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Biodiversity of histerid beetles (Coleoptera: Histeridae)  
from Brazil. I. Southern region

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# Biodiversity of histerid beetles (Coleoptera: Histeridae) from Brazil. I. Southern region

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**Abstract.** This contribution adds data to the conservation and distribution of Histeridae species (Coleoptera) in the Neotropical region through a survey of Brazil's South region. More specifically, it provides: i) a list of local Histeridae species; ii) a list of species that are inside Conservation Units in southern Brazil; iii) biotic (biome, ecoregion and associations/affinities) and abiotic information (altitude and month of occurrence) for each species. In total, 66 genera and 164 histerid beetle species were recorded, distributed in seven subfamilies and 11 tribes. Among these, one genus and three species are **new records** for the region. Fifty percent of the species are known from a single geographic record. The Atlantic Forest is the richest biome in the South, in terms of number of species, and the Alto Paraná Atlantic forest is the richest ecoregion. *Carcinops* (s. str.) *troglydites* (Paykull), *Euspilotus* (*Hesperosaprinus*) *azureus* (Sahlberg) and *Omalodes* (s. str.) *angulatus* (Fabricius) were recorded every month of the survey. Species' richness was higher in October, December and January. Of the species recorded, 45 (27% of the total) are legally protected by Conservation Units in southern Brazil. Twenty-seven percent of the species recorded are associated with live animals. Collectively, the data presented here is a contribution to the taxonomic catalog of the Brazilian fauna.

**Key words.** Histeroidea, natural history, Neotropical, Staphyliniformia, conservation units.

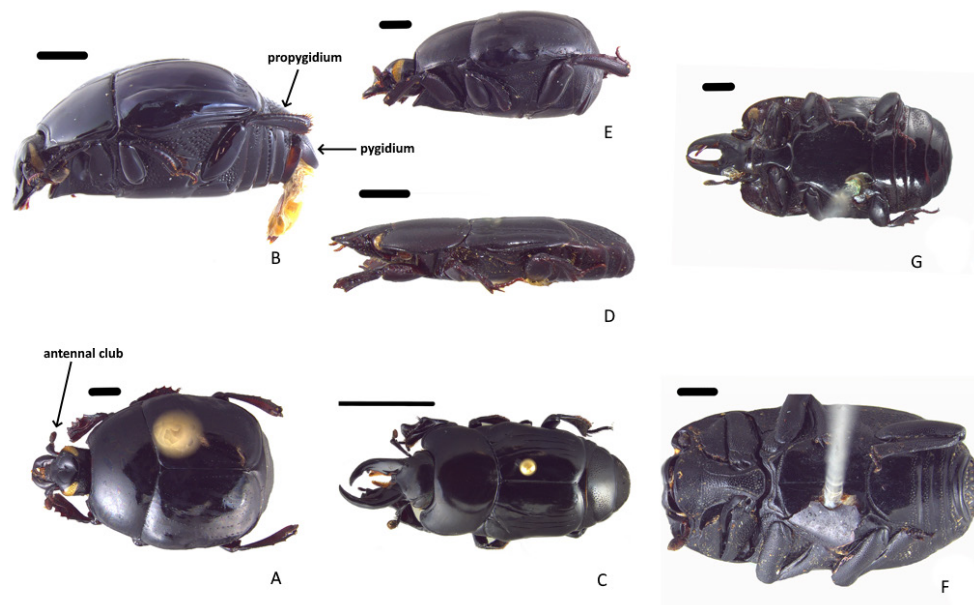
**ZooBank registration.** urn:lsid:zoobank.org:pub:C98D50BA-2F29-4B1D-B396-16F20054E942

## Introduction

Histeridae (Coleoptera) has approximately 4,252 species, 391 genera, 17 tribes and 11 subfamilies (Mazur 2011; Kovarik and Caterino 2016), with 1,047 species and 139 genera in the Neotropical region (Costa 2000), and 129 genera and 594 species that occur in Brazil (Bicho et al. 2022). They can be recognized by their compact and retractile body, short elytra that leave the last two abdominal tergites visible (propygidium – 6<sup>th</sup> tergite and pygidium – 7<sup>th</sup> tergite) and the geniculate antennae with compact apical club (Fig. 1). Histerid beetles are mostly predators, mainly of dipterous larvae. They are morphologically very diverse in view of their adaptations to different environments and associations with other animals (Kovarik and Caterino 2001; Leivas et al. 2013; Kovarik and Caterino 2016) (Fig.1).

Histeridae beetles are relevant to Applied Sciences such as Forensic Entomology (Mise et al. 2007, 2010; Aballay et al. 2013); Biological Conservation (Brustel 2001; Gomy and Millarakis 2012; Millarakis 2012; Vieira et al. 2018); and pest control in pastures (Kovarik and Caterino 2001, 2016), banana (Mesquita 2003; Domínguez et al. 2018), agave (Salcedo-Delgado et al. 2018), palm (Mazur 2009; Passos et al. 2019), stocked food (Hinton 1945), forestry (bark beetles) (Camara et al. 2003; Shepherd and Goyer 2005); and beekeeping (Krüger et al. 2017) and meliponiculture (Coletto-Silva and Freire 2006; Silva-Neto et al. 2019).

Despite the importance of these beetles to applied sciences, basic information (e.g., distribution, ecology, natural history and conservation) about histerid beetles from the Neotropical region is scarce. By extension, their diversity in conservation areas is mostly unknown (Ganho and Marinoni 2005; Leivas et al. 2013; Rafael et al. 2017) and maybe for this reason they were never included/used in the management plans of Conservation Units (CUs) in Brazil.



**Figure 1.** External morphological diversity of Neotropical Histeridae. A) *Omalodes (Omalodes) pulvinatus* Erichson, 1834, habitus in dorsal view, scale 1mm. B) *Scapomegas auritus* Marseul, 1855, habitus in lateral view, scale 1mm. C) *Oxysternus maximus* (Linnaeus, 1767), habitus in dorsal view, scale 1cm. D) *Hololepta (Leionota) minuta* Erichson, 1834, habitus in lateral view, scale 1mm. E) *Omalodes (Omalodes) pulvinatus* Erichson, 1834, habitus in lateral view, scale 1mm. F) *Ebonius aequatorius* (Lewis, 1910), habitus in ventral view, scale 1mm. G) *Hololepta (Hololepta) aradiformis* Erichson, 1834, habitus in ventral view, scale 1mm.

Taking into account the need to know more about the histerid beetle diversity in conservation areas, the “Laboratório de Pesquisas em Coleoptera” (LAPCOL) at the Universidade Federal do Paraná, has prepared a series of manuscripts to contribute to the Taxonomic Catalog of the Brazilian Fauna (Bicho et al. 2022). This series of publications will be organized by political regions and will list the geographic distribution and supply information on the biotic and abiotic specificities/affinities of the species treated.

The first of the contributions mentioned above concern the southern portion of Brazil (including the states of Paraná, Santa Catarina and Rio Grande do Sul), a region composed of three distinct biomes: Atlantic Forest, Cerrado and Pampa. Of these, the Atlantic Forest is the most extensive. Originally it covered 99% of the state of Paraná (currently only 11.8% remains), 100% of the state of Santa Catarina (currently only 22.9% remains) and 52% of the state of Rio Grande do Sul (currently only 7.9% remains) (SOS Atlantic Forest, INPE 2018). The Cerrado in southern Brazil is restricted to the state of Paraná and originally covered only 1% of the state’s territory (Roderjan et al. 2002). The Pampa in Brazil is restricted to the state of Rio Grande do Sul and originally covered 63% of the state’s territory (CSR/IBAMA 2011).

Herein data about the biodiversity of histerid beetles from southern Brazil is presented. More specifically, this contribution provides: i) a list of local Histeridae species; ii) a list of species that are inside Conservation Units in southern Brazil; iii) biotic (biome, ecoregion and associations/affinities) and abiotic information (altitude and month of occurrence) for each species.

## Materials and Methods

The starting point to elaborate the present database was the publication of Gonçalves and Leivas (2017), which provided the first list of histerid beetles from southern Brazil. To revise and to complement this database, we did a literature review using another database, created by the second author (FWTL), which contains 7,908 documents concerning Histeridae (e.g., books, journal publications and thesis) dated between 1735–2022. Of these, a



total of 22, from 1834 to 2022, were informative. Below is a list of collections and acronyms that are cited in the scientific works consulted:

AKT or AKTC – Alexey Tishechkin Collection.

BMNH or NHMUK – The Natural History Museum, London, England.

CERPE – Coleção Entomológica da Universidade Federal Rural de Pernambuco, Recife, Brazil.

CEUEL – Coleção Entomológica do Departamento de Agronomia, na Universidade Estadual de Londrina, Londrina, Brazil

CHND or PCND – Private Collection Nicolas Dégallier Collection, Paris, France.

CMN or CMNC, CNCI – Canadian Museum of Nature, Ottawa, Canada.

DZUP or UFPR – Coleção Entomológica Pe. Jesus Santiago Moure, Departamento de Zoologia, Universidade Federal do Paraná, Curitiba, Brazil.

FIMAK – Zoologisches Forschungsinstitut und Museum Alexander König, Bonn, Germany.

FMNH – Field Museum of Natural History, Chicago, United States of America.

LSAM – Louisiana State Arthropod Museum, Baton Rouge, United States of America.

MACN – Museo de Ciencias Naturales ‘Bernardino Rivadavia’, Buenos Aires, Argentina.

MCNZ – Museu de Ciências Naturais da Fundação Zoobotânica do Rio Grande do Sul, Porto Alegre, Rio Grande do Sul, Brazil.

MEFEIS or UNESP – Museu de Entomologia da Universidade Estadual Paulista, campus de Ilha Solteira, São Paulo, Brazil.

MGAP or MAPA – Museu Anchieta, Porto Alegre, Rio Grande do Sul, Brazil.

MHNG or MNHG – Museum d’Histoire Naturelle, Geneva, Switzerland.

MNHN – Museum National d’Histoire Naturelle, Paris, France.

MNRJ – Museu Nacional do Rio de Janeiro, Universidade Federal do Rio de Janeiro, Rio de Janeiro, Rio de Janeiro, Brazil.

MSCC – Michael Caterino Collection, Santa Barbara, United States of America.

MZUSP or MZSP – Museu de Zoologia da Universidade de São Paulo, São Paulo, Brazil.

NHRS – Natur Historiska Riksmuseet, Stockholm, Sweden.

PCAB – Private collection of Ayr Bello, Rio de Janeiro, Brazil.

PCYG – Private Collection Yves Gomy, Nevers, France.

SBMNH – Santa Barbara Museum of Natural History, Santa Barbara, United States of America.

