

# Species of the subfamily Triatominae Jeannel, 1919 (Hemiptera: Reduviidae) present in the Collection of Chagas Disease Vectors (FIOCRUZ-COLVEC), State of Minas Gerais

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## ABSTRACT

**Introduction:** Biological collections are depositories of information on different species and contribute to the knowledge, protection, conservation and maintenance of biodiversity. **Methods:** A list of triatomine species currently included in the Collection of Chagas Disease Vectors (FIOCRUZ-COLVEC) was prepared from the database made available by the Reference Center on Environmental Information. **Results:** COLVEC curatorship houses 4,778 specimens of triatomines, of which 811 come from other American countries (Argentina, Bolivia, Colombia, Costa Rica, the United States of America, Guatemala, Mexico, Peru, Uruguay and Venezuela) and 3,967 are autochthonous from Brazil. Altogether, 56 species of Chagas disease vectors are represented in the COLVEC: two species of the Tribe Cavernicolini Usinger, 1944; fifteen species of the tribe Rhodniini Pinto, 1926, of which 12 are of the genus *Rhodnius* and 3 are of the genus *Psamolestes*; and 39 species of the tribe Triatomini Jeannel, 1919, represented by the genus *Dipetalogaster*, two species of the genus *Eratyrus*, two of the genus *Meccus*, seven of the genus *Panstrongylus* and 27 of the genus *Triatoma*. **Conclusions:** This list provides important data on the diversity of triatomines currently included in COLVEC, including the expanded area of *Panstrongylus lutzii* occurrence in the municipalities Pirapora and Januária, State of Minas Gerais. The maintenance and expansion of the collection ensures the preservation of biodiversity and further studies.

**Keywords:** Zoological collection. Triatominae. Biodiversity. Medical entomology. Systematics. Taxonomy.

## INTRODUCTION

Biological collections are depositories of information on different species and contribute to the knowledge, protection, conservation and maintenance of biodiversity<sup>1</sup>. Due to the importance of biological collections for a nation's scientific knowledge and development, as well as the global concern for the preservation of biodiversity, collections are currently considered an inalienable heritage of the state and of the hosting institutions. Collections are assigned this importance because they house taxonomic data on the species and information related to the environment, enabling, albeit indirectly, the acquisition of knowledge of different regions of the planet.

The Oswaldo Cruz Foundation has created the Permanent Forum of Biological Collections, which assessed and conclusively interpreted the collections of each regional unit and

granted institutional recognition for those meeting the criteria of the analysis<sup>2</sup>. The Collection of Chagas Disease Vectors (Fiocruz-COLVEC), located in the Laboratory of Triatomines and Epidemiology of Chagas Disease [*Laboratório de Triatomíneos e Epidemiologia da Doença de Chagas (LATEC)*] of the René Rachou Research Center [*Centro de Pesquisas René Rachou (CPqRR/FIOCRUZ)*] underwent the process of institutional recognition and approval. Recently recognized by the Ministry of Environment as a Depository of Genetic Heritage Component Samples (Federal Official Gazette No. 168, August 29, 2012, Section 3, page 123), the collection houses different populations of triatomines from Argentina, Brazil, Bolivia, Colombia, Costa Rica, the United States of America, Guatemala, Mexico, Peru, Uruguay and Venezuela.

Collection of Chagas Disease Vectors was started through a donation from the private collection of Dr. Hélio Nogueira Espínola in 1996. Comprising 286 species, this collection is important not only for its historical and affective value but also because it hosts triatomine populations from different geographic regions, including areas that are currently completely urbanized. Most of the collection was gathered after the 1990s, and it mainly consists of voucher specimens from research projects carried out by LATEC. In addition, the collection holds an increasing number of species obtained in close collaboration with the Triatomine and Epidemiology of Chagas Disease Reference Laboratory (*Laboratório de*

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*Referência de Triatomíneos e Epidemiologia da Doença de Chagas* - FIOCRUZ/Ministry of Health, Secretary of Health Surveillance). In this regard, the importance of the work carried out by COLVEC in collaboration with the Reference Service and the Regional Departments of Health from municipalities in the State of Minas Gerais is noteworthy for promoting consolidation within the perspectives of the Brazilian Unified Health System (SUS).

The demand for data associated with these species, including from a growing non-taxonomist audience, has been increasing<sup>1</sup>. Moreover, information must be readily available both to save time in the search for information on the tags attached to specimens and to maintain the integrity of the specimens by avoiding excessive handling. Thus, the computerization of biological collections has been a priority in many institutions to address access and organization and to protect the collections<sup>3</sup>.

Data input on the specimens in a digitalized database is the most efficient method of making this information available to a wide audience and ensuring visibility and access and thereby facilitating the dissemination of data. The present work aims to report the number of species currently included in the COLVEC collection.

