new species, paratype, IRScNB 503, sl 40.8 mm, from Furo do Cuia, Brazil.

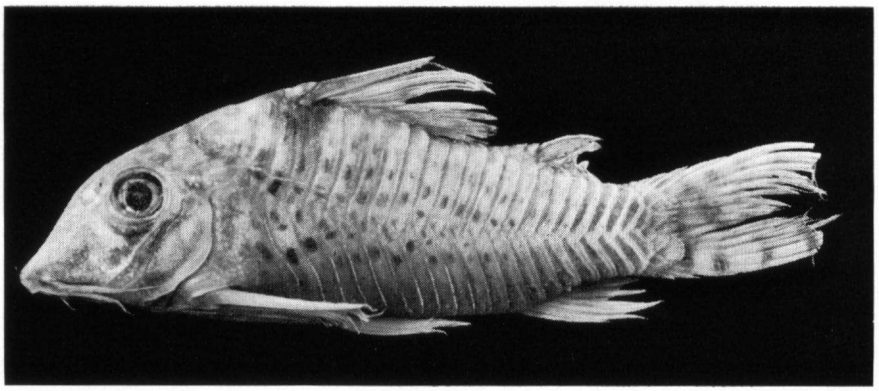

FIG. 6. *Corydoras blochi* new species, paratype, BMNH 1926.10.27.308—317, sl 38.9 mm, from Rio Amazonas at Monte Alegre, Brazil.

FIG. 7. *Corydoras blochi vittatus* new subspecies, holotype, ZMA 109.990, sl 40.9 mm, from Rio Itapecuru at Caxias, Brazil.

pair of mental barbels. Inner edge of pectoral spine strongly serrated (fig. 8b). Fontanel length 5.5 mm. Skin of intercoracoid area naked.

Data based on 1 topotypic paratype (ZMA 110.675)
sl 35.4 mm; bd 2.8; bw 4.3; lds 4.5; lps 3.8; hl 3.0; sn 1.6; lbo 3.4; wi 3.4; ca 3.5; dcp 2.2; D I,7; P1 i,5; A ii,5; P2 I,10; C 7/7; dbs/vbs 24/21; pas 3. Barbels, inner edge of pectoral spine, and skin of intercoracoid area as in holotype.

Data based on 2 paratypes (BMNH 1970.10.30.1 and ZMA 110.724)
sl 32.2—35.6 mm; bd 2.7—2.8; bw 4.1—4.2; lds 4.0—4.2; lps 3.7—3.8; hl 3.0; sn 1.6—1.7; lbo 3.2—3.4; wi 3.2; ca 3.2; dcp 2.1—2.3; D I,7; Pl i,5; A ii,5; P2 I,10; C 7/7; dbs/vbs 24/21; pas 3. Barbels, inner edge of pectoral spine, and skin of intercoracoid area as in holotype.

Data based on 5 paratypes (MZUSP 8580 and ZMA 111.005)
sl 31.6—43.3 mm; bd 2.9—3.0; bw 4.1—4.3; lds 4.5—5.1; lps 4.1—4.5;
hl 3.1—3.3; sn 1.7—1.9; lbo 3.1—3.4; wi 3.2—3.3; ca 2.9—4.9;
dcp 2.2—2.3; D 1,7; Pl i, 5; A ii,5 P2 I,9—10;
C 7/7; dbs/vbs 24/21; pas 2—3. Barbels and skin of intercoracoid area as in holotype. Inner edge of pectoral spine strongly serrated (fig. 8 c).

Data based on 3 paratypes (MBUCV V—4712 and ZMA 110.799)
sl 29.6—37.4 mm; bd 2.7—2.9; bw 4.0—4.2; lds 3.7—4.0; lps 3.4—3.8;
hl 2.9—3.0; sn 1.7—1.8; lbo 3.3—3.5; wi 3.0—3.4; ca 3.2—3.6;
dcp 2.3; D I,7; Pl i,5; A ii,5; P2 I,10;
C 7/7; dbs/vbs 23—24/21; pas 2—3. Barbels and skin of intercoracoid area as in holotype. Inner edge of pectoral spine strongly serrated (fig. 8d).

