



A new species of *Mathevotaenia* (Cestoda, Anoplocephalidae) parasitizing *Tropidurus spinulosus* (Reptilia, Squamata) from northeastern Argentina

Una especie nueva de *Mathevotaenia* (Cestoda, Anoplocephalidae) parásita de *Tropidurus spinulosus* (Reptilia, Squamata) del noreste de Argentina

Lía Inés Lunaschi^{1✉}, Matías Fernando Lamas² and Fabiana Beatriz Drago¹

¹Laboratorio de Helmintología, División Zoología Invertebrados, Museo de La Plata, Paseo del Bosque S/N°, 1900 La Plata, Buenos Aires, Argentina.

²Laboratorio de Herpetología. Facultad de Ciencias Exactas y Naturales y Agrimensura. Universidad Nacional del Nordeste. Av. Libertad 5470, 3400 Corrientes, Argentina.

✉ lunaschi@fcnym.unlp.edu.ar

Abstract. *Mathevotaenia chaquensis* n. sp. (Cestoda, Anoplocephalidae, Linstowiinae) from a Spiny Lava Lizard, *Tropidurus spinulosus*, collected in Chaco Province, Argentina, is described. This is the second species of *Mathevotaenia* described from Neotropical reptiles. The new species is mainly characterized by having a relatively small strobila, 24 mm in total length, with about 100 craspedote proglottids, and 19-24 testes per proglottid. Among the South American species of *Mathevotaenia*, *M. argentinensis* is most similar to the new species by having similar body length and number of testes, but the major differences between both species include the size of suckers, neck, proglottids, testes and egg capsules, and the shape of the genital atrium and ovary (with 10-13 lobules on each side in *M. argentinensis*, and 4-7 lobules in *M. chaquensis* n. sp.). A key to the species of the South American members of the *Mathevotaenia* Akumyan, 1946 is presented.

Key words: *Mathevotaenia chaquensis* n. sp., Linstowiinae, Spiny Lava Lizard, Tropiduridae, Chaco Province.

Resumen. *Mathevotaenia chaquensis* n. sp. (Cestoda, Anoplocephalidae, Linstowiinae) es descrita parasitando al lagarto de los quebrachales, *Tropidurus spinulosus*, procedente de la Provincia del Chaco, Argentina. Esta es la segunda especie de *Mathevotaenia* descrita parasitando reptiles Neotropicales. La nueva especie está caracterizada principalmente por tener un estróbilo relativamente pequeño, 24 mm de largo, con aproximadamente 100 proglótides craspedotas y 19-24 testículos por proglótide. Entre las especies sudamericanas de *Mathevotaenia*, *M. argentinensis* es la más semejante a la nueva especie por presentar similar longitud del cuerpo y número de testículos, pero difieren en el tamaño de las ventosas, cuello, proglótides, testículos y huevos. Además difieren en la forma del atrio genital y del ovario (10-13 lóbulos a cada lado en *M. argentinensis* vs. 4-7 lóbulos en *M. chaquensis* n. sp.). Se presenta una clave para la determinación de las especies sudamericanas de *Mathevotaenia* Akumyan, 1946.

Palabras clave: *Mathevotaenia chaquensis* n. sp., Linstowiinae, lagarto de los quebrachales, Tropiduridae, Provincia del Chaco.

Introduction

The Spiny Lava Lizard, *Tropidurus spinulosus* (Cope), is a tropidurid that is distributed from Brazil, Bolivia and Paraguay to central Argentina. It feeds mainly on insects Formicidae and Acrididae (Martori and Aun 1994). The helminth fauna of Spiny Lava Lizard is poorly known and the only record of helminths parasitizing it is that of *Strongyluris oscari* Travassos, 1923 (Nematoda-Heterakidae) (Sutton et al., 1998; Ávila and Silva, 2010). During a helminthological study of lizards from Chaco Province, Argentina, one species of anoplocephalid ces-

tode belonging to *Mathevotaenia* Akumyan, 1946, was collected from the small intestine of *T. spinulosus*; the aim of the present paper is to describe this new species.

The genus *Mathevotaenia* includes species that have been found parasitizing mainly mammals throughout the world (rodents, insectivores, edentates, carnivores, marsupials, bats, and primates), with isolated reports in reptiles and birds (Beveridge, 2008; Bursey et al., 2010; Goldberg et al., 2010). Also, Lamom and Greer (1986) reported one case of human infection by *Mathevotaenia* sp. in Bangkok, Thailand. According to Spasskii (1951) the life cycles of the species of *Mathevotaenia* involve insects, such as cockroaches and butterflies, as intermediate hosts in which amphicyst develop. Chervy (2002) analyzed the terminology applied to larval cestodes or

metacestodes and considered that larvacyst of amphicyst type is a synonymous of precysticercus.

