

New records of Gerromorpha (Insecta: Hemiptera: Heteroptera) from the Neotropical Region

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ABSTRACT

Gerromorpha or semiaquatic bugs have the ability to walk on the surface of the water and occupy a wide variety of habitats. They are relatively well studied in the Neotropical Region, but some species are known only from the type localities or have many gaps in their documented distributions. In this study we examined specimens housed in the National Museum of Natural History, Smithsonian Institution, and report new records for 17 species: *Mesovelvia bila*, *Hydrometra argentina*, *H. caraiba*, *H. comata*, *Limnobatodes paradoxus*, *Euvelia lata*, *E. mazzucconiae*, *Husseyella turmalis*, *Oiovelia cunucunumana*, *Paravelia conata*, *Platyvelia brachialis*, *Steinovelvia virgata*, *Halobatopsis platensis*, *H. spiniventris*, *Ovatametra obesa*, *Limnogonus aduncus aduncus*, and *L. recurvus*.

Key words: distribution, America, Hydrometridae, Gerridae, Mesoveliidae, Veliidae.

INTRODUCTION

Gerromorpha or semiaquatic bugs have the ability to walk on the surface of the water (Andersen 1982a; Schuh and Slater 1995) and occupy a wide variety of habitats, usually in streams, rivers, and lakes (Andersen 1982a). Some species occupy particular habitats such as the open ocean, rocky coastal shores, intertidal marine zones, phytotelmata, crevices and holes in rocks, hygropetric habitats, caves, wet moss near aquatic environments, or can be found far from water bodies (Andersen 1982a; Andersen 1982b; Spence and Andersen 1994; Schuh and Slater 1995; Andersen and Polhemus 2003; Damgaard et al. 2012).

The infraorder Gerromorpha comprises more than 2100 species of eight families, out of which over 500 species of seven families have been recorded from the Neotropical Region: Gerridae (141 spp.), Hebridae (31 spp.), Hermatobatidae (1 sp.), Hydrometridae (37 spp.), Macroveliidae (1

spp.), Mesoveliidae (15 spp.) and Veliidae (290 spp.) (Polhemus and Polhemus 2008; Moreira 2015). In the last few decades, Neotropical Gerromorpha have been the target of many faunistic and taxonomic studies, so the group has become relatively well known (Polhemus and Polhemus 2007; Moreira 2015).

However, there are many undescribed species from the region, mainly in the family Veliidae (Microveliinae) (Polhemus and Polhemus 2007); furthermore, the geographical distribution of described species usually contains many gaps. The inadequate knowledge of the real distribution of species is known as Wallacean shortfall (Whittaker et al. 2005) and reducing this deficit is crucial to a better understanding of biodiversity. Thus, we studied specimens housed in the National Museum of Natural History, Smithsonian Institution, in order to contribute to reducing the Wallacean shortfall for semiaquatic bugs of the Neotropical Region. Here, we report new geographic records for 17 species of

Gerromorpha from this region.

METHODS

This study is based on the examination of dry specimens deposited in the National Museum of Natural History, Smithsonian Institution, Washington D.C., USA (NMNH). Label data are given inside quotation marks, with a reversed slash (\) separating lines on the labels and a semicolon separating labels of a specimen. We used the software Qgis 2.6.1 to make the maps.

The topic “known distribution” is presented as follows: the first locality is the country and inside parentheses is the state, province or department. A question mark inside parentheses, (?), indicates that specific localities are not known. On the topic “new records”, the first locality is the new record and the country is inside parentheses. Unless otherwise noted, the previously known distributions are based on Moreira et al. (2011, 2016) and Moreira (2015, 2016).

MESOVELIIDAE DOUGLAS AND SCOTT

Mesoveliinae Douglas and Scott

Mesovelia bila Jaczewski

Known distribution — Brazil (São Paulo and Paraná) and Argentina (Misiones, Corrientes, Entre Ríos, and Buenos Aires).

Material examined — 1♂ (NMNH): ‘Nova Teutonia\ St. Catarina\ Bras. XII-1956\ Fritz Plaumann’.

Notes — This is the first record of *M. bila* from Santa Catarina State (Brazil) (Fig. 1).

HYDROMETRIDAE BILLBERG

Hydrometrinae Billberg

Hydrometra argentina Berg

Known distribution — Panama (?), Trinidad and Tobago (San Juan-Laventille, Tunapuna-Piarco, and Río Claro-Mayaro), Colombia (Antioquia, Cundinamarca, and Meta), Venezuela (?), Suriname (Paramaribo and Para), Brazil (Amapá, Amazonas,

Pará, Paraíba, Bahia, Mato Grosso, Mato Grosso do Sul, Minas Gerais, Rio de Janeiro, São Paulo, Paraná, Santa Catarina, and Rio Grande do Sul), Ecuador (Manabi), Peru (Loreto and Lima), Bolivia (?), Chile (O’Higgins), Paraguay (Guairá), Argentina (Formosa, Chaco, Misiones, Corrientes, Rioja, Córdoba, Entre Ríos, Buenos Aires, Río Negro, and Chubut), and Uruguay (Rivera and Montevideo).

Material examined — 5♂, 3♀ (NMNH): ‘Chile: Pencahue\ Talca Prov.\ 20 km, W. Talca\ XII-27 . 1972’.

Notes — This is the first record of *H. argentina* from Maule Region (Chile) (Fig. 2).

Hydrometra caraiba Guérin-Ménéville

Known distribution — Mexico (?), Guatemala (Izabal and Zacapa), Honduras (?), Nicaragua (?), El Salvador (?), Costa Rica (Guanacaste, Alajuela, and Puntarenas), Panama (Chiriquí and Panama), Cuba (Pinar del Río, Cienfuegos, Holguín, and Guantánamo), Jamaica (?), Haiti (?), Puerto Rico (?), Guadeloupe (Pointe-à-Pitre), Martinique (Le Marin), Trinidad and Tobago (Siparia), Colombia (Magdalena, Atlántico, Cesar, Antioquia, Valle del Cauca, Quindío, and Nariño), Venezuela (?), Brazil (Amazonas), Ecuador (Esmeraldas and Guayas), and Peru (Madre de Dios).

Material examined — 1♂, 3♀ (NMNH): ‘Venezuela: Guanare, estado\ Portuguesa\ IX-10 to 13-1957’ ‘Borys Malkin\ Collector’. 2♂, 1♀ (NMNH): ‘Ecuador: Los\ Rios Babahoyo\ (20 Km N.)\ 22 June 1975’ ‘Collected by\ A. Langley,\ J. Cohen,\ P. Monning’.

