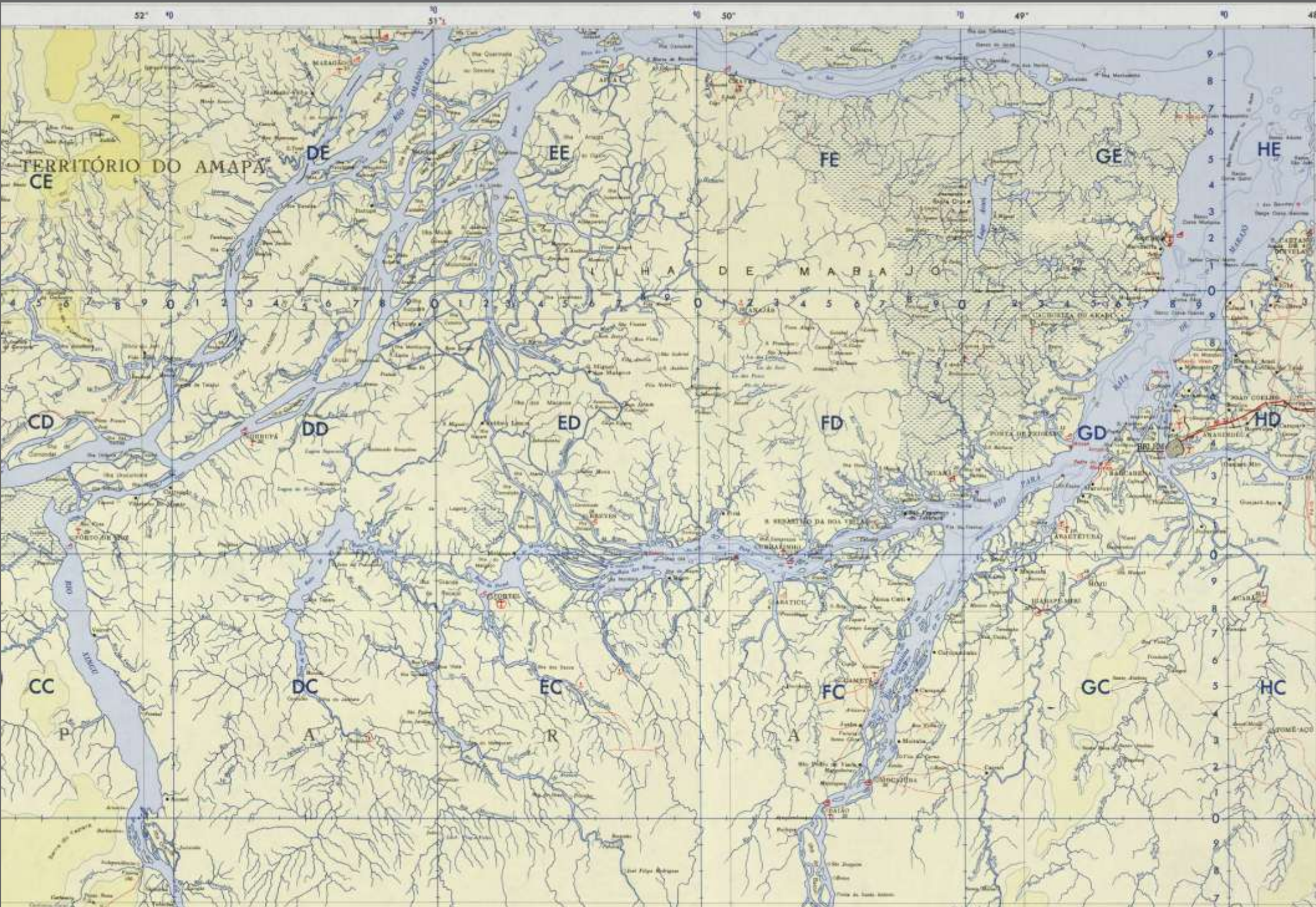


Гельминты, гельминтологи и природа восточной Амазонии

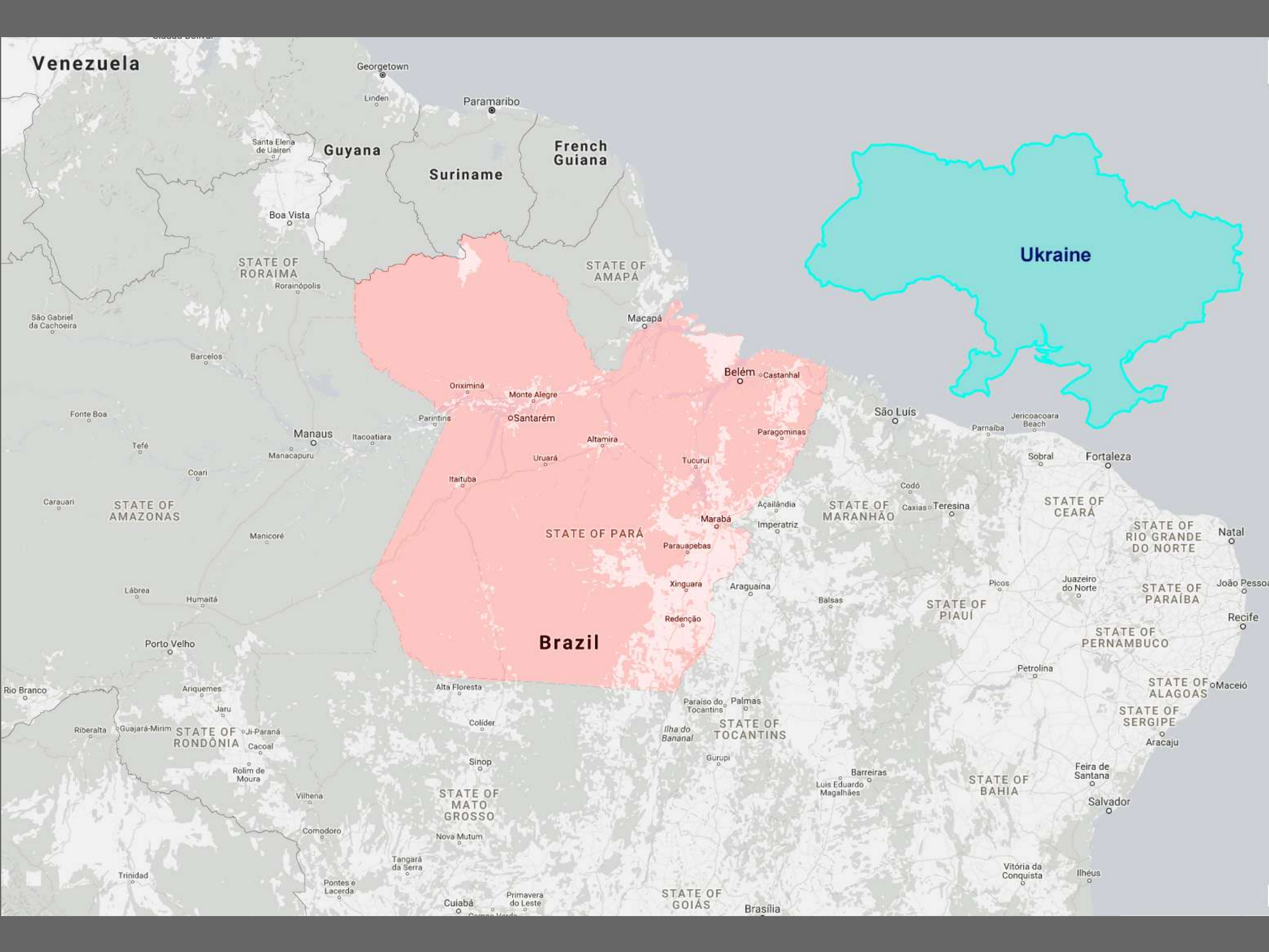
**Юрий Кузьмин,
Отдел паразитологии ИЗАН**











Venezuela

Guyana

Suriname

French Guiana

Ukraine

Brazil



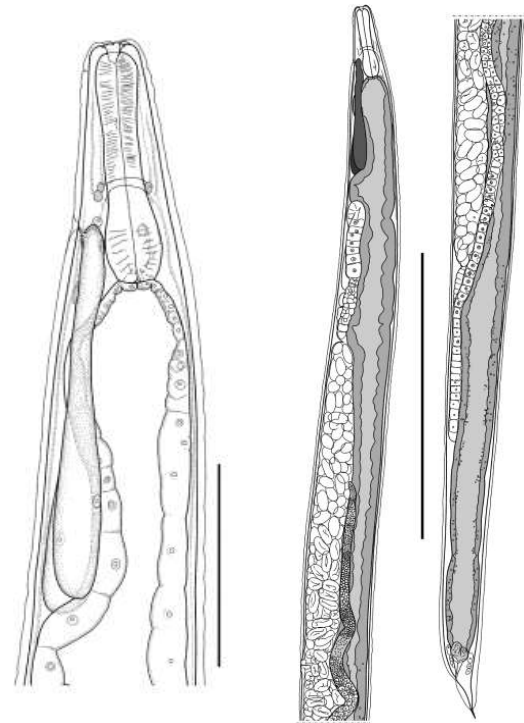
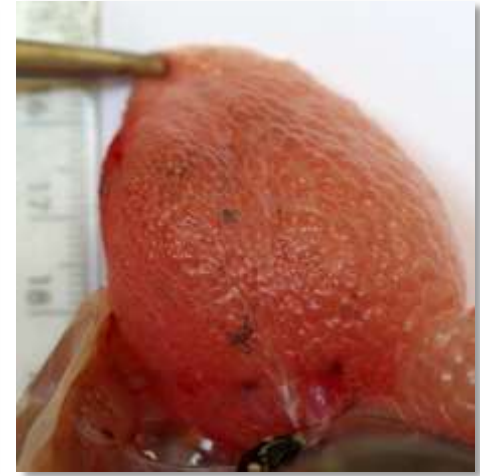