Materials and methods

Eleven specimens of *Tropidurus spinulosus* were collected between May 2005 and February 2010 during a survey of lizards in Pampa del Indio (26°16'33" S, 59°58' W), Chaco Province, Argentina. The lizards were dissected, the viscera fixed in 10% formalin and examined for helminths in the laboratory. One complete cestode specimen was collected, stained with hydrochloric carmine, dehydrated and mounted in Canada balsam. Measurements are given in micrometers (µm) unless otherwise stated, presented as the range. Drawings were made with the aid of a drawing tube. The hosts were deposited in the Herpetological Collection of the Universidad Nacional del Nordeste (UNNE), Corrientes Province, Argentina, and the parasite studied in the Helminthological collection of the Museo de La Plata (MLP), La Plata, Argentina.

The abbreviations of the measured features are as follows: Cpl - cirrus pouch length; Cpw - cirrus pouch width; Ecl - egg capsules length; Ecw - egg capsules width; Gad - genital atrium depth; Gaw - genital atrium width; Gpl - gravid proglottids length; Gpw - gravid proglottids width; Mpl - mature proglottids length; Mpw - mature proglottids width; Mw - maximum width; Nl - neck length; Nw - neck width; N° p - number of proglottids; N° te - number of testes; Onl - oncosphere length; Onw - oncosphere width; Onhl - oncospherical hooks length; Ovl - ovary length; Ovw - ovary width; Sl - scolex length; Sw - scolex width; Sul - suckers length; Suw - suckers width; Tgpl - terminal gravid proglottids length; Tgpw - terminal gravid proglottids width; Tel - testes length; Tew - testes width; Tl - total length; Vgl - vitelline gland length; Vgw - vitelline gland width.

Description

Family Anoplocephalidae Kholodkovskii, 1902

Subfamily Linstowiinae Fuhrmann, 1907

Mathevotaenia chaquensis n. sp. (Figs. 1-5; Table 1)

Diagnosis. Relatively small tapeworm. Scolex unarmed, poorly demarcated from strobila. Suckers oval with poorly muscular walls, each sucker inside a pocket that opens externally at most anterior part of structure through a slit. Neck long. Strobila apolytic with about 100 craspedote proglottids; velum up to 97 long. Immature proglottids protandric, wider than long. Mature proglottids wider than long, around 11; length-width ratio 1: 2-2.8. Gravid proglottids about 28 in number, wider than long; length-

width ratio 1:0.5-1: 0.8; last 2 gravid proglottids longer than wide; length-width ratio 1:1.3-1:1.4. Developing genitalia first visible in 43th proglottid. Genital pores alternate irregularly, near the anterior margin of proglottid. Genital atrium small, surrounded by radially directed muscle fibres. Cirrus pouch slender, transversely elongated, extends beyond excretory canals, not reaching midline of proglottids; internal vas deferens coiled within cirrus-sac; cirrus without visible spines. Testes clearly visible in proglottid 52 arranged in single intervascular field, posterior and lateral to vitelline gland, reaching posterior margin of ovary. Ovary in medial portion of proglottid, bilobed, with transverse isthmus; ovarian lobes with 4-7 short lateral lobules. Lobes of ovary not quite reaching lateral excretory canals. Vitelline gland medial, posterior to ovarian isthmus, compact appearance or with variable number of small rounded lobules. Seminal receptacle absent. Vagina posterior to cirrus pouch. Female genitalia and testes involute progressively in gravid proglottids, cirrus pouch, duct with spermatozooids and vagina persist in last 3 proglottids. Eggs in egg capsules scattered in parenchyma, occupying most of proglottid. Oncospheral hooks 15-18 long; hook blade 5-7 long; hook base 10-11 long.

Taxonomic summary

Type host: *Tropidurus spinulosus* (Cope), Spiny Lava Lizard (Reptilia, Squamata)

Type locality: Pampa del Indio (26°16'33" S, 59°58' W), Libertador General San Martín, Chaco Province, Argentina.

Site of infection: small intestine.

Date of collection: December 2005.

Prevalence: 9% (1 of 11).

Type specimen: holotype MLP 6505.

Etymology: the species name refers to Chaco Province (chaquensis= of Chaco), the locality in which it was found.

Remarks

The genus *Mathevotaenia* contains an uncertain number of species due to complex synonymies and because descriptions of some species are too poor to determine correct generic assignment (Beveridge, 2008; Bursey et al., 2010).