SMC or SM, CHSM – Private Collection S. Mazur, Warsaw, Poland.

UL – University of Lund, Zoological Museum, Sweden.

USNM – National Museum of Natural History, Washington, United States of America.

ZIN – Zoological Institute, Russian Academy of Sciences, St. Petersburg, Russia.

ZMHB – Museum für Naturkunde der Humboldt - Universität, Berlin, Germany.

Literature data were complemented by the study of specimens deposited at the following biological collections:

DZUP – Coleção Entomológica Pe. Jesus Santiago Moure, Departamento de Zoologia, Universidade Federal do Paraná, Curitiba, Brazil.

FMNH – Field Museum of Natural History, Chicago, United States of America.

MCIC – Museu de História Natural Capão da Imbuia, Curitiba, Brazil

MCNZ – Museu de Ciências Naturais da Fundação Zoobotânica do Rio Grande do Sul, Porto Alegre, Rio Grande do Sul, Brazil.

MGAP – Museu Anchieta, Porto Alegre, Rio Grande do Sul, Brazil.

MNHN – Museum National d’Histoire Naturelle, Paris, France.

MNRJ – Museu Nacional do Rio de Janeiro, Universidade Federal do Rio de Janeiro, Rio de Janeiro, Rio de Janeiro, Brazil.

MZUSP – Museu de Zoologia da Universidade de São Paulo, São Paulo, Brazil.

Based on original information (literature and labels data), biotic (biome, ecoregions and associations/affinities) and abiotic (altitude and month of occurrence) data were recovered. When the geographic coordinate was

not available in the original information, it was recovered searching in Geonames website by the municipality or specific place. When it was not possible to reliably recover data on altitude, ecoregion and/or biome (e.g., when there was no information about the municipality where the beetles were collected) we used the word “unknown”. “Unknown” was also used in the supplementary table to indicate absence (= missing data) of all other data.

The distribution map of the species was performed by the SimpleMappr (Shorthouse and David 2010) using ecoregion layers. The concept of ecoregions for this contribution is based on “The Terrestrial Ecoregions of the World (TEOW)”, a biogeographic regionalization of the Earth, which follows Olson et al. (2001). To indicate the ecoregion where the species is recorded from, the geographic coordinate was first inserted in SimpleMappr, then the ecoregion was assigned. The altitudinal data were taken from Google Earth and Geonames website (GeoNames 2005). The final database is available in the supplementary material (DOI: <https://doi.org/10.6084/m9.figshare.22665385>).

## Results

In southern Brazil 1,028 records were found in seven subfamilies, 11 tribes, 66 genera, 11 subgenera, 164 species and 1 subspecies of Histeridae. *Plagioscelis* Bickhardt [represented by *Plagioscelis striaticeps* (Bruch)] and *Colonides quadriglumis* (Reichensperger) and *Hister punctifer* Paykull are for the first time recorded to southern Brazil. Seventy-nine species (50.6% of the total) are known in southern Brazil by a single record (unique record).

The Atlantic Forest was the richest biome (147 species), followed by Cerrado (18 species) and Pampa (14 species) (Table 1). The Alto Paraná Atlantic forest was the richest ecoregion (83 species), followed by Araucaria moist forest (55 species), Serra do Mar coastal forest (30 species), Cerrado (18 species), Uruguayan Savana (14 species) and Southern Atlantic mangroves (3 species) (Table 1, Fig. 2–9). In addition, two species can be found in the contact area between Araucaria moist forest/Uruguayan Savana.

*Carcinops* (*s. str.*) *troglydytes* Marseul, *Euspilotus* (*Hesperosaprinus*) *azureus* (Sahlberg) and *Omalodes* (*s. str.*) *angulatus* (Fabricius) were the unique species recorded during all months of the year, while 40 species (24.5% of the total) are recorded only during one month along of the year (Table 1).

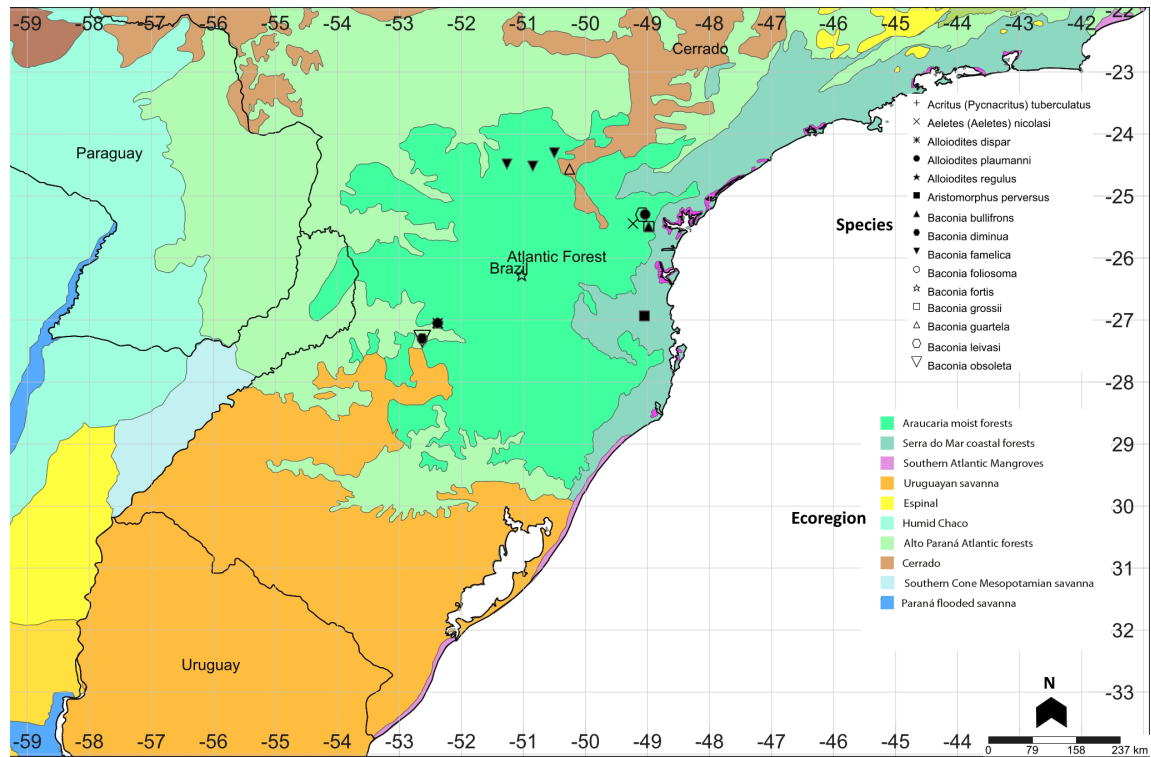
Twenty-eight species were recorded between 0–400 meters, 54 between 401–800 meters and 33 between 801 and 1200 meters. *Baconia grossii* Caterino and Tishechkin, *Colonides hubrichi* Bruch, *Colonides quadriglumis*, *Hister punctifer*, *Kleptisister hirsuta* Helava, *Omalodes* (*s. str.*) *planifrons* Marseul, *Omalodes* (*s. str.*) *praeivus* Marseul, *Phelister gregarius* Caterino and Tishechkin, *Phelister rio* Caterino and Tishechkin, *Scapicoelis bichocae* Degallier and Tishechkin and *Operclipygus friburgius* (Marseul) were collected above 1000 meters. Few species presented a wide altitudinal distribution, such as *Hister cavifrons* Marseul (0–1200 meters) and *Omalodes* (*s. str.*) *angulatus* (Fabricius) (11–1000 meters) (Table 1).

Forty-five species (27.5% of the total) are recorded inside of Cus from southern Brazil. Área Especial de Interesse Turístico do Marumbi (AEIT) do Marumbi was the richest (25 species), followed by Parque Estadual de Guartelá (14 species) and Parque Estadual Mata São Francisco (10 species). Estação Ecológica da Ilha do Mel, Parque Ecológico Samuel Klabin, Parque Estadual do Marumbi, Parque Estadual Turvo, Parque Mata dos Godoy, Reserva Estadual de Vila Rica and Parque da Ferradura had only one species (Table 2).

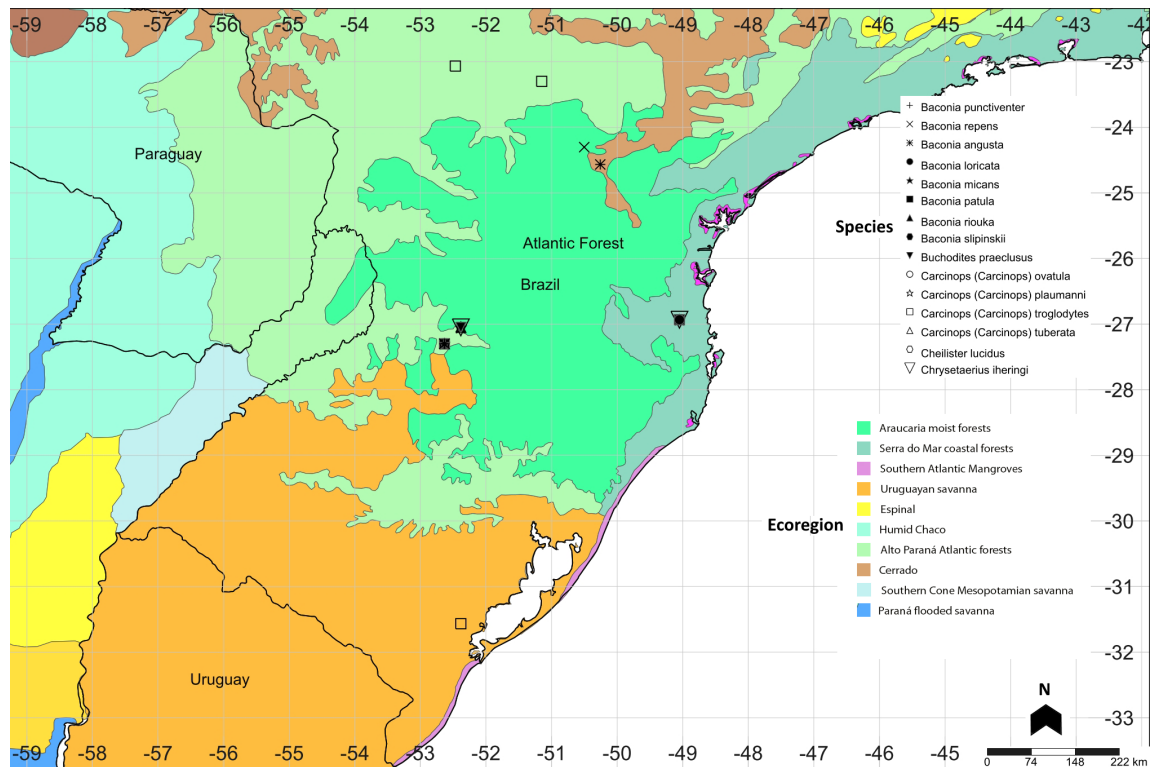
Thirty-four genera (52.3% of the total) and 44 species (27% of the total) were recorded associated with another live animal. Of these, almost all records are of association with ants, except for one record of termites and one record of a bird's nest (Table 3). Eight genera and 13 species were associated with animal carcasses, four genera and six species with dung, two genera and five species with live plants, one genus and two species with decaying fruit, two genera and two species with a decaying tree and one species with litter (Table 4).