## METHODS

The collection is archived in good storage conditions in LATEC in a dedicated room. Insects are preserved dry; adults (males and females) and fourth and fifth stage nymphs are mounted on entomological pins, whereas eggs and nymphs from first to third stage are glued onto cardboard triangles and pinned.

In addition to the conventional registry in the record book, COLVEC's specimens are cataloged in a database managed by the Reference Center on Environmental Information (CRIA), thus ensuring their access and visibility. Both the record book and the database contain specific information on each specimen, such as data on the collector, collection location, date of collection, and name of the investigator who provided the identification and taxonomic data. These data are provided by the curator of the collection. The database is available for consultation online on CRIA's website, integrated with the *speciesLink* network (<http://splink.cria.org.br>), and COLVEC's website (<http://colvec.fiocruz.br/index>). The lists of triatomines presented below were prepared based on the first database.

## RESULTS

Among the 4,778 specimens registered in the CRIA database, 811 originated from other countries (Argentina, Bolivia, Colombia, Costa Rica, the United States of America, Guatemala, Mexico, Peru, Uruguay and Venezuela) as **Table 1** and **Table 2**. Thus, most of the collection consists of triatomine species native to Brazil, with 18 of its 27 states represented in the collection (**Table 3** and **Table 4**). The States of Ceará and Minas Gerais are particularly well represented, contributing 952 and 2,071 specimens, respectively (**Figure 1**). The large

number of specimens from these states is due to the partnership between LATEC and the two state health departments, which is essential for conducting projects. With regard to populations, the number of specimens from Minas Gerais confers a peculiar property to the collection: the regionalized character of the triatomine fauna.

In short, the collection is composed of two species of the tribe Cavernicolini Usinger, 1944; fifteen species of the tribe Rhodniini Pinto, 1926, of which 12 are of the genus *Rhodnius* and three are of the genus *Psammolestes*; and 39 species are of the tribe Triatomini Jeannel, 1919, represented by the genus *Dipetalogaster*, two species of the genus *Eratyrus*, two species of the genus *Meccus*, seven of the genus *Panstrongylus* and 27 of the genus *Triatoma*.

In the following list, only native species from Brazil are presented. These species are organized in alphabetical order by tribe, genus, species and sex. Whenever possible, the state and locality of capture in Brazil were also added, followed by the total number of specimens.

## DISCUSSION

Considering that the conservation of biodiversity is a common concern of humankind, biological collections must serve as guardians of *ex situ* biological heritage. In the broadest sense of their use, such collections serve as basis for scientific research and educational activities and can provide valuable material of historical importance<sup>4</sup>. Thus, FIOCRUZ holds diverse collections that are important information sources for the reconstruction of the history of biological and biomedical sciences in Brazil<sup>5</sup>.

The primary mission of COLVEC's curatorship is based on the principles of the organization and permanent preservation of biological material<sup>6,7</sup>, accessibility to material and associated information<sup>8</sup> and ensuring the taxonomic identification of the Triatominae. However, other related activities are worth noting: 1) supporting research, as the collection is responsible for the legal deposit of voucher specimens from projects; 2) supporting the Reference Service through training courses and the identification of Triatominae; 3) making the collection available for public research through universities, research centers and museums; 4) contributing to the training of human resources through the guidance of students; and 5) participating in scientific and educational events promoting conservation awareness.

With a total capacity for 15,000 specimens, there are currently 5,467 entries in COLVEC's record book. This number will likely continuously increase due to research activities, the Reference Service and the collection's recent accreditation as a Depository of Genetic Heritage Component Samples. The exponential growth of the collection is expected to ensure a greater depiction of the diversity of the Brazilian triatomine fauna as well as of other countries where Chagas disease is endemic. The largest number of specimens and the different origins of a species can enable studies on intraspecific variability, with morphological variations observed dynamically throughout the species' distribution area.

**TABLE 1 - Contribution of triatomine fauna from other American countries to the COLVEC collection (Tribe Cavernicolini Usinger, 1944 and Tribe Rhodniini Pinto, 1926). Information in parentheses includes the specimen number and sex.**