In South America, 15 species of this genus have been reported parasitizing marsupials, armadillos, monkeys and bats, and there are also 2 reports in reptiles. The species described parasitizing small mammals from Argentina are: *Mathevotaenia surinamensis* (Cohn, 1902) Spasskii, 1951, *Mathevotaenia diminuta* Navone, 1988, *Mathevotaenia matacus* Navone, 1988, *Mathevotaenia sanmartini* Jiménez, Braun, Campbell and Gardner, 2008 in armadillos (Dasypodidae) from Chaco, Corrientes,

Table 1. Comparative measurements of *Mathevotaenia chaquensis* n. sp. and other species of the genus from Argentina

Species	<i>M. chaquensis</i> n. sp.	<i>M. surinamensis</i>	<i>M. diminuta</i>	<i>M. matacus</i>	<i>M. argentinensis</i>	<i>M. bivittata</i>	<i>M. sanmartini</i>
Source	Present study	Navone (1988)	Navone (1988)	Navone (1988)	Campbell et al. (2003)	Campbell et al. (2003)	Jiménez et al. (2008)
Tl (mm)	24	150-170	100-150	160	18-37	13-15	91-212
Nº p	100	—	—	—	135-163	37-49	200
Mw	619-744	232	—	—	1 000-1 500	960-1 350	1 123-2 427
Sl	348	—	—	384-480	305-462	360-390	843-1 246
Sw	435	576-640	680-720	416-480	392-536	460-600	824-1 415
Sul	115-145	—	—	—	152-197	225-291	302-399
Suw	105-126	176-250 diam.	200-224	160 diam.	222-256	201-228	236-336
Nl	580	—	—	—	1 100-1 200	—	950-1 848
Nw	339	—	—	—	320-370	—	374-805
Mpl	251-338	640-800	1260	528	220-260	194-197	245-760
Mpw	590-725	1 360-1 616	864	2000	780-1 000	400-601	805-1 721
Gpl	358-580	1 330-1 680	—	2200	240-350	400-900	469-1 662
Gpw	725-774	1 600-2 080	—	2 400	1 080-1 490	600-900	1 123-2 427
Tgpl	793-947	—	—	—	640-1 330	—	1 144-3 272
Tgpw	629-725	—	—	—	570-650	—	970-2 394
Nº te	19-24	90-105	130-150	50	19-29	10-13	26-41
Tel	24-36	—	—	—	37-70	23-31	54-96
Tew	33-48	32-64 diam.	60-64 diam.	48-64 diam.	25-39	30-41	44-96
Cpl	126-178	320-400	224-320	84	120-183	71-108	116-239
Cpw	44-48	128-160	96-160	24	45-53	34-49	62-96
Gad	53-79	—	—	—	48-84	24-43	—
Gaw	48-71	125 diam.	96-166 diam.	—	5-24	5-6	—
Ovl	82-116	—	—	—	90-168	98-209	376-708
Ovw	266-271	176-203 diam	480-560	544-592	286-324	48-123	166-331
Vgl	33-43	240-320	240-272	—	72-96	42-105	—
Vgw	60-71	80-128	144-192	208-320	126-163	31-74	—
Onl	—	—	—	—	15-23	19-23	15-38
Onw	24-29 diam.	24-28 diam.	24-28 diam.	20 diam.	26-32	15-17	15-34
Onhl	15-18	20	—	—	14.3-15	11.8	9-15
Ecl	—	—	—	—	63-74	31-41	27-57
Ecw	41-45 diam	40 diam.	—	80-96 diam.	55-62	23-29	15-38
Hosts	<i>T. spinulosus</i>	<i>D. novemcinctus</i>	<i>C. vellerosus</i>	<i>T. matacus</i>	<i>D. albiventris</i>	<i>M. demerarae</i> <i>M. murina</i> Argentina	<i>T. pallidior</i>
Distrib.	Argentina	Argentina Brazil Surinam* USA	Argentina	Argentina	Argentina	Brazil Costa Rica Bolivia Panamá	Argentina Bolivia

*Referred to Surinam by Buchanan (1956), and Guinea by Spasskii (1951) and Navone (1988).

