THE COMPLEXITY OF THE *Apostolepis dimidiata* GROUP, WITH PARTITION IN TWO GROUPS (SERPENTES: DIPSADIDAE: XENODONTINAE: ELAPOMORPHINI)

Thales De Lema[1]
Luciane A. Martins[2]

ABSTRACT

The species of *Apostolepis* located in the *dimidiata* group are heterogeneous, only justified by the projection of snout. The comparison of species located allowed the isolation of the small species from central-western Brazil, Bolivia, and Paraguay in a new group *ambinigra*. The new group differs from *dimidiata* main by having three infralabials contacting anterior chin-shields (vs. four), five supralabials (vs. six), five or six infralabials (vs. seven), background color brown or red (vs. red), with five stripes or none (vs. two), venter immaculate white (vs. blotched or immaculate), and very small size (vs. medium to large). The new group comprises the species: *A. ambinigra, A. breviceps, A. christineae, A. intermedia, A. roncadori,* and *A. vittata*; it occurs on central-western Brazil to Bolivia and Paraguay, Cerrado biome.

Keywords: Cerrado, Brazil, Bolivia, Paraguay, head shields, coloration, *ambinigra*.

A COMPLEXIDADE DO GRUPO *Dimidiata* DE *Apostolepis*, COM O ISOLAMENTO DAS ESPÉCIES EM DOIS GRUPOS (SERPENTES, XENODONTINAE).

RESUMO

As espécies de *Apostolepis* reunidas no grupo *dimidiata* apresentam-se como um grupo heterogêneo, justificado apenas pela projeção do focinho. Após análise foi possível isolar pequenas espécies do Brasil centro-ocidental, Bolívia e Paraguai em novo grupo (*ambinigra*). O novo grupo difere de *dimidiata* basicamente por ter três infralabiais em contato com mental anterior (vs. quatro), cinco supralabiais (vs. seis), cinco supralabiais (vs. seis), cinco ou seis infralabiais (vs. sete), cor de fundo dorsal parda (vs. vermelha), cinco estrias (vs. duas), ventre branco imaculado (vs. geralmente manchado) e porte muito pequeno (vs. médio a grande). As espécies do novo grupo (*A. breviceps,, A. christineae, A. intermedia, A. roncadori, A. vittata*) ocorrem no Cerrado do Brasil centro-ocidental para Bolívia e Paraguai.

Palavras-chave: Cerrado, Brasil, Bolívia, Paraguai, Cerrado, escudos cefálicos, coloração.

[1] Pontificia Universidade Católica do Rio Grande do Sul, Museu de Ciências e Tecnologia, P. O. Box 1429, Porto Alegre, Rio Grande do Sul, Brasil, 90619-900. (thalesdelema@gmail.com.).
[2]Pos-graduation Program on Zoology, School of Biosciences, PUCRS

INTRODUCTION

The group *dimidiata* was proposed by Ferrarezzi (1993) for inclusion of the species of *Apostolepis* Cope 1862, basically by having a snout projecting beyond the jaws. New species were described after this, amplifying the concept of the group with the following combination of characters: snout narrow and strongly projecting, head elongated, with same diameter of the neck, body very long and slandering, tail also long, usually without the spine, the majority striped or banded dorsally, lower sides immaculate or blotched, usually without nucho-cervical collars, tail blotch more long dorsally than ventrally, and several species with reduction of oral shields. In the species included, there are species with peculiarities, such as with the reduction of head shields. These species and another, from southwestern Brazil and adjacent lands, form a homogeneous group of species, differing from the remaining species of the actual *dimidiata* group. Comparing the basic aspects of these species (Table I), allowed us to distribute them into two groups, *ambinigra* new, and *dimidiata.* The relationships among these species show, clearly, the presence of two groups, at least. The group *dimidiata* needs more analysis because it continues to be heterogeneous, and is not the subject of this study.