Porquê e como

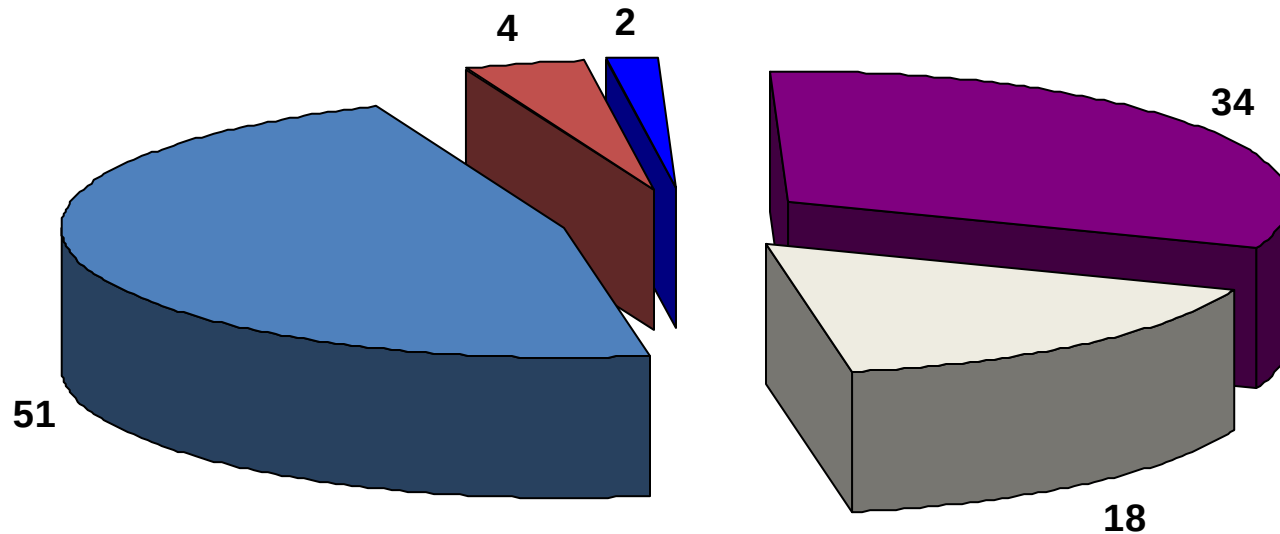


Rhabdiasidae (Nematoda)



Rhabdiasidae (Nematoda)

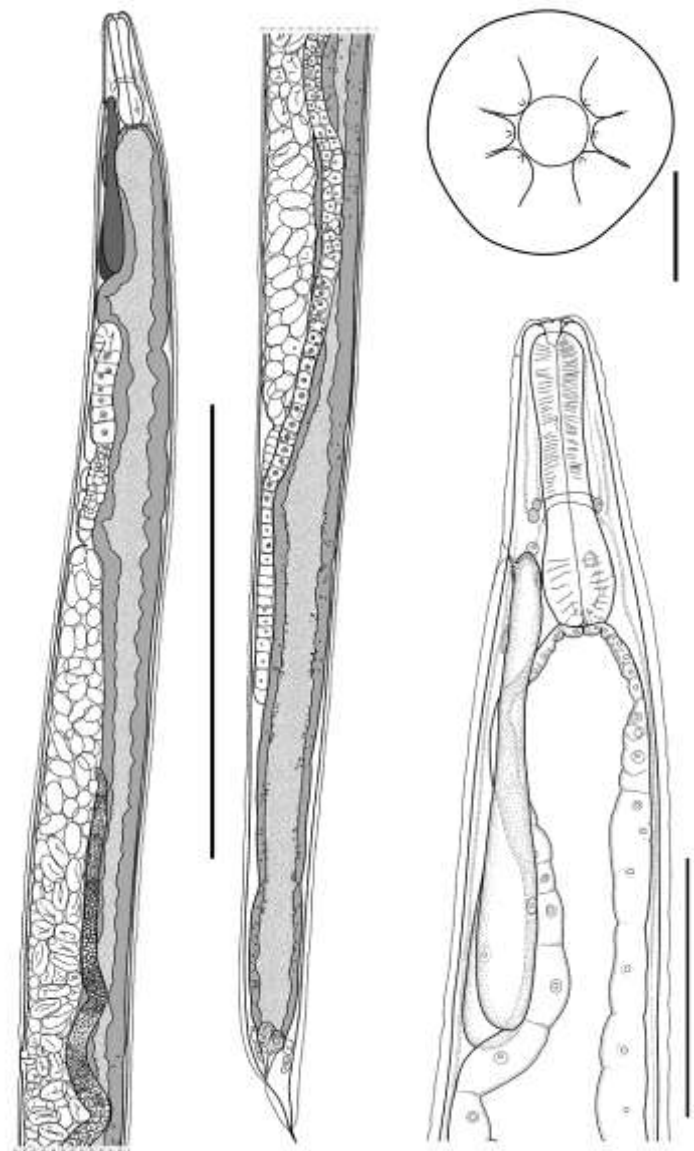
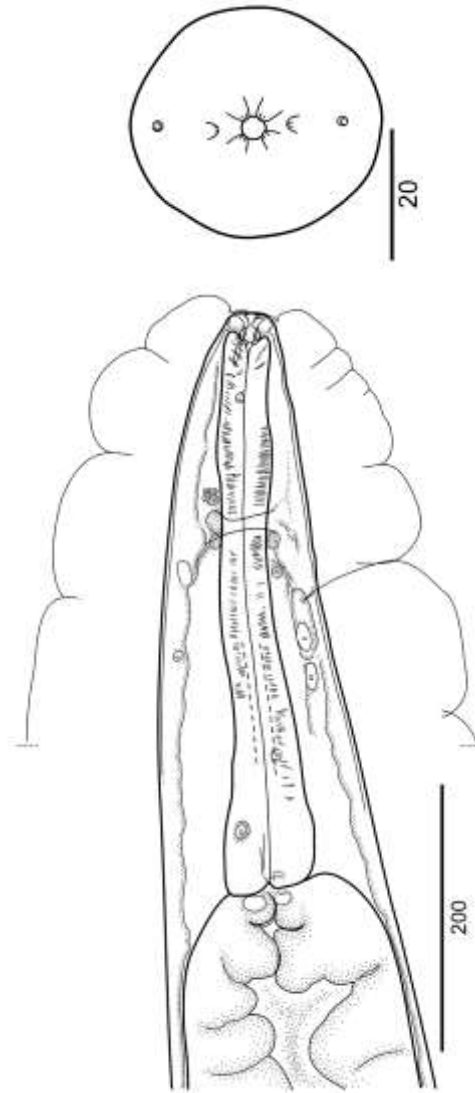
Number of species