## Specimen data for species new to southern Brazil

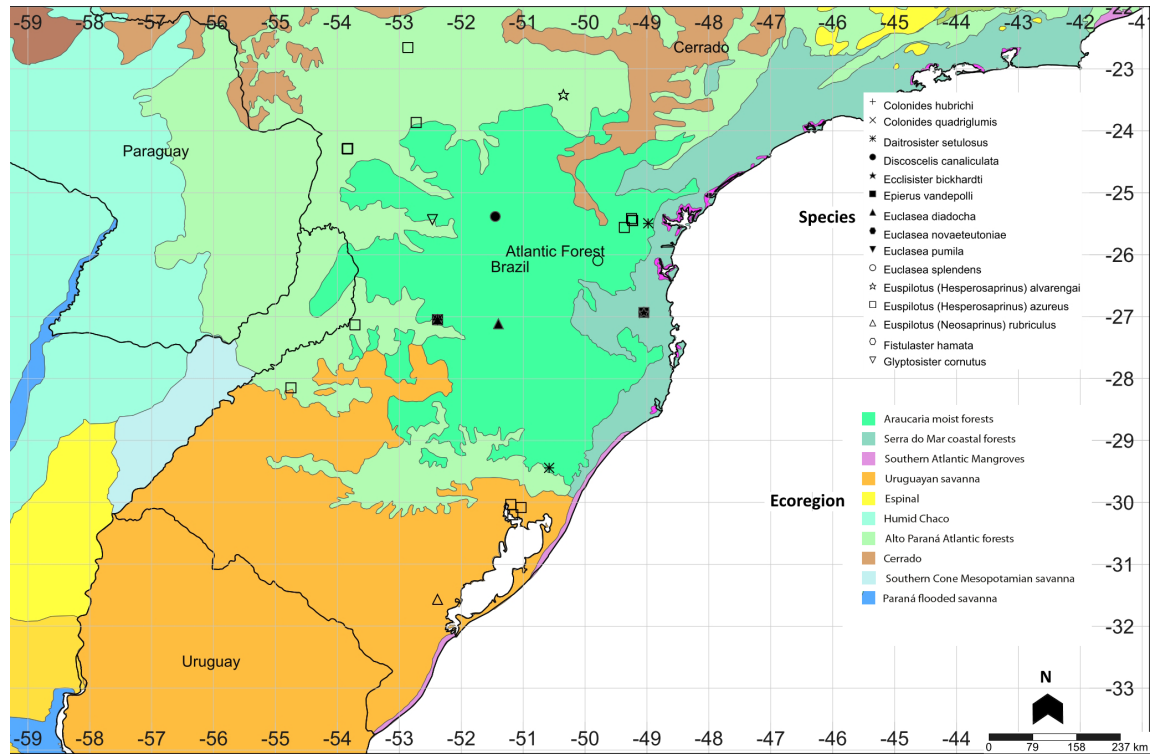
***Colonides quadriglumis* (Reichensperger, 1923).** BRAZIL: Paraná, Piraquara, Mananciais da Serra, 25.4925°S, 48.9781°W, 1038 m, March 2012, DZUP (1 specimen).



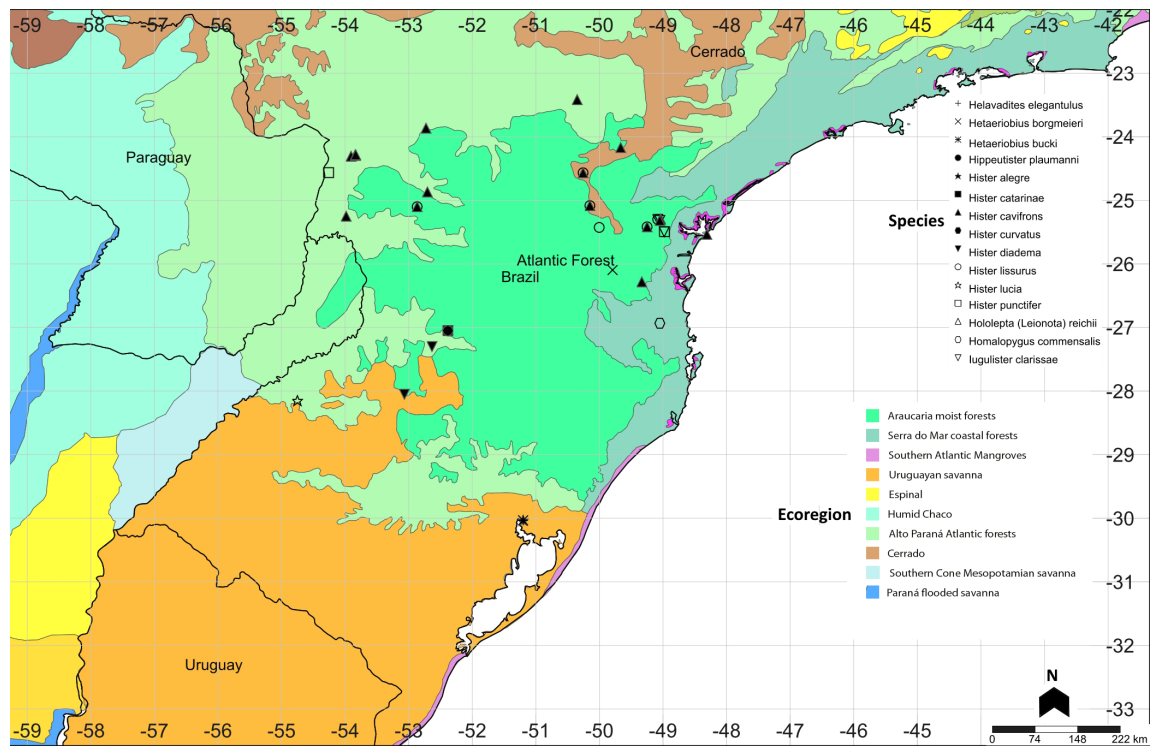
**Figure 2.** Geographic distribution of some Histeridae species along of the ecoregions from southern Brazil (presented in alphabetical order of genera, A-Ba).



**Figure 3.** Geographic distribution of some Histeridae species along of the ecoregions from southern Brazil (presented in alphabetical order of genera, Ba-Ch).



**Figure 4.** Geographic distribution of some Histeridae species along of the ecoregions from southern Brazil (presented in alphabetical order of genera, Co-Gl).



**Figure 5.** Geographic distribution of some Histeridae species along of the ecoregions from southern Brazil (presented in alphabetical order of genera, He-Iu).



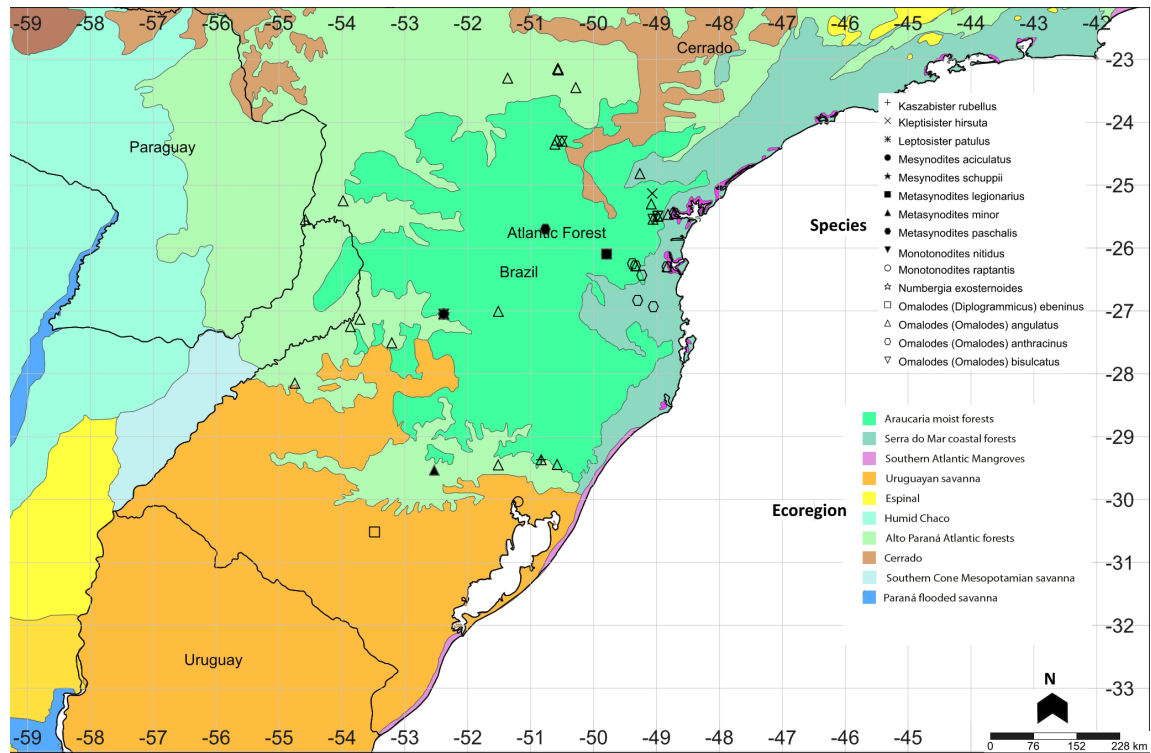


Figure 6. Geographic distribution of some Histeridae species along of the ecoregions from southern Brazil (presented in alphabetical order of genera, Ka-Om).