MATERIAL AND METHODS

Data are taken from Koslowsky (1898), Prado (1942), Lema (1978, 1984, 1993), Ferrarezzi (1993), Giraudo & Scrocchi (1998), Harvey (1999), Harvey *et al.* (2001), Lema (2002a, 2002b, 2003a, 2003b), Lema & Renner (2004), Lema *et al.* (2004), Lema *et al*. (2005), Hofstadler-Deiques & Lema (2005), Loebmann & Lema (2012), Nogueira *et al.* (2012), Albuquerque & Lema (2012). Data on *A. dimidiata* are taken from Lema (*in litteris*). For comparison, data were taken from the other species of the Tribe belonging to the genera *Apostolepis* Cope 1862, *Coronelaps* Lema & Hofstadler-Deiques 2010, *Elapomorphus* Wiegmann 1843, and *Phalotris* Cope 1862 which are used as out-groups. The data are given in Table I.

RESULTS

The species allocated in the *dimidiata* group, and some similar to them, are: *Apostolepis albicollaris* Lema 2002, from Central Brazil; *Apostolepis ambinigra* (Peters 1869), from Paraguay and adjacent Brazil; *Apostolepis breviceps* Harvey, González-A. & Scrocchi 2001, from Bolivia; *Apostolepis cerradoensis* Lema 2003, from Central Brazil; *Apostolepis christineae* Lema 2002, from western Brazil to Bolivia; *Apostolepis dimidiata* (Jan 1862) from Central Brazil to adjacent lands; *Apostolepis aff. dimidiata*, from western Brazil to Paraguay; *Apostolepis goiasensis* Prado 1942, from Central to western Brazil; *Apostolepis lineata* Cope 1887 (invalidated), from western Brazil; *Apostolepis polylepis* Amaral 1929, from northeastern to northern Brazil; *Apostolepis quirogai* Giraudo & Scrocchi 1998, from northeastern Argentina to adjacent Brazil; *Apostolepis vittata* Cope 1887, from western Brazil; *Apostolepis aff. vittata*, from Central Brazil. The species *A. aff. dimidiata* is the revalidation of *Apostolepis barrioi* Lema 1978, equalized with *Apostolepis villaricae* Lema 1978, and *A. dimidiata*, but this data is currently being processed. The species *A. aff. vittata* is a new species from Serra do Roncador, in eastern Mato Grosso (Lema unpublished). The species *A. lineata* may be a good species, but the original description is very poor in data, and of the two syntypes, one was rotten and discarded, and the other is in very bad state, perhaps discarded briefly; thus, Harvey (1999) did not consider this species valid.

Characters variation

1. Supralabials shields are usually six (0), but there are species of the group with five (1), which is an apomorphy in the sense of reduction of fanner numbers in the head, a pattern in the tribe of derivation from an adaptation to a fossorial habit. In other words, the fossorial quality gradually decreases, until it disappears in the most derived group (*assimilis*).

2. Infralabial shields are usually seven (0), but there are species of the group with less than seven (1), which is another result of the fossorial environment adaptation (reduction of head fanners).

3. Infralabials are more them five (0), with species with five (1), which is the extreme reduction of these shields. A tendency in the reduction of head fanner numbers is an adaption process to the environment.

4. The majority of the species presents the first to fourth infralabials contacting anterior chin-shields (0), but there are species of the group with only five or six infralabials that present only the first to third infralabials contacting anterior chin-shields (1).

5. The general condition of occurrence of chin-shields is in two pairs (0), but one species presents only one pair (*A. breviceps*), which may be an autapomorphy, or, on the other hand, an extreme reduction of head shields.

6. The majority presents the second and third supralabial shields entering the orbit (0), but one species presents only the third supralabial entering the orbit (1), which is perhaps an autapomorphy, due to the reduction of supralabial numbers (five instead of six).

7. There are two basic dorsal patterns, striped or uniformly colored. The striped pattern is frequent in almost all groups of other genera of the Tribe, and in most primitive forms of *Apostolepis,* such as those from forested or open areas (0), instead of the uniform pattern, which is a derivate coloration (1), present in the majority of species of the open areas of the Cerrado, Caatinga and Chaco biomes. The species of *Apostolepis* with a striped pattern occur either in the Amazonian forested regions and in similar relictual forests in northeastern Brazil (enclaves), or in highlands of south-western Brazil to adjacent lands of Bolivia and Paraguay. In the southern Amazonian region, where the rainforests mix with Cerrado forests, striped species appear (e.g. *Apostolepis nelsonjorgei* Lema & Renner 2004).