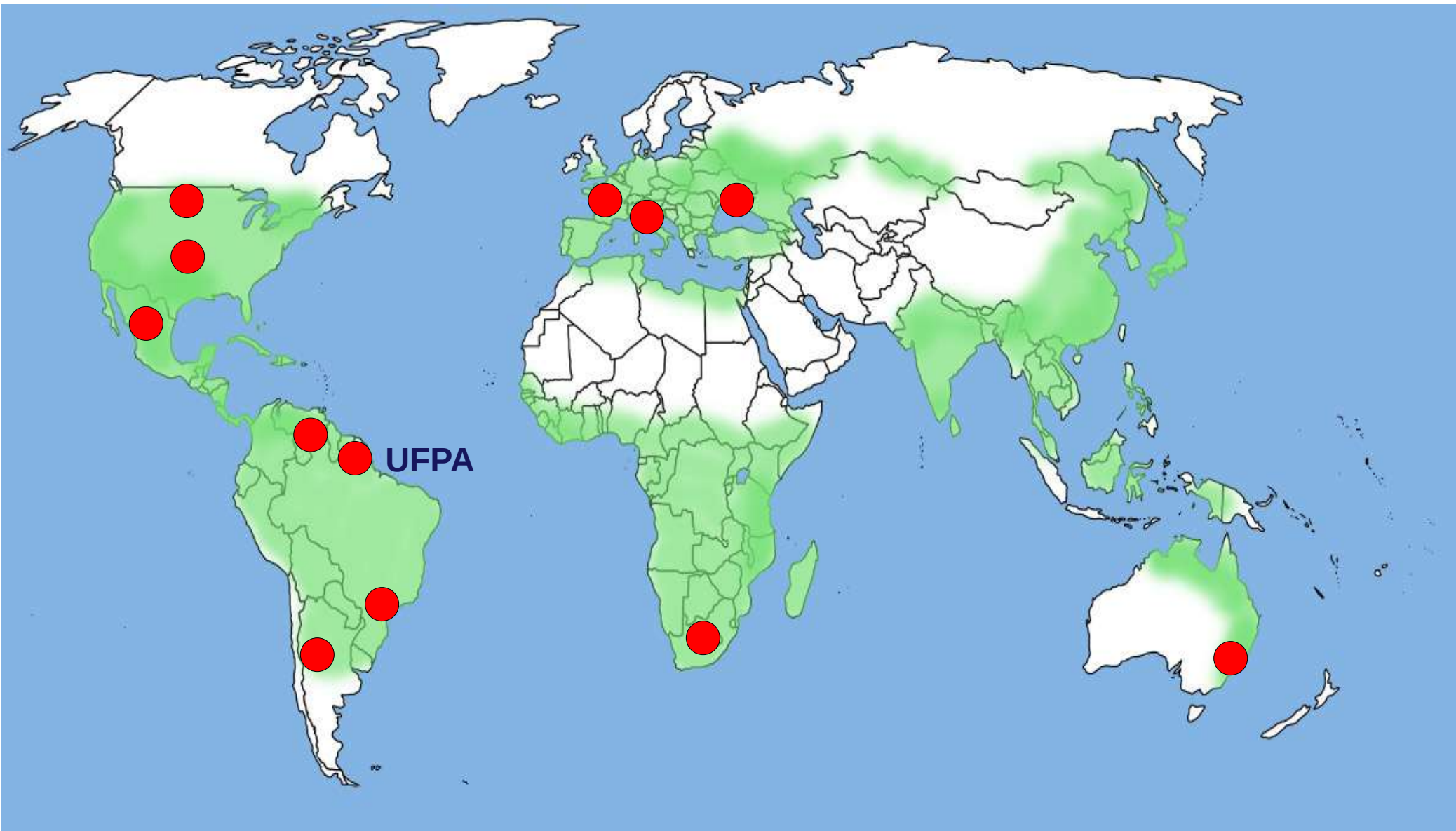
- Amphibia: Anura
- Amphibia: Caudata
- Amphibia: Gymnophiona
- Reptilia: Sauria
- Reptilia: Serpentes



Rhabdiasidae (Nematoda)



Rhabdiasidae (Nematoda)



**PROGRAMA
CIÊNCIA SEM FRONTEIRAS**

CNPq/CAPES - Project A_033/2013

*“Sistemática de Rhabdiasidae, nematódeos parasitos de
anfíbios e répteis na Amazônia Oriental”*



GUAYANA FRANCESA: PHARYNGODONIDAE) PARASITA
DEBEMOS EM GUAYANA FRANCESA, PARA, BRASIL

Fig. 4. Salient Nests at $n = 1, 4, 6$. A) Copied from Fig. 3; B) Copied from Fig. 3; C) Regula cellula in matrix; D) Regula cellula in matrix; E) Extremities caudal of maxilla; F) Extremities caudal of maxilla; G) Cuneus parietalis and squamosa of caudal maxilla.

[illegible]

Labiduris sp. PARASITO INTESTINAL DE *Chelonoidis denticulata* (LINNAEUS, 1766) (CHELONIA: TESTUDINIDAE), JABUTI-TINGA, MANTIDO EM CATIVEIRO

MACHADO, S.A.; RODRIGUES, A.R.O.; FURTADO, A.P.; MELO, F.T.V.; SANTOS, J.N.
1 Universidade Federal do Pará - Belém, PA

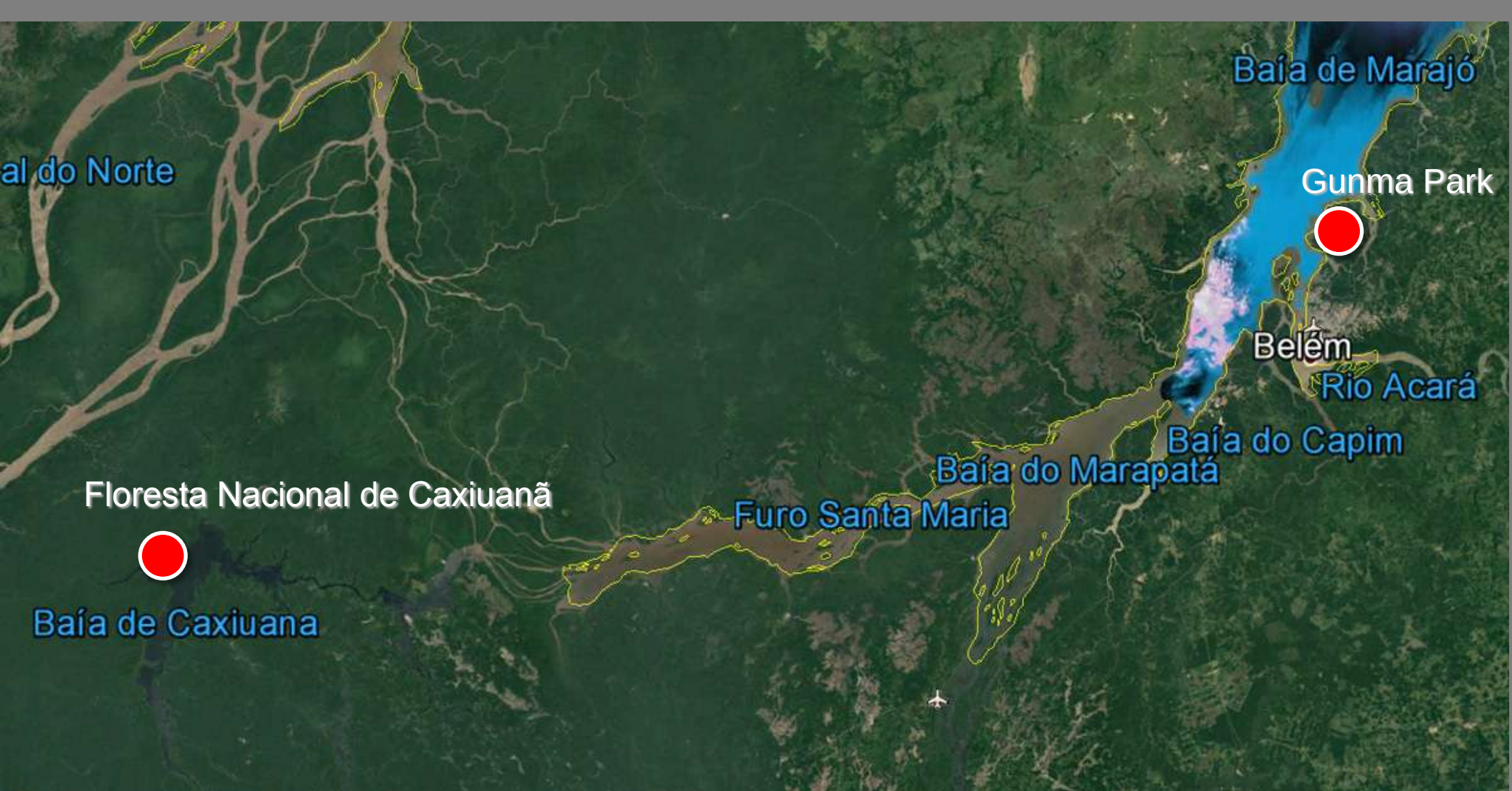
INTRODUÇÃO

o primeiro Omeleteiro da América Latina, 1766, publicação em estado um público orientado no âmbito de sua criação (Nelson, 1995). Contudo, o seu maior destaque ocorreu nas décadas, uma vez que são propostos a autoria de fontes históricas e paratextuais (Edson et al., 2004).

Este trabalho, portanto, realiza identificação e análise da história da produção de um produto alimentício, visando ao desenvolvimento de um produto registrado, visando ao mercado de Taubaté, Estado do Rio de Janeiro.