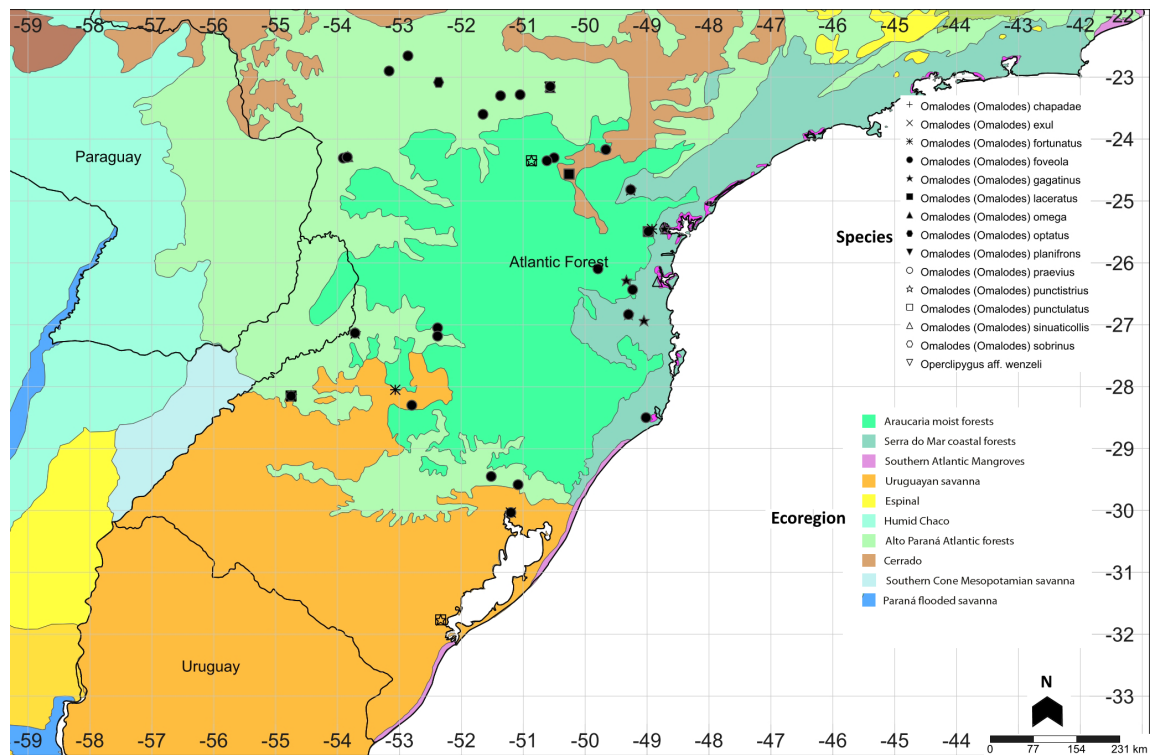
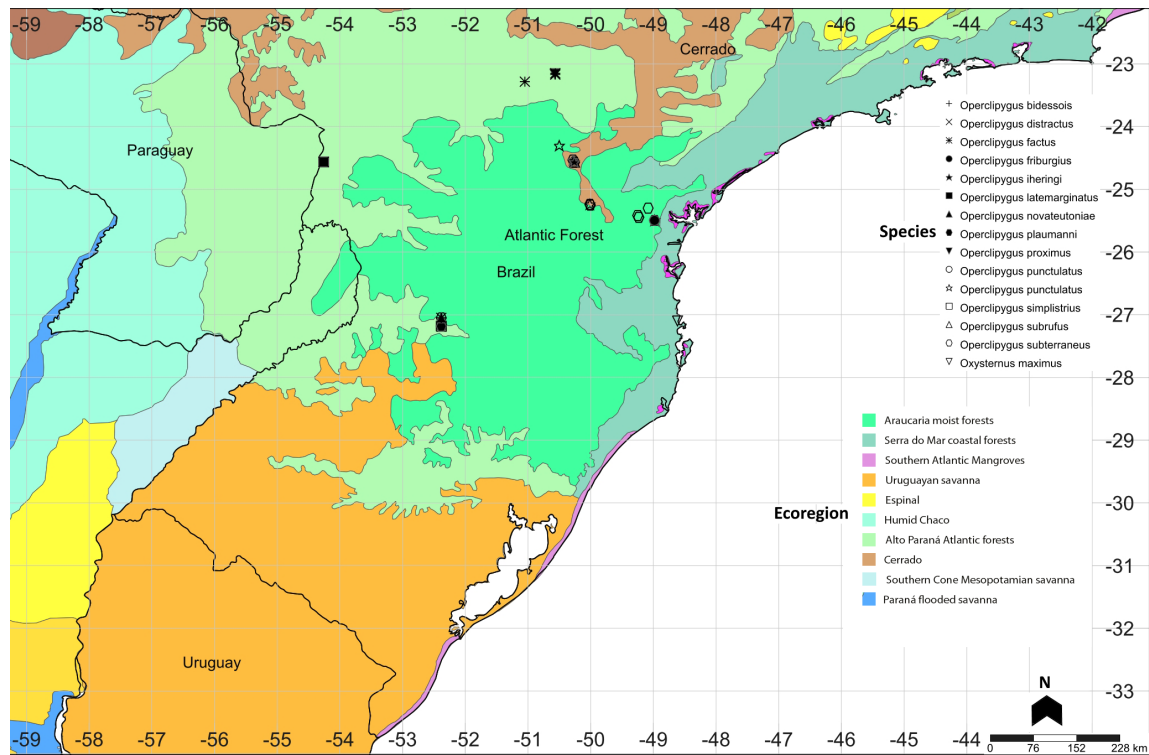
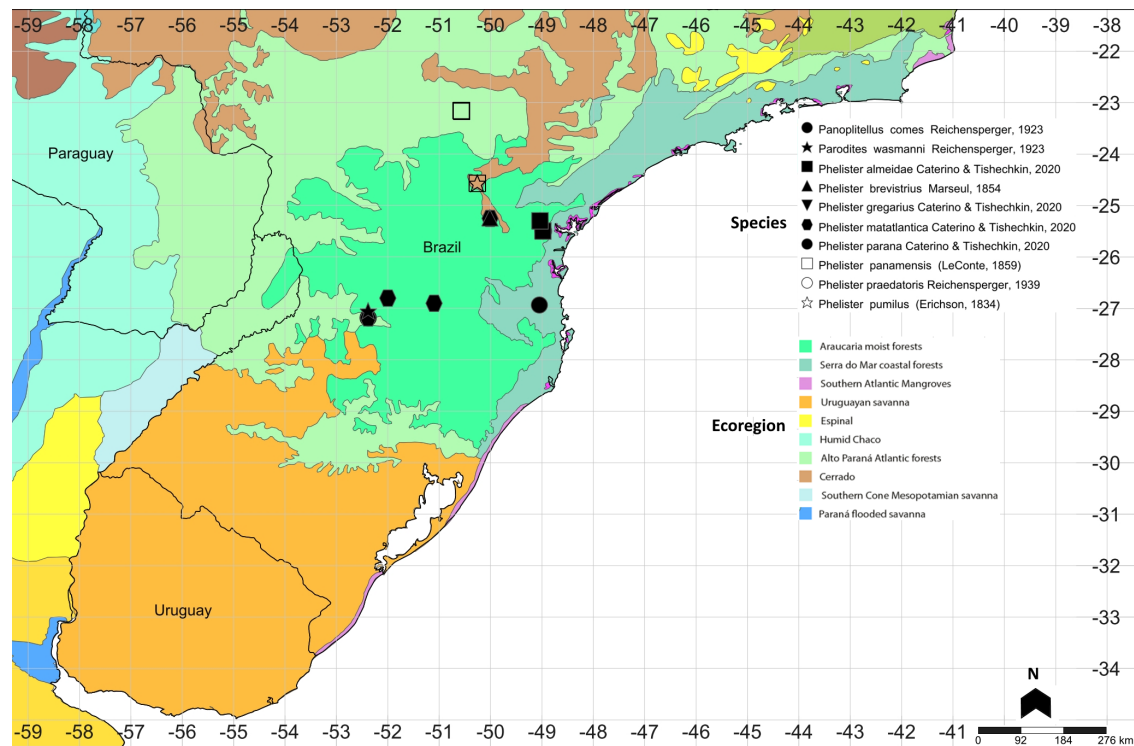


Figure 7. Geographic distribution of some Histeridae species along of the ecoregions from southern Brazil (presented in alphabetical order of genera, Om-Op).

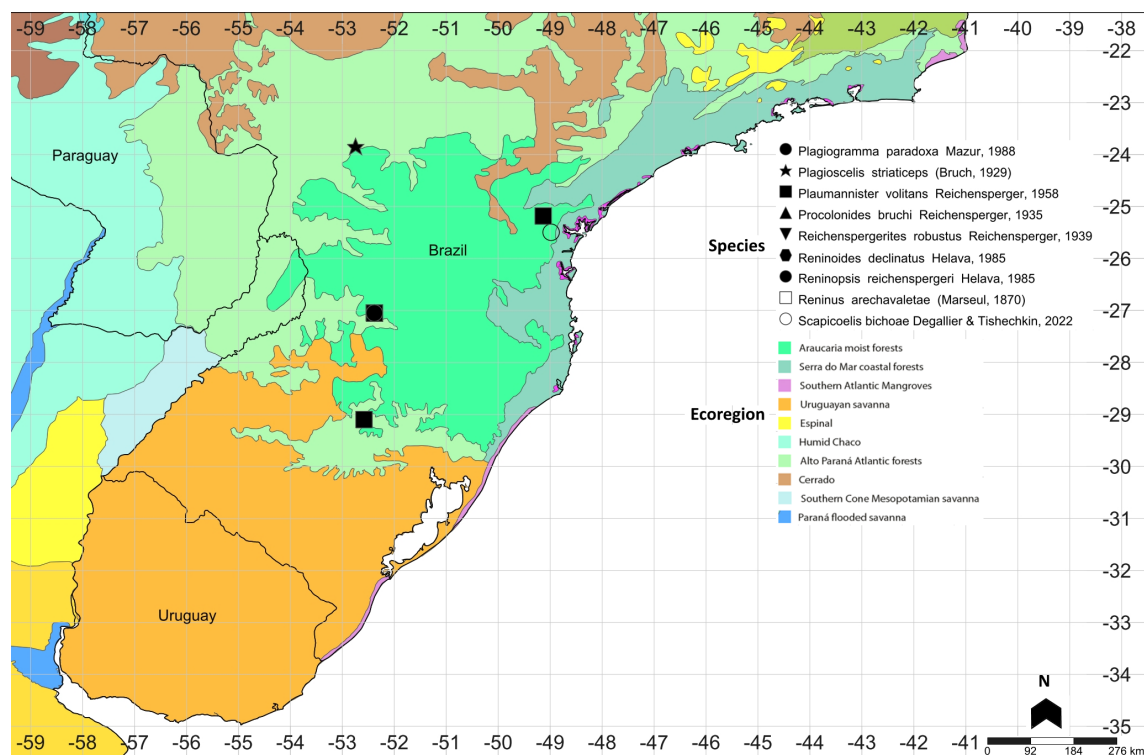


**Figure 8.** Geographic distribution of some Histeridae species along of the ecoregions from southern Brazil (presented in alphabetical order of genera, Op-Ox).