Formosa and Jujuy Provinces, and *Mathevotaenia bivittata* (Janicki, 1904) and *Mathevotaenia argentinensis* Campbell, Gardner and Navone, 2003 parasitizing marsupials (Didelphidae) from Salta and Santiago del Estero Provinces, respectively (Navone, 1988; Campbell et al., 2003; Jiménez et al., 2008). Also, Ezquiaga et al. (2009) reported the presence of *Mathevotaenia* sp. parasitizing *Zaedyus pichiy* Desmarest (Dasypodidae) from Mendoza Province. This report was based on the microscopic identification of eggs in the stool, but the eggs of this genus are indistinguishable from those produced by other Linstowiinae; therefore we consider their identification doubtful. Among these species, *M. chaquensis* n. sp. is most similar to *M. argentinensis*, a parasite of *Didelphis albiventris* Lund, and *M. bivittata* described in *Micoureus demerarae* Thomas (as *M. cinereus*) and *Marmosa murina* L. These species are similar in having small strobila and a reduced number of testes. However, *M. argentinensis* differs from *M. chaquensis* n. sp. in having larger suckers, a longer neck, larger testes visible in more posterior proglottids, a pronounced sphincter-like genital atrium, vitelline gland and ovary with higher number of lobules (8 and 10-13, respectively) and larger egg capsules (Table 1). The specimens of *M. bivittata* described by Campbell et al. (2003) differ from the specimen studied here by possessing a larger scolex and suckers, smaller oncospheres, egg capsules, oncospherical hooks, and cirrus pouch; ovary with a higher number of lobules (10-15), by the distribution of mature eggs in the proglottids, concentrated along their lateral margins, and by the persistence of the female genitalia in gravid proglottids (Table 1). Also, the new species differs from the specimens of *M. bivittata* described by Baer (1927), Gomes (1979) and Campbell et al. (2003) by having a smaller number of testes (5-8, 8-10 and 10-13, respectively). The remaining species of *Mathevotaenia* from Argentinean mammals, *M. sanmartini* a parasite of *Thylamys pallidior* (Thomas); *M. surinamensis* reported in *Dasypus novemcinctus* L., *Dasypus* sp., *Priodontes maximus* Kerr (as *P. gigas*) (Dasypodidae), *Didelphis aurita* Wied-Neuwied, and *Didelphis marsupialis* L. (Didelphidae); *M. diminuta* described from *Chaetophractus vellerosus* Gray, and *M. matacus* found parasitizing *Tolypeutes matacus* (Desmarest), can be readily distinguished from *M. chaquensis* n. sp. by possessing a larger strobila and a higher number of testes (Table 1). The other South American species of *Mathevotaenia* described in mammals are: *Mathevotaenia didelphidis* (Rudolphi) Spasskii, 1951 found parasitizing *Thylamys elegans* Waterhouse (as *Marmosa e.*) and *M. murina* (Didelphidae); *Mathevotaenia marmosae* (Beddard) Spasskii, 1951 a parasite of *T. elegans* (as *Marmosa e.*); *Mathevotaenia tetragonocephala* (Bremser) Spasskii,

1951 in *Myrmecophaga tridactyla* L. and *Tamandua tetradactyla* L. (Myrmecophagidae); *Mathevotaenia paraguayae* Schmidt and Martin, 1978 in *Euphractus sexcinctus flavimanus* Desmarest (Dasypodidae); *Mathevotaenia megastoma* (Diesing) Spasskii, 1951 from monkeys; *Mathevotaenia brasiliensis* Kugi and Sawada, 1970 in *Saimiri sciureus* L. (Primates: Cebidae); *Mathevotaenia immatura* Rego, 1963; *Mathevotaenia boliviana* Sawada and Harada, 1986 in *Glossophaga soricina* (Pallas) (Chiroptera: Phyllostomidae), and *Mathevotaenia* sp. in *T. tetradactyla* (Baer, 1927; Spasskii, 1951; Buchanan, 1956; Rego, 1963; Kugi and Sawada, 1970; Schmidt and Martin, 1978; Sawada and Harada, 1986; Beveridge, 2008; Bursey et al., 2010). *Mathevotaenia marmosae*, *M. megastoma*, *M. brasiliensis* and *M. tetragonocephala* differ from the new species in the total length of worms (84 mm to 650 mm) and number of testes (70 to 200). The specimens of *M. immatura* and *M. boliviana* can be distinguished from the specimen here described by having a smaller size (1.6-3.9 mm), fewer proglottids, larger suckers, smaller oncospherical hooks and egg capsules (Table 2). *Mathevotaenia chaquensis* n. sp. closely resembles *M. paraguayae* in the total length of strobila (24 mm vs. 20-25 mm), and number of testes (19-24 vs. 16-25). However, the major differences between the 2 species include the relative shape of mature proglottids, that is longer than wide in *M. paraguayae* according to the drawing of the proglottid (see Fig. 2 in Schmidt and Martin, 1978) vs. mature proglottids wider than long in *M. chaquensis*; presence of seminal receptacle in *M. paraguayae* vs. absence of seminal receptacle in *M. chaquensis*; an ovary not bilobed with about 21 digitiform lobules in *M. paraguayae* (see Fig. 2 in Schmidt and Martin, 1978) vs. ovary bilobed with 4-7 short lobules in *M. chaquensis*. In addition, *M. chaquensis* differs from these Paraguayan specimens in having smaller suckers, vitelline gland and egg capsules in *M. chaquensis* (115-145 x 105-126 vs. 150-200 x 140-190; 33-43 x 60-71 vs. 40-50 x 90-100; 41-45 vs. 60-80, respectively), a longer neck (580 vs. 400), a larger scolex and genital atrium (348 x 435 vs. 215-280 x 375-465; 53-79 x 48-71 vs. 40-50 x 10). A comparison of the 2 species is given in Table 2. In this paper, the new species is not compared with *M. didelphidis* since its scolex is unknown, and the descriptions provided by Baer (1927) and Spasskii (1951) disagree on the position of the testes (anterior to female gonad vs. posterior to it). Therefore, we believe that new studies of type material or of new specimens collected from type host are required.