ESTADÍSTICA E MÉTODOS





Belém

[be`len]

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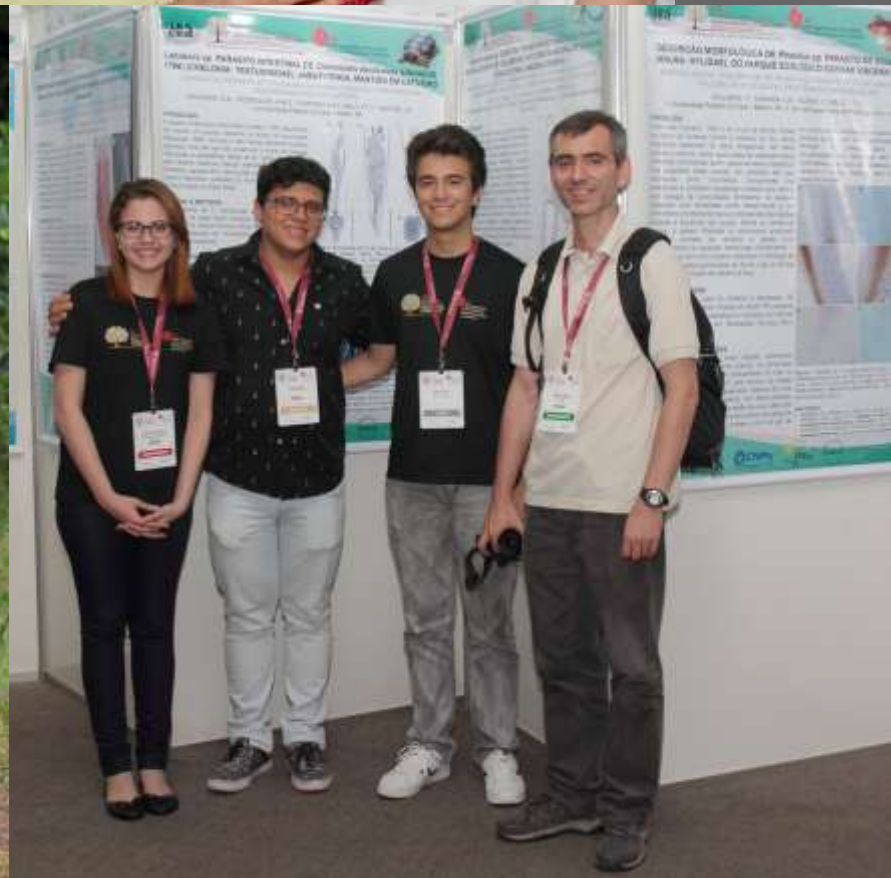




Humanos do Pará









Animais do Belém















































Helmintologia paraensis









The morphology of free-living stages and immature parasites of *Rhabdias paraensis* (Nematoda: Rhabdiasidae), a parasite of *Rhinella marina* (Anura: Bufonidae) in Brazil

Francisco Tiago de Vasconcelos Melo¹, Luciana de Cássia Silva do Nascimento¹, Lillian Cristina Macedo¹, Jeannie Nascimento dos Santos¹ and Yuriy Kuzmin^{2*}

¹Laboratório de Biologia Celular e Helmintologia Prof. Dr. Reinaldo Marisa Lanfredi, Instituto de Ciências Biológicas, Universidade Federal do Pará, Av. Augusto Correa s/n, 66075-110 Belém, PA, Brasil; ²Department of Parasitology, I. I. Schmalhausen Institute of Zoology, NAS of Ukraine, 15 Bogdan Khmelnytskyi Street, Kyiv, 01601, Ukraine

Abstract

Rhabdias paraensis Santos, Melo, Nascimento, Nascimento, Giese et Furtado, 2011 was described based on fully gravid worms. Further investigations on the free-living stages, immature worms and young individuals were facilitated by cultivation in the laboratory, which allowed us to add new information about the morphology and development of the species. Observations on the free-living development of *R. paraensis* showed that the life cycle is typical of *Rhabdias*, with alternation of gonochoristic and hermaphroditic generations and without homogeneity. Males of the free-living generation were different from those in several species of the genus studied previously. In the original description, the excretory glands and duct were absent in gravid specimens of *R. paraensis*, while in this study, distinct excretory glands and a duct were observed in immature and young individuals. Additionally, we recognised the separation of the buccal capsule walls into anterior and posterior portions and described the specific shapes of these portions in lateral and apical view. Studies on the morphology and development of free-living stages of *Rhabdias* spp. from Neotropical regions may provide additional information for species determination.

Keywords

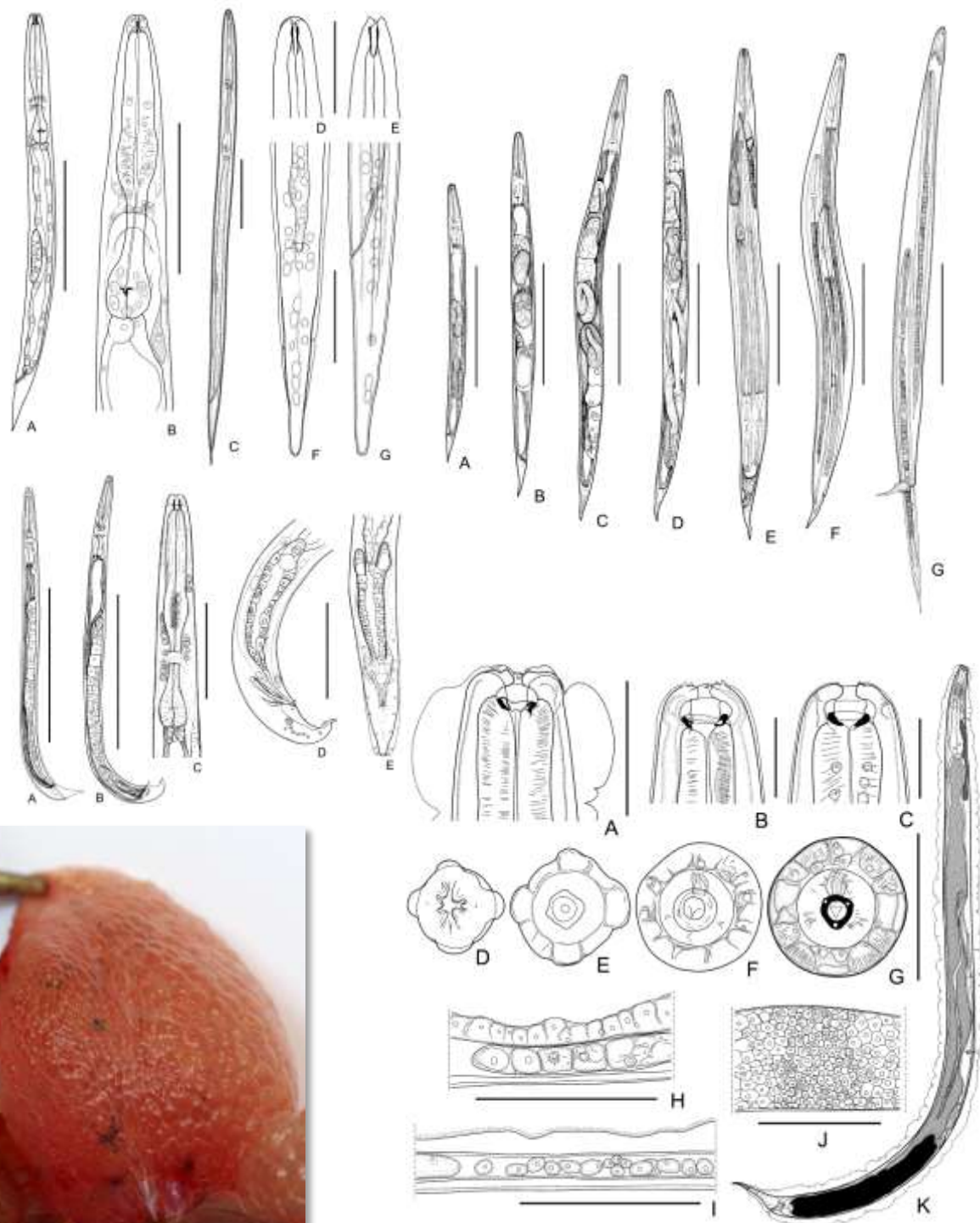
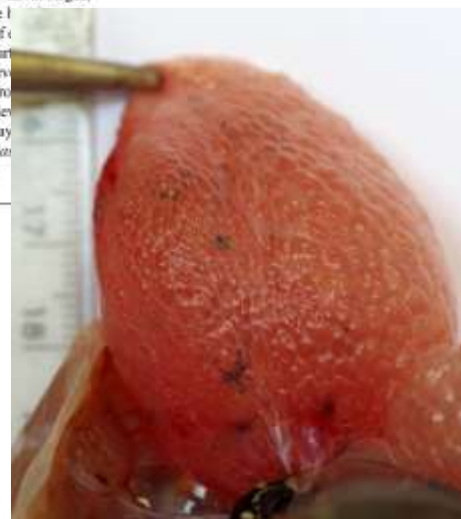
Amazon, *Rhinella marina*, Rhabdiasidae, free-living generation, immature hermaphrodites