**Figure 9.** Geographic distribution of some Histeridae species along of the ecoregions from southern Brazil (presented in alphabetical order of genera, Pa-Ph).





**Figure 10.** Geographic distribution of some Histeridae species along of the ecoregions from southern Brazil (presented in alphabetical order of genera, Pl-Sc).

***Hister punctifer* Paykull, 1811.** BRAZIL: Paraná, Piraquara, Mananciais da Serra, 25.4925°S, 48.9781°W, 1038 m, September 2011, DZUP (1 specimen). Tibagi, Parque Estadual do Guartelá, 24.5636°S, 54.2597°W, 990 m, October 2011, DZUP (1 specimen).

***Plagioscelis striaticeps* (Bruch, 1929).** BRAZIL: Paraná, Tuneiras do Oeste, Reserva Biológica das Perobas, 23.8441°S, 52.7453°W, 534 m, September 2015, DZUP (1 specimen).

## Discussion

The taxa reported from southern Brazil represent 47.5% of the genera and 15.6% of the species known from the Neotropical region (Costa 2000), and 51% of the genera and 27.5% of the species of Brazilian histerid beetles (Bicho et al. 2022). The 75 species that are known from southern Brazil from a unique record of geographic distribution highlight the fact that there is insufficient data about these species. This information is relevant in the elaboration of lists of species with insufficient data (DD) in the Brazilian territory (MMA, 2019). We expect that more studies based on biological collections and the use of more diverse collecting methods will reveal a greater richness in species and wider geographic distribution throughout the area.

In our data *Euspilotus* (*Hesperosaprinus*) *azureus* is distributed in the Atlantic Forest and Pampa biomes, and *Hister punctifer* in the Atlantic Forest and Cerrado. The biome distribution of *Omalodes* (*Diplogrammicus*) *marseuli* is not known, since the species' label indicates only the state where it was collected, Rio Grande do Sul. *Omalodes* (*Diplogrammicus*) *marseuli* (Schmidt), *Euspilotus* (*Hesperosaprinus*) *azureus* and *Hister punctifer* had been already recorded in a fragment of Atlantic Forest and also in a natural area of this biome that has been replaced by pasture (Borges 2006). The last two species are also known from the Amazon biome (Dégallier et al. 2012a, 2017, 2018) and *Hister punctifer* is known to occur in pastures of the Brazilian Southeast (Flechtmann et al. 1995).

*Omalodes (s. str.) foveola* (Erichson) was the only species recorded from all biomes in the Brazilian South. It is also present in the Caatinga of Ucs (Rafael et al. 2017). This species is widely distributed in Central and South America (Leivas et al. 2013) in diverse vegetation formations. *Phelister panamensis* LeConte and *Hister cavifrons* were recorded for Atlantic Forest and Cerrado biomes in southern Brazil. These species had already been registered in the Caatinga (Rafael et al. 2017) and *Hister cavifrons* also in the Amazon biome (Dégallier et al. 2012a, 2017, 2018).

In addition, the following species occurring in southern Brazil have been found in the Amazon Forest of French Guiana (Dégallier et al. 2012a): *Acritus tuberculatus* Wenzel and Dybas, *Carcinops (s. str.) ovatula* Lewis, *Carcinops (s. str.) tenella* (Erichson), *Carcinops (s. str.) troglodytes* (Paykull), *Operclipygnus bidessois* (Marseul), *Hister curvatus* Erichson, *Hololepta (Leionota) reichii* (Marseul), *Omalodes (s. str.) anthracinus* Marseul, *Omalodes (s. str.) exul* Marseul, *Omalodes (s. str.) fortunatus* Lewis, *Omalodes (s. str.) foveola* Erichson, *Omalodes (s. str.) gagatinus* Erichson, *Omalodes (s. str.) praeivius* Marseul, *Euspilotus (Hesperosaprinus) modestus* (Erichson), *Epierus bisbistriatus* Marseul, *Epierus lucidulus* Erichson and *Trypanaeus volvulus* Erichson. The lack of distribution data for the other species makes it difficult to elaborate a discussion. The data presented herein are the first compiled for biomes from southern Brazil and represent the first compilation of the biogeographic distribution of Histeridae species in the Neotropical region.

The insect fauna of an area can change over time for numerous reasons, for instance climatic changes (Wolda 1988), dry and rainy periods (Zanella and Martins 2003; Hernández 2005), temperature and variations in photoperiod (Kaufman and Waldron 2002). With respect to the seasonal occurrence in southern Brazil, October, December and January were the richest months in number of species. Although *Hister punctifer* was recorded only in September and October in southern Brazil, the species occurred practically during all month of the year in pasture areas from the Brazilian Southeast, as it was the case with *Phelister panamensis* (Rodrigues and Marchini 1998). The data presented here are the first compilation of the temporal distribution for most of the Neotropical species.

Regarding altitudinal distribution, the greatest richness of species was found above 600 meters, which corresponds to 69.5% (114 species) of the total. This pattern must be better investigated, since it is possible that it reflects choices of collecting locality, which in many cases are influenced by their proximity to research centers. The data presented here are the first compilation of the altitudinal distribution of Histeridae species in the Neotropical region.

Of the total Histeridae species in southern Brazil, 45 (27.5%) are found inside Conservation Units. It should be noted that although in recent years the knowledge of the Histeridae biodiversity in legally protected areas has advanced (Ganho and Marinoni 2005; Leivas et al. 2013), the efforts to improve the knowledge on conservation at the regional (Leivas et al. 2013) and national level (Rafael et al. 2017) have been minimal. In this context, the present list is the most comprehensive for the validation of histerid beetle biodiversity in legally protected areas in southern Brazil.

A representative part of the histerid beetles recorded from southern Brazil, 52.3% of the genera and 27% of the species, are associated with other animals, especially ants. The information about associations/affinities of these beetles can be useful to direct collection efforts in faunistic surveys and to assist in the interpretation of the patterns found in ecological studies.

Our data allows us to conclude that we know more about histerid beetle biodiversity in the Brazilian Atlantic Forest biome (147 spp) than in other Brazilian biomes: Cerrado (18 spp.), Pampa (16 spp.), Caatinga (21 spp. according to Rafael et al. 2017) and Pantanal (without available compilations). As far as we know, the Alto Paraná Atlantic forest is the richest ecoregion (83 species). For a better understanding of histerid beetle biodiversity in the Brazilian territory, sampling efforts are necessary, mainly from geographic regions, biomes and ecoregions that have been insufficiently surveyed. We recommend that more sampling is performed in southern Brazil, primarily in western frontier, Atlantic coast and extreme south (Pampa biome).

We expect that our data will contribute to the Taxonomic Catalog of the Brazilian Fauna, and consequently will direct future research that can help in the elaboration of public policies for the conservation of biodiversity and improvements in the management of Brazil's Conservation Units.

**Table 1.** Compilation of geographical, temporal, altitudinal, biome and ecoregion distribution of Histeridae species from southern Brazil (states of Paraná, Santa Catarina and Rio Grande do Sul). CE: Cerrado; AF: Atlantic Forest; PA: Pampa; APF: Alto Paraná Atlantic forest; AMF: Araucaria moist forest; SMF: Serra do Mar coastal forest; US: Uruguayan Savana; SAM: Southern Atlantic mangroves; Unique Record = if the species is known just for only one locality. \* New record to southern Brazil. \*\* No information about the month of collection was available in the original source. \*\*\* Geographic coordinates or information about specific locality or municipality were not available in the original source, so it was not possible to recover with reliability the altitudinal data, ecoregion and/or biome.

Taxon	Months												Altitude (m)	Biome	Ecoregion	Unique record			
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec					Unknown**		
<b>Abraeinae</b>																			
<i>Acritus (Pycnacritus) tuberculatus</i> Wenzel and Dybas									x							642	AF	APF	Yes
<i>Aeletes (Aeletes) nicolasi</i> Leivas	x								x							919	AF	AMF	Yes
<i>Teretriosoma festivum</i> (Lewis)													x		unknown***	unknown	unknown	unknown	Yes
<i>Teretrius (Neotepetrius) gigas</i> (Mazur)									x						642	AF	APF	APF	Yes
<i>Teretrius tuberculifrons</i> (Mazur)													x		unknown	AF	unknown	unknown	Yes
<b>Dendrophilinae</b>																			
<i>Carcinops (Carcinops) ovatula</i> Lewis													x		150	AF	SMF	SMF	Yes
<i>Carcinops (Carcinops) plaumanni</i> Wenzel									x						642	AF	APF	APF	Yes
<i>Carcinops (Carcinops) tenella</i> (Erichson)													x		unknown	AF	unknown	unknown	Yes
<i>Carcinops (Carcinops) froglydites</i> (Paykull)	x	x	x	x	x	x	X	x	x	x	x	x			90-542	AF, PA	APF, US	APF, US	No
<i>Carcinops (Carcinops) tuberata</i> Wenzel									x						642	AF	APF	APF	Yes
<i>Paromalus (Isolomalus) inunctus</i> Marseul													x		unknown	AF	unknown	unknown	Yes
<i>Paromalus (Isolomalus) samba</i> Mazur													x		unknown	AF	unknown	unknown	Yes
<b>Haeteriinae</b>																			
<i>Alloiodites dispar</i> (Reichensperger)															642	AF	APF	APF	Yes
<i>Alloiodites plaumanni</i> (Reichensperger)	x	x	x	x	x								x		642-914	AF	APF	APF	No
<i>Alloiodites regulus</i> (Reichensperger)															642	AF	APF	APF	Yes
<i>Anasynoides striatus</i> (Reichensperger)															unknown	AF	unknown	unknown	Yes
<i>Aristomorphus perversus</i> (Reichensperger)													x		150	AF	SMF	SMF	Yes
<i>Bruchodites praeclusus</i> (Reichensperger)															642	AF	APF	APF	Yes
<i>Cheilister lucidulus</i> Reichensperger													x		150	AF	SMF	SMF	Yes
<i>Chrysaerius iheringi</i> Reichensperger													x		150-642	AF	APF, SMF	APF, SMF	No

