

Rediscovery of the marbled caecilian *Epicrionops marmoratus* and first record from Colombia

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A few years ago, during the course of our revision of the Gymnophiona of Colombia, we came across an interesting collection of caecilians from Nariño, Colombia. This collection was housed at Universidad de Nariño and was gifted to Professor Belisario Cepeda-Quilindo by the native inhabitants of Reservas La Planada and Río Ñambí. Unfortunately most specimens lack field notes, collection dates, and specific localities. The specimens were presumably collected sometime during the early 1990s by various biologists visiting these field stations and contain primarily a large series of Gunther's caecilian *Caecilia guntheri*, (seemingly a common species at La Planada) but we detected that a much rarer species was hiding among these; an excellent specimen of *Epicrionops marmoratus* collected by Guillermo Cantillo in Reserva Río Ñambí, Altaquer, Barbacoas, Nariño, Colombia, 27 February 1992.

Epicrionops marmoratus (PSO-CZ 857) was examined under a Zeiss Stemi 2000 stereoscope using entomological pins to facilitate counting the numerous folds found throughout the body. The total fold count was made twice by the senior author in order to avoid miscalculation. A small incision to the commissure of the mouth was made in order to access dentition (i.e. the number of teeth per series), and all teeth were examined directly with the mouth opened. All dental counts were made clockwise from left to right postero-anteriorly; teeth that were not fully exposed outside the gums were not counted. A small, ventral longitudinal incision was made to search for sexual organs. All measurements were taken using a Neiko digital calliper rounded to the nearest 0.1 mm with the exception of total body length, which was determined using a measuring tape (in centimetres) and placed along the body length of the specimen.

We identified this caecilian as *E. marmoratus* because it had the following morphological characteristics, meristics, and measurements. An adult male with a total body length of 290 mm (432 mm in life), body width of 14.4 mm at mid-body point, an attenuation index (i.e. length divided by width) of 20.1 times, and a main brown to reddish body colouration in preservative (70 % ethanol). This individual has a total of 300 folds past the nuchal collars and only the last 26 are caudal folds (Table 1); with seven folds on the second nuchal collar and eight folds interrupted by the vent (Fig. 1). Dentition

and the number of teeth per series differ slightly from those indicated by Taylor (1968) in the original description of *E. marmoratus*, but this is to be expected given that some teeth are missing or concealed by the gums, hence not counted, and the total extent of intraspecific variation is yet to be assessed; premaxillary-maxillaries 12-14, vomeropalatines 13-1-15, dentaries 14-1-14, and inner mandibulars 19-18. Scales begin at the first fold and end at the last fold, where these are subcircular in shape with a straight outline at the margin of inception with the pocket, their overall shape is similar to those indicated in Taylor (1972: 1094, fig. 46). Taking into account that the measurements and meristics of PSO-CZ 857 fall within the range indicated by Taylor (1968: 205) we are confident of our identification.

Table 1. Measurements and meristic data for *Epicrionops marmoratus*

Characters/Specimens	PSO-CZ 857	BMNH 1956.1.15.87	EP 3986
Total length (mm)	290	299	278
Body length (mm)	266.1	278.5	258.8
Tail length (mm)	17.6	20.5	19.2
Head width (mm)	9.2	11	11.2
Body width (mm)	14.4	14	15.2
Tentacle to nostril (mm)	4.1	4.6	4.3
Snout tip to 1st groove (mm)	14.1	12.8	12
Snout tip to 2nd groove (mm)	15.7	15	15
Snout tip to 3rd groove (mm)	17.4	22	21
Total folds (dorsal-lateral count)	300	327	302
Caudal folds	26	25	20
Folds on 2nd collar	7	7	6