Notes. This is the first record of *H. caraiba* from Los Ríos Province (Ecuador) and the confirmation of its occurrence in Venezuela (Fig. 3). It was previously recorded from the latter without details by Drake (1954).

Hydrometra comata Torre-Bueno

Known distribution — Trinidad and Tobago (Siparia), Colombia (Valle del Cauca and Quindío), Suriname (Brokopondo), and Brazil (Pará and Mato Grosso).

Material examined — 1♂, 2♀ (NMNH): ‘24 kil. E. Formoso,\ GO., Brazil\ June 5, 1956\ F.S. Truxal’.

3♀ (NMNH): ‘Venezuela, Amazonas\ stream at Puente Pulda\ 16 Km. N. of Tobogan jct.\ 26 January 1989 CL 2387\ J. T. Polhemus’.

Notes — This is the first record of *H. comata* from Venezuela and Goiás State (Brazil) (Fig. 4).

Limnobotodinae Esaki

***Limnobotodes paradoxus* Hussey**

Known distribution — Honduras (Atlántida), Guyana (Upper Demerara-Berbice), French Guiana (?), Brazil (Amazonas), and Peru (?).

Material examined — 1♀ (NMNH): ‘Brazil\ Pará:\ Jacareacanga\ June\ F. Barbosa’.

Notes — This is the first record of *L. paradoxus* from Pará State (Brazil) (Fig. 5).

VELIIDAE BRULLÉ

Microveliinae China and Usinger

***Euvelia lata* Polhemus and Polhemus**

Known distribution — Colombia (Putumayo) (Molano et al. 2016), Brazil (Amazonas, Pará, and Mato Grosso), and Peru (Loreto) (Fig. 6).

Material examined — 10♂, 8♀ (NMNH): ‘Brazil\ R. Madeira 9-37\ Porto Velho\ A. M. Olalla’.

Notes — This is the first record of *E. lata* from Rondônia State (Brazil).

***Euvelia mazzucconiae* Aristizábal-García, Floriano, Moreira and Bispo**

Known distribution — Colombia (Antioquia) (Aristizábal-García et al. 2015).

Material examined — 11♂, 4♀ (NMNH): ‘Bolivia, S.A.\ R. Beni Puerto\ Salinas 11-37\ A. M. Olalla’. 19♂, 27♀ (NMNH): ‘Bolivia S. A.\ Rio Beni\ Victoria 10-37\ A. M. Olalla’ ‘Junction of Madre de Dios\ and Beni Rivers’.

Notes — This is the first record of *E. mazzucconiae* from Bolivia (Fig. 7).

***Husseyella turmalis* (Drake and Harris)**

Known distribution — United States (Florida) (Herring 1955), Mexico (?) (Smith and Polhemus 1978), Belize (Toledo) (Drake and Harris 1933), Jamaica (Trelawny) (Perez-Gelabert and Floriano 2016), Colombia (San Andrés y Providencia and Sucre) (Molano et al 2016), and Trinidad and Tobago (San Juan-Laventille and Río Claro-Mayaro) (Nieser and Alkins-Koo 1991).

Material examined — 11♂, 7♀ (NMNH): ‘Belize, Stann Creek\ Twin Cays\ West Pond, colln #5\ 18Mar1988, R.A.Faitoute’. 1♂, 4♀ (NMNH): ‘Belize, Stann Creek\ Dangriga (12km N) Salt Creek Lagoon\ 28 Mar 1988\ R. A. Faitoute, colln #29’.

Notes — This is the first record of *H. turmalis* from Stann Creek District (Belize) (Fig. 8).

Veliinae Brullé

***Oiovelia cucunumana* Drake and Maldonado-Capriles**

Known distribution — Colombia (Norte de Santander and Meta) (Molano et al. 2016), Venezuela (Distrito Federal and Amazonas), Brazil (Amapá, Amazonas, Pará, Bahia (Rodrigues and Moreira 2016), Minas Gerais, São Paulo, and Santa Catarina), Peru (Loreto), Paraguay (?), and Argentina (Corrientes).

Material examined — 1♂, 1♀ (NMNH): ‘Parq. Nac. Cerro Cora\ Depto. Amambay\ Paraguay\ 23 II 1981’ ‘RD Cave\ Colr’ ‘J. T. Polhemus\ Collection 2014\ C.J. Drake Accession’.

Notes — Drake and Roze (1955) recorded *O. cucunumana* from Paraguay River, Paraguay, without a specific locality. In this paper we confirm the occurrence of this species in Paraguay (Amambay Department) (Fig. 9).

***Paravelia conata* (Hungerford)**

Known distribution — French Guiana (?) and Brazil (Amazonas, Pará, Mato Grosso, Goiás, and Espírito Santo).

Material examined — 1♂, 2♀ (NMNH): ‘Trinidad, B. W. I.\ Oct.\ 27 29, 1938\ Carl J. Drake’ ‘CJ Drake\ Coll 1956’. 1♂ (NMNH): ‘Venezuela,

Amazonas\ small stream 1 km camp\ Alto Mavaca base camp\ 2°1'30"N, 65°7'0"W\ 228 m. 22°C 4 Feb. 1989\ CL 8006 D. A. Polhemus'. 1♂ (NMNH): 'Kartabo\ Bartica\ District\ British Guiana\ 12-III-1924'. 1♂ (NMNH): 'Brazil: Rondonia\ Costa Marques\ (15 kmw) 12Nov1986\ B.A. Harrison'.

Notes — This is the first record of *P. conata* from Trinidad and Tobago, Venezuela, Guyana, and Rondônia State (Brazil) (Fig. 10).

Platyvelia brachialis (Stål)

Known distribution — United States (Pennsylvania, Ohio, District of Columbia, North Carolina, Arizona, Oklahoma, Texas, Georgia, Mississippi, Louisiana, and Florida), Mexico (Guerrero), Guatemala (Alta Verapaz), Nicaragua (?), Costa Rica (Limón), Panama (Panama), Cuba (Pinar del Río, Guantánamo), Jamaica (?), Haiti (Sud) (Perez-Gelabert and Floriano 2016), Dominican Republic (Monseñor Nouel (Perez-Gelabert and Floriano 2016) and San Cristóbal), Grenada (Saint George), Trinidad and Tobago (Tobago), Colombia (Norte de Santander) (Molano et al 2016), Brazil (Piauí, Pernambuco, Mato Grosso, Goiás, Mato Grosso do Sul, Minas Gerais, Espírito Santo, Rio de Janeiro, and Santa Catarina), Peru (Madre de Dios and Lima), and Argentina (Jujuy and Misiones).