Taxon	Months												Altitude (m)	Biome	Ecoregion	Unique record	
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec					Unknown**
<i>Colonioides quadriglumis</i> (Reichensperger)*			x											1038	AF	AMF	Yes
<i>Colonioides hubrichi</i> Bruch		x												1038	AF	AMF	Yes
<i>Daitrosister setulosus</i> Schmidt						x			x					642-800	AF	APF, AMF	No
<i>Discoscelis canaliculata</i> (Reichensperger)										x				943	AF	AMF	Yes
<i>Ecclisister bickhardtii</i> (Reichensperger)												x		150	AF	SMF	Yes
<i>Euclasea diadocha</i> (Reichensperger)	x							x						619-642	AF	APF, AMF	No
<i>Euclasea novaetentonitiae</i> Reichensperger		x	x	x	x									642	AF	APF	Yes
<i>Euclasea pumila</i> (Reichensperger)	x				x			x						642	AF	APF	Yes
<i>Euclasea splendens</i> Reichensperger	x													150-831	AF	SMF, AMF	No
<i>Euxenister asperatus</i> Reichensperger												x		unknown	unknown	unknown	Yes
<i>Fistulaster hamata</i> Helava			x											642	AF	APF	Yes
<i>Helavadites elegantulus</i> (Reichensperger)	x		x	x	x									642	AF	APF	Yes
<i>Hemicolonides plaumanni</i> Reichensperger												x		unknown	AF	unknown	Yes
<i>Hetaeritobius borgmeieri</i> (Reichensperger)												x		831	AF	AMF	Yes
<i>Hetaeritobius bucki</i> Reichensperger												x		54	PA	US	Yes
<i>Hippeutister plaumanni</i> Reichensperger												x		642	AF	APF	Yes
<i>Homalopygus commensalis</i> Lewis												x		150	AF	SMF	Yes
<i>Iugulister clarissae</i> Reichensperger													x	642-1038	AF	APF, AMF	No
<i>Kleptisister hirsuta</i> Helava													x	1000	AF	AMF	Yes
<i>Leptosister patulus</i> Helava													x	642	AF	APF	Yes
<i>Mesynodites aciculatus</i> (Schmidt)			x	x	x									642	AF	APF	Yes
<i>Mesynodites schuppii</i> (Schmidt)														642	AF	APF	Yes
<i>Mesynodites sodalis</i> (Reichensperger)													x	unknown	AF	unknown	Yes
<i>Metasynodites legionarius</i> (Reichensperger)	x													831	AF	AMF	Yes
<i>Metasynodites minor</i> (Reichensperger)													x	151-831	AF	APF, AMF	No
<i>Metasynodites paschalis</i> (Reichensperger)	x								x					642-1000	AF	APF, AMF	No
<i>Monotonodites nitidus</i> (Reichensperger)	x													642-831	AF	APF, AMF	No
<i>Monotonodites raptantis</i> (Reichensperger)													x	54	PA	US	Yes

Taxon	Months												Altitude (m)	Biome	Ecoregion	Unique record	
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec					Unknown**
<i>Panoplitellus comes</i> Reichensperger													x	150	AF	SMF	Yes
<i>Paratropinus varipunctatus</i> Reichensperger													x	unknown	AF	unknown	Yes
<i>Parodites wasmanni</i> Reichensperger													x	642	AF	APF	Yes
<i>Plagioscelis striaticeps</i> (Bruch)*								x						534	AF	APF	Yes
<i>Plaumannister volitans</i> Reichensperger													x	606-874	AF	APF, AMF	No
<i>Procolonides bruchi</i> Reichensperger													x	642	AF	APF	Yes
<i>Psalidister furcatus</i> Reichensperger													x	unknown	AF	unknown	Yes
<i>Psalidister quadriglumis</i> Reichensperger													x	unknown	AF	unknown	Yes
<i>Reichenspergerites robustus</i> (Reichensperger)					x									642	AF	APF	Yes
<i>Reninoides declinatus</i> Helava							x							642	AF	APF	Yes
<i>Reninopsis reichenspergeri</i> Helava									x					642	AF	APF	Yes
<i>Reninus arechavaletae</i> (Marseul)													x	642	AF	APF	Yes
<i>Reninus meticulosus</i> (Lewis)													x	558	AF	APF	Yes
<i>Scapicoelis bichoa</i> Degallier and Tishechkin	x											x		1000-1038	AF	AMF	No
<i>Sternocoelopsis auricomus</i> Reichensperger													x	unknown	unknown	unknown	Yes
<i>Sternocoelopsis verselyi</i> Reichensperger													x	unknown	AF	unknown	Yes
<i>Symphylister collegianus</i> Reichensperger													x	150	AF	SMF	Yes
<i>Synoditulus separatus praedator</i> (Reichensperger)													x	642	AF	APF	Yes
<i>Terapus scaphipes</i> Reichensperger													x	58	unknown	unknown	Yes
<i>Teratosoma longipes</i> Lewis													x	150	AF	SMF	Yes
<i>Troglosternus dasyopus</i> Bickhardt													x	642	AF	APF	Yes
<b>Histerinae</b>																	
<i>Baconia angusta</i> Schmidt														990	CE	CE	Yes
<i>Baconia bullifrons</i> Caterino and Tishechkin	x									x				642-1038	AF	APF, AMF	No
<i>Baconia burmeisteri</i> Mazur													x	unknown	unknown	unknown	Yes
<i>Baconia diminua</i> Caterino and Tishechkin										x				642	AF	APF	Yes
<i>Baconia famelica</i> Caterino and Tishechkin	x									x	x	x		890-935	AF	APF, AMF	No
<i>Baconia foliosoma</i> Caterino and Tishechkin													x	642	AF	APF	Yes

Taxon	Months												Altitude (m)	Biome	Ecoregion	Unique record	
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec					Unknown**
<i>Bacotia fortis</i> Caterino and Tishechkin										x				760	AF	AMF	Yes
<i>Bacotia grossii</i> Caterino and Tishechkin						x								1038	AF	AMF	Yes
<i>Bacotia guartela</i> Caterino and Tishechkin											x			990	CE	CE	Yes
<i>Bacotia leivasi</i> Caterino and Tishechkin										x				914	AF	AMF	Yes
<i>Bacotia loricata</i> Lewis												x		150	AF	SMF	Yes
<i>Bacotia obsoleta</i> Caterino and Tishechkin								x			x			642	AF	APF	Yes
<i>Bacotia patula</i> Lewis				x										150-642	AF	SMF, APF	No
<i>Bacotia punctiventer</i> Caterino and Tishechkin										x				642	AF	APF	Yes
<i>Bacotia repens</i> Caterino and Tishechkin	x							x						642-890	AF	APF, AMF	No
<i>Bacotia micans</i> (Schmidt)									x					150-642	AF	SMF, APF	No
<i>Bacotia riouka</i> (Marseul)	x													642	AF	APF	Yes
<i>Bacotia slipinskii</i> Mazur														642	AF	APF	Yes
<i>Bacotia varicolor</i> (Marseul)					x									unknown	AF	unknown	Yes
<i>Eutidium williamsi</i> (Dillon)												x		unknown	AF	unknown	Yes
<i>Hister alegre</i> Caterino									x					54	PA	US	Yes
<i>Hister catarinae</i> Caterino									x					642	AF	APF	Yes
<i>Hister cavifrons</i> Marseul	x	x	x	x					x	x	x			0-990	CE, AF	APF, SMF, AMF, CE	No
<i>Hister curvatus</i> Erichson										x				642	AF	APF	No
<i>Hister diadema</i> Marseul									x	x				452-642	AF, PA	APF, AMF, US	No
<i>Hister lissurus</i> Marseul	x	x	x	x		x		x	x	x	x			630-990	CE, AF	APF, AMF, CE	No
<i>Hister lucia</i> Leivas, Moura and Caterino												x		240	AF	APF	Yes
<i>Hister punctifer</i> Paykull *										x				990-1038	CE, AF	CE, AMF	No
<i>Hololepta reichii</i> (Marseul)	x													308	AF	APF	Yes
<i>Kaszabister rubellus</i> (Erichson)				x	x	x	x	x	x	x	x			609-831	AF	AMF, APF	No
<i>Nunbergia exosternoides</i> Mazur	x													642	AF	APF	Yes
<i>Omalodes (Diplogrammicus) ebeninus</i> Erichson												x		213	PA	US	Yes



Taxon	Months												Altitude (m)	Biome	Ecoregion	Unique record	
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec					Unknown**
<i>Omalodes (Diplogrammicus) marseulli</i> Schmidt													x	unknown	unknown	Yes	
<i>Omalodes (Omalodes) angulatus</i> (Fabricius)	x	x	x	x	x	x	x	x	x	x	x	x		117-1038	AF	APF, SMF, AMF, SAM	No
<i>Omalodes (Omalodes) anthracinus</i> Marseul	x	x	x											123-873	AF	SMF, AMF	No
<i>Omalodes (Omalodes) bisulcatus</i> Desbordes									x	x	x			890-1038	AF	AMF	No
<i>Omalodes (Omalodes) chapadae</i> Lewis														452	AF	AMF, US	Yes
<i>Omalodes (Omalodes) exul</i> Marseul														54-240	AF, PA	APF, US	No
<i>Omalodes (Omalodes) fortunatus</i> Lewis														452-1539	AF	SMF, AMF, US	No
<i>Omalodes (Omalodes) foveola</i> Erichson	x	x	x	x	x			x	x	x	x	x		123-1000	CE, AF, PA	APF, SMF, AMF, CE, US	No
<i>Omalodes (Omalodes) gagatinus</i> Erichson	x	x	x	x	x			x						129-853	AF	AMF, SMF, SAM	No
<i>Omalodes (Omalodes) laceratus</i> Marseul										x	x			990-1038	CE, AF	AMF, CE	No
<i>Omalodes (Omalodes) omega</i> (Kirby)										x	x	x		308-539	AF	APF	No
<i>Omalodes (Omalodes) planifrons</i> Marseul														1038	AF	AMF	Yes
<i>Omalodes (Omalodes) praeivius</i> Marseul													x	1038	AF	AMF	Yes
<i>Omalodes (Omalodes) punctistrius</i> Marseul	x	x	x											03-819	AF, PA	AMF, SMF, APF, US	No
<i>Omalodes (Omalodes) punctulatus</i> Moura and Almeida														03-819	AF, PA	AMF, APF, US	No
<i>Omalodes (Omalodes) sinuaticollis</i> Marseul														123	AF	SMF	Yes
<i>Omalodes (Omalodes) sobrinus</i> Erichson	x													129	AF	SAM	Yes
<i>Operclipygus aff. wenzeli</i> Caterino and Tishechkin	x													532	AF	APF	Yes
<i>Operclipygus bidessois</i> (Marseul)														642	AF	APF	Yes
<i>Operclipygus distractus</i> Schmidt													x	990	CE	CE	Yes
<i>Operclipygus furtus</i> (Marseul)	x	x	x	x										473-642	AF	APF	No
<i>Operclipygus friburgius</i> (Marseul)													x	1038	AF	AMF	Yes
<i>Operclipygus iheringi</i> (Bickhardt)	x													990-1038	CE, AF	CE, AMF	No
<i>Operclipygus latemarginatus</i> Bickhardt													x	990	CE	CE	Yes