8. The striped pattern varies in width, from a wide model (stripe) to a lineal model (0), which is different from the specialized forms of the Cerrado presenting black bands (1), running in more than two rows of dorsal scales, frequently joining the sides with the venter (e.g. *A. dimidiata*).

9. The number of stripes varies from five to two; and in some species the paravertebrals fade during development, resulting in only three stripes (0); but there are species where exactly three stripes or lines occur (1).

10. The majority of species of *Apostolepis* have an immaculate venter (0), and there are some species presenting black blotches on the ventral and subcaudal scales (1), such as *A. dimidiata*, varying from fully black to partial on part of the fanners.

11. The tail blotch presents a variation, from reduced, short or almost only dorsal, few or no subcaudals blotched (0), to long, such as dorsal as subcaudal scales blotched (1).

12. The majority of species of the group does not present nape-cervical collars (0), although some do (1), e.g. *A. albicollaris.*

13. The vertebral zone is light brown (0), or red (1), the second condition is present in the *assimilis*, *flavotorquata,* and *dorbignyi* groups, and isolated species from other groups.

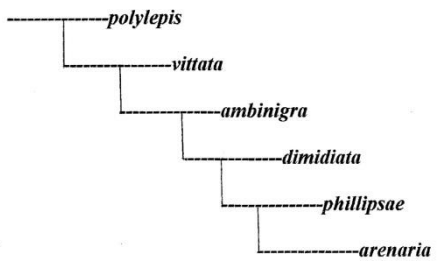
14. The light blotch on the supralabials can be small, reaching two to four shields (0), and can be long, from the rostral to sixth supralabial, or from the anterior part of the sixth, sometimes with the first and/or the second supralabial black by a black oblique band, from the head cap down, crossing the snout and supralabials, the first or more, reaching almost the part of the third (1).

15. Black nape collar not reaching gular region (0) but in some species reaching and forming a complete ring across the gular region, and, in *A. dimidiata* (e.g.), prolonged by the mental groove forming a "Y" figure (1).

16. The general rule for the Tribe Elapomorphini is the presence of 15 dorsal scale rows (1), but there is a species (*A. polylepis*) that presents 17, a primitive condition (0). The invalidation of the genus *Parapostolepis* Amaral, 1929 was made by Ferrarezzi (1993), considering this character a regression from a probable ancestor, without demonstration.

Graph 1: Matrix of polarized data of the species of *Apostolepis* (1-13), with selected characters (1-16). The same species ordering as in graph 2.

	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**
1	**1**	**1**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	0
2	**1**	**1**	**1**	**1**	**1**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	0
3	**0**	**0**	**1**	**0**	**1**	**--**	**0**	**0**	**0**	**--**	**--**	**0**	--
4	**1**	**1**	**1**	**1**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	0
5	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	0
6	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	0
7	**0**	**1**	**0**	**0**	**1**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	0
8	**0**	**--**	**0**	**0**	**--**	**1**	**0**	**1**	**--**	**1**	**1**	**1**	1
9	**0**	**--**	**0**	**0**	**--**	**0**	**1**	**1**	**--**	**1**	**1**	**1**	1
10	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**1**	**1**	1
11	**0**	**0**	**1**	**1**	**1**	**1**	**1**	**0**	**1**	**1**	**1**	**0**	0
12	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**1**	1
13	**0**	**0**	**0**	**0**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	1
14	**0**	**1**	**1**	**1**	**1**	**0**	**1**	**0**	**0**	**1**	**1**	**0**	0
15	**1**	**0**	**0**	**1**	**1**	**--**	**0**	**0**	**1**	**0**	**1**	**1**	0
16	1	1	1	1	1	1	0	1	1	1	1	1	1



Graph 2: Tree based on matrix (graph 1) as a hypothesis of derivation, with addition of two groups, close to them, according to derived characters with gradual reduction of the snout projection.