Introduction

Nematodes of the genus *Rhabdias* Stiles et Hassall, 1905 are lung-dwelling parasites of amphibians and some reptiles. The alternation of hermaphroditic and gonochoristic generations is a characteristic feature of their biology (Anderson 2000). Information on their free-living development and/or the mor-

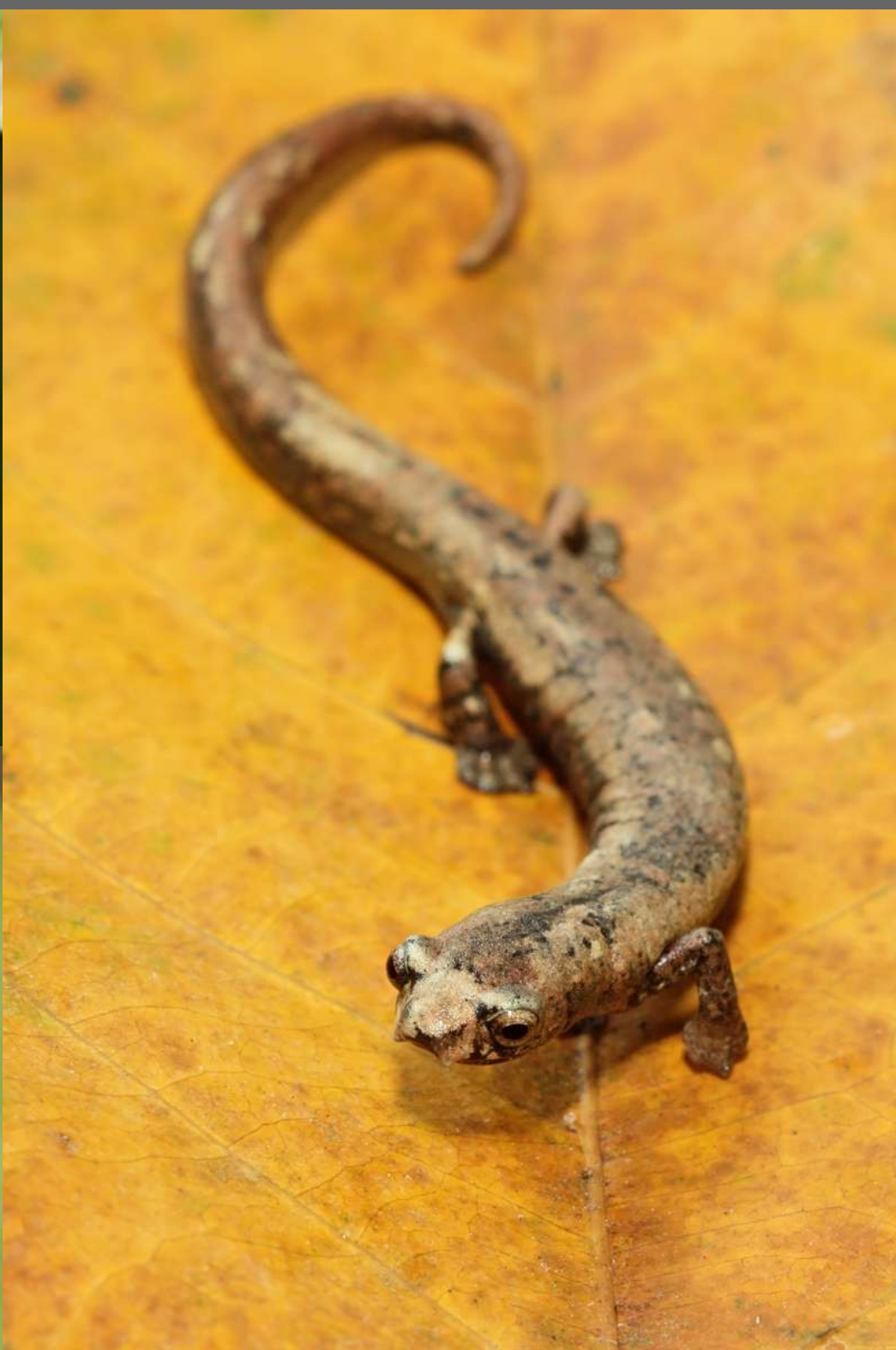
phology of infective larvae of some *Rhabdias* spp. also added information for species determination (Lhermitte-Vallarino et al. 2009, 2010a; Junker et al. 2010; Kuzmin et al. 2014).

The immature (subgravid) parasitic stage of *Rhabdias* spp. draws attention due to its morphology (Baker 1979; Ballantyne 1991; Kuzmin 2013). In contrast to the parasitic larval stages,