Tribe	Species	Country	Province, Department or State	County (sex)
Cavernicolini Usinger, 1944	<i>Cavernicola pilosa</i> Barber, 1937	Venezuela	Portuguesa	Tierra Buena (5M)
	<i>Rhodnius colombiensis</i> Mejia, Galvão & Jurberg, 1999	Colombia	Tolima	Coyaima (2F)
	<i>Rhodnius ecuadoriensis</i> Lent & León, 1958	Peru	NI	NI (2F, 3M)
	<i>Rhodnius neivai</i> Lent, 1953	Venezuela	Lara	NI (6F, 1M, 6SE)
			NI	NI (1M)
	<i>Rhodnius pallescens</i> Barber 1932	Colombia	NI	NI (2M)
Rhodniini Pinto, 1926	<i>Rhodnius pictipes</i> Stål, 1872	Venezuela	Cojedes	Manrique (2F, 2M); San Carlos (2F, 2M); Tierra Caliente (3F, 2M); Tinaquillo (1M)
			Portuguesa	NI (1M)
			NI	NI (1F, 2M)
		Peru	Amazonas (Dept.)	NI (1N)
			Apure	San Fernando (1F)
	Aragua		Macay (1M); Anzortequi (1M)	
	Barinas		Calderas (13F, 7M); Macay (3M)	
	Carabobo		Independencia (1F, 1M);	
	<i>Rhodnius prolixus</i> Stål, 1859	Venezuela	Cojedes	Cohara (1F); Limas Blancas (1F); Manrique (19F, 12M); San Carlos (7M); Tinaquillo (1F, 2M); NI (1F)
			Falcón	PAHO insectary (2F, 1M)
			Lara	Barquisimeto (2M)
			Miranda	La Democracia (1F, 2M)
			Portuguesa	Papelón (5F, 3M); San Jorge (4F)
			Trujillo	Pampán (9F)
			Yaracuy	San Felipe (3F, 4M)
NI	NI (1M)			
<i>Rhodnius robustus</i> Larrouse, 1927	Colombia	Putumayo	Puerto Assis (1M)	
	Venezuela	Portuguesa	Acarigua (1F)	
		Tachira	San Simón (5F, 1M); Coloncito (3F)	
		Trujillo	Pampán (8F, 2M)	
		NI	NI (15F, 21M)	
		Anzóategui	San Cristóbal (1M)	
		Barinas	Andrés Eloy Blanco (6F, 2M)	

**COLVEC:** Collection of Chagas Disease Vectors; **M:** male; **F:** female; **N:** nymph; **NI:** no information; **SE:** sets of eggs; **Dept.:** Department; **PAHO:** Pan American Health Organization.

**TABLE 2 - Contribution of triatomine fauna from other American countries to the COLVEC collection (Tribe Triatomini Jeannel, 1919). Information in parentheses includes the specimen number and sex.**

Species	Country	Province, Department or State	County (sex)
<i>Dipetalogaster maxima</i> (Uhler, 1894)	Mexico	NI	NI (1F, 1M)
	Colombia	Santander	NI (1F, 1M)
<i>Eratyrus cuspidatus</i> Stål, 1859	Venezuela	Cojedes	Manrique (1N)
		Portuguesa	Ospino (1M)
		Maracay	NI (2N)
	NI	Trujillo	Laguaca (1N)
		NI	NI (1F, 1M)
Bolivia	La Paz	La Paz (1F)	
<i>Eratyrus mucronatus</i> Stål, 1859	Venezuela	Aragua	NI (1M)
		Cojedes	San Carlos (1M)
		Lara	NI (6F)
		Maracay	NI (2SE)
		Portuguesa	NI (1F, 1M)
		Trujillo	NI (1F)
		NI	NI (1M)
<i>Meccus longipennis</i> (Usinger, 1939)	Mexico	NI	NI (1M)
<i>Meccus phyllosomus</i> (Burmeister, 1835)	Mexico	Nayarit	NI (1F, 1M)
<i>Panstrongylus chinai</i> (Del Ponte, 1929)	Peru	Piura	Piura (3F, 2M)
	NI	NI	Grant from UNIFESP insectary (1F, 1M)
<i>Panstrongylus geniculatus</i> (Latreille, 1811)	Colombia	Antioquia	Amalfi (1F)
	Costa Rica	Heredia	Puerto Viejo de Sarapiquí (1M)
		NI	NI (1M)
	Venezuela	Aragua	El Limón (1F); NI (1F)
		Carabobo	NI (1M)
		Cojedes	Manrique (1F)
		NI	NI (1M)
<i>Panstrongylus herreri</i> Wygodzinsky, 1948	Peru	Lima	Lima (1F, 1M)
	Venezuela	Portuguesa	Araure (1F)
<i>Panstrongylus rufotuberculatus</i> (Champion, 1899)	Colombia	Antioquia	Amalfi (1M);
	Venezuela	Aragua	El Limón (1F, 2M); NI (2F, 2M)
<i>Psammolestes arthuri</i> (Pinto, 1926)		Venezuela	Trujillo
	Apure		Mantecal (1F, 3M)
	Cojedes		La Coromoto (1F); Manrique (7F, 9M, 13N); San Carlos (1F, 1M)
	Portuguesa		Araure (1M); Guanare (1F, 20N, 1SE)
	NI		NI (1M)
<i>Psammolestes coreodes</i> Bergroth, 1911	Bolivia	Santa Cruz	Santa Cruz (3F, 3M)
	Colombia	Santander	NI (1F, 1M)
		Magdalena	Santa Marta (1F)
<i>Triatoma dimidiata</i> Usinger, 1944	Guatemala	NI	NI (1F, 1M)
	Mexico	NI	NI (1F, 1M)
	NI	NI	NI (3F, 4M)

TABLE 2 - Continues...

TABLE 2 - Continuation.