CONCLUSIONS

These species present a common projection of the snout presenting gradual reduction from *A. christneae* to *A. quirogai*; and reduction of number of stripes, from striped to uniformly colored. In the cladogram the presence of four groups is visible: *polylepis*> *vittata*> *ambinigra*> *dimidiata,* in this derivation order. These groups present similarities with the groups *phillipsae* and *arenaria* by external characters, which present gradual differentiation of the nucho-cervical collars, and projection of the snout. The main characters are the snout projection, the nucho-cervical collars, and dorsum coloration, which presents a reduction in the snout projection, gradual installation of nucho-cervical collars, and gradual reduction to disappearance of the stripes. The *vittata* group shows reduction of the labials shields, five supralabials (one exception), five or six infralabials, all contacting only three chin-shields; without collars, background coloration light brown (one exception, red), immaculate venter, snout strongly projecting beyond jaws, tail blotch long, terminal white, tail much longer, with rate (tail length by snout-vent length) varying, in *vittata,* from 0.068-0.128, and in *dimidiata stricto sensu,* from 0.056-0.118; and in the sexes the variation in *vittata,* is 0.068-0.128 (0.097) for males, and 0.080-0.113 (0.094) for females; and in *dimidiata* new sense it is 0.089-0.118 (0.106) for males, and 0.056-0.097 (0.078) for females, so the males of *vittata* have tail longer than females of *dimidiata* (0.097:0.106), and the opposite in females (0.094:0.078), respectively. The criteria for polarization followed the previous establishment considering the shield reduction as an apomorphy, in relation to the out-group, but a private specialization in relation to the remaining groups, showing a gradual reduction of the snout.

The group *dimidiata* is very heterogeneous, presenting the characters more similar to the remaining species of the genus, such as the presence of six supralabials and seven infralabials, some with white and black collars; the venter immaculate or with blotches, being the latter character an apomorphy, or, maybe derived from an extinct ancestor.

The *vittata* and *dimidiata* groups present species with sexual dimorphism, as is possible to evaluate by the frequency of the ventral and subcaudal scales: in the *vittata* group the ventrals vary from 214-243, and in the *dimidiata* group, from 214.5-276, but and in the sexes, *vittata* has 214-243 (0.231) in males, 241 in a female; *dimidiata* has 203.7-268 (226.8) in males, 220-276 (239.8) in females. The variation in the subcaudals are: *vittata,* males with 24-35 (29.6), one female with 27.7; *dimidiata*, males 25.5-33 (29.6), females 20.7-28.4 (24.8). In both groups the trunk is longer in females, and the tail is longer in males.

The majority of the species of the *vittata* group have the background color brownish, instead of the species of the *dimidiata* group, all of which present a red dorsum. None of the species of the *vittata* group present nuco-cervical collars, and most from the *dimidiata* group do. Species of the *vittata* group are known from the southwestern Cerrado from Brazil to Bolivia, and those of the *dimidiata* group, are known from open areas from northeastern to southwestern Brazil, reaching Paraguay and Argentina, so the two groups present different distribution and dispersal areas.

The species *A. breviceps* and *A. polylepis* present autapomorphies, and the latter was located in the genus *Parapostolepis* by Amaral (1930), considered only as a regression by Ferrarezzi (1993), but both without analysis for phylogenetic establishment. Species were previously located in this genus since they were poorly known, lacking hemipenial and skull data.

The species *A. goiasensis* and *A. ambinigra* are very similar to species of the *vittata* group, but both have variation of labial shields. *A. goiasensis* has six or five SL, and seven IL; the presence of five SL may by an anomaly due to fusion; as the species is known based on few specimens, it may be allocated in the *vittata* group. *A. ambinigra* , with six labials (SL, IL) is the closest to the species of the *vittata* group, and may be located in this group. As a consequence to this, the name of group must be changed to *ambinigra* group. Considering the character analyzed, *A. ambinigra* is the terminal taxon for the group, and *A. breviceps* the root.

Characterization of the two groups

***Apostolepis ambinigra* new group**

Apostolepis dimidiata group Ferrarezzi, 1993 (part), Dissert.: 241.
Apostolepis lineata group – Lema, 2003 (part): 36.
Apostolepis dimidiata group – Nogueira, Barbo & Ferarezzi, 2012 (part): 221.