Gunma Park







Rhinella cf. margaritifera



Ilha de Marajó















Floresta Nacional de Caxiuanã























Estação Científica Ferreira Penna













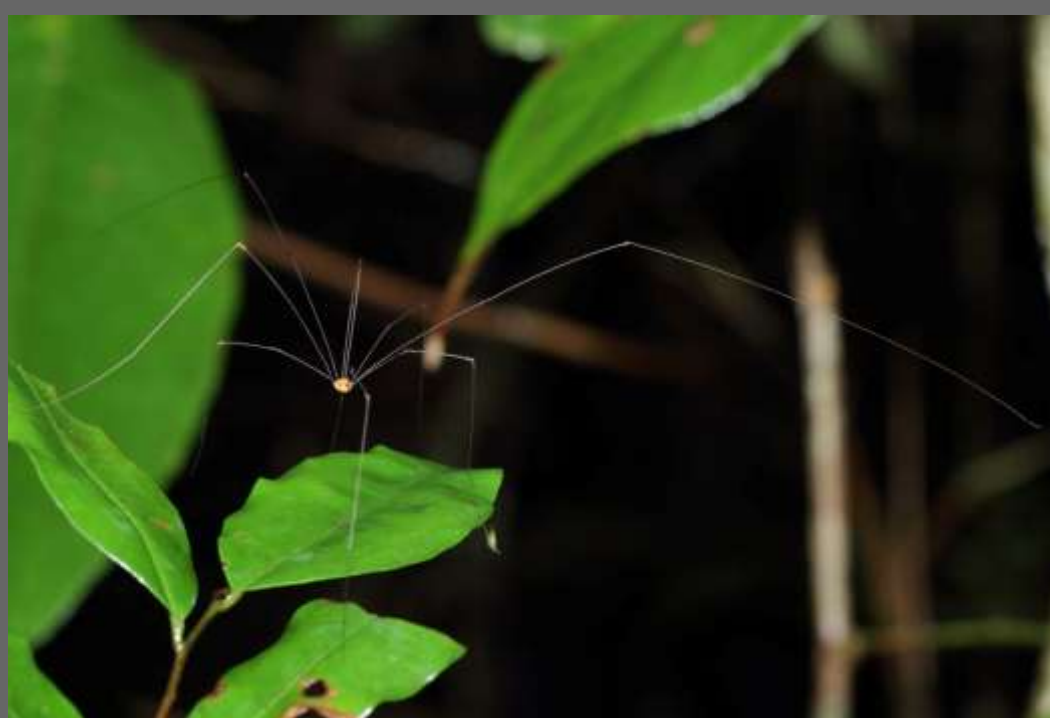










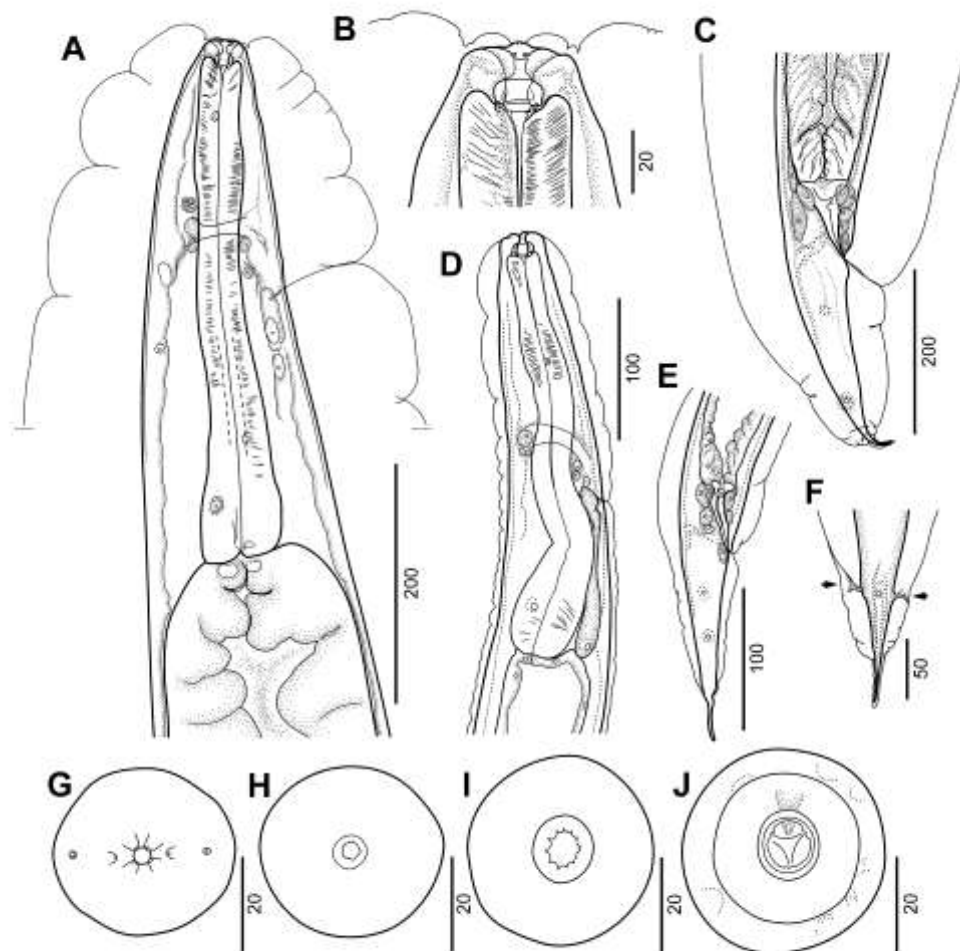












Research Article

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Two new species of *Rhabdias* Stiles et Hassall, 1905 (Nematoda: Rhabdiasidae) from anuran amphibians in Pará, Brazil

Yuriy Kuzmin¹, Francisco Tiago de Vasconcelos Melo², Heriberto Figueira da Silva Filho³ and Jeannie Nascimento dos Santos²

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Abstract: Two new luna-dwelling nematode species of the genus *Rhabdias* Stiles et Hassall, 1905 were discovered in *Craugastor* Na-





Research Article

OPEN ACCESS

Two new species of *Rhabdias* Stiles et Hassall, 1905 (Nematoda: Rhabdiasidae) from anuran amphibians in Pará, Brazil

Yuriy Kuzmin¹, Francisco Tiago de Vasconcelos Melo², Heriberto Figueira da Silva Filho³ and Jeannie Nascimento dos Santos²

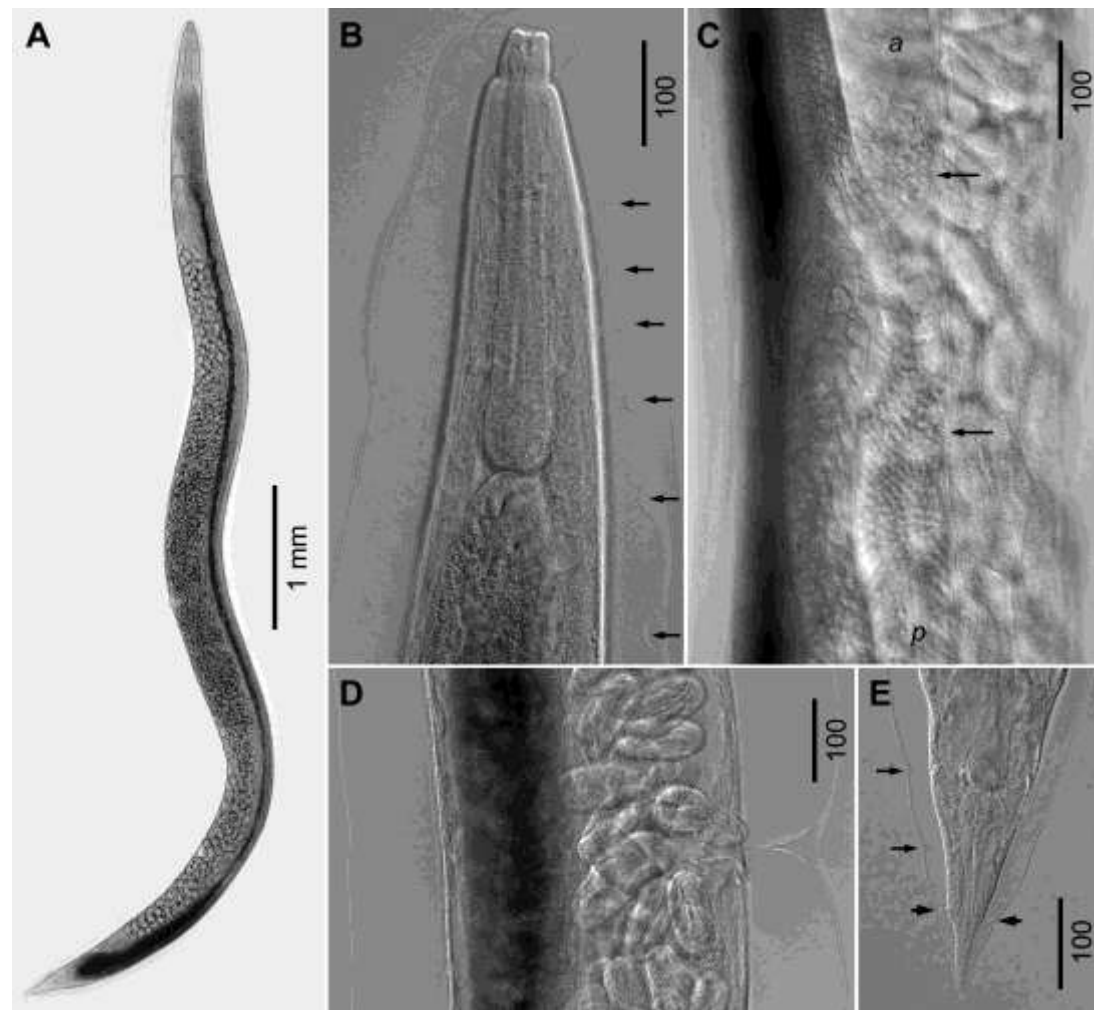
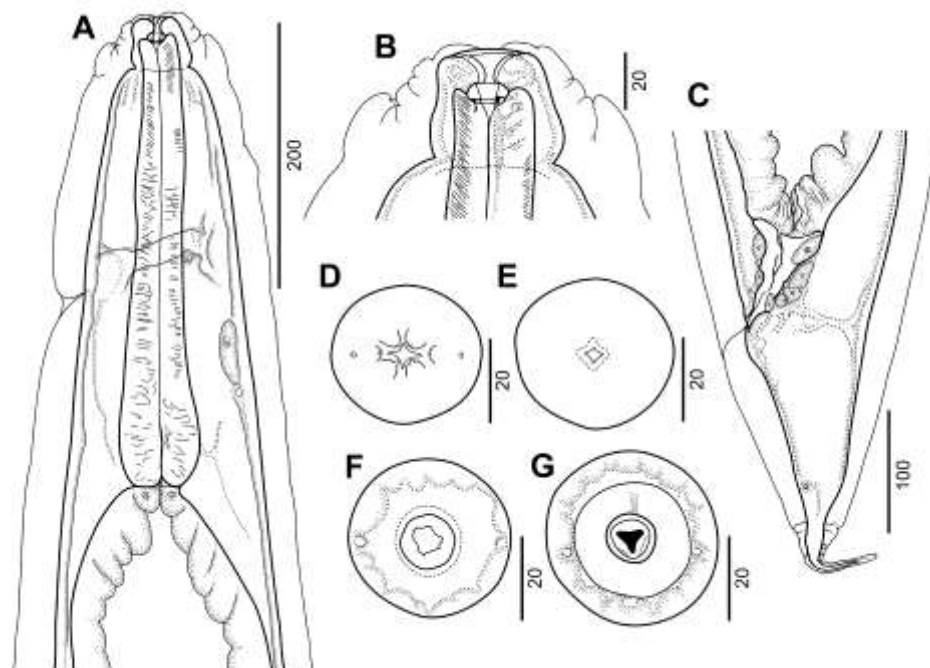
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²Laboratório de Biologia Celular e Helmintologia Prof^a Dr^a Reinalda Marisa Lanfredi, Instituto de Ciências Biológicas, Universidade Federal do Pará, Belém, PA, Brazil;

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Abstract: Two new lung-dwelling nematode species of the genus *Rhabdias* Stiles et Hassall, 1905 were discovered in Caxiuanã National Forest, Pará state, Brazil. *Rhabdias galactomitos* sp. n. was found in a dendrobatid frog *Adelphobates galactomitos* (Steindachner). The species is characterised by the regularly folded inner surface of the anterior part of the buccal capsule seen in apical view, flask-shaped oesophageal bulb and narrow, elongated tail. *Rhabdias stenocephala* sp. n. from two species of leptodactylid frogs, *Leptodactylus pentadactylus* (Laurenti) (type host) and *L. parvaensis* (Heyer), is characterised by a narrow anterior end that is separated from the remaining body by a constriction. Both species possess six small but distinct lips, a cuticle that is inflated along the whole body, a doiliform buccal capsule separated into a longer anterior and a shallow, ring-shaped posterior part, lateral pores in the body cuticle and zones of spermatogenesis in the syngonium. *Rhabdias galactomitos* sp. n. is the first species of the genus found in Dendrobatidae; *R. stenocephala* sp. n. is the second species described from Leptodactylidae in eastern Amazonia.