Material examined — 2♂, 7♀ (NMNH): 'Belize, Stann Creek\ Placencia (2.5mi N), at\ Rum Point. 5 Nov 1987\ PJ Spangler & RA Faitoute\ Placencia Lagoon\ Colln#7'. 2♂, 7♀ (NMNH): 'El Salvador\ 15Mi.Sw la Union\ VII-21-1962\ Paul J- Spangler'. 1♀ (NMNH): 'Colombia\ Meta, 10 Km S.\ Villa Vicencio\ III-3&4-1969\ P. & P. Spangler'. 1♂, 7♀ (NMNH): 'Venezuela, Amazonas\ small blackwater trib.\ to Rio Mavaca, 228 m.\ 2°1 N, 65°7 W pH 5.6\ 23° 11 Feb 1989\ CL 8005 D.A. Polhemus'.

Notes — This is the first record of *P. brachialis* from Belize, El Salvador, Meta Department (Colombia), and Venezuela (Fig. 11).

Steinovelina virgata (White)

Known distribution — Brazil (Amazonas, Pará, Mato Grosso, Mato Grosso do Sul, Minas Gerais, and Santa Catarina), Peru (Madre de Dios), Paraguay (?), and Argentina (Formosa, Corrientes, and Entre

Ríos).

Material examined — 1♂ (NMNH): 'Colombia: Meta\ Puerto Lopez\ 9 March 1971\ S. S. Roback'. 2♀ (NMNH): 'Bolivia: Depto Santa\ Cruz, Prov San Esteban\ Muyurina, 49KM N.\ Santa Cruz, 112° F T.'

Notes — This is the first record of *S. virgata* from Colombia and Bolivia (Fig. 12).

GERRIDAE LEACH

Trepobatinae Matsuda

Halobatopsis platensis (Berg)

Known distribution — Brazil (Piauí, Bahia, Mato Grosso, Goiás, Distrito Federal, Mato Grosso do Sul, Minas Gerais, Rio de Janeiro, São Paulo, Paraná, and Rio Grande do Sul), Argentina (Misiones, Corrientes, Santa Fe, Córdoba, Entre Ríos, and Buenos Aires), and Uruguay (Salto, Paysandu, Treinta y Tres, Florida, Lavalleja, Colonia, and Maldonado).

Material examined — 1♀ (NMNH): 'Brasil, Espirito Santo, Linhares Reserve, Rio\ Barra Seca, 2 Feb 1998 30°C\ 04' 58S, 39°52'57W,\ M.E. Epstein, sta 24'. 10♂, 8♀ (NMNH): 'Rio Paucartambo\ Quiroz, Peru 1938\ F. Woytkowski'.

Notes — This is the first record of *H. platensis* from Espírito Santo State (Brazil) and Peru (Fig. 13).

Halobatopsis spiniventris Drake and Harris

Known distribution — Brazil (São Paulo, Paraná, Santa Catarina, and Rio Grande do Sul) and Argentina (Misiones and Entre Ríos).

Material examined — 2♂ (NMNH): 'Janeiro, Brazil October 1938\ Carl J. Drake'. 1♂, 1♀ (NMNH): 'Paraguay\ Caaguazú District\ Estancia Primeira\ 1 4-XII 1931\ R F Hussey'.

Notes — This is the first record of *H. spiniventris* from Rio de Janeiro State (Brazil) and Paraguay (Fig. 14).

Ovatametra obesa Kenaga

Known distribution — Brazil (Amazonas, Pará, and Bahia).

Material examined — 8♀ (NMNH): 'Bolivia, Dept. Beni\ Gral Jose Ballivian Prov.\ savannah pond

2 km. E. of San Borja, 220 m. 10 Sept. 1989 CL 2502\ D.A. & J. T. Polhemus'.

Notes — This is the first record of *O. obesa* from Bolivia (Fig. 15).

Gerrinae Leach

Limnogonus aduncus aduncus Drake and Harris

Known distribution — Panama (Colón and Panama), Trinidad and Tobago (Tunapuna-Piarco and Siparia), Colombia (Magdalena, Córdoba, Antioquia, Chocó, Santander, Vichada (Padilla-Gil 2015), Risaralda, Valle Del Cauca, Quindío, Meta, Cauca, Caquetá, Nariño, Vaupés, Putumayo (Padilla-Gil 2015), and Amazonas), Venezuela (Aragua), Guyana (Demerara-Mahaica), Suriname (Wanica, Paramaribo, Sipawini, and Brokopondo), Brazil (Roraima, Amazonas, Pará, Pernambuco, Mato Grosso, Mato Grosso do Sul, Minas Gerais, Espírito Santo, Rio de Janeiro, São Paulo, Paraná, and Santa Catarina), Ecuador (?), Peru (Loreto, Amazonas, San Martín, Huánuco, Madre de Dios, Junín, and Ayacucho), Bolivia (Beni and Santa Cruz), Paraguay (?), and Argentina (Jujuy, Salta, Formosa, and Misiones).

Material Examined — 1♂ (NMNH): 'Brazil, Bahia, Canavieiras, Rio Pardo, 28° N, 110 m, 7 Feb 1998, 15° 44' S, 38° 58' W, M.E. Epstein, sta 31'.

Notes — This is the first record of *L. a. aduncus* from Bahia State (Brazil) (Fig. 16).

Limnogonus recurvus Drake and Harris

Known distribution — Brazil (Amazonas, Pará, Rondônia, Pernambuco, Mato Grosso, Minas Gerais, and São Paulo) and Bolivia (Beni and Santa Cruz).

Material Examined — 1♂ (NMNH): 'Brazil, Bahia, Canavieiras, Rio Pardo, 28° N, 110 m, 7 Feb 1998, 15° 44' S, 38° 58' W, M.E. Epstein, sta 31'.

Notes — This is the first record of *L. recurvus* from Bahia State (Brazil) (Fig. 17).

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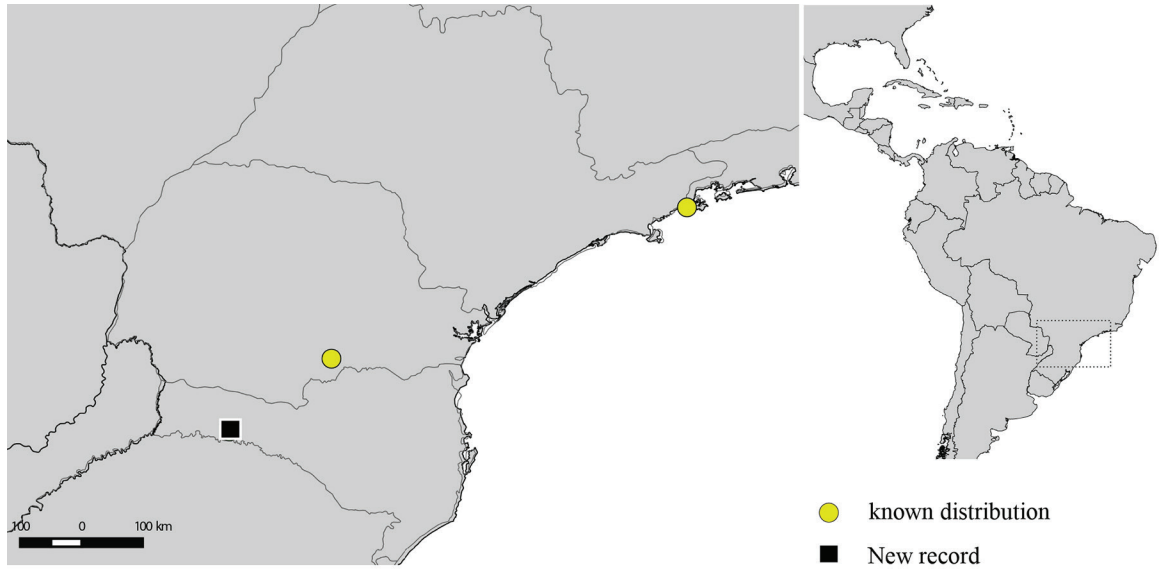


Figure 1. Distribution map of *Mesovelgia bila* in Brazil.

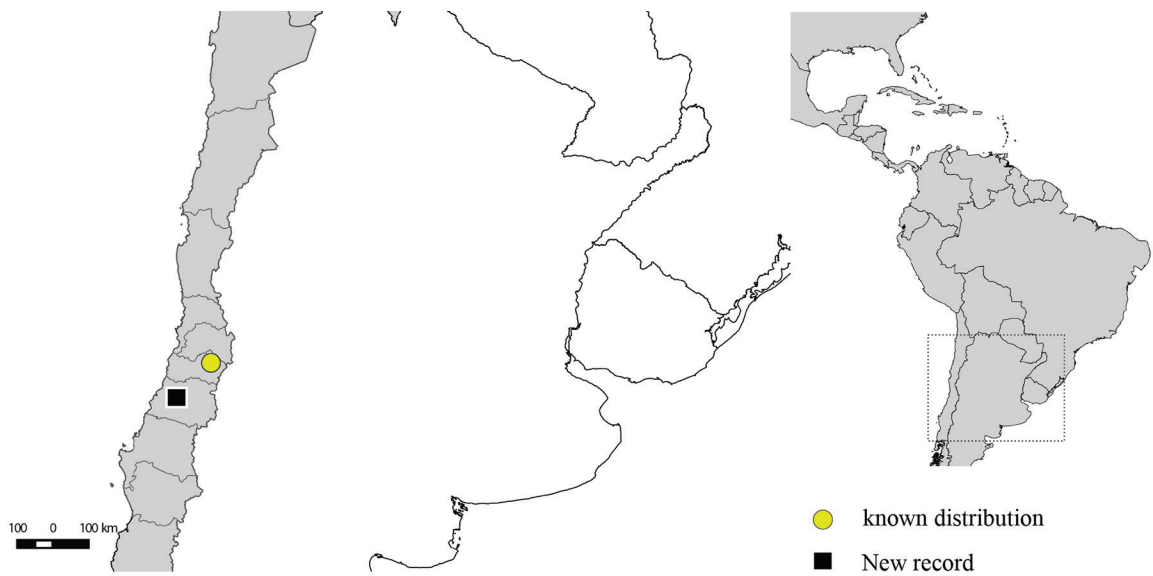


Figure 2. Distribution map of *Hydrometra argentina* in Chile.

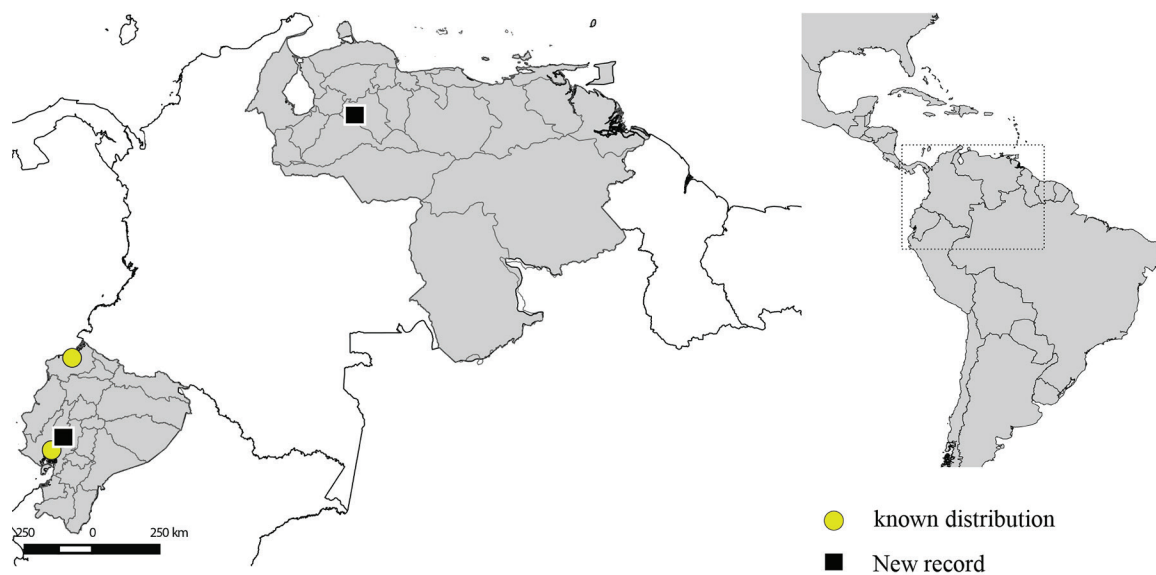


Figure 3. Distribution map of *Hydrometra caraiba* in Venezuela and Ecuador.

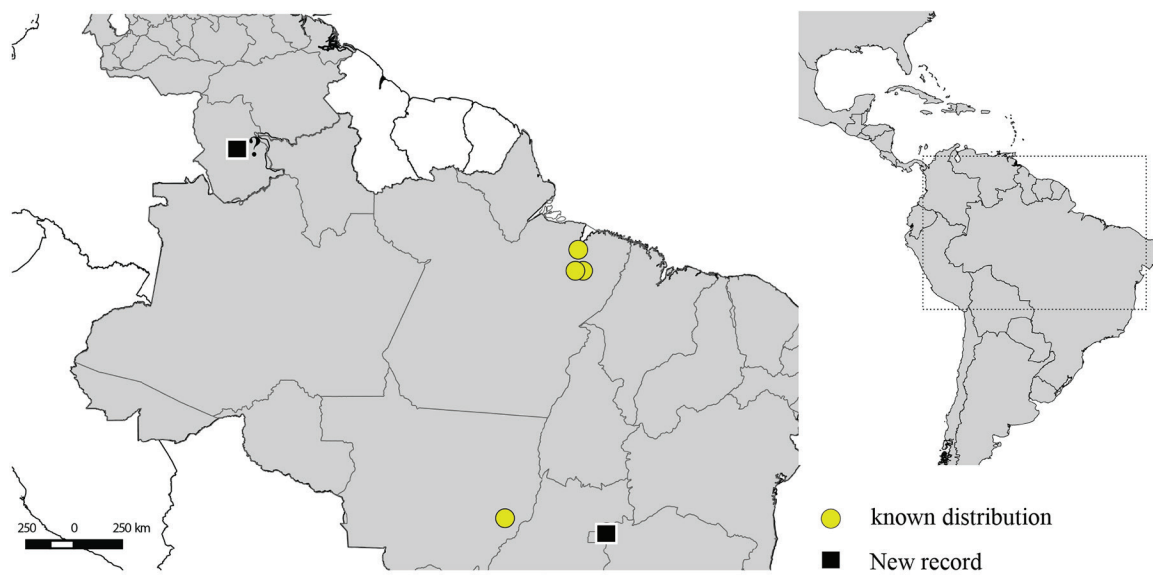


Figure 4. Distribution map of *Hydrometra comata* in Venezuela and Brazil.

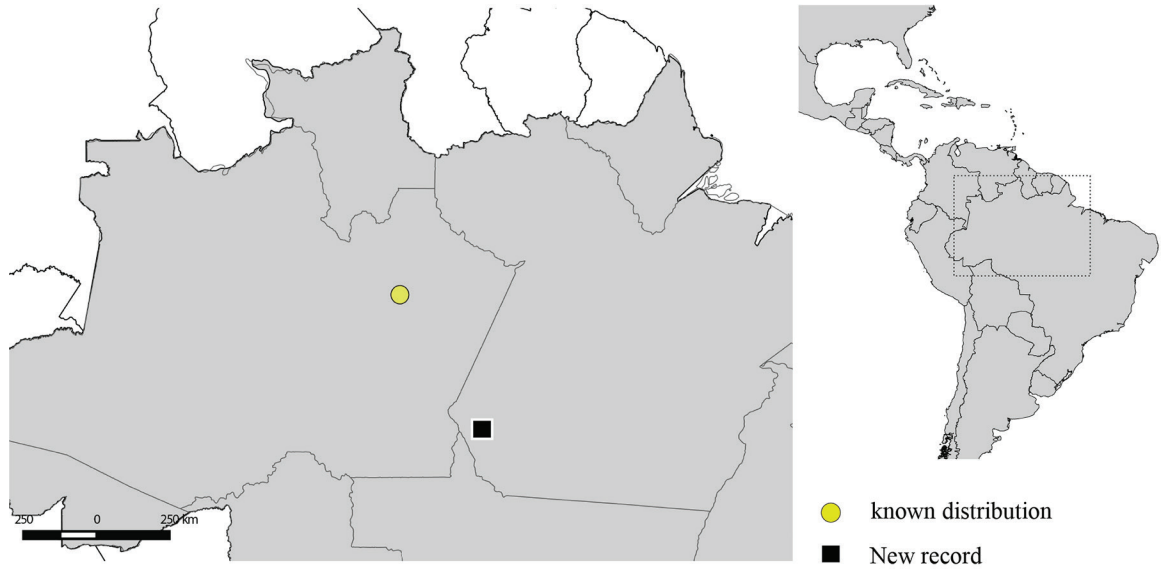


Figure 5. Distribution map of *Limnobotodes paradoxus* in Brazil.

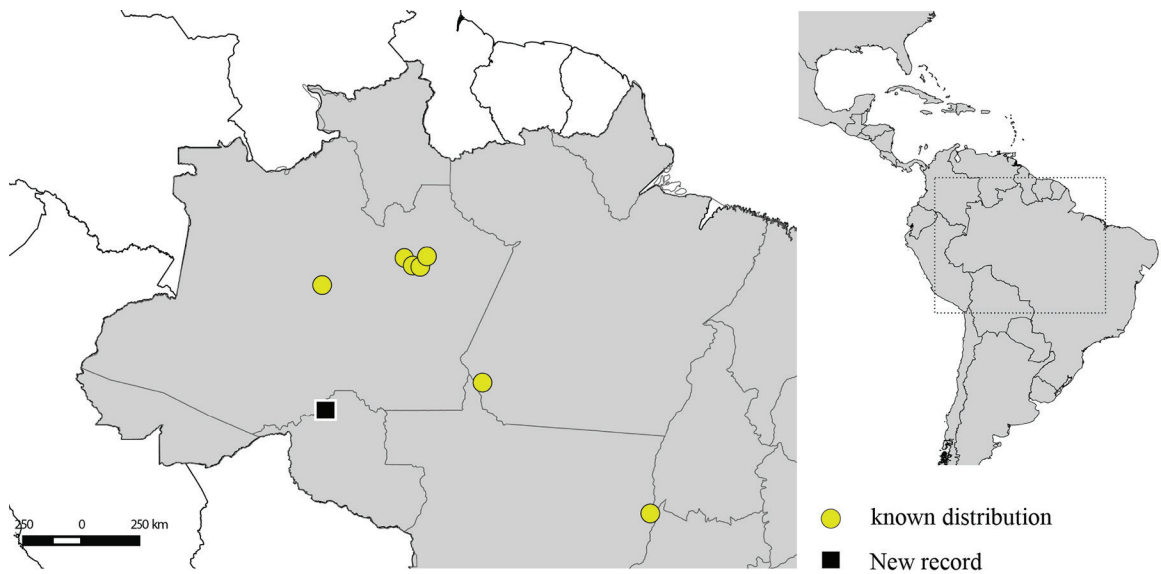


Figure 6. Distribution map of *Euvelia lata* in Brazil.

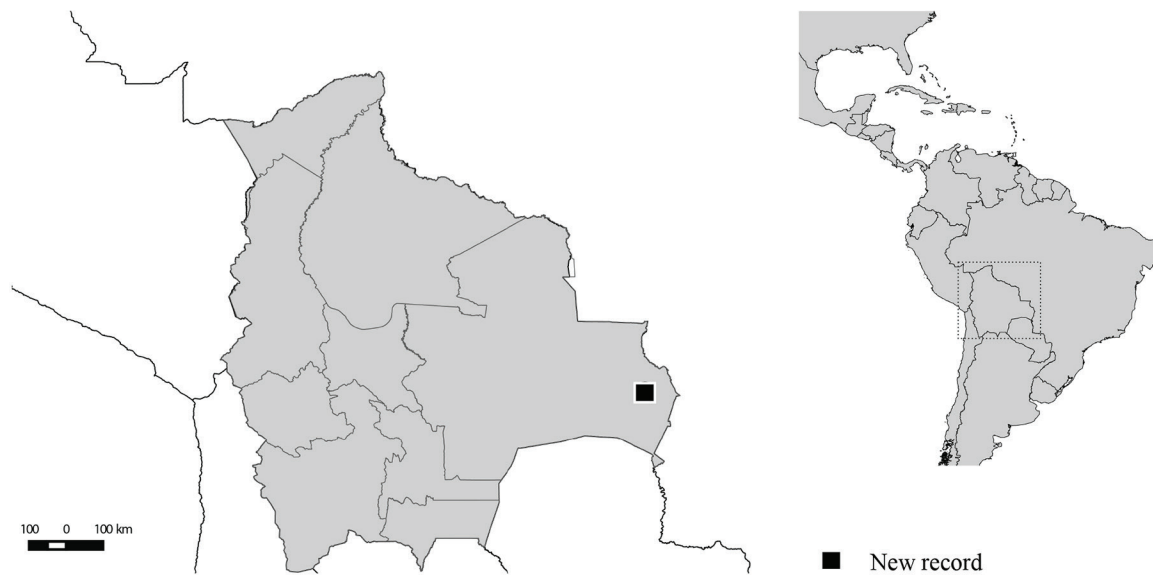


Figure 7. Distribution map of *Euvelia mazzucconiae* in Bolivia.



Figure 8. Distribution map of *Husseyella turmalis* in Belize.



Figure 9. Distribution map of *Oiovelia cunucunumana* in Paraguay.

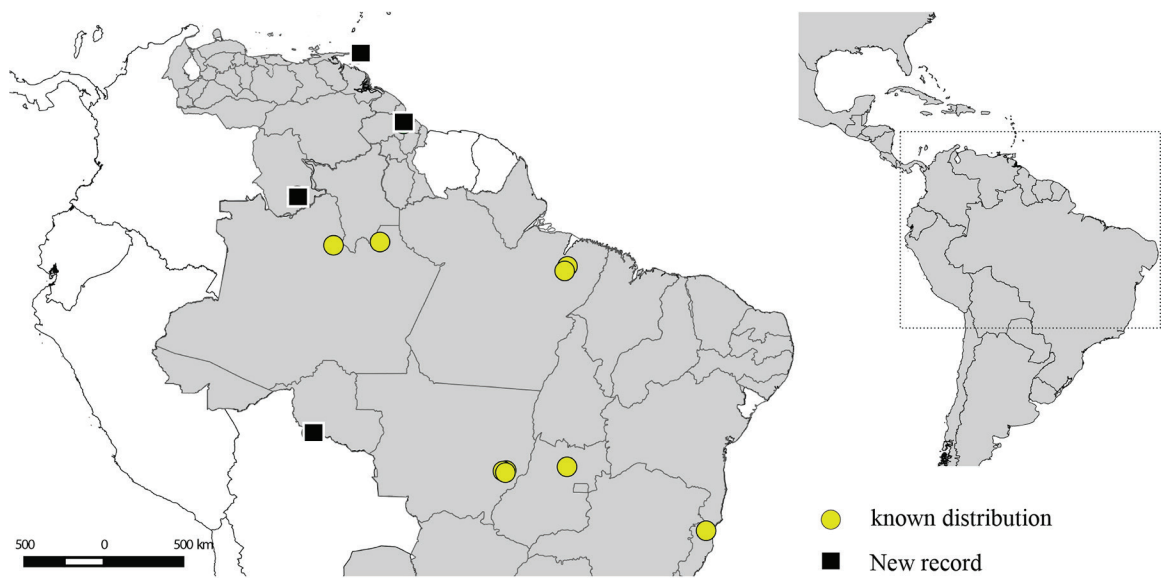


Figure 10. Distribution map of *Paravelia conata* in Trinidad and Tobago, Guyana, Venezuela, and Brazil.

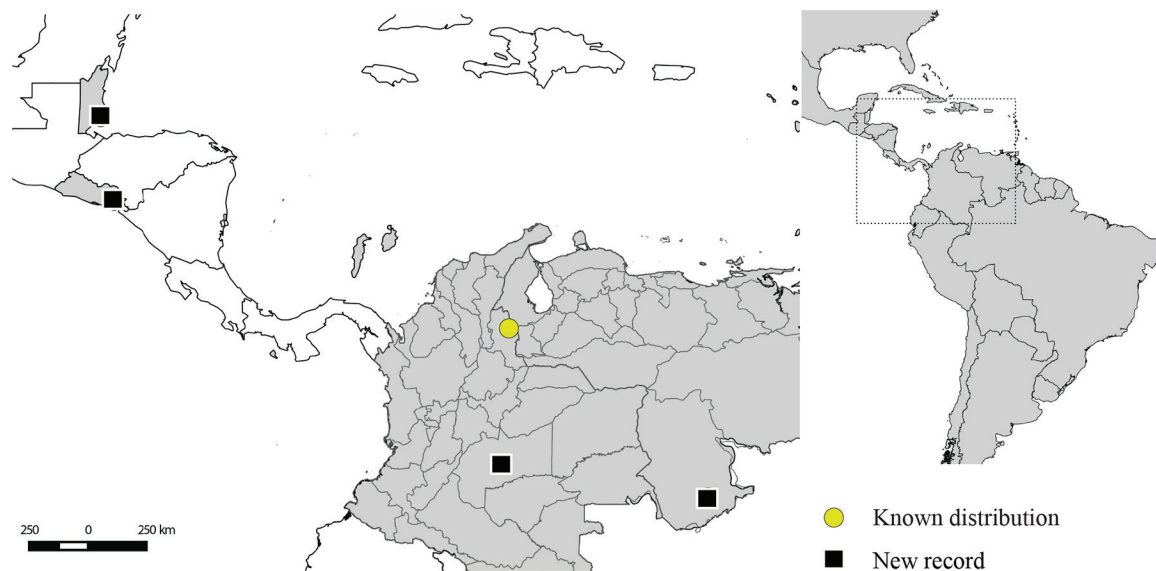


Figure 11. Distribution map of *Platyvelia brachialis* in Belize, El Salvador, Colombia, and Venezuela.

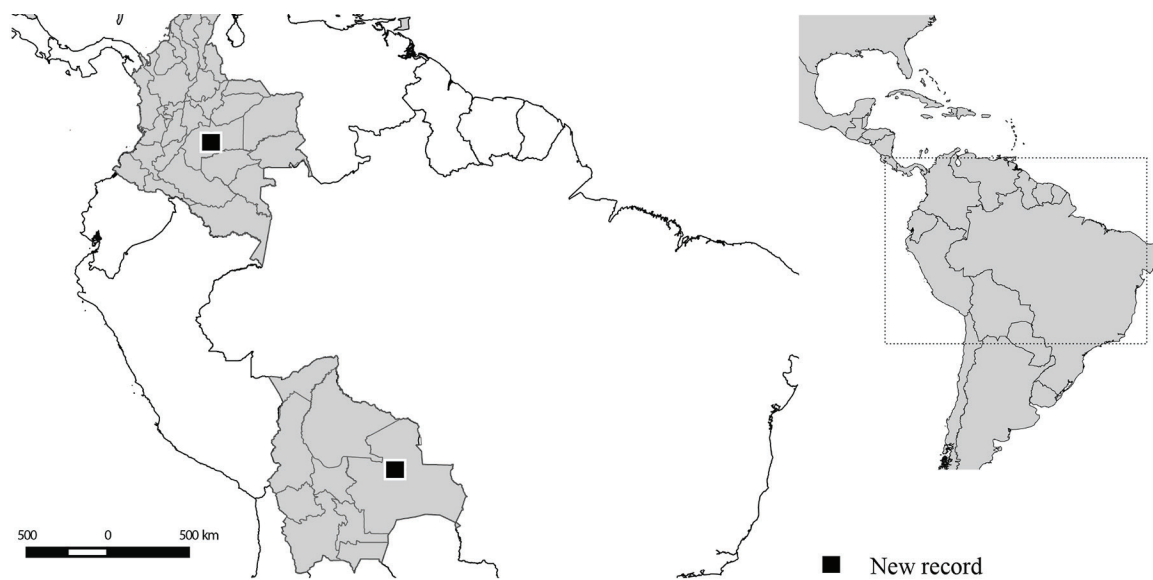


Figure 12. Distribution map of *Steinovelia virgata* in Colombia and Bolivia.

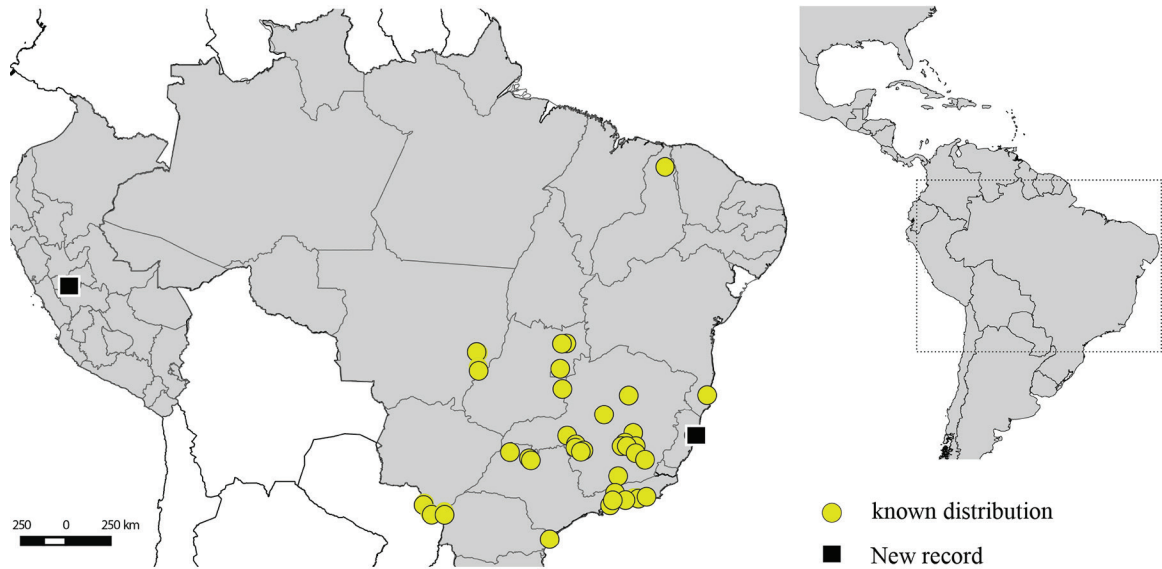


Figure 13. Distribution map of *Halobatosia platensis* in Brazil and Peru.

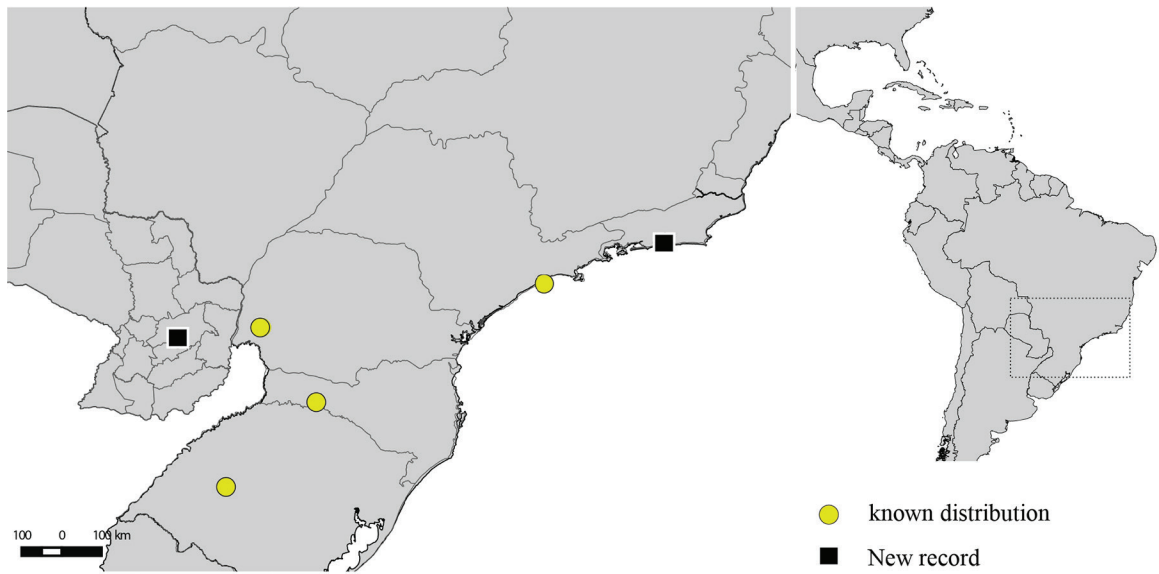


Figure 14. Distribution map of *Halobatosia spiniventris* in Brazil and Paraguay.



Figure 15. Distribution map of *Ovatametra obesa* in Bolivia.

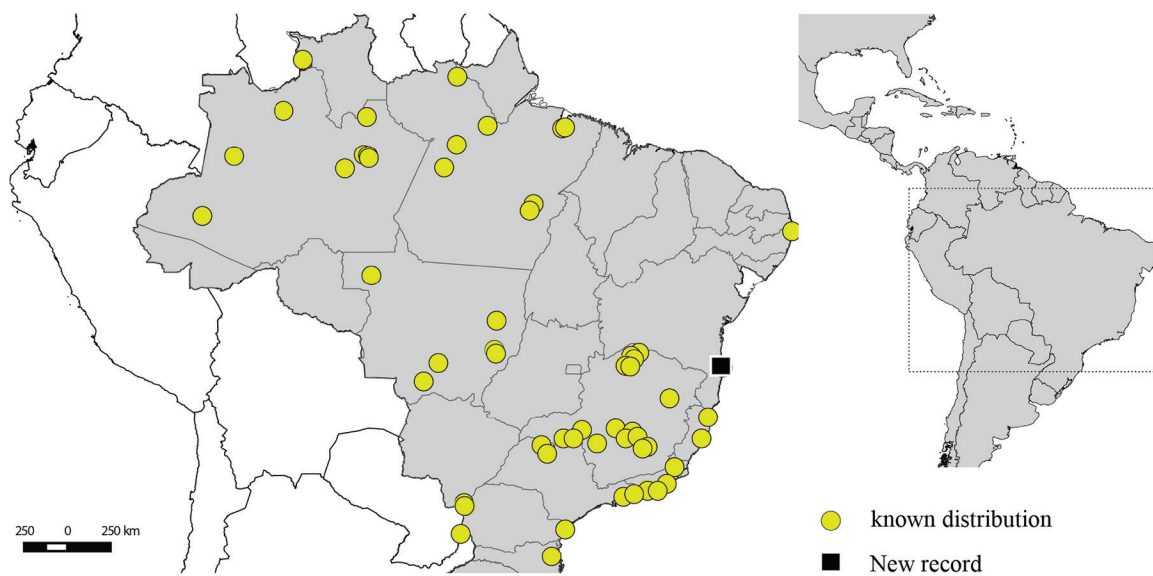


Figure 16. Distribution map of *Limnogonus aduncus aduncus* in Brazil.

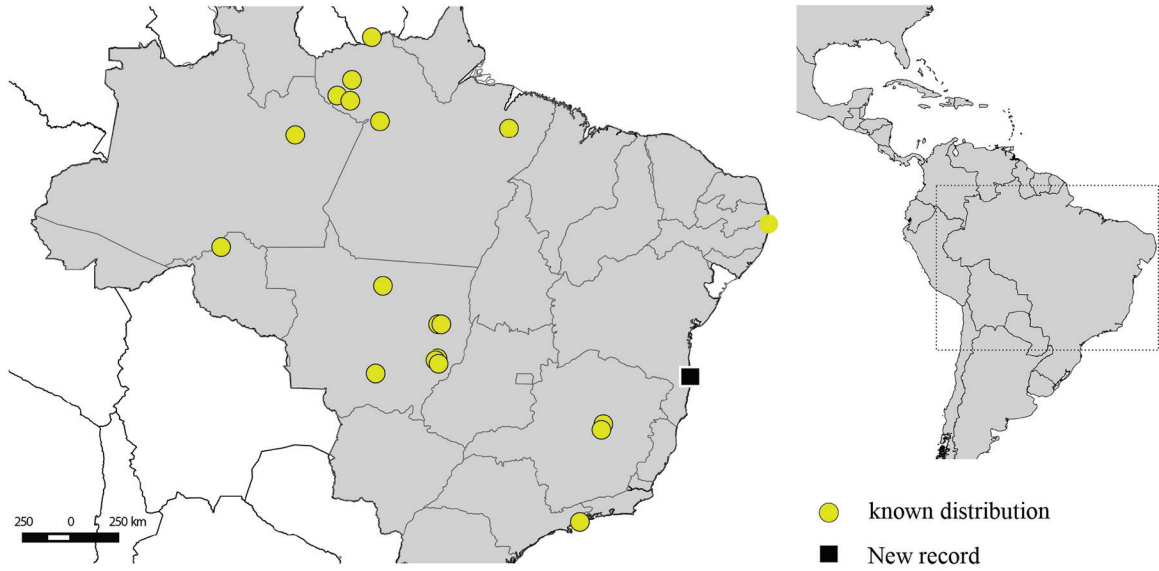


Figure 17. Distribution map of *Limnogonus r recurvus* in Brazil.