Diagnosis: The group is similar to *A. dimidiata*, differing by three IL contacting anterior chin-shields, except *A. ambinigra* with four (vs. four), five supralabials, except *A. ambinigra*, *A. intermedia*) with six (vs. six, usually); five or six infralabials (vs. seven); five dark stripes, except (*A. breviceps*), *A. ambinigra* with uniformly red (vs. three or two); background color brown or red (vs. red); absence of nuco-cervical collars (vs. presence or absence); venter immaculate white (vs. all botched, except *A. cerradoensis*); tail blotch complete or only dorsal (vs. complete); small size (vs. medium to large).

Representation: *A. ambinigra* (Peters 1869), *A. breviceps* Harvey, Gonzalez-A. & Scrocchi 2001, *A. christineae* Lema 2002, *A. intermedia* Koslowsky 1898, and *A. vittata* (Cope 1887).

Distribution: Western Brazil to Bolivia and Paraguay. Highland areas on Cerrado biome.

Key to species:
1a. Five supralabials 2
b. Six supralabiais 5
2a. With five infralabials 3
b. With six infralabials 4
3a. With one pair of chin-shields; only the third supralabial contacting orbit ...*A. breviceps*
b. With two pairs of chin-shields; second and third supralabial contacting orbi...*A. vittata*
4a. With five dark wide stripes .....*A. christineae*
b. With three thin stripes .....*A. intermedia*
5a. Three infralabials contacting anterior chin-shield. Dorsal coloration brown striped .....
……... *A. intermedia*
b. Four infralabials contacting anterior chin-shield. Dorsal coloration uniformly red.....
……..*A. ambinigra*

***Apostolepis dimidiata* group Ferrarezzi, 1993**

Apostolepis dimidiata group Ferrarezzi, 1993 (part): 241. ---Nogueira, Barbo & Ferarezzi, 2012 (part): 221.
Apostolepis lineata group –-Lema, 2003 (part): 36.

Diagnosis: Six supralabials, and seven infralabials; four infralabials contacting anterior chin-shields; snout usually projected, at least in adults, with exception of *A. quirogai*; background coloration red; three or two stripes or bands; venter usually black blotched along it, except *A. cerradoensis*; size medium to large.

Representation: *A. albicollaris* Lema 2002, *A. ambinigra* (Peters 1869), *A. cerradoensis* Lema 2003, *A. dimidiata* (Jan 1862), *A. goisasensis* Prado 1942, *A. polylepis* Amaral 1929, and *A. quirogai* Giraudo & Scrocchi 1998.

Distribution: Cerrado to Chaco, from NE Brazil to Paraguay and NE Argentina.

Key to species
1a. Dorsal scales in 17 rows .....*A. polylepis*

1b. Dorsal scales in 15 rows 2
2a. Ventral scales black blotched 3
2b. Ventral scales immaculate 4
3a. Without nape-cervical collars; supralabial blotch long, in all plates .....*A. dimidiata*
3b. Nuchal and cervical collars present 3
3a. Snout sharp; supralabial blotch long, triangle like .....*A. albicollaris*
3b. Snout wide, rounded; supralabial blotch short, irregular .....*A. quirogai*
4b. Dorsal pattern three-striped; without collars .....*A. goiasensis*
4a. With two stripes; with nape-cervical collars .....*A. cerradoensis*

ACKNOWLEDGEMENTS

To Anne C. Baldisseri by idiom improved. To Roberto E. dos Reis by improvement of analysis.

REFERENCES

ALBUQUERQUE, N. R. & LEMA, T. 2012. Description of the second known specimen of *Apostolepis intermedia* (Serpentes, Colubridae, Xenodontinae). **Zootaxa** 3325: 53-58.

FERRAREZZI, H. 1993. **Sistemática filogenética de *Elapomorphus, Phalotris* e *Apostolepis* (Serpentes: Colubridae: Xenodontinae).** Master Dissert. Univ. São Paulo. (Unpublished)

GIRAUDO, A. R. & SCROCCHI, G. J. 1998. A new species of *Apostolepis* (Serpentes: Colubridae) and comments on the enus in Argentina. **Herpetologica** 54 (4): 470-476.

HARVEY, M. B. 1999. Revision of Bolivian *Apostolepis* (Squamata: Clubridae). **Copeia** 1999: 388-409.