At present, only 2 reports of *Mathevotaenia* have been made from Neotropical reptiles, *Mathevotaenia* sp. mentioned as parasite of *Anolis humilis* (Peters) (Squamata:

Polychrotidae) from Nicaragua and *Mathevotaenia panamensis* Bursey, Goldberg and Telford, 2010 parasitizing *Sceloporus malachiticus* Cope (Squamata, Phrynosomatidae) from Panama (Goldberg et al., 2010; Bursey et al., 2010). The specimens of *M. panamensis* are similar in size to the specimen here described (22-29 mm vs. 24 mm), but differ by having fewer testes per proglottid (10-16 vs. 19-24), persistence of female genitalia in gravid proglottids, mature eggs concentrated along the lateral

margins of the proglottids, and also by significant morphometrical differences, i.e. larger size of ovary (51-78 x 120-154 vs. 82-116 x 266-271), vitelline gland (26-34 x 65-78 vs. 63 x 82), cirrus pouch (40-49 in diam. vs. 126-178 x 44-48), genital atrium (25-30 x 8-12 vs. 53-79 x 48-71, oncosphere (15-18 vs. 24-29), egg capsules (27-30 vs. 41-45), oncospherical hooks (10-12 vs. 15-18).

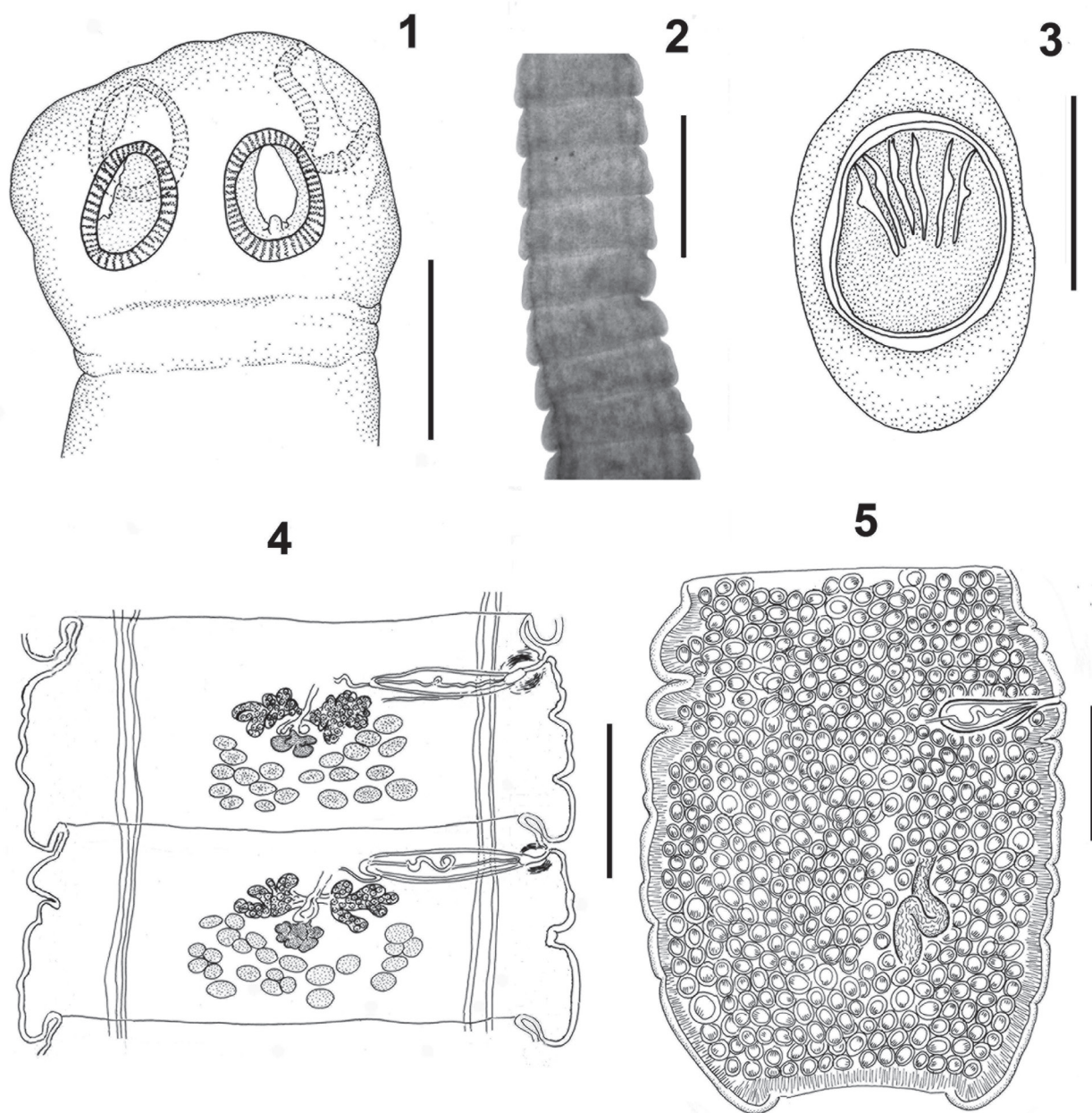
This finding constitutes the first report of the genus *Matevotaenia* parasitizing reptiles from Argentina.