Keywords: taxonomy, *Adelphobates*, *Leptodactylus*, Rhabdiasidae, Anura, eastern Amazonia, South America





A new species of *Serpentirhabdias* Tkach, Kuzmin & Snyder, 2014 (Nematoda: Rhabdiasidae) parasitic in the brown ground snake *Atractus major* Boulenger (Reptilia: Serpentes: Dipsadidae) in Brazil

Yuriy Kuzmin · Francisco Tiago de Vasconcelos Melo · Jeannie Nascimento dos Santos

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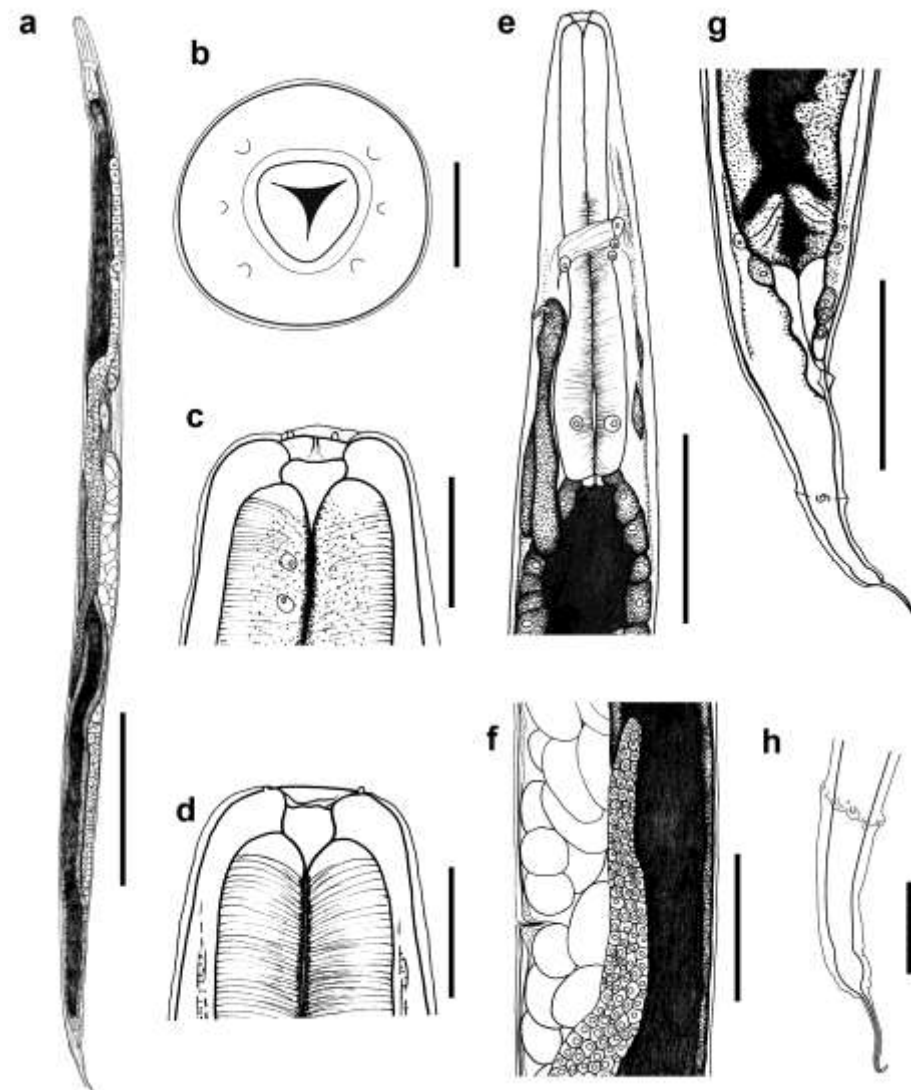
Abstract *Serpentirhabdias atracti* n. sp. is described based on specimens discovered in the lung of *Atractus major* Boulenger from Caxiuanã National Forest, Pará, Brazil. The new species is assigned to *Serpentirhabdias* Tkach, Kuzmin & Snyder, 2014 based on morphological characters (comparatively thin body cuticle without prominent inflations, arrangement of circumoral papillae in two lateral groups, pre-equatorial position of vulva, eggs in uteri at early cleavage stages), as well as because of its parasitism in snakes. The new species is most similar to *S. vellardi* (Pereira, 1928) due to the absence of lips and buccal capsule, similar body dimensions, and the specificity to dipsadid snakes in Brazil. The two species differ in the shape of the tail (bulbous dilatation in the posterior part followed by a thread-like tail tip present in *S. atracti* n. sp.), the width of the oesophagus, and the size of the excretory glands. *Serpentirhabdias atracti* n. sp. is the sixth species of this genus found in the Neotropical Region.

Introduction

The colubrid snake genus *Atractus* Wagler (Colubroidea: Dipsadidae) comprises approximately 130 valid species that are widely distributed throughout the Neotropical Region (Myers, 2003). The brown ground snake *Atractus major* Boulenger is distributed in the Brazilian Amazon, on the Amazonian slopes of the Andes in Ecuador and Colombia and in Venezuela. This species of snake is fossorial (occasionally cryptozoic and terrestrial), has both nocturnal and diurnal habits, and feeds mainly on earthworms and occasionally on acari as well as small insects (Martins & Oliveira, 1999).

While studying parasites of amphibians and reptiles from the Caxiuanã National Forest, Pará, Brazil, we discovered lung nematodes in one specimen of *A. major*. The nematodes were identified as belonging to the family Rhabdiasidae Railliet, 1915, based on the morphology of the six specimens found.

The nematode family Rhabdiasidae is distributed worldwide and includes about 100 species parasitic in amphibians or reptiles. Fourteen species of this family were recently transferred from the genus *Rhabdias* Stiles & Hassall, 1905 to the genus *Serpentirhabdias* Tkach, Kuzmin & Snyder, 2014 on the basis of their particular morphological and biological characters, i.e. comparatively thin body cuticle, arrangement of lips in two lateral groups, smaller number of eggs, presence of homogeneity in the life-cycles, and host specificity (restricted to Serpentes), as well as



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Description of *Serpentirhabdias atroxi* n. sp. (Nematoda: Rhabdiasidae), a parasite of *Bothrops atrox* (Linnaeus) (Reptilia: Serpentes: Viperidae) in Brazilian Amazonia

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Paulo André Ferreira Borges da Costa · Gleomar Fabiano Maschio ·
Jeannie Nascimento dos Santos

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Abstract A new lung-dwelling nematode species is described from the common lancehead *Bothrops atrox* (Linnaeus) in the Brazilian Amazon Region. The species is assigned to the genus *Serpentirhabdias* Tkach, Kuzmin & Snyder, 2014 based on the presence of six lips arranged in two lateral groups, the absence of prominent cuticular inflations, and lung parasitism in snakes. *Serpentirhabdias atrox* n. sp. differs from other species of the genus mainly by details of the morphology of the anterior end: cuticularised ring surrounding the anterior part of the buccal cavity and six minute onchia present in the oesophastome.

Serpentirhabdias atroxi n. sp. is the seventh species of the genus known from the Neotropical Realm and the second species described from viperid snakes.

Introduction

The genus *Serpentirhabdias* Tkach, Kuzmin & Snyder, 2014 was recently erected for the rhabdiasid nematodes parasitising snakes (Tkach et al., 2014). To date, 15 species of the genus are known from various zoogeographical realms, except for the Afrotropics and Antarctica (Kuzmin & Tkach, 2015). Five species of the genus were reported from the Neotropical Realm: *S. atracti* Kuzmin, Melo & Santos, 2014, *S. filicaudalis* (Barella, dos Santos & da Silva, 2009), *S. labiata* (Pereira, 1927), *S. lamothel* (Martínez-Salazar & León-Régagnon, 2006) and *S. vellardi* (Pereira, 1928) (see Pereira, 1927, 1928; Martínez-Salazar &