HARVEY. M.B.; L. Lucindo-Gonzales-A. & G.J. Scrocchi. 2001. New species of *Apostolepis* (Squamata: Colubridae) from the Gran Chaco in southern Bolivia. **Copeia** 2001: 501-507.

KOSLOWSKY, J. 1898. Ofídios de Matto-Grosso (Brasil). **Rev. Mus. La Plata** 8: 25-32.

LEMA, T. 1978. Novas espécies de opistoglifodontes do gênero *Apostolepis* Cope, 1861 do Paraguai (Ophidia: Colubridae). **Comunic. Mus. Ciênc. PUCRS** 19: 27-49.

LEMA, T. 1984. *Apostolepis dimidiata* (Jan, 1862), nova combinação e a validade de *A. erythronota* (Peters, 1880) e *A. ventrimaculata* Lema, 1978 (Serpentes: Colubridae: Elapomrphinae). **Mem. Inst. Butantan** 47/48: 71-80.

LEMA, T. 1993. Polimorfismo em *Apostolepis dimidiata* (Jan, 1862) com a invalidação de *Apostolepis villaricae* Lema, 1978 e *Apostolepis barrioi* Lema, 1978 (Serpentes, Colubridae, Xenodontinae, Elapomorphini). **Acta Biol. Leopoldensia** 15 (1): 35-52.

LEMA, T. 2002a. Nova espécie de *Apostolepis* Cope, 1861 do sudoeste do Brasil (Serpentes, Colubridae, Elapomorphinae). **Facena** 18: 41-52.

LEMA, T. 2002b. Nova espécie de *Apostolepis* Cope do grupo *dimidiata* habitante do Cerrado do Brasil (Serpentes, Elapomorphinae). **Comun. Mus. Ciênc. Tecnol. PUCRS, Zool.** 15 (2): 227-238.

LEMA, T. 2003a. Geographic distribution of chromatic patterns in elapomorphine snakes (Colubridae), and species groups. **Comun. Mus. Ciênc. Tecnol. PUCRS, Zool.** 16 (1): 17-37.

LEMA, T. 2003b. Reencontro de *Apostolepis goiasensis* Prado, 1942, com a redescrição da espécie (Serpentes: Elapmorphinae**). Comun. Mus. Ciênc. Tecnol. PUCRS, Zool.** 16: 199-209**.**

LEMA, T. & RENNER, M. F. 2004. New specimens of *Apostolepis vittata* (Cope, 1887) (Serpentes: Elapomorphinae). **Caderno Pesq. [Univ. Sta. Cruz], Biol.** 16: 51-56.

LEMA, T.; D'AGOSTINI, F. M. & CAPPELLARI, L. H. 2005. Nova espécie de *Phalotris*, redescrição de *P. tricolor* e osteologia craniana (Serpentes: Elapomorphinae). **Iheringia, Zool.** 95: 65-78.

LOEBMANN, D. & LEMA, T. 2012. New data on the distribution of the rare and poorly known *Apostolepis goiasensis* Prado, 1943 (Serpentes, Xenodontinae, Elapomorphini) with remarks on morphology and coloration. **Herpetology Notes** 5: 523-525.

NOGUEIRA, C.; BARBO, F. E. & FERRAREZZI, H. 2012. Redescription of *Apostolepis albicollaris* Lema, 2002, with a key for the species groups of the genus *Apostolepis* (Serpentes: Dipsadidae: Elapomorphini). **S. Amer. J. Herpet.** 7 (3): 213-225.

PRADO, A. 1942. Notas ofiológicas. 14. Comentários acerca de algumas serpentes opisthoglyphas do gênero *Apostolepis* com a descripção de uma nova espécie. **Mem. Inst. Butantan** 16: 7-12.

SABAJ-PÉREZ, M. H. 2014. **Standard symbolic codes for institutions resource collections in herpetology and ichthyology: an Online Reference. Version 5 (22 Sept. 2014).** American Society of Ichthyologists and Herpetologists, Washington, DC. Electronically accessible at http://www.asih.org/ (Accessed in 03/2015).

APPENDIX

Voucher specimens.---Abbreviations: spec., specimens; w.l., without locality; w.n., without number. Acronyms to institutions follow Sabaj-Pérez (2014).