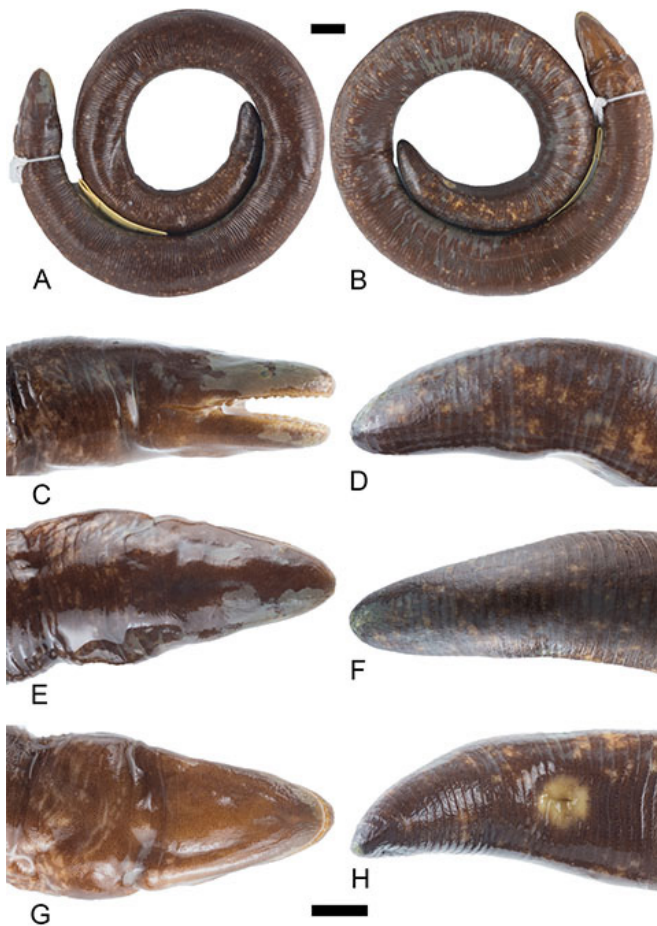


Figure 1. *Epicrionops marmoratus* (PSO-CZ 857) from Reserva Río Ñambí, Barbacoas, Nariño, Colombia - **A.** & **B.** Dorsal and ventral views, **C.**, **E.**, & **G.** Head and nuchal collars in lateral, dorsal, and ventral views, **D.**, **F.** & **H.** Tail in lateral, dorsal, and ventral views. Upper scale equals 9 mm, lower scale equals 4.5 mm.

The main colouration pattern of PSO-CZ 857 seems to vary from the “marbled pattern” indicated in the original description because the ground colour of PSO-CZ 857 is mainly dark brown to reddish brown with light cream or yellow blotches or flecks scattered irregularly along the body. These markings occur more prominently on the flanks and less so on the dorsal and ventral surfaces of the body; in contrast to the cream-white ground colour with lavender spots *sensu* Taylor (1968: 204, 208, figs. 98, 101).

Epicrionops marmoratus remains a poorly known species described by Taylor (1968) based on two specimens from western Ecuador, e.g. the holotype (BMNH 1956.1.15.87) from Santo Domingo de los Colorados, and paratype EP 3986, the latter was obtained on the road to Mindo, in Pichincha, Ecuador, at approximately 1400 m a.s.l. while the holotype was obtained at 670 m a.s.l. (Taylor & Peters, 1974). This report raises the total number of caecilian species from Colombia to 35; five of which belong to the genus *Epicrionops*, i.e. *E. bicolor*, *E. columbianus*, *E. marmoratus*, *E. parkeri*, and *E. petersi* (Lynch, 2000; Chaves-Portilla et al., 2021). From a conservation standpoint, the rediscovery of *E. marmoratus*



Figure 2. Geographic distribution of *Epicrionops marmoratus* in western Colombia and Ecuador. Yellow squares represent the previously known records and the red circle represents the new record from Reserva Río Ñambí, Barbacoas, Nariño, Colombia (PSO-CZ 857).

at ‘Reserva Río Ñambí’, corregimiento Altaquer, Barbacoas, Nariño, Colombia (1° 17'16.52" N, 78° 5'38.88" W, 1140 m a.s.l., Fig. 2) not only extends the known distribution of the species 207 km north (in a straight line) but also establishes this natural reserve as the second protected area (after Mindo-Nambillo protected forest in Ecuador) inhabited by this species. Future studies aiming to determine the natural history, behaviour, ecological necessities, and reproductive dynamics of this caecilian could give us a better assessment of its conservation status, which at the moment is classified as Data Deficient according to IUCN.

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REFERENCES

- Chaves-Portilla, G.A., López-Ordóñez, J.P, Fernández-Roldán, J.D. & Lynch, J.D. (2021). First record of Peter's caecilian *Epicrionops petersi* from Colombia. *The Herpetological Bulletin* 158: 35–36.
- Lynch, J.D. (2000). Una aproximación a las culebras ciegas de Colombia (Amphibia: Gymnophiona). *Revista de la Academia Colombiana de Ciencias Exactas, Físicas y Naturales*. (Suplemento especial) 23: 317–337.
- Taylor, E.H. (1968). *The Caecilians of the World: A Taxonomic Review*. Lawrence: University of Kansas Press. 790 pp.
- Taylor, E.H. (1972). Squamation in caecilian, with an atlas of scales. *University of Kansas Science Bulletin* 49: 989–1164.
- Taylor, E.H. & Peters J.A. (1974). The caecilians of Ecuador. *University of Kansas Science Bulletin* 50: 333–346.

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