Data based on 5 paratypes (IRScNB 503 and ZMA 110.723)
sl 38.5—47.5 mm; bd 2.5—2.7; bw 3.8—4.4; lds 3.8—4.2; lps 3.3—3.8;
hl 2.9—3.1; sn 1.7—1.9; lbo 3.0—3.6; wi 3.1—3.4; ca 3.4—4.6;
dcp 2.3—2.5; D I,7; Pl i,5; A ii,5; P2 I,10;
C 7/7; dbs/vbs 24/21—22; pas 3. Barbels and skin of intercoracoid area as in holotype. Inner edge of pectoral spine strongly serrated (fig. 8e).

Data based on 11 paratypes (BMNH 1926.10.27.308—317)
sl 35.1—40.9 mm; bd 2.6—3.0; bw 4.0—4.6; lds 3.9—4.7; lps 3.5—3.9;
hl 3.0—3.3; sn 1.7—1.8; lbo 3.3—3.7; wi 2.8—3.4; ca 3.2—5.7;
dcp 1.9—2.4; D I,7—8; Pl i,5; A ii,5; P2 I,9—10;
C 7/7; dbs/vbs 23—24/20—21; pas 2—3. Barbels and skin of intercoracoid area as in holotype. Inner edge of pectoral spine strongly serrated (fig. 8f).

Data based on 2 paratypes (FMNH 54848)
sl 36.1—39.7 mm; bd 2.6—2.7; bw 3.8—4.0; lds 4.3—4.4; lps 3.6—3.7;
hl 3.1; sn 1.7—1.8; lbo 3.2—3.3; wi 3.0—3.1; ca 3.2—3.7;
dcp 2.3; D I,7; Pl i,5; A ii,5; P2 I,10;
C 7/7; dbs/vbs 24 /21; pas 3. Barbels, inner edge of pectoral spine, and skin of intercoracoid area as in BMNH 1926.10.27.308—317.

Colour in alcohol (see fig. 2 of holotype). — Ground colour of head and body tan. Brown pigment across dorsum of head, dorsal, and ventral to eyes, forming a mask. Remainder of head and barbels pale. Scattered brown pigment on dorsum of snout and on supraoccipital. Brown patches on dorsal part of cleithrum. Body with brown dots as shown in figure 2. Brown blotch around base of dorsal spine. Belly region white.

Dorsal fin with dark brown pigment on spine, first two soft fin rays, and on membrane in between. Remainder dorsal fin rays and anal fin rays with brown dots. Pectoral, adipose, and pelvic fins colourless. Brown pigment on adipose spine and on caudal fin rays, on the latter forming 10 narrow vertical bars in holotype (8 in topotypic paratype).