Apostolepis ambinigra ---w.l. (IBSP.15723, UMMZ.57963, UMMZ.67962, UMMZ.67963, MNHN w.n.). Argentina.---La Rioja: Patquia: Estación Breyer (USNM.73458, may be wrong acc. Harvey (1999), and Giraudo (2002)). Bolivia.---Chuquisaca: 350 Km SE from Carandaiti (LACM.37674). Brazil.---São Paulo: Varnhagem: near Ipanema Farm (FMNH.69934). Paraguay.--- w.l. (ZMB.10740; ZMB.26173; MIZS w.n.). Amambay (MCZ.47002). Asunción (ZMB.6450, holotype; MNRJ.760, MNRJ.761, MNRJ.762, MNRJ.9435, MNRJ.9436, MNRJ.9437; ZMB.28729; MIZS w.n.; BMNH w.n., 4 spec.), surrowndings of Asunción (MHNG.1513-24), Bay on Paraná River (IBSP.10005); Colónia Elisa (ZMUC.63805); Puerto Bertoni (MIZS w.n.). B. Alto (NMW.20721). Departamento Central: w.l. (MVZ.110991); Aregua (MHNP.5163); San Lorenzo: Ruta 1, Km 15 (MHNP.3493). Trinidad, near Asunción [not Buenavista, Sta. Cruz, Bolivia] (UMMZ.108809).

Apostolepis breviceps ---Bolivia: Santa Cruz: Cordillera (NK.1839, holotype; NK.1942, paratype 1; NK.2113, paratype 2; NK.2114, paratype 3).

Apostolepis christineae ---Bolivia ---Santa Cruz (CM.2824, BMNH.1907.10.31.62). Brazil --- Mato Grosso: Cáceres: Barra do Bugres: Estação Ecológica Serra das Araras (MCP.12515, holotype).

Apostolepis aff. christineae. ---Brazil --- Mato Grosso: w.l. (IBSP w.n.). Serra do Roncador (BMNH.1972429).

Apostolepis goiasensis --- Brazil --- w.l. (CHUNB.30659). Goiás: Luziânia (CHUNB.30656). Rio Verde (IBSP.10260, holotype). Mato Grosso do Sul: Ribas do Rio Pardo (IBSP.67852). Três Lagoas (FURG.1384). Minas Gerais: Uberlândia: city (MCP.9192).

Apostolepis intermedia ---Brazil --- Mato Grosso do Sul: Anastácio, Taquaruçu River (ZUFMS.1269 neotype). Aquidauana (MCP.9101). Paraguay --- San Pedro: Laguna Blanca (MHNP.11533, MHNP.11636).

Apostolepis vittata ---Brazil --- w.l. (MNRJ.1025). Mato Grosso: Chapada dos Guimarães (ANSP.11293, holotype; CHUNB.30656). Morro do Chapéu: Manso River (MCP.9192). Rio da Casca (MCP.13283).

Table I: Main differences between the *Apostolepis* species of the *dimidiata* group, based in the holotypes of the species. Abbreviations: AF, aff.;, affin; ALBI, *A. albicollaris;* AMBI, *A. ambinigra;* AN, ANSP; AC, anterior chin-shield; ARG, Argentina; BGR, background (color); BM, BMNH; BNC, black nuchal collar; BOL, Bolivia; BREVI, *A. breviceps;* BTB, black tail blotch; CC, chin-shields; CERRA, *A. cerradoensis;* CH, CHINM (MACN); CHIS, *A. christineae;* DIA HxN, diameter of neck versus diameter of neck; DIMI, *A. dimidiata;* DO, dorsal scale; DS, dorsal stripe; FM, FML; GO, Goiás, Brazil; GOIA, *A. goiasensis;* IL, infralabial; INTERM, *A. intermedia;* LINEA, *A. lineata* invalid)*;* MA, Maranhão, Brazil; MC, MCP; MG, Minas Gerais, Brazil; MK, MNKP; MS, Mato Grosso do Sul, Brazil; MS, MSNM; MT, Mato Grosso, Brazil; NCC, nape-cervical collars; PAR, Paraguay; PI, Piauí, Brazil; POLY, *A. polylepis;* PR, Paraná, Brazil; PV, paravertebral stripe; QUIRO, *A. quirogai;* R, rate; R_1, TAL/TOL; R_2, TAL/SVL; R_3, SC/VE; RS, Rio Grande do Sul, Brazil; SC, subcaudal; shado, shadowed; SL, supralabial; SLB, supralabial blotch; SVL, snout-vent length; TAL, tail length; TE, terminal; TOL, total length; UF, UFMS; UH, UHESM, Serra da Mesa Hydroelectric Power Plant; VE, ventral scale.; VITTA, *A. vittata;* VS, vertebral stripe; ZB, ZMB.. Measurements in millimeters. The name *A. lineata* are added with the *A. intermedia* (unpublished).