Key to the South American species of *Mathevotaenia*

- 1 - With 10-41 testes. 2
- 1' - With 60-200 testes. 8
- 2 - Size of body smaller; strobila to 4 mm. Parasites of bats. 3
- 2' - Size of body greater; strobila to 10 mm. Parasites of mammals or reptiles. 4
- 3 - With 6-9 proglottids; scolex 360 x 435; testes 10 in number. In Phyllostomidae..... *M. immatura* Rego, 1963
- 3' - With 16-19 proglottids; scolex 761 x 802; testes 16- 20 in number. In Phyllostomidae *M. boliviana* Sawada and Harada, 1986
- 4 - Ovary not bilobed 5
- 4' - Ovary bilobed..... 6
- 5 - Ovary with about 21 digitiform lobules; testes 16-25 in number. Egg capsules distributed throughout medullary parenchyma. Female genitalia not persistent in gravid proglottids. In Dasypodidae. *M. paraguayae* Schmidt and Martin, 1978
- 5' - Ovary with a total of 10-15 short lobules; testes 10-13 in number. Mature eggs concentrated along the lateral margins of the proglottids. Female genitalia persistent in gravid proglottids. In Didelphidae *M. bivittata* (Janicki, 1904)
- 6 - Ovary with up to 13 digitiform lobules on each side. Cirrus spinose. In Didelphidae 7
- 6' - Ovary with 4-7 rounded lobules on each side. Cirrus aspinose. In Tropiduridae..... *M. chaquensis* n. sp.
- 7 - Testes 26-41 in number. Body 91-212 mm in length..... *M. sanmartini* Jiménez, Braun, Campbell and Gardner, 2008
- 7' - Testes 19-29 in number. Body 18-37 mm in length. *M. argentinensis* Campbell, Gardner and Navone, 2003
- 8 - Testes 60-80 in number. 9
- 8' - More than 80 testes. 10
- 9 - Testes 60 in number. Ovary multilobed. Body approximately 160 mm in length. Cirrus pouch 84 long. In Dasypodidae. *M. matacus* Navone, 1988
- 9' - Testes 70-80 in number. Ovary in fan-shaped. Body 150-400 mm in length. Cirrus pouch 160-225 long. In Myrmecophagidae *M. tetragonocephala* (Bremser, 1856)
- 10 - Parasites of Didelphidae or Dasypodidae. 11
- 10' - Parasites of several monkey species. 13
- 11 - Cirrus spinose; body to 84 mm in length. In Didelphidae *M. marmosae* (Beddard, 1914)
- 11' Cirrus aspinous; body more than 100 mm. In Dasypodidae. 12
- 12 - Body 150-170 mm in length; testes 90-105 in number. *M. surinamensis* (Cohn, 1902)
- 12' - Body 100-150 mm in length; testes 130-150 in number. *M. diminuta* Navone, 1988
- 13 - Testes 130-150 in number. Egg capsules 91-98 x 95-98. In Cebidae..... *M. brasiliensis* Kugi and Sawada,
- 13' - Testes 160-200 in number. Egg capsules 46 x 49. In Cebidae, Atelidae, Pitheciidae..... *M. megastoma* (Diesing, 1850)