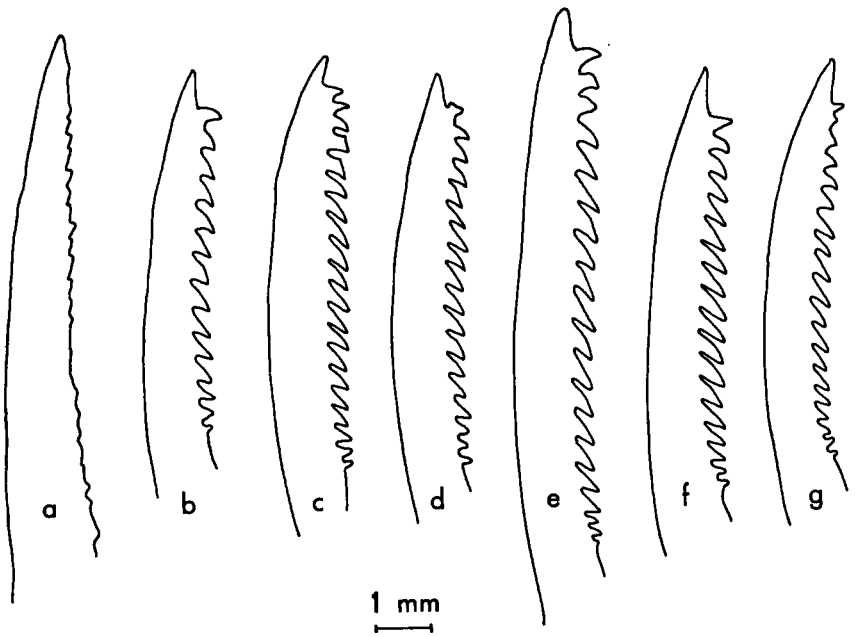

FIG. 8. Ventral view of left pectoral spine of: a-*C.weitzmani* n. sp., holotype sl 45.7 mm, from Cuzco, Peru; b-*C. blochi* n. sp., holotype, sl 37.0 mm, from Moco Creek, Guyana; c-*C. blochi* n. sp., paratype, sl 43.3 mm, from Rio Uraricoera, Brazil; d-*C. blochi* n. sp., paratype, sl 37.4 mm, from Rio Capanaparo, Venezuela; e-*C. blochi* n. sp., paratype, sl 47.5 mm, from Furo do Cuia, Brazil; f-*C. blochi* n. sp., paratype, sl 39.6 mm, from Rio Amazonas at Monte Alegre, Brazil; g-*C. blochi vittatus* n. ssp., holotype, sl 40.9 mm, from Rio Itapecuru at Caxias, Brazil.

Paratypes from Sauriwau stream with colour pattern identical to holotype. Paratypes from Rio Uraricoera without pigment on dorsal fin rays. Body with moderate irregularly brown patches posteriorly, different from specimens from the type locality (fig. 3). Colour pattern of paratypes from Rio Capanaparo faded without mask and without pigment on dorsal fin rays. 6—7 vertical bars on caudal fin (fig. 4). Mask and dorsal fin pigment also absent in paratypes from Furo do Cuia (fig. 5). Paratypes from Rio Amazonas at Monte Alegre and Santarem with faint mask and with faded pigment on first rays of dorsal fin (fig. 6).

Etymology. — In honour of the ichthyologist Dr M. E. Bloch, who in 1794 described *Cataphractus punctatus*, the type species of the genus *Corydoras* Lacépède, 1803.

Discussion. — *C. blochi* is a relatively long snouted species and superficially resembles *C. agassizi* Steindachner, 1877, perhaps a close relative. I examined the three syntypes of *C. agassizi* (NMW 46697, sl 31.2—47.4 mm) from Rio Amazonas at Tabatinga. *C. blochi* differs from *C. agassizi* and other known species of *Corydoras* by the following combination of characters:

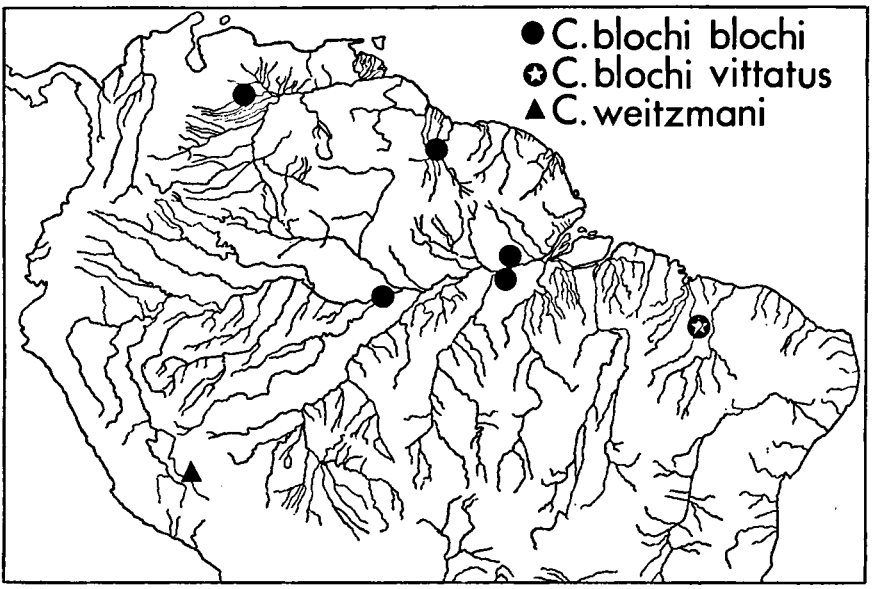

FIG. 9. Map showing localities where *C. blochi blochi, C. blochi vittatus,* and *C. weitzmani* were collected.