Data	**VITTA**	**AF.CHRIS**	**CHRIS**	**BREVI**	**INTERM**	**LINEA**	**GOIA**	**CERRA**	**AMBI**	**POLYs**	**AF.DIMI**	**QUIRO**	**DIMID**	**ALBI**
Holotypes	AN.11293	BM.1972.429	MC.12515	MK.1839	UF.1269	AN.11211	IB.10260	UH.21800	ZB.8450?	IB.1681	CH.3309	FM.6000	MS w.n.	MC.8355
Sex	♂	♂	♂	♂	♂	♀?	♀	♂	♂	♀	♂	♀	♀?	♀
TOL	460	252	352	319	351	340	408	347.3	252	620	390	228	580	432.5
TAL	25	16	32.5	32	38	34	30	36.7	16	33	37	15.5	40	37.8
SVL	435	2360	319.5	287	313	306	378	310.6	236	587	353	212.5	540	394.7
R_1	0.054	0.063	0.092	0.1	0.108	0.1	0.073	0.106	0.063	0.053	0.095	0.068	0.069	0.087
R_2	0.089	0.068	0.102	0.111	0.121	0.111	0.079	0.118	0.068	0.056	0.105	0.073	0.074	0.096
VE-SC	238-27	239-24	240-30	226-30	211-33	? - 24	237-25	215-30	224-33	236 – 21	220-27	276 – 24	246 - 26	214-27
R_3	0.054	0.1	0.125	0.133	0.156	?	0.105	0.140	0.147	0.089	0.123	0.087	0.106	0.126
SL	5	5	5	5	6	6	6 (5)	6	6	6	6	6	6	6
IL (x AC)	5 (1-3)	6 (1-3)	6 (1-3)	5 (1-3)	6 (1-3)	6 (1-3)	7 (1-4)	7 (1-4)	7 (6) (1-4)	7 (1-4)	7(1-4)	7 (1-4)	7 (1-4)	7(1-4/1-3)
CC (pairs)	2	2	2	1	2	2	2	2	2	2	2	2	2	2
BNC x DO	2	2	2	7.5	2-3	2?	2	1	4	5	3	2	2-3	1
BNC x GU	sides	0	+	+	+	+	0	0	+	+		sides	+	+
BGR	brown	red?	brown	brick red	brown	brown	pinkish	red	red	red	red	red	red	red
DS	5 lined	0 &vestigial	5 striped	0	5 lined shadow	5 (3) lined	3 lined	2	0 (Vdots)	4(5)stripe	2 bands	2 bands	2 bands	2 bands
DO x TE	6	6	6	?	?		4	4	6	?	?	4	?	4
BTB	9 – 8/7	9 – 3/3	9 – 3/2 (R)	? – 6/7	10? – 6/6	7? - 5/4	7? – 2/3 (R)	6 -2/2	10 – 6/6	13 – 6/6	11-7/7	5 -3/2 (R)	6 – 5/4	7-3/3(R)
NCC	0	0	0	0	0	0	0	+	0	0	0	+	0	+
VE blotch	0	0	0	0	0	0	0	0	0	0	0	+	+	+
SL blotch	4-5	RO-5	4-5	3-5	RO-6	RO-6	RO-5	3-5	0/3-shadow	0	RO-5	3-5	1-6	2-5
Distribution	MT	MT	MT, BOL	BOL	MS, PAR	MT	GO, MG, MS	GO	MS, PAR	PI, MA	MS, PAR	RS, ARG	GO/ARG	GO, MG