Species	Country	Province, Department or State	County (sex)
<i>Triatoma garciabesi</i> Carcavallo, Cichero, Martínez, Prosen & Ronderos, 1967	Argentina	Santiago Del Estero	Santiago Del Estero (1F)
	NI	NI	NI (1F, 4M)
<i>Triatoma guasayana</i> Wygodzinsky & Abalos, 1949	NI	NI	NI (3F, 8M)
<i>Triatoma guazu</i> Lent & Wygodzinsky, 1979	NI	NI	NI (1M)
<i>Triatoma infestans</i> n. ssp.	Bolivia	Cochabamba	Cochabamba (193F, 155M)
		Santa Cruz	Santa Cruz (3F, 10M)
	NI	NI	NI (2F, 3M, 1N)
<i>Triatoma lecticularia</i> (Stål, 1859)	USA	Oklahoma	NI (1F, 1M)
		Anzóategui	NI (2M)
<i>Triatoma maculata</i> (Erichson, 1848)	Venezuela	Cojedes	El Pao (1M); Manrique (2M)
		Lara	La Concepción (1F)
		Portuguesa	Araure (1F); Guanare (2F)
		Trujillo	Pampán (1F, 6M)
		Aragua	El Limón (1M); NI (1F, 1M)
<i>Triatoma nigromaculata</i> (Stål, 1872)	Venezuela	Trujillo	NI (1M)
		Yaracuy	Nirgua (3M)
		NI	NI (1M)
<i>Triatoma protracta</i> (Uhler, 1894)	USA	California	NI (1F, 1M)
<i>Triatoma rubrovaria</i> (Blanchard, 1843)	Uruguay	NI	NI (2F, 7M)
	NI	NI	NI (1M)
<i>Triatoma sordida</i> (Stål, 1859)	Bolivia	Santa Cruz	Santa Cruz (4F, 10M)
	Venezuela	Portuguesa	Guanare (N)

**COLVEC:** Collection of Chagas Disease Vectors; **M:** male; **F:** female; **N:** nymph. **NI:** No information; **SE:** sets of eggs; **UNIFESP:** Universidade Federal de São Paulo; **USA:** United States of America.

The list presents records of 4,778 specimens in CRIA's database. To date, there are 148 species of triatomine recognized<sup>9-15</sup>, of which 56 have representatives in the COLVEC collection and come from different geographic origins. Most of the collection comprises autochthonous species from Brazil, whose current triatomine fauna includes more than 60 species<sup>11,16,17</sup>. Of these species, 35 (57%) are registered in COLVEC, highlighting the taxonomic relevance of the collection.

The geographic distribution of *Panstrongylus lutzi* did not previously include the State of Minas Gerais; therefore, this list also helps extend the known occurrence of this vector, which affects the municipalities of Januária and Pirapora. Until recently, this species was mistaken for *Panstrongylus geniculatus*, which

may occur more broadly because there are no reports of *P. lutzi* in the municipalities of Pirapora and Januária. Therefore, the need to establish greater interactivity between service laboratories and the reference laboratory must be emphasized. Moreover, two points are fundamental to lab staff members operating within the Chagas Disease Control Program: 1) participation in training courses on the identification of triatomines offered by LATEC in partnership with COLVEC and 2) assembling service collections with representatives of the local triatomine fauna.

Aimed at strengthening, complementing and expanding the collection, the objective of this study is to contribute to current and further studies and, primarily, ensure the *ex situ* conservation of triatomine fauna.

**TABLE 3 - List of Brazilian autochthonous Triatominae species (Hemiptera: Reduviidae) in the COLVEC collection. (Tribe Cavernicolini Usinger, 1944 and Tribe Rhodniini Pinto, 1926).**

Tribe	Species	State	County (Specimen number and sex)	
Cavernicolini Usinger, 1944	<i>Cavernicola lenti</i> Barrett & Arias, 1985	MG	Insectary/CPqRR (20F, 16M, 2N)	
		MG	Luz (3F, 1M); Insectary/CPqRR (20N, 1SE); Miracema (1F)	
		TO	Palmas (12F, 7M, 1N); Taquaruçu (12F, 10M, 1N)	
	<i>Psammolestes tertius</i> Lent & Jurberg, 1965	CE	Tauá (2F, 2M)	
		MG	BambuÍ (2F, 3M); Serra Azul de Minas (4M, 3N)	
	<i>Rhodnius brethesi</i> Matta, 1919	RJ	Insectary/IOC (3F, 2M, 1N)	
	<i>Rhodnius domesticus</i> Neiva & Pinto, 1923	SC	Insectary/UFSC (1F, 2M)	
		MG	Açucena (1F)	
	<i>Rhodnius milesi</i> Carcavallo, Rocha, Galvão & Jurberg, 2001	SP	Bragança Paulista (3F, 1M)	
		NI	NI (2F, 2M, 20N)	
<i>Rhodnius nasutus</i> Stål, 1859	BA	Feira de Santana (3F, 1M); São Domingos (1F, 2M); NI (1F)		
	CE	Barbalha (2F, 4M); Crato (1F, 2M); Itapagé (10F, 8M); Meruoca (1F, 2M); Missão Velha (1F, 2M); Santana do Cariri (1F, 2M); Sobral (6F, 6M); Tauá (1F); NI (2F, 4M)		
	BA	Tucano (1M)		
Rhodniini Pinto, 1926	<i>Rhodnius neglectus</i> Lent, 1954	GO	Montes Claros de Goiás (1F); Ponte Alta do Norte (4F, 6M, 5N); Trintade (1F, 1M); NI (3F)	
		MG	BambuÍ (1F, 1M); Belo Horizonte (1M, 1SE); Buenópolis (1M); Campina Verde (1M); Estrela do Sul (1F); Formiga (1F); Jaboticatubas (1M, 1N); Luz (1F); Monjolos (1M); Monte Alegre de Minas (1M); Monte Carmelo (1M); Patrocínio (1F); Pitangui (1F); Ribeirão das Neves (1M); Tupaciguara (1M); Uberaba (3F, 3M); Uberlândia (1F, 6M); NI (1F, 3M)	
		SP	Guaira (1F, 1M)	
		TO	Itaperatins (2F); Praia do Norte (1F); Tocantinópolis (25F, 31M)	
		NI	NI (6F, 5M)	
		MG	Uberaba (2F, 1M); Insectary/CPqRR (3F, 2M)	
		TO	Tocantinópolis (12F, 10M)	
		NI	NI (6F)	
		<i>Rhodnius prolixus</i> Stål, 1859	AC	Cruz do Sul (1M); Sena Madureira (1F)
			MG	Santa Fé (4F, 5M); Insectary/PqRR (5M)
<i>Rhodnius robustus</i> Larrousse, 1927	MG	Uberaba (1F, 2M)		
	RR	Mucajai (2F, 2M)		
	TO	Aparecida do Rio Negro (1M); Tocantinópolis (1M)		

**COLVEC:** Collection of Chagas Disease Vectors; **CPqRR:** Centro de Pesquisa René Rachou; **IOC:** Instituto Oswaldo Cruz; **UFSC:** Universidade Federal de Santa Catarina; **USP:** Universidade de São Paulo; **M:** male; **F:** female; **N:** nymph; **NI:** no information; **SE:** set of eggs; **MG:** Minas Gerais; **TO:** Tocantins; **CE:** Ceará; **RJ:** Rio de Janeiro; **SP:** São Paulo; **SC:** Santa Catarina; **BA:** Bahia; **GO:** Goiás; **AC:** Acre; **RR:** Roraima.

**TABLE 4 - List of Brazilian autochthonous Triatominae species (Hemiptera: Reduviidae) in the COLVEC collection. (Tribe Triatomini Jeannel, 1919).**

Species	State	County (Specimen number and sex)
<i>Panstrongylus diasi</i> Pinto & Lent, 1946	MG	Aimorés (2M); Berilo (1M); Braúnas (8N); Campos Gerais (1F); Candeias (1F); Chapada do Norte (1M); Cláudio (1F, 2M); Conceição do Pará (1M); Diamantina (1M); Divinópolis (1M); Formiga (1F); Francisco Badaró (1F, 1M); Grupiara (1M); Itaguara (1F); Itatiaiuçu (1F); Ituiutaba (1M); Luz (1M); Medeiros (1F); Mirabela (1M); Pains (1F); Pará de Minas (1F); Pedra do Indaiá (1F); Perdigão (2F); Pitangui (1F); Rio Pardo de Minas (1M); Santo Antonio Amparo (1F); São João do Paraíso (1F, 3M); São Sebastião do Oeste (2F); Veríssimo (1M); NI (1F, 4M)
	BA	Pau Brasil (1F)
	CE	Meruoca (3M)
<i>Panstrongylus geniculatus</i> (Latreille, 1811)	MG	Alfenas (1F); Berilo (1F, 2M); Catutiba (2M); Chapada do Norte (1F, 3M); Comercinho (1F, 1M); Conceição Mato Dentro (1M); Diamantina (1F, 2M); Felício dos Santos (2M); Francisco Badaró (4M); Itanhomi (2F, 1M); Ituiutaba (1M); Presidente Kubitschek (1M); Riacho dos Machados (1M); Rio Pardo de Minas (3M); Santa Fé (1M); São João do Paraíso (2F, 5M); Turmalina (1M); Uberlândia (1M); Unaí (1F, 1M); Veríssimo (1M); Virgem da Lapa (1M)
	TO	Lizarda (1M)
	NI	NI (2F)
<i>Panstrongylus lignarius</i> (Walker, 1873)	RJ	Insectary/IOC (17F, 35M)
	NI	NI (1F)
<i>Panstrongylus lutzi</i> (Neiva & Pinto, 1923)	CE	Aratuba (1F); Boa Viagem (2F); Canindé (1F; 7M); Crateús (11F; 35M); Independência (6F; 1M); Ipueiras (1M); Itapiúna (1M); Massapê (3F); Meruoca (5F); Morada Nova (1M); Pacatuba (1M); Redenção (3M); Sobral (19F, 25M); Tauá (2F, 3M)
	MG	Januária (1M); Pirapora (3F, 27M)
	PE	Orobó (1F, 2M)
	NI	NI (1F)
<i>Panstrongylus megistus</i> (Burmeister, 1835)	AL	Palmeira dos Índios (1F, 1M)
	BA	Campo Formoso (5F, 4M); Castro Alves (2F, 3M); Jequié (1F); Salvador (1F); Santa Luzia (1F)
	CE	Alcântaras (2F, 3M); Crateús (2F, 1M, 1N); Ipoeiras (1F); Meruoca (10F, 10M)
	GO	Corumbá de Goiás (2F; 2M)
	MG	Araguari (1F); Bambuí (3F, 4M); Belo Horizonte (8F, 19M, 8N); Berilo (1F, 2M); Betim (2F, 1M); Brumadinho (72F, 93M); Carmo do Paranaíba (4F, 5M); Carmópolis (4F, 1M); Carmópolis de Minas (14F, 17M); Cascalho Rico (1M); Claro dos Poções (1F); Contagem (1M); Coromandel (1F, 1M); Douradoquara (1M); Estrela do Sul (1F, 2M, 1N); Guaxupé (1F, 1M); Ibirité (1F); Indianópolis (1M); Iraí de Minas (8F, 4M); Itanhomi (4F); Jaboticatubas (16F, 12M, 14N); Lagoa Grande (3N); Lagoa Santa (1M); Monjolos (1F, 3M); Monte Carmelo (1F, 3M, 1N); Monte Santo de Minas (1F, 1M); Morro da Garça (5F, 1M); Nova União (1F); Olhos-d'Água (1F, 1M); Patos de Minas (5F, 1M); Patrocínio (10F, 9M); Pedra do Indaiá (1F, 5N); Piracema (13F, 15M, 1N); Pitangui (7F, 10M, 17N); Ribeirão das Neves (2F); Rio Casca (1M); Rio Doce (1F); Rio Paranaíba (16F, 1M, 1N); Santa Cruz do Escalvado (5F, 5M); Santa Luzia (1M); Santa Maria do Suaçuí (3F); Santana do Riacho (4F, 5M); São Gotardo (3F); São José do Goiabal (1F); SSM (2M); Sempeixe (1F, 1M); Sete Lagoas (1F); Uberlândia (6F, 6M); Unaí (1N); Vazante (1F); Insectary/CPqRR (1F, 2M); NI (5F, 4M)
	SC	Costeira do Pirajubai (1F, 1M); Florianópolis (1F, 1M); NI (7F, 8M)
	SP	Juquiá (1F, 1M); Caconde (1F, 1M)
NI	NI (1M)	

TABLE 4 – Continues...

TABLE 4 – Continuation.

Species	State	County (Specimen number and sex)
<i>Triatoma baratai</i> Carcavallo & Jurberg, 2000	MS	Corumbá (2F, 2M)
	CE	Crateús (15F, 23M); Independência (214F, 202M); Jaguaribe (2F, 2M); Jaguaruana (3F, 3M); Novo Oriente (23F, 23M); Quixeré (1F, 1M); Tauá (3F, 2M)
	PB	NI (11F, 30M)
<i>Triatoma brasiliensis</i> Neiva, 1911	PE	Exu (1F, 2M); Terra Nova (4F, 7M); NI (21F, 10M)
	PI	Castelo do Piauí (4F, 11M); São Miguel do Tapuio (1M); Símplicio Mendes (65F, 74M)
	NI	NI (2F, 6M)
	RS	Insectary/RSCS (1F)
<i>Triatoma carcavalloii</i> Jurberg, Rocha & Lent, 1998	RS	Insectary/RSCS (1F)
<i>Triatoma costalimai</i> Verano & Galvão, 1958	MG	Januária (5F, 3M); NI (1F)
	BA	Paratinga (7F)
	GO	NI (1F, 1M, 1N)
	MG	Insectary/CPqRR (5F, 6M); Montes Claros (10F, 5M)
	PR	Londrina (14F, 16M)
<i>Triatoma infestans</i> n.ssp.	RS	Catuípe (5F, 3M); NI (15F, 15M)
	SP	Paulínia (1F, 2M)
	MG	Montes Claros (2F, 1M); Januária (8F, 4M)
<i>Triatoma lenti</i> Sherlock & Serafim, 1967	MG	Montes Claros (2F, 1M); Januária (8F, 4M)
<i>Triatoma maculata</i> (Erichson, 1848)	RR	Mucajái (19F, 32M)
<i>Triatoma matogrosensis</i> Leite & Barbosa, 1953	MT	Aquidauana (1F, 1M); NI (1F, 2M)
<i>Triatoma melanica</i> Neiva & Lent, 1941	MG	Espinosa (1F, 2M); Mamonas (1F, 2M, 1N); Monte Azul (1F, 4M, 4N)
	BA	Insectary/CPqGM (14F, 14M)
<i>Triatoma melanocephala</i> Neiva & Pinto, 1923	MG	Januária (1M)
	PE	Vitória de Santo Antão (1F)
<i>Triatoma oliveirai</i> (Neiva, Pinto & Lent, 1939)	CE	Meruoca (2F)
	BA	Curaçá (1F, 1M); Itaberaba (12F, 2M)
	CE	Independência (19F; 17M); Sobral (124F; 115M); Tauá (1F; 2M)
<i>Triatoma pseudomaculata</i> Corrêa & Espínola, 1964	MG	Insectary/CPqRR (1M); Berilo (1F, 2M); Comercinho (5F, 6M); Januária (4F, 2M); Rio Pardo de Minas (2F); São Thomé das Letras (1F)
	PB	NI (5F, 7M)
	PE	Maravilha (3F, 1M)
	PI	Piripiri (13F, 13M)
	PE	NI (3F, 1M)
<i>Triatoma rubrofasciata</i> (De Geer, 1773)	PE	NI (3F, 1M)
<i>Triatoma rubrovaria</i> (Blanchard, 1843)	RS	Canguçu (7F, 3M, 2N)

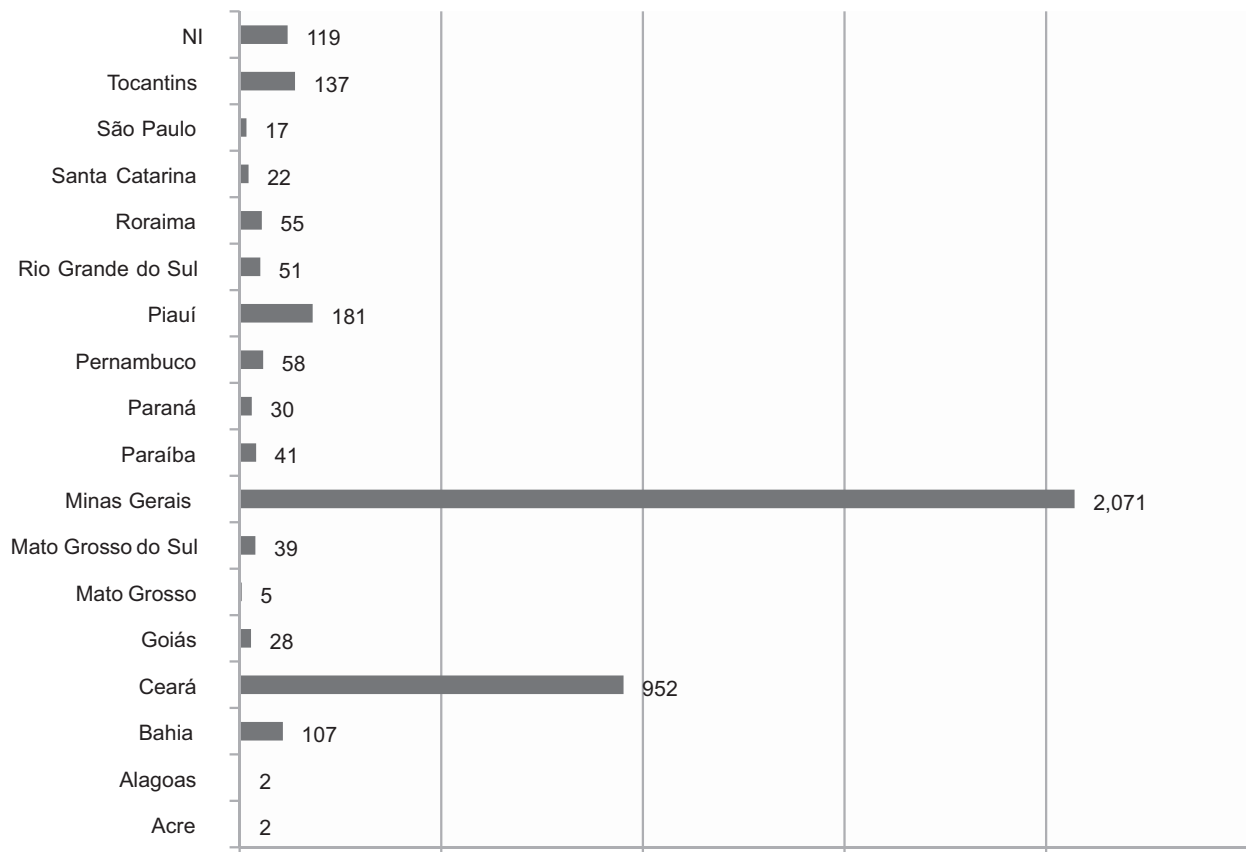
TABLE 4 – Continues...