a strongly serrated pectoral spine (moderately serrated in *C. agassizi*), a long snout (1.6 — 1.9 in *C. blochi* and 2.0 — 2.1 in *C. agassizi*), a narrower interorbital width (2.8 — 3.5 in *C. blochi* and 2.3 in *C. agassizi*), and a different colour pattern. *C. blochi* is represented by two subspecies which mainly differ in colour pattern, viz., *C. blochi blochi* from the Amazonas, Branco, Orinoco, and Essequibo drainages, and *C. blochi vittatus* new subspecies, from the Itapecuru basin.

Corydoras blochi vittatus new subspecies
(figs. 7, 8g)

Holotype ZMA 109.990, sl 40.9 mm, Brazil, Est. Maranhão, tributary of Rio Itapecuru at Caxias (04°53'S,43°20'W). Coll. J. D. Haseman, 20-VI-1913.

4 Paratypes ZMA 109.989 (two), and NMW 46803 (two), sl 35.7—44.4 mm, same data as holotype.

Description. — Data of the holotype: sl 40.9 mm; bd 14.1 mm (2.9); bw 9.6 mm (4.3); lds 8.6 mm (4.8); lps 10.5 mm (3.9); hl 12.8 mm (3.2); sn 7.4 mm (1.7); lbo 3.6 mm (3.6); wi 4.0 mm (3.2); ca. 3.3 mm (3.9); dcp 5.4 mm (2.4); D I,7; P_1 i,5; A ii,5; P_2 I,10; C 7/7; dbs/vbs 23/22; pas 5. Two pairs of rictal barbels and one pair of mental barbels. Inner edge of pectoral spines strongly serrated (fig. 8g). Fontanel length 4.9 mm. Skin of intercoracoid area naked.

Data based on 4 paratypes (ZMA 109.989, and NMW 46803) sl 35.7 — 44.4 mm; bd 2.7 — 2.8; bw 4.0 — 4.3; lds 4.5 — 5.0; lps 3.8 — 4.3; hl 3.1; sn 1.6 — 1.7; lbo 3.5 — 3.8; wi 3.0 — 3.3; ca 3.1 — 3.7; dcp 2.2 — 2.5; D I,7; P_1 i,5; A ii,5; P_2 I,10; C 7/7; dbs/vbs 24—25/22; pas 3—4. Barbels, inner edge of pectoral spines and skin of intercoracoid area as in holotype.

Colour in alcohol (see fig. 7 of holotype). — Ground colour of head and body tan. No mask across eyes. Area dorsal to eyes, supraoccipital, and lateral part of head with irregular shaped brown blotches. Dorsum of snout with faint brown spots. Dorsal rictal barbels brownish. Body and cleithrum with brown dots as shown in figure 7. A dark brown stripe across the junctions of dorsal and ventral lateral body scutes from about halfway the body to caudal peduncle. Brown blotch around base of dorsal spine. Belly region whitish.

Dorsal fin with scattered brown pigment on spine, rays, and on membrane between spine and second soft dorsal fin ray. Scattered brown pigment on rays of caudal, anal, and pectoral fins. No bars on caudal fin.

Etymology. — From the Latin "vittatus" meaning decorated with a ribbon in reference to the stripe along the body.

Discussion. — *C. blochi vittatus* mainly differs from *C. blochi blochi* in colour pattern. The horizontal stripe along the posterior part of the body is lacking in *C. blochi blochi*, and the vertical bars on the caudal fins are lacking in *C. blochi vittatus*. Moreover, *C. blochi vittatus* tends to have a shorter pectoral spine (3.8 — 4.3 in *C. blochi vittatus* against 3.4 — 3.8 in *C. blochi blochi*).

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