Taxon	Months												Altitude (m)	Biome	Ecoregion	Unique record	
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec					Unknown**
<i>Operclipygus novateutoniae</i> Caterino and Tishechkin					x				x	x				642	AF	APF	Yes
<i>Operclipygus plaumanni</i> Caterino and Tishechkin	x				x				x					642	AF	APF	Yes
<i>Operclipygus proximus</i> Caterino and Tishechkin				x										528	AF	APF	Yes
<i>Operclipygus punctulatus</i> Caterino and Tishechkin			x							x				642	AF	APF	Yes
<i>Operclipygus sejunctus</i> (Schmidt)			x					x		x	x			800-1038	AF	CE, AMF	No
<i>Operclipygus simplistrius</i> Caterino and Tishechkin	x													642	AF	APF	Yes
<i>Operclipygus subrufus</i> Caterino and Tishechkin												x		990-1038	CE, AF	CE, AMF	No
<i>Operclipygus subterraneus</i> Caterino and Tishechkin	x	x	x	x	x			x		x	x			642-1038	CE, AF	CE, AMF, APF	No
<i>Phelister almeidae</i> Caterino and Tishechkin	x							x		x	x			907-1000	AF	AMF	No
<i>Phelister brevistrius</i> Marseul										x				990	CE	CE	Yes
<i>Phelister gregarius</i> Caterino and Tishechkin								x						1000	AF	AMF	No
<i>Phelister mataitantica</i> Caterino and Tishechkin						x						x		320-1039	CE, AF	AMF, APF, CE	No
<i>Phelister panamensis</i> LeConte	x	x	x	x	x	x		x		x	x			528-990	CE, AF	APF, CE	No
<i>Phelister parana</i> Caterino and Tishechkin	x					x		x		x	x			907-1039	AF	AMF	No
<i>Phelister praedatoris</i> Reichensperger				x	x	x		x						375	AF	APF	No
<i>Phelister pumilus</i> (Erichson)									x					990	CE	CE	Yes
<i>Phelister rectisternus</i> Lewis												x		unknown	AF	unknown	Yes
<i>Phelister rio</i> Caterino and Tishechkin								x		x				1000	AF	AMF	No
<i>Phelister testudo</i> Lewis												x		unknown	AF	unknown	Yes
<i>Scapomegas aurifer</i> Marseul	x	x	x	x	x	x		x		x	x			308-1038	CE, AF	CE, AMF, APF	No
<i>Scapomegas gibbus</i> Marseul	x	x	x	x								x		308-558	AF	AMF, APF	No
<i>Sphyracus arjubaulti</i> (Marseul)		x				x		x						642	AF	APF	No
<i>Tarsilister loretoensis</i> Bruch												x		642	AF	APF	Yes

Taxon	Months												Altitude (m)	Biome	Ecoregion	Unique record		
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec					Unknown**	
<b>Saprininae</b>																		
<i>Euspilotus (Hesperosaprinus) alvarengai</i> Ariagada												x			660	AF	APF	Yes
<i>Euspilotus (Hesperosaprinus) azureus</i> (Sahlberg)	x	x	x	x	x	x	x	x	x	x	x	x			46-919	AF, PA	APF, AMF, US	No
<i>Euspilotus (Hesperosaprinus) inversus</i> (Lewis)													x		unknown	AF	unknown	Yes
<i>Euspilotus (Hesperosaprinus) modestus</i> (Erichson)													x		unknown	AF	unknown	Yes
<i>Euspilotus (Neosaprinus) pipitzi</i> (Marseul)													x		unknown	unknown	unknown	Yes
<i>Euspilotus (Neosaprinus) rubriculatus</i> (Marseul)												x			90	PA	US	Yes
<i>Euspilotus (Platysaprinus) myrmecophilus</i> (Bickhardt)	x	x	x	x	x	x	x	x	x	x	x	x			unknown	unknown	unknown	No
<b>Tribalinae</b>																		
<i>Epierus bisbistriatus</i> Marseul															unknown	AF	unknown	Yes
<i>Epierus lucidulus</i> Erichson													x		unknown	AF	unknown	Yes
<i>Epierus vandepolli</i> Schmidt													x		150	AF	SMF	Yes
<i>Idolia punctisternum</i> Lewis													x		unknown	AF	unknown	Yes
<i>Plagiogramma paradoxa</i> Mazur														x	642	AF	APF	Yes
<b>Trypanaeinae</b>																		
<i>Coptotrophis deyrolti</i> (Marseul)															unknown	AF	unknown	Yes
<i>Trypanaeus bipustulatus</i> (Fabricius)													x		unknown	AF	unknown	Yes
<i>Trypanaeus thoracicus</i> (Fabricius)													x		unknown	AF	unknown	Yes
<i>Trypanaeus volvulus</i> Erichson													x		unknown	AF	unknown	Yes

Table 2. List of Histeridae species recorded inside of Conservation Units from southern Brazil.

Conservation unit	Biome	Ecoregion	Taxa
<b>State of Paraná</b>			
Área Especial de Interesse Turístico do Marumbi (AEIT) do Marumbi	Atlantic Forest	Araucaria moist forest/ Serra do Mar coastal forest	<i>Baonia bullifrons</i> Caterino and Tishechkin, <i>Baonia grossii</i> (Caterino and Tishechkin), <i>Colonides hubrichi</i> Bruch, <i>Colonides quadriglumis</i> (Reichensperger), <i>Hister punctifer</i> Paykull, <i>Iugulister clarissae</i> Reichensperger, <i>Omalodes</i> (s. str.) <i>angulatus</i> (Fabricius), <i>Omalodes</i> (s. str.) <i>bisulcatus</i> Desbordes, <i>Omalodes</i> (s. str.) <i>foveola</i> (Erichson), <i>Omalodes</i> (s. str.) <i>laceratus</i> Marseul, <i>Omalodes</i> (s. str.) <i>planifrons</i> Marseul, <i>Omalodes</i> ( <i>Omalodes</i> ) <i>praeivius</i> Marseul, <i>Operclipygus distractus</i> (Schmidt), <i>Operclipygus fruburgii</i> (Marseul), <i>Operclipygus iheringi</i> (Bickhardt), <i>Operclipygus sejunctus</i> (Schmidt), <i>Operclipygus subtrifus</i> Caterino and Tishechkin, <i>Operclipygus subterraneus</i> Caterino and Tishechkin, <i>Scapomegas aurifer</i> Marseul, <i>Phelister almeidae</i> Caterino and Tishechkin, <i>Phelister gregarius</i> Caterino and Tishechkin, <i>Phelister mataitantica</i> Caterino and Tishechkin, <i>Phelister parana</i> Caterino and Tishechkin, <i>Phelister rio</i> Caterino and Tishechkin, <i>Scapicodis bichoa</i> Degallier and Tishechkin, 2022
Estação Ecológica Caiuá	Atlantic Forest	Alto Paraná Atlantic forest	<i>Euspilotus</i> ( <i>Hesperosaprinus</i> ) <i>azureus</i> (Sahlberg), <i>Omalodes</i> (s. str.) <i>angulatus</i> (Fabricius)
Estação Ecológica Ilha do Mel	Atlantic Forest	Serra do Mar coastal forest	<i>Hister cavifrons</i> Marseul
Parque Ecológico Samuel Klabin	Atlantic Forest	Araucaria moist forest	<i>Omalodes</i> (s. str.) <i>angulatus</i> (Fabricius)
Parque Estadual de Guartelá	Cerrado	Cerrado/Araucaria moist forest	<i>Baonia</i> (s. str.) <i>angusta</i> Schmidt, <i>Baonia quartela</i> Caterino and Tishechkin, <i>Hister cavifrons</i> (Marseul), <i>Hister lissurus</i> Marseul, <i>Hister punctifer</i> Paykull, <i>Omalodes</i> (s. str.) <i>laceratus</i> Marseul, <i>Operclipygus distractus</i> Schmidt, <i>Operclipygus iheringi</i> (Bickhardt), <i>Operclipygus latemarginatus</i> Bickhardt, <i>Operclipygus subtrifus</i> Caterino and Tishechkin, <i>Operclipygus subterraneus</i> Caterino and Tishechkin, <i>Phelister panamensis</i> LeConte, <i>Phelister pumilus</i> (Erichson), <i>Scapomegas aurifer</i> Marseul.
Parque Estadual do Cerrado	Cerrado	Cerrado	<i>Hister cavifrons</i> Marseul, <i>Omalodes</i> (s. str.) <i>foveola</i> (Erichson)
Parque Estadual do Marumbi	Atlantic Forest	Serra do Mar coastal forest	<i>Omalodes</i> (s. str.) <i>fortunatus</i> Lewis
Parque Estadual Mata São Francisco	Atlantic Forest	Alto Paraná Atlantic forest	<i>Omalodes</i> (s. str.) <i>angulatus</i> (Fabricius), <i>Omalodes</i> (s. str.) <i>foveola</i> (Erichson), <i>Omalodes</i> (s. str.) <i>omega</i> (Kirby), <i>Operclipygus aff. wenzeli</i> Caterino and Tishechkin, <i>Operclipygus farctus</i> (Marseul), <i>Operclipygus proximus</i> Caterino and Tishechkin, <i>Phelister panamensis</i> LeConte, <i>Reninus meticalosus</i> (Lewis), <i>Scapomegas aurifer</i> Marseul, <i>Scapomegas gibbus</i> Marseul
Parque Estadual São Camilo	Atlantic Forest	Alto Paraná Atlantic forest	<i>Hister cavifrons</i> Marseul, <i>Omalodes</i> (s. str.) <i>foveola</i> (Erichson)
Parque Estadual Vila Velha	Atlantic Forest	Cerrado/Araucaria moist forest	<i>Operclipygus sejunctus</i> (Schmidt), <i>Operclipygus subterraneus</i> Caterino and Tishechkin, <i>Phelister brevis</i> Marseul