TABLE 4 – Continuation.

Species	State	County (Specimen number and sex)
	BA	Aracatu (4F, 3M); Livramento de Nossa Senhora (4F, 5M, 2N)
	MS	Corumbá (13F; 7M)
<i>Triatoma sordida</i> (Stål, 1859)	MG	Araguari (3F, 1M, 3N); Augusto de Lima (2F); Insectary/CPqRR (6F, 6M); Buenópolis (25F, 5M, 2N); Burity (3F, 2M, 1N); Campina Verde (1F, 11N); Capinópolis (5F, 6M, 58N); Cônego Marinho (1F, 1M, 2N); Coração de Jesus (3F, 2M, 1N); Curvelo (4F, 3M, 4N); Douradoquara (7F, 2N, 1M); Espinosa (3F, 3M); Estrela do Sul (2F); Grupiara (3F, 1M, 1N); Gurinhatã (7F, 8M); Inimutaba (2M); Ipiacu (1F, 1M); Januária (3F, 3M); Lagoa Grande (26F, 21M, 22N); Limeiro do Oeste (3F, 3M); Luislândia (2F, 2M); Manga (3F, 3M); Mato Verde (9F, 3M, 2N); Monjolos (8F, 1M, 2N); Montalvânia (4F, 4M); Monte Alegre de Minas (1F); Montes Claros (18F, 20M); Morro da Garça (1F); Porteirinha (3F, 3M); Santo Hipólito (10F, 1M); São Francisco (5F, 6M); São João da Lagoa (1N); Tupaciguara (1F, 1M); Uberaba (15F, 14M); Uberlândia (1F, 3N); Unaí (4F, 2M, 1N); Várzea da Palma (2F, 2M, 2N); Varzelândia (3F, 3M); Verdelândia (23F, 13M); NI (12F, 8M, 10N)
	TO	Conceição do Tocantins (1F)
	NI	NI (3F, 1M, 1N)
<i>Triatoma tibiamaculata</i> (Pinto, 1926)	SP	IFSP/USP (1F, 1M)
	NI	NI (1F, 1M)
<i>Triatoma vitticeps</i> (Stål, 1859)	MG	Açucena (3F, 1M, 2N, egg); Aimorés (1F, 1M); Almenara (1F, 1M, 92N, 18SE); Araponga (3F); Insectary/CPqRR (4F, 5M); Caratinga (1F); Comercinho (50F, 58M, 9N); Coronel Murta (1F); Diamantina (7M); Divino (2F, 4M); Galiléia (1F); Itanhomi (92F, 64M); Jaboticatubas (1F); Januária (2F, 2M); José Gonçalves de Minas (1F, 2M); Juramento (2M); Mendes Pimentel (5N, 3SE); Riacho dos Machados (1F, 2M); Rio Pardo de Minas (2F, 1M); Santa Cruz do Escalvado (1M); Santana do Riacho (2F, 3M); SGRP (1M); São João do Oriente (2F, 1M); São João do Pacuí (1M); Tabaúna (1F); Teófilo Otoni (2F, 2M); Ubaí (1M); Virgolândia (11N)
<i>Triatoma williami</i> Galvão, Souza & Lima, 1965	MS	Corumbá (8F, 7M)
<i>Triatoma wygodzinskyi</i> Lent 1951	SP	São João da Boa Vista (1F, 2M)

**COLVEC:** Collection of Chagas Disease Vectors; **M:** male; **F:** Female; **N:** nymph; **NI:** No information; **SE:** set of eggs; **CPqRR:** Centro de Pesquisa René Rachou; **IOC:** Instituto Oswaldo Cruz; **UFSC:** Universidade Federal de Santa Catarina; **CPqGM:** Centro de Pesquisa Gonçalo Moniz; **IFSP:** Instituto Faculdade Saúde Pública; **USP:** Universidade de São Paulo; **MG:** Minas Gerais; **CE:** Ceará; **TO:** Tocantins; **RJ:** Rio de Janeiro; **BA:** Bahia; **GO:** Goiás; **SP:** São Paulo; **AC:** Acre; **RR:** Roraima; **PE:** Pernambuco; **AL:** Alagoas; **SC:** Santa Catarina; **MS:** Mato Grosso do Sul; **PB:** Paraíba; **PI:** Piauí; **RS:** Rio Grande do Sul; **PR:** Paraná; **MT:** Mato Grosso; **RSCS:** Regional de Santa Cruz do Sul; **SSM:** São Sebastião do Maranhão; **SGRP:** São Gonçalo do Rio Preto.



**FIGURE 1 - Current number of COLVEC's entries per Brazilian State. NI: no information; COLVEC: Collection of Chagas Disease Vectors.**

## CONFLICT OF INTEREST

The authors declare that there is no conflict of interest.

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