Table 2. Comparative measurements of *Mathevotaenia* species from other South American hosts

Species	<i>M. chaquensis</i> n. sp.	<i>M. marmosae</i>	<i>M. tetragonoecephala</i>	<i>M. paraguayae</i>	<i>M. megastoma</i>	<i>M. brasiliensis</i>	<i>M. immatura</i>	<i>M. boliviana</i>
Source	Present study	Spasskii (1951)	Spasskii (1951)	Schmidt and Martin (1978)	Spasskii (1951)	Kugi and Sawada (1970)	Rego (1963)	Sawada and Harada (1986)
TL (mm)	24	84	150-400	20-25	650	95-113	2.02-3.30	1.6-3.9
N° p	100	—	appr. 140	up to 110	appr. 700	360-450	6-9	16-19
Mw	619-744	3 000	—	750-800	4000	1 500-2 300	—	600-700
Sl	348	—	850-1 500 diam.	215-280	660 diam.	350-490	360	761
Sw	435	—	—	375-465	—	249-263	435	802
Sul	115-145	—	—	150-200	—	105-236 diam.	165	332-346
Suw	105-126	—	—	140-190	—	—	150	290
Nl	580	—	—	400	4000	490-520	285	—
Nw	339	—	—	—	—	105	300	—
Mpl	251-338	—	—	—	—	—	615	—
Mpw	590-725	—	—	—	—	—	90-262	—
Gpl	358-580	—	7 000	—	—	—	—	—
Gpw	725-774	—	4 000	—	—	—	—	—
Tgpl	793-947	—	—	—	—	—	—	—
Tgpw	629-725	—	—	—	—	—	—	—
N° te	19-24	100	70-80	16-25	160-200	130-150	10	16-20
Tel	24-36	—	—	30-60 diam.	—	42-55 diam.	22-26 diam.	49-63
Tew	33-48	—	—	—	—	—	—	35-42
Cpl	126-178	—	160-225	100-160	110-150	207-249	82	119-140
Cpw	44-48	—	80	30-80	90	69-97	52	49-63
Gad	53-79	—	150	40-50	—	—	—	—
Gaw	48-71	—	10	10	—	—	—	—
Ovl	82-116	—	—	90-120	—	—	60	—
Ovw	266-271	—	—	220-280	—	387-429	67	259
Vgl	33-43	—	—	40-50	—	82	41	70-81
Vgw	60-71	—	—	90-100	—	97	48	105-140
Onl	24-29 diam.	—	—	22-35 diam.	—	35	31	21-28
Onw	—	—	—	—	—	32-42	24	25-28
Onhl	15-18	—	—	16-18	—	18-21	11	11
Ecl	41-45 diam	—	—	—	46	91-98	—	32-35
Ecw	—	—	—	60-80	49	95-98	—	28-32
Hosts	<i>T. spinulosus</i>	<i>T. elegans</i>	<i>M. tridactyla</i> <i>T. tetradactyla</i>	<i>E. sexcinctus</i> <i>flavimanus</i>	Cebidae Atelidae Pitheciidae South America	<i>Saimiri sciureus</i> L.	<i>G. soricina</i>	<i>G. soricina</i>
Distrib.	Argentina	Brazil	South America	Paraguay		Brazil	Brazil	Bolivia



Figures 1-5. *Mathevotaenia chaquensis* n. sp. from *T. spinulosus*. 1. Scolex. Scale-bars: 200 μ m. 2. Portion of strobila showing craspedote immature proglottids. Scale-bars: 200 μ m. 3. Egg surrounded by outer egg capsule. Scale-bars: 30 μ m. 4. Mature proglottids. Scale-bars: 200 μ m. 5. Last gravid proglottid. Scale-bars: 200 μ m.

Acknowledgments

The authors express their gratitude to Jorge Céspedes and José Ruiz-García for their help in sampling, and also thank Graciela T. Navone for providing part of the bibliography. The authors, L. Lunaschi and F. Drago are members of the Comisión de Investigaciones Científicas de la Provincia de Buenos Aires (CIC) and Universidad Nacional de La Plata (UNLP), respectively. The present study was funded by CIC (Res. No. 1535/10).

Literature cited

- Ávila, R. W. and R. J. Silva. 2010. Checklist of helminths from lizards and amphisbaenians (Reptilia, Squamata) of South America. The Journal of Venomous Animals and Toxins including Tropical Diseases 16:543-572.
- Baer, J. G. 1927. Monographie des cestodes de la famille des Anoplocephalidae. Bulletin Biologique de France et de Belgique, supp. 10:1-241.
- Beveridge, I. 2008. *Mathevotaenia niuguiniensis* n. sp. (Cestoda: Anoplocephalidae: Linstowiinae) from the water-rat *Parahydromys asper* (Thomas) in Papua New Guinea, with a list of species of *Mathevotaenia* Akumyan, 1946. Systematic Parasitology 71:189-198.
- Buchanan, G. D. 1956. Occurrence of the cestode *Mathevotaenia surinamensis* (Cohn, 1902) Spasskii, 1951 in a North American armadillo. Journal of Parasitology 42:34-38.
- Bursey, C. R., S. R. Goldberg and S. R. Telford. 2010. A new species of *Mathevotaenia* (Cestoda, Anoplocephalidae, Linstowiinae) from the lizard *Sceloporus malachiticus* (Squamata, Phrynosomatidae) from Panama. Acta Parasitologica 55:53-57.
- Campbell, M. L., S. L. Gardner and G. T. Navone. 2003. A new species of *Mathevotaenia* (Cestoda: Anoplocephalidae) and other tapeworms from marsupials in Argentina. Journal of Parasitology 89:1181-1185.
- Chervy, L. 2002. The terminology of larval cestodes or metacestodes. Systematic Parasitology 52:1-33.
- Ezquiaga, M. C., M. Superina and G. T. Navone. 2009. Parásitos intestinales de *Zaedyus pichiy* (Xenarthra: Dasypodidae) de Mendoza, Argentina. Mastozoología Neotropical 16:309-319.
- Goldberg, S. R., C. R. Bursey and L. J. Vitt. 2010. Helminths from 3 species of anoles: The Humble Anole, *Anolis humilis*; the Border Anole, *Anolis limifrons*; and the Lion Anole, *Anolis lionotus* (Squamata: Polychrotidae), from Nicaragua. Comparative Parasitology 77:242-246.
- Gomes, D. C. 1979. Contribuição ao conhecimento dos helmintos parasitos de marsupiais no Brasil, da Coleção Helmintológica do Instituto Oswaldo Cruz (Cestoda, Archiacanthocephala e Linguatulida). Revista Ibérica de Parasitología 39:87-599.
- Jiménez, F. A., J. K. Braun, M. L. Campbell and S. L. Gardner. 2008. Endoparasites of fat-tailed mouse opossums (*Thylamys*: Didelphidae) from Northwestern Argentina and Southern Bolivia, with the description of a new species of tapeworm. Journal of Parasitology 94:1098-1102.
- Kugi, G. and I. Sawada. 1970. *Mathevotaenia brasiliensis* n. sp., a tapeworm from the squirrel monkey, *Saimiri sciureus*. Japanese Journal of Parasitology 19:467-470.
- Lamom, C. and G. J. Greer. 1986. Human Infection with an anoplocephalid tapeworm of the genus *Mathevotaenia*. The American Journal of Tropical Medicine and Hygiene 35:824-826.
- Martori, R. and L. Aun. 1994. Aspects of ecology of a population of *Tropidurus spinulosus*. Amphibia-Reptilia 15:317-326.
- Navone, G. T. 1988. Estudios parasitologicos en edentados argentinos. IV. Cestodos pertenecientes a la familia Anoplocephalidae Cholodkovsky, 1902, parásitos de dasypodidos. Neotropica 34:51-61.
- Rago, A. A. 1963. Nova espécie do gênero *Mathevotaenia* Akhumian, 1946 parasita de quirópteros (Cestoda: Anoplocephalidae). Revista Brasileira de Biologia 23:31-34.
- Sawada, I. and M. Harada. 1986. Bat cestodes from Bolivia, South America, with descriptions of six new species. Zoological Science 3:367-377.
- Schmidt, G. D. and R. L. Martin. 1978. Tapeworms of the Chaco Boreal, Paraguay, with two new species. Journal of Helminthology 52:205-209.
- Spasskii, A. A. 1951. Anoplocephalate Tapeworms of Domestic and Wild Animals. In Essentials of cestodology. Vol. 1, K. I. Skrjabin (ed.). The Academy of Sciences of the USSR, Moscow. p. 515-634.
- Sutton, C. A., C. Mordeglia and F. Cruz. 1998. *Strongyluris oscar* Travassos, 1923 (Nematoda, Heterakidae) en *Tropidurus spinulosus* (Squamata, Tropiduridae) del noroeste de Argentina. Gayana, Zoología 62:171-175.