Arquivos de Zoologia

Museu de Zoologia da Universidade de São Paulo

Volume 47(3):43-128, 2016 **www.mz.usp.br/publicacoes** **ISSN impresso: 0066-7870**
www.revistas.usp.br/azmz **ISSN *on-line:* 2176-7793**

Research on bats (Chiroptera) from the state of São Paulo, southeastern Brazil: annotated species list and bibliographic review

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ABSTRACT

The state of São Paulo has a high number of mammal species, a great part of those is represented by bats. In this study I conducted historical review about the research on bats from the state of São Paulo and provide the first annotated species list and bibliographic review for the state. A total of 79 extant species belonging to eight families of bats occur in São Paulo. At least seven species are represented by fossils, two of these are extinct. I also present new records of rarely sampled species in the state such as Diaemus youngii, Diphylla ecaudata, Saccopteryx leptura, Thyroptera tricolor *and* Micronycteris microtis. *Three species,* Micronycteris brosseti, Mimon crenulatum *and* Uroderma bilobatum *were removed from the list. Also is confirmed the occurrence of* Histiotus montanus *and* Molossus aztecus *in the state.*

Key-Words: Annotated list; Distribution; Diurnal roosts; Nomenclature; Sampling.

INTRODUCTION

Brazil is the first country in the world in terms of mammal diversity with approximately 701 species, of which 178 are bats (Paglia *et al.,* 2012; Nogueira *et al.,* 2014). The state of São Paulo, located in southeastern Brazil, has a higher than expected mammal fauna that can be explained by its geographic position, its diversity of biomes and by the high number of mammal species with wide distributional range in South America which overlap their range in the region (de Vivo, 1998; de Vivo *et al.,* 2011).

The earliest mentions of bats from the state of São Paulo consisted of a few anecdotal accounts made by European travelers, such as Hans Staden in the 16th century (Papavero & Teixeira, 2007); it was not until the 19th century that the first scientific contributions to the knowledge of the chiropterofauna of São Paulo were made (Vieira, 1942; Vanzolini, 2004). Those consisted of sporadic records based mostly on specimens collected by the expeditions led by Johann Natterer, Johann Spix, Ignaz von Olfers and Friedrich Sellow *en route* to other regions of Brazil, while passing through Fazenda Ipanema. This place, an ironworks run by Colonel Friedrich Varnhagen, was a meