

**DESCRIPTION OF NEW SPECIES OF *Apostolepis* (SERPENTES: DIPSADIDAE: XENODONTINAE: ELAPOMORPHINI) FROM SERRA DO RONCADOR, CENTRAL BRAZIL**

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**ABSTRACT**

It is described a new species of *Apostolepis*, from Serra do Roncador, Mato Grosso, Central Brazil, in Cerrado biome. It is similar to *A. christinei*, differing mainly, by absence of stripes (vs. presence), head with same diameter of neck (vs. lower), rostral plane in lower side (vs. reentrant); tail blotch longer (vs. shorter), supralabial blotch long, reaching rostral (vs. short, on two supralabials), nuchal black collar not reaching gular region (vs. as gular collar). The holotype is from Serra do Roncador, eastern border of Mato Grosso isolated by Araguaia River from Tocantins state, in Cerrado Domain.

**Keywords:** Cerrado; uniformly colored; collars absent; stocky body; snout projected

**DESCRIÇÃO DE NOVAS ESPÉCIES DE *Apostolepis* (SERPENTES: DIPSADIDAE: XENODONTINAE: ELAPOMORPHINI) DA SERRA DO RONCADOR, BRASIL CENTRAL**

**RESUMO**

É descrita uma nova espécie de *Apostolepis* da Serra do Roncador, Mato Grosso, Brasil Central, bioma Cerrado. É similar à *A. christinei* diferindo, principalmente, pela ausência de estrias (vs. presença), cabeça de diâmetro igual ao pescoço (vs. mais estreita), rostral plana inferiormente (vs. reentrante), mancha caudal mais longa (vs. mais curta), mancha supralabial longa atingindo o rostral (vs. curta, sobre dois escudos), colar nuchal não atinge região gular (vs. atinge, cruzando sobre). A Serra do Roncador no extremo oriental do Estado de Mato Grosso que fica isolado de Tocantins pelo rio Araguaia.

**Palavras-chave:** Cerrado; de cor uniforme; colares ausente; corpo atarracado; focinho projetado.

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## INTRODUCTION

The new species was discovered during examination of Elapomorhini specimens housed in The Museum of Natural History, London, U. K. (BMNH). It was labeled as "*Apostolepis vittata*" (Cope 1877), but the specimen differs conspicuously from that species, and is similar to *Apostolepis christinei* Lema 2002, but with significant differences which allowed to be described as a new species, belonging to the same group *dimidiata*, according Ferrarezzi (1993). *A. vittata* is a bad known species, justifying the error in determination, and, a review was presented, with descriptions of some new specimens, including one in life, showing the natural coloration, currently unknown (Lema subm.).

## MATERIAL AND METHODS

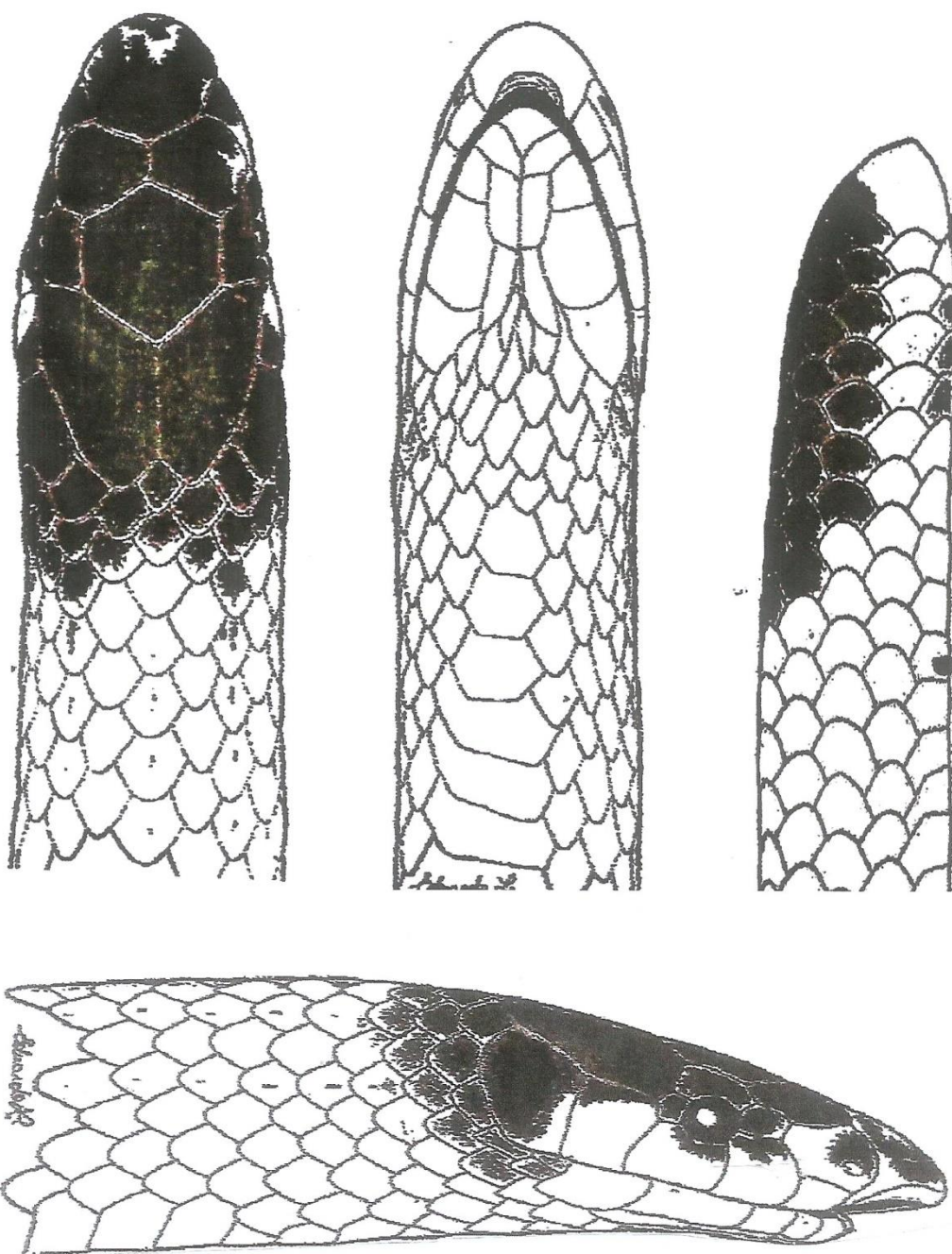
Acronyms of institutions as Sabaj-Pérez (2014), except IB, here used IBSP; UFMT, Universidade Federal de Mato Grosso, Cuiabá, Mato Grosso, Brazil; and UFSC, Universidade Federal de Santa Catarina, Florianópolis, Santa Catarina, Brazil. Measurements in millimeters, following Lema (2002), with the head size measured on two points, on parietals (largest), and nostrils (smallest), and the length from quadrato-jugal articulation to snout tip. The hemipenis was not visualized, avoiding to cut the only specimen disposable. The specimen was drawing by professional designer.

The type-locality, Serra do Roncador, is localized in the eastern border of Mato Grosso state, with Tocantins state. The mountain is a plateau ("chapada"), with abrupt sides, attaining 700 m on the level of the sea in some points, in the Cerrado morpho-climatic domain, in central Brazil. The total area is surrounded by Araguaia River at East, and Xingu and Kuluene Rivers at West. The region of the Serra do Roncador is a large cordillera from plutonic era acting as a waters division of the Araguaia and Xingu Rivers, extending along 800 km (approx.), from Barra do Garças (Mato Grosso state) until near Serra do Cachimbo (Para state). The name "roncador" has folklore origin, perhaps due by low sounds produced by winds in thick walls at night, but to phantoms or gods, to local aborigines

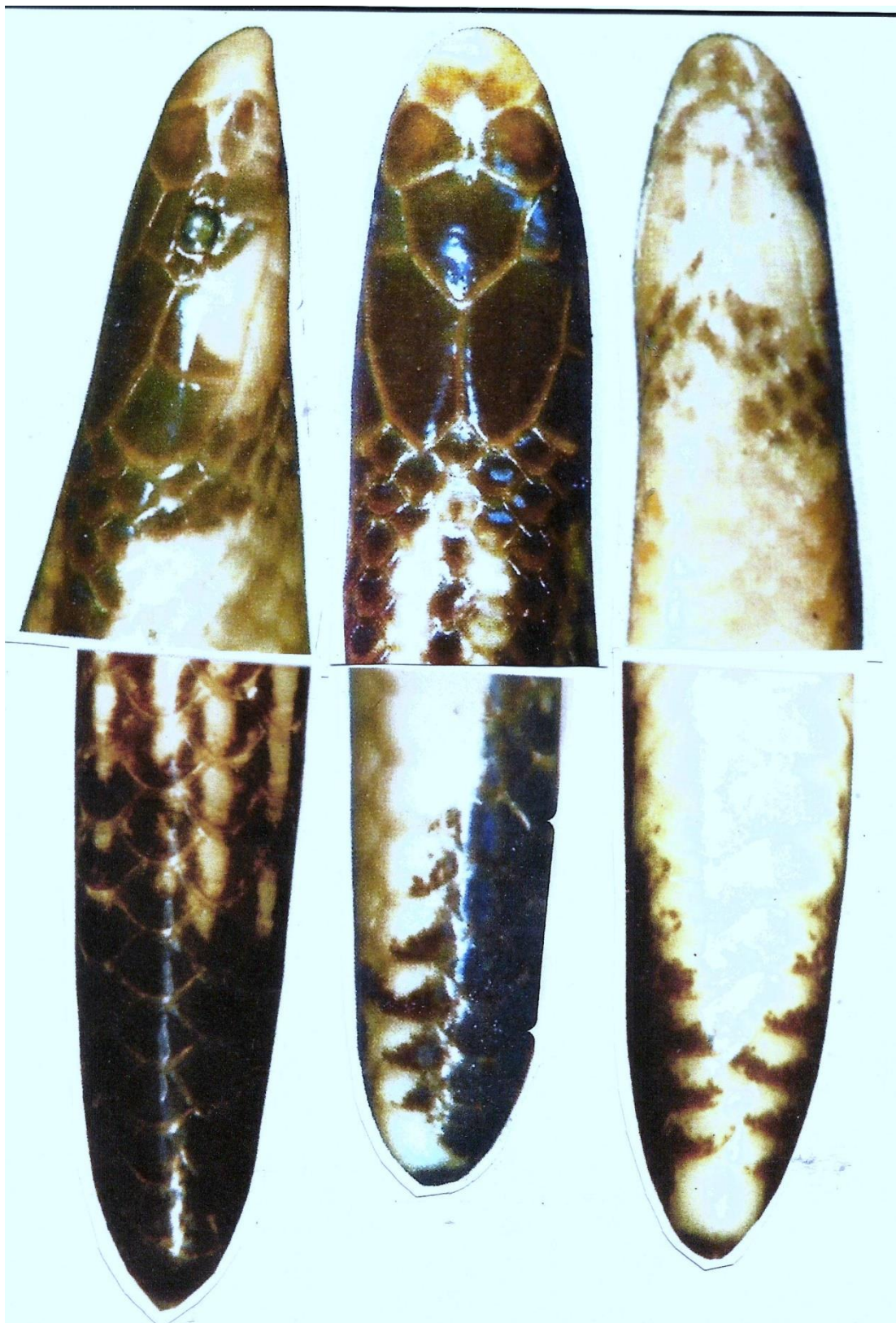
## RESULTS

*Apostolepis roncadori* new species (Figures 1-4, Table 1)

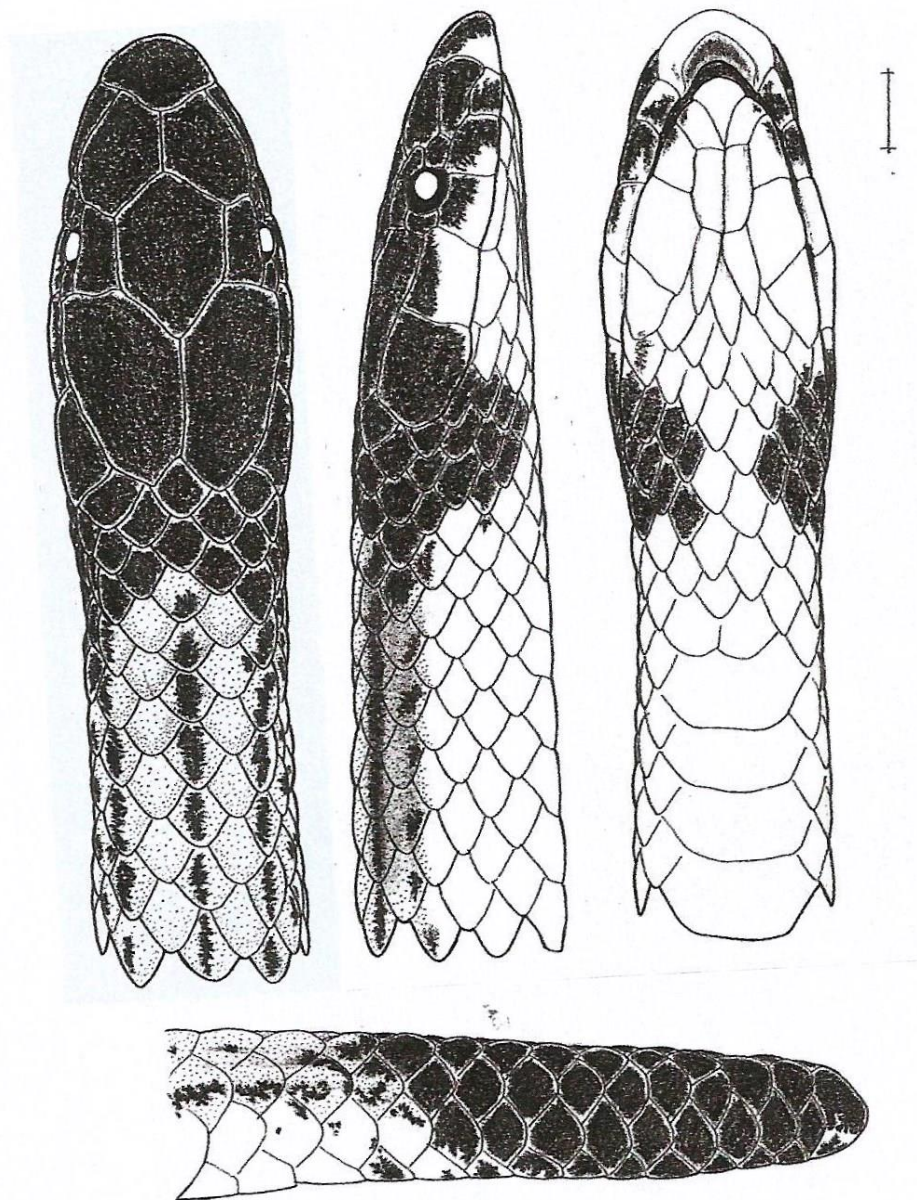
*Apostolepis vittata* - Lema & Renner, 2004 (part):53, fig. 1.



**Figure 1** - Holotype of *Apostolepis roncadori* sp. n. (BMNH.1972.429), from Roncador Hill, Mato Grosso, Brasil (Fonte: Eduardo Mellone Luchesi del.).



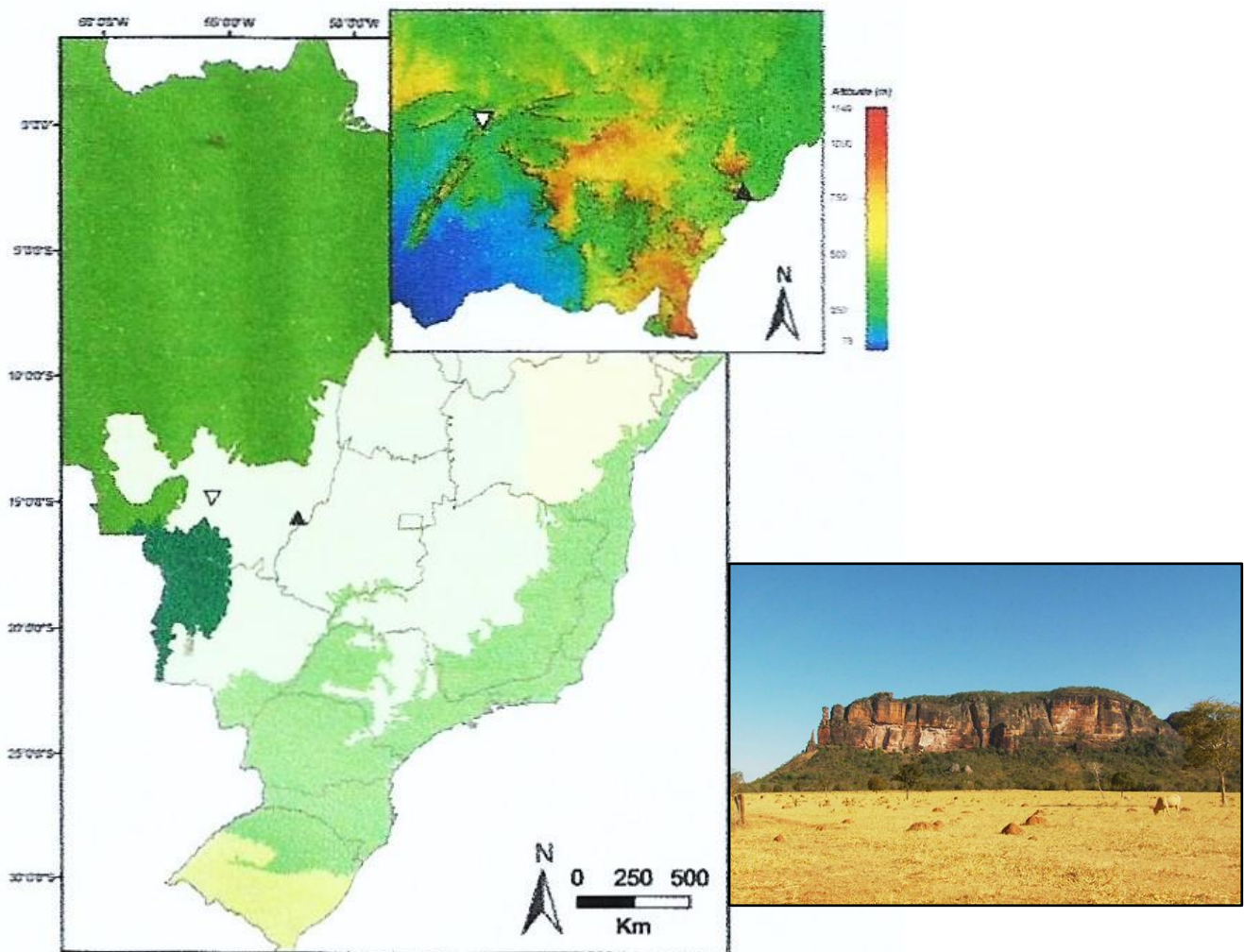
**Figure 2** - Holotype *Apostoleis christinei* (MCP.12515), from Cáceres, Serra das Araras, Barra do Bugres, Mato Grosso (Fonte: Lema, 2002).



**Figure 3** – Specimen of *Apostolepis vittata* (MCP.13283) from Manso, Chapada dos Guimarães, ato Grosso (Fonte: Eduardo Mellone Luchesi del.).

**Holotype:** BMNH.1972.429, male.

**Type-locality:** Serra do Roncador, Mato Grosso, Brazil ( $12^{\circ}51' S$   $51^{\circ}46' W$ ), at 700 m on the sea level. In Cerrado Domain (Fig. 5), Central Brazilian Plateau. The locality bordering the Araguaia River, with is common to Tocantins state. The specimen was captured during Xavantina--Cachimbo Expedition, made by the BMNH.



**Figure 4** - Map of Brazil (partial), with the localization of the holotypes of *Apostolepis christinei* (white), and *A. roncadori* n. sp. (black) (Fonte: Omar Machado Entiauspe Neto).

**Figure 5** - Serra do Roncador, by west face. East view near Araguaia River (Fonte: Wikipedia).

**Diagnosis:** Similar to *Apostolepis christinei* Lema 2002, differing mainly by having a head with same diameter of neck (vs. lower); absence of dorsal stripes, presenting serial dots very spaced among them (vs. five dark stripes); snout blackish (vs. light); supralabial blotch long, from rostral to last supralabial (vs. small, on two supralabials); lower side of rostral plane (vs. reentrant); tail blotch longer (vs. short).

**Morphology:** Stocky body, from head to tail tip. Head few elongate, few wider than neck; snout strongly projected, pointed and flat. Eye large, with vertical diameter equal to the distance of it to oral margin (may be due to be young), in relation to *A. christinei*. Tail relatively short, more than 15 times in total length; with tip high and rounded.

**Measurements:** Length of head, trunk, tail, and total: 8, 228, 16, and 252, respectively; tail by snout-vent length, 0.034. Head height, 2.5, in parietals; 1, in nostrils; width 3.1 parietals), and 1.8 (nostrils). Orbit diameter, 0.45; distance orbit to oral margin, 0.4. Neck, height and width: 2.7, 2.9, respectively. Body width in half trunk and cloacal region, 3.5, 2.4 respectively. Tail widths: 2.4 (basis), 2.4 (half), and 1.3 (in subcaudal scale). Length of last subcaudal and terminal, 0.5, and 1.04, respectively. Largest head shields: rostral portion visible from above, 1.57; suture between prefrontals, 0.45; each prefrontal length and width, 1.34 and 1.07, respectively; frontal length and width, 2.06, 1.7, respectively; each parietal length and width, 2.5, 1.41, respectively; suture between parietals, 1.67.

**Pholidosis:** Rostral large, flattened, pointed and projecting two beyond jaws; lower projecting side, plane. Prefrontals small. Frontal large, hexagonal. Supraoculars narrow and small. Parietals long, and divergent each other. Nasal long and low, with nostril in anterior part. Preocular long and low, larger than postocular. Postocular vertical rectangle. Temporal absent. Supralabials five, second and third entering the orbit, the size increased to rear; the first long and rectangular (not triangular); from second to fourth are isodiametrical; fifth is the largest, with posterior margin curved. Mental triangular and small, isolated of the anterior chin-shields by first pair of infralabials. Infralabials six, the anterior three contacting anterior chin-shields, and the anterior pair contacting each other, rear of mental; the infralabials increasing to rear, being the first narrow, the second longer, the third is the largest, the fourth is large, and the two last are very small and long. Each gular with parallelogram shape, and disposed in six row by each side, resting six in the median line. Five preventrals. Ventrals in 239. Cloacal single, as anomaly. Subcaudals 24 pairs; rate between subcaudals and ventrals, 0.1. Dorsal scales in six rows in the tail contacting the terminal, which is high and few conic, with dorsal profile oblique.

**Coloration:** (In preservative, ethylic alcohol). Pileus blackish brown (may be black in life), with some small and irregular light brown blotches on rostral. Black nuchal collar long as 2-3 rows of dorsal scales; reaching to sides until oral rictus, only, do not reaching the gular region. Supralabial blotch low and long, from anterior margin of the fifth to rostral. Lower head side immaculate. No dorsal stripes, only few spaced dots on vertebral scales row. Tail blotch extending by nine dorsal scales, reducing to seven rows at lower sides, and covering 4/3 subcaudals (right/left), which are partially dotted. Terminal white, except proximal up.

**Key to the species of *Apostolepis dimidiata* group:**

- 1a. With seven dorsal scale rows .....*A. polylepis*  
 b. With fifteen dorsal scale rows .....2
- 2a. Six supralabials; seven infralabials. Sides of body with black bands; sometimes with ventral blotches; sometimes with vestigial vertebral stripe .....3  
 b. Five or six supralabials; five, six or seven supralabials. Sides of body with or without stripe; newer with ventral blotches .....5
- 3a. With nucho-cervical collars .....4  
 b. Without nucho-cervical collars .....*A. dimidiata*
- 4a. Supralabial blotch, small, triangular; snout narrow .....*A. albicollaris*  
 b. Supralabial blotch small, broken; snout rounded .....*A. quirogai*
- 5a. Stripes absent .....6  
 b. Stripes or bands present, sometimes vestigial .....7
- 6a. Only one pair of chin-shields .....*A. breviceps*  
 b. With two pair of chin-shields .....*A. ambinigra*
- 7a. With two stripes or bands .....8  
 b. More than two stripes, never with bands .....9
- 8a. With two pleural stripes, and venter immaculate .....*A. cerradoensis*  
 b. With pleural bands, or wide stripes, with venter black blotched .....*A. dimidiata*
- 9a. With three stripes; background color salmon red; with 5 or 6 supralabials .....*A. goiasensis*  
 b. With five stripes; background color variable; with 5 supralabials .....10
- 10a. Stripes absent, with serial dots; snout mostly black .....*A. sp.*  
 b. Stripes conspicuous; snout variable in color .....11
- 11a. Wide stripes; snout light; head diameter smaller than neck .....*A. christinei*  
 b. Thin stripes; snout black; head diameter equal to neck .....12
- 12a. Five supralabials; stripes can be dotted; snout black; gular region immaculate ..*A. vittata*  
 b. Six supralabials; stripes continuous; snout light; gular region with collar .....*A. intermedia*

**CONCLUSION**

*A. roncadori*, as *A. christinei*, and *A. vittata*, have five supralabials and six infralabials, with the first three infralabials contacting anterior chin-shields. *Apostolepis intermedia* Koslowsky 1898, and *Apostolepis ambinigra* (Peters 1869), have six supralabials, but six infralabials, and, sometimes, *A. goiasensis* Prado 1942 has five supralabials, which the usual is six. All these species have strongly projected snout are locked in the Group *dimidiata* (Ferrarezzi, 1993), but the species with reduction of labials shields (cited above) suggest the existence of another Group, different of *dimidiata*, suggesting a derived state from this, with specific distribution to Central Brazilian Plateau to adjacent Bolivia, along the Cerrado, without physical barrier to dispersal. The snout projected as considered an apomorphy in relation to do not, or slightly, projected. As well as, the reduction of labials shields, in relation to the usual (six supralabials, and seven infralabials).



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## ANNEX 1: VOUCHER SPECIMENS

Abbreviations: w/l, without locality; w/n, without number. Acronyms of institutions (Sabaj-Pérez, 2014).

***Apostolepis ambiniga***: w/l (MNHN w/n; UMMZ.57963, UMMZ.67962, UMMZ.67963). ARGENTINA: La Rioja: Patquia, Estación Breyer [doubtful] (USNM.73458). BOLIVIA: Chuquisaca, 350 km SE Carandaiti (LACM.37674). BRAZIL: Mato Grosso do Sul: Miranda (MLP s/n). São Paulo: Varnhagen, Fazenda Ipanema (FMNH.69934\*). PARAGUAY: w/l (ZMB w/n, holotype; MIZS w/n; ZSM.60/1925, discarded; ZSM.205/1925, discarded; MNRJ.760, MNRJ.761, MNRJ.762, ZMB.6450, ZMB.10740, NMW.13807, ZMB.26173, ZMB.28729, MCZ.47002\*, UMMZ.67962\*, UMMZ.67963, MVZ.110991, UMMZ.108809). High Paraguay River (NMW.20721, BMNH.1960.1.3.3); Amambay (MCZ.47002); Primavera: Loma Jholby (BMNH.1955.1.6.1); Asunción (MIZS w/n; BMNH 4 specimens, w/n; MNRJ.760, MNRJ.761, MNRJ.762, MSNG.1513.24, ZMB.28729, BMNH.1930.11.27.228); Colónia Elisa (ZMUC.63805); Asunción: Puerto Bertoni (MIZS

w/n); Asunción Bay, Paraná River (IBSP.10005), Departamento Central: Areguá (MHNP.5163, MVZ.110991, UMMZ.108809), San Lorenzo: Km 155, Ruta 1, about near 200 m (MHNP.3493); B. Alto (NMW.20721); Trinidad, near Asunción (UMMZ.108809).

***Apostolepis breviceps***: BOLIVIA: Santa Cruz: Cordillera, near Cerro Cortado (MNKM.1839, holotype; MNKM.1942; MNKM.2113), Aguaraiqua (MNKM.2114).

***Apostolepis christinei***: Bolivia: Santa Cruz: Nuflo de Chaves, San Julián River (CM.2824 – destroyed); Germano Busch: Puerto Suarez (BMNH.1907.10.31.62). Brazil: Mato Grosso: Cáceres: Barra do Bugres, Ecological Station Serra das Araras (MCP.12515, holotype).

***Apostolepis goiasensis***: BRAZIL: w.l. (CHUNB.30659, formerly IBSP.55139). Goiás: Luziânia (CHUNB.30656); Rio Verde (IBSP.10260). Mato Grosso: Ribas do Rio Pardo (IBSP.67852). Mato Grosso do Sul: Três Águas (FURG.1344). Minas Gerais: Uberlândia (MCP.9192).

***Apostolepis intermedia***: BRAZIL: Mato Grosso do Sul: Miranda (MLP w/n, discard.); Anastácio: Taquaruçu Riverbank (ZUFS.1269). PARAGUAY: San Pedro: Laguna Blanca (MNHP.11533, MHNP.1636).

***Apostolepis roncadori* n. sp.**: BRAZIL: Mato Grosso: Serra do Roncador (BMNH.1972.429).

***Apostolepis vittata***: BRAZIL: w/l (MNRJ.1025). Mato Grosso: Chapada dos Guimarães (ANSP.11293; CHUNB.30656, formerly IBSP.55144); Morro do Chapéu: Manso River (MCP.9192); Rio da Casca (MCP.13283).

**Table 1** - Main differences among the *Apostolepis* species of the *dimidiata* group, based in the holotypes of the species. Abbreviations: AC, anterior chin-shield; BGR, background (color); BNC, black nuchal collar; BTB, black tail blotch: VE—SC (right/left); CC, chin-shields; DIA HxN, diameter of neck versus diameter of neck; DO, dorsal scale; DS, dorsal stripe; IL, infralabial; NCC, nucho-cervical collars; PV, paravertebral stripe; R, rate; **R<sub>1</sub>, TAL/TOL**; **R<sub>2</sub>, TAL/SVL**; **R<sub>3</sub>, SC/VE**; SC, subcaudal; SL, supralabial; SLB, supralabial blotch; SVL, snout-vent length; TAL, tail length; TE, terminal; TOL, total length; VE, ventral scale.; VS, vertebral stripe. Measurements in millimeters.

Data	<i>A. vittata</i>	<i>A. roncadori</i>	<i>A. christinei</i>	<i>A. breviceps</i>	<i>A. intermedia</i>	<i>A. goiasensis</i>	<i>A. ambinigra</i>	<i>A. polylepis</i>	<i>A. cerradoensis</i>	<i>A. quirogai</i>	<i>A. dimidiata</i>	<i>A. albicollaris</i>
Holotypes	ANSP.11293	BMNH.1972.429	MCP.12515	MNKP.1839	ZUFS.1269	IB.10260	ZMB.8450?	IBSP.1681	UHESM.21800	FML.6000	MSNM w.n.	MCP.8355
Sex	♂	♂	♂	♂	♂	♀	♂	♀	♂	♀	♀?	♀
TOL	460	252	352	319	351	408	252	620	347.3	228	580	432.5
TAL	25	16	32.5	32	38	30	16	33	36.7	15.5	40	37.8
SVL	435	2360	319.5	287	313	378	236	587	310.6	212.5	540	394.7
R <sub>1</sub>	0.054	0.063	0.092	0.1	0.108	0.073	0.063	0.053	0.106	0.068	0.069	0.087
R <sub>2</sub>	0.089	0.068	0.102	0.111	0.121	0.079	0.068	0.056	0.118	0.073	0.074	0.0.096
VE-SC	238-27	239-24	240-30	226-30	211-33	237-25	224-33	236-21	215-33	276-24	246-26	214-27
R <sub>3</sub>	0.054	0.1	0.125	0.133	0.156	0.105	0.147	0.089	0.153	0.087	0.106	0.126
SL	5	5	5	5	6	6	6	6	6	6	6	6
IL (x AC)	6 (I-III)	6 (I-III)	6 (I-III)	5 (I-III)	6 (I-III)	7 (I-IV)	6, 7 (I-IV)	7 (I-IV)	7 (I-IV)	7 (I-IV)	7 (I-V)	7 (I-IV/I-III)
CC (pairs)	2	2	2	1	2	2	2	2	2	2	2	2
BNC x DO	2	2	2	7.5	2-3	2	4	5	1	2	2-3	1
BNC x GU	sides	0	+	+	+	0	+	+	0	sides	+	+
BGR	ocher	red?	reddish	brick red	brown	pinkish	red	red	red	red	red	red
DS	5 lined	0 and vestigial	5 striped	0	5 lined	3 lined	0 (V dotted)	4(dotted)	2 wide	2 bands	2 bands	2 bands
DO x TE	6	6	6	?	?	4	6	?	6	4	?	4
BTB	9-8/7	9-3/3	9-3/2 (R)	?-6/7	10?-6/6	7?-2/3 (R)	10-6/6	13-6/6	6-2/2	5-3/2 (R)	6-5/4	7-3/3 (R)
NCC	0	0	0	0	0	0	0	0	+	+	0	+
VE	0	0	0	0	0	0	0	0	0	+	+	+
blotches												
SL blotch	IV-V	RO-V	IV-V	III-V	RO-VI	RO-V	0/III-IV	0	III-V	III-V	I-VI	II-V triangle