Conservation unit	Biome	Ecoregion	Taxa
Parque Mata dos Godoy	Atlantic Forest	Alto Paraná Atlantic forest	<i>Scapomegas aurifer</i> Marseul
Reserva Biológica das Perobas	Atlantic Forest	Alto Paraná Atlantic forest/ Araucaria moist forest	<i>Euspilotus azureus</i> (Sahlberg), <i>Hister cavifrons</i> Marseul, <i>Plagiosceles striaticeps</i> (Bruch), <i>Scapomegas gibbus</i>
Reserva Estadual de Vila Rica	Atlantic Forest	Alto Paraná Atlantic forest	<i>Omalodes</i> (s. str.) <i>foveola</i> (Erichson)
<b>State of Rio Grande do Sul</b>			
Parque Estadual do Turvo	Atlantic Forest	Alto Paraná Atlantic forest	<i>Omalodes</i> (s. str.) <i>angulatus</i> (Fabricius),
Parque da Ferradura	Atlantic Forest	Araucaria moist forest	<i>Kazabister rubellus</i> (Erichson)

**Table 3.** List of Histeridae species associated with live animals in southern Brazil.

Histeridae species	Information about the associated animal	Order and family of the associated animal
<i>Alloiodites dispar</i> (Reichensperger)	<i>Labidus praedator</i> (Smith, 1858) and <i>Eciton Latreille</i>	Hymenoptera: Formicidae
<i>Alloiodites plaumanni</i> (Reichensperger)	<i>Labidus praedator</i> (Smith)	Hymenoptera: Formicidae
<i>Alloiodites regulus</i> (Reichensperger)	<i>Eciton Latreille</i> and <i>Labidus praedator</i> (Smith)	Hymenoptera: Formicidae
<i>Aristomorplus perversus</i> (Reichensperger)	<i>Labidus coecus</i> (Latreille)	Hymenoptera: Formicidae
<i>Bruchodites praeclusus</i> (Reichensperger)	<i>Eciton Latreille</i> and <i>Labidus praedator</i> (Smith)	Hymenoptera: Formicidae
<i>Chrysetarius iheringi</i> Reichensperger	<i>Eciton quadriglume</i> (Haliday)	Hymenoptera: Formicidae
<i>Daitrosister setulosus</i> (Reichensperger)	<i>Eciton quadriglume</i> (Haliday)	Hymenoptera: Formicidae
<i>Ecclisister bickhardti</i> (Reichensperger)	<i>Eciton burchellii</i> (Westwood)	Hymenoptera: Formicidae
<i>Euclasea novaezeutoniae</i> Reichensperger	<i>Eciton Latreille</i> and <i>Labidus praedator</i> (Smith)	Hymenoptera: Formicidae
<i>Euclasea pumila</i> (Reichensperger)	<i>Labidus praedator</i> (Smith)	Hymenoptera: Formicidae
<i>Euclasea splendens</i> Reichensperger	<i>Eciton quadriglume</i> (Haliday)	Hymenoptera: Formicidae
<i>Euspilotus</i> ( <i>Platysaprinus</i> ) <i>myrmecophilus</i> (Bickhardt, 1910)	<i>Acromymex ambiguus</i> (Emery, 1888) and <i>Acromymex lundii</i> (Guérin-Méneville, 1838)	Hymenoptera: Formicidae
<i>Euxenister asperatus</i> Reichensperger	<i>Eciton quadriglume</i> (Haliday)	Hymenoptera: Formicidae
<i>Fistulaster hamata</i> Helava	<i>Labidus praedator</i> (Smith)	Hymenoptera: Formicidae
<i>Helavadites elegantulus</i> (Reichensperger)	<i>Labidus praedator</i> (Smith)	Hymenoptera: Formicidae

Histeridae species	Information about the associated animal	Order and family of the associated animal
<i>Hetaerobius borgmeieri</i> (Reichensperger)	<i>Neivamyrmex legionis</i> (Smith)	Hymenoptera: Formicidae
<i>Hetaerobius bucki</i> Reichensperger	<i>Neivamyrmex raptor</i> (Forel)	Hymenoptera: Formicidae
<i>Hippeutister plaumanni</i> Reichensperger	<i>Solenopsis</i> Westwood	Hymenoptera: Formicidae
<i>Hister curvatus</i> (Erichson)	Ants	Hymenoptera: Formicidae
<i>Hister lissurus</i> Marseul	Ants	Hymenoptera: Formicidae
<i>Homalopygus commensalis</i> Lewis	Termites	Isoptera: family unknown
<i>Iugulister clarissae</i> Reichensperger	<i>Neivamyrmex</i> Borgmeier	Hymenoptera: Formicidae
<i>Kaszabister rubellus</i> (Erichson)	<i>Solenopsis</i> Westwood	Hymenoptera: Formicidae
<i>Mesynodites aciculatus</i> (Schmidt)	<i>Eciton</i> Latreille and <i>Labidus praedator</i> (Smith)	Hymenoptera: Formicidae
<i>Metasynodites legionarius</i> (Reichensperger)	<i>Neivamyrmex legionis</i> (Smith)	Hymenoptera: Formicidae
<i>Metasynodites minor</i> (Reichensperger)	<i>Neivamyrmex legionis</i> (Smith)	Hymenoptera: Formicidae
<i>Metasynodites paschalis</i> (Reichensperger)	<i>Neivamyrmex legionis</i> (Smith)	Hymenoptera: Formicidae
<i>Monotonodites nitidus</i> (Reichensperger)	<i>Eciton quadriglume</i> (Haliday)	Hymenoptera: Formicidae
<i>Omalothes (Omalothes) foveola</i> (Erichson)	<i>Pyrrhura frontalis</i> (Vieillot)	Psittaciiformes: Psittacidae
<i>Operclipygus novaeautoniae</i> Caterino and Tishechkin	<i>Acromyrmex</i> Mayr	Hymenoptera: Formicidae
<i>Panoplitellus comes</i> Reichensperger	<i>Eciton burchellii</i> (Westwood)	Hymenoptera: Formicidae
<i>Paratropinus variepunctatus</i> Reichensperger	<i>Eciton burchellii</i> (Westwood)	Hymenoptera: Formicidae
<i>Plaumannister volitans</i> Reichensperger	<i>Neivamyrmex</i> Borgmeier	Hymenoptera: Formicidae
<i>Procolonitides bruchi</i> Reichensperger	<i>Solenopsis</i> Westwood	Hymenoptera: Formicidae
<i>Psalidister furcatus</i> Reichensperger	<i>Eciton burchellii</i> (Westwood)	Hymenoptera: Formicidae
<i>Psalidister quadriglumis</i> Reichensperger	<i>Eciton quadriglume</i> (Haliday)	Hymenoptera: Formicidae
<i>Reichenspergerites robustus</i> (Reichensperger)	<i>Labidus praedator</i> (Smith)	Hymenoptera: Formicidae
<i>Reninus arechavaletae</i> (Marseul)	<i>Atta</i> Frabricius	Hymenoptera: Formicidae
<i>Sternocoelopsis auricomus</i> Reichensperger	<i>Eciton quadriglume</i> (Haliday)	Hymenoptera: Formicidae
<i>Sternocoelopsis veselyi</i> Reichensperger	<i>Eciton burchellii</i> (Westwood)	Hymenoptera: Formicidae
<i>Symphylister collegianus</i> Reichensperger	<i>Eciton burchellii</i> (Westwood)	Hymenoptera: Formicidae
<i>Synoditulus separatus praedator</i> Reichensperger	<i>Labidus praedator</i> (Smith)	Hymenoptera: Formicidae
<i>Tarsilister loretoensis</i> Bruch	<i>Pachycondyla striata</i> Smith	Hymenoptera: Formicidae
<i>Troglosternus dasyopus</i> Bickhardt	<i>Labidus praedator</i> (Smith)	Hymenoptera: Formicidae



**Table 4.** Histeridae species and other associations/affinities in southern Brazil.

<b>Histeridae species</b>	<b>Information about the association with animal carcass</b>
<i>Aeletes (Aeletes) nicolasi</i> Leivas	rabbit
<i>Euspilotus (Hesperosaprinus) azureus</i> (Sahlberg)	armadillo, <i>Sus scrofa</i> Linnaeus, catfish, chicken, pork and rabbit
<i>Hister cavifrons</i> (Marseul)	armadillo, mouse, snake, beef, and rabbit
<i>Hister lissurus</i> Marseul	beef and rabbit
<i>Hololepta (Leionota) reichii</i> Marseul	pork
<i>Omalodes (Omalodes) angulatus</i> (Fabricius)	<i>Leurolestes circunvagans</i> Rehn and Hebard
<i>Omalodes (Omalodes) omega</i> (Kirby)	pork and <i>Leurolestes circunvagans</i> Rehn and Hebard
<i>Operclipygus farctus</i> (Marseul)	<i>Leurolestes circunvagans</i> Rehn and Hebard
<i>Operclipygus proximus</i> Caterino and Tishechkin	<i>Leurolestes circunvagans</i> Rehn and Hebard
<i>Operclipygus subterraneus</i> Caterino and Tishechkin	buried carrion and rabbit
<i>Phelister panamensis</i> (LeConte)	<i>Leurolestes circunvagans</i> Rehn and Hebard
<i>Scapomegas aurifer</i> Marseul	<i>Leurolestes circunvagans</i> Rehn and Hebard
<i>Scapomegas gibbus</i> Marseul	Armadillo and <i>Leurolestes circunvagans</i> Rehn and Hebard
<b>Information about the association with dung</b>	
<i>Hister punctifer</i> Paykull	tapir stool
<i>Phelister panamensis</i> (LeConte)	cattle feces
<i>Phelister pumilus</i> (Erichson)	cattle feces
<i>Euspilotus (Neosaprinus) rubriculus</i> (Marseul)	chicken stools
<i>Hister cavifrons</i> (Marseul)	cattle manure, human feces, tapir stool and cow dung
<i>Hister lissurus</i> Marseul	cattle manure
<b>Information about the association with live plants</b>	
<i>Baconia patula</i> Lewis	<i>Bambusa tacuara</i> Arechav.
<i>Baconia grossii</i> Caterino and Tishechkin	arbor moss
<i>Omalodes (Omalodes) angulatus</i> (Fabricius)	sap of <i>Bacharis</i> sp.
<i>Omalodes (Omalodes) foveola</i> (Erichson)	sugar cane
<i>Omalodes (Omalodes) laceratus</i> Marseul	sugar cane
<b>Information about the association with decaying fruit</b>	
<i>Omalodes (Omalodes) foveola</i> (Erichson)	banana
<i>Omalodes (Omalodes) laceratus</i> Marseul	banana
<b>Information about the association with decaying trees</b>	
<i>Plagiogramma paradoxa</i> Mazur	under bark
<i>Baconia diminua</i> Caterino and Tishechkin	under bark
<b>Information about the association with litter</b>	
<i>Mesynodites schuppai</i> (Schmidt)	litter on forest floor

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