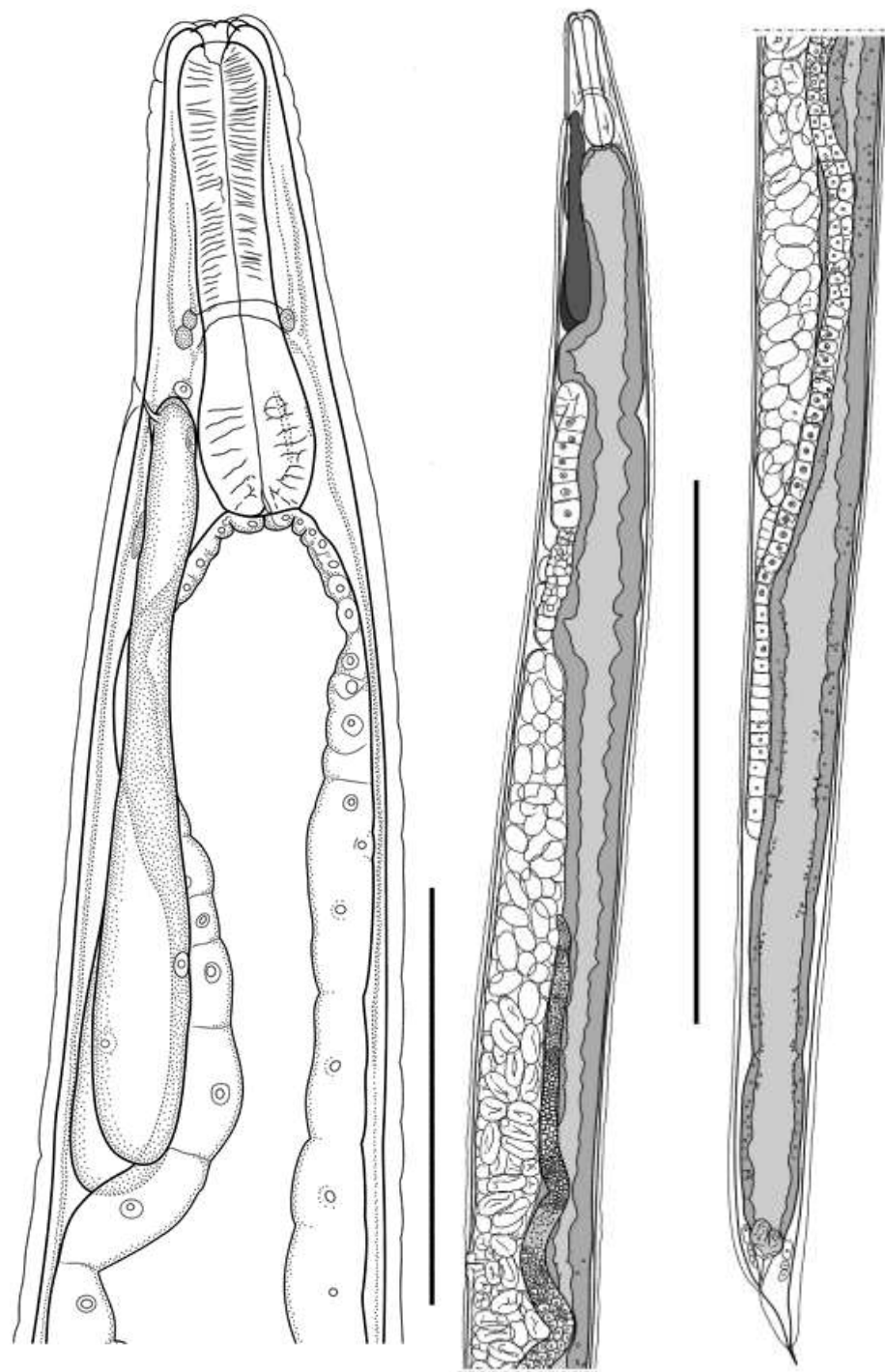


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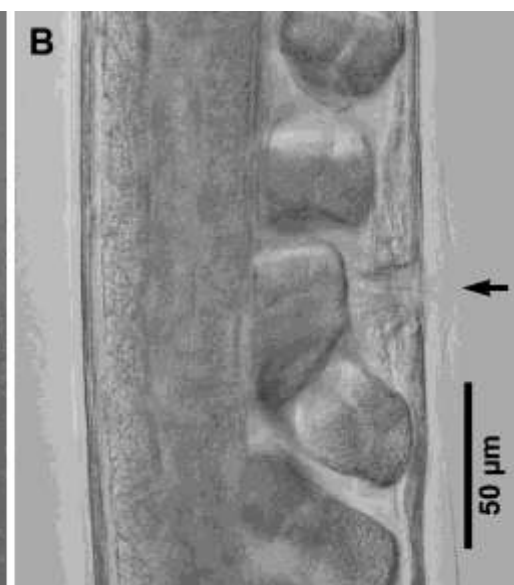
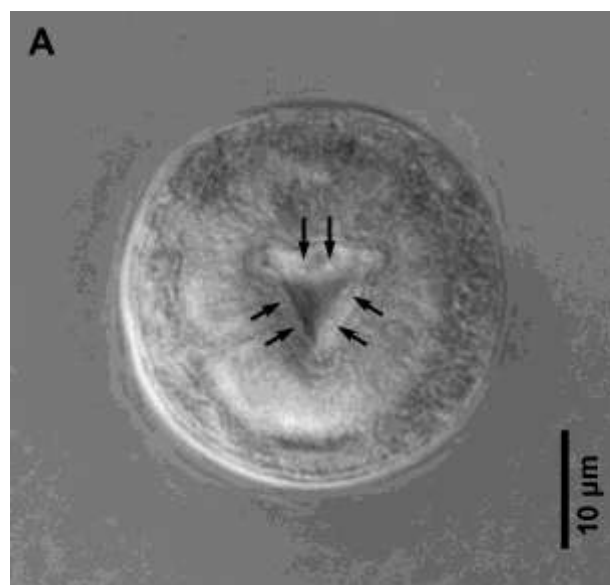
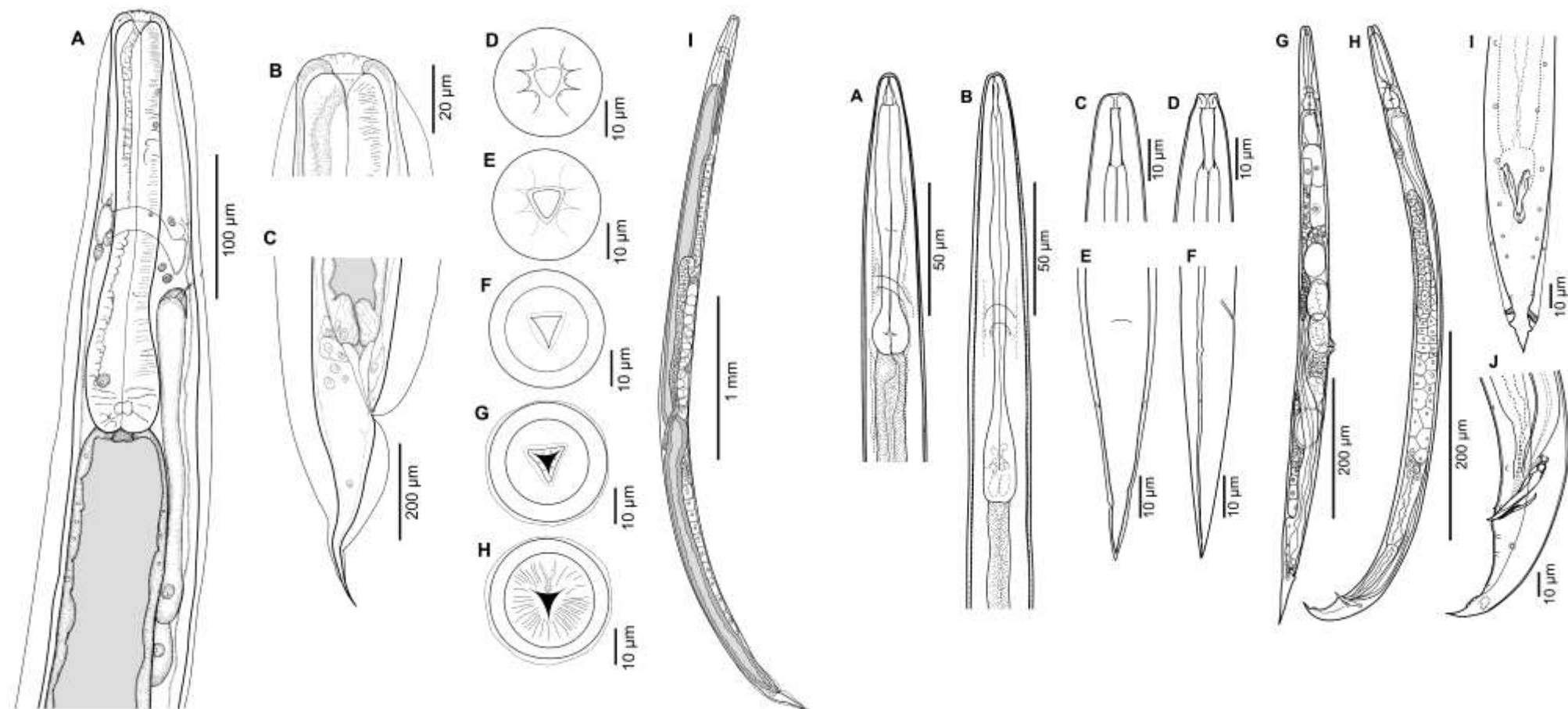
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Chironius exoletus















Siphlophis compressus









**Благодарю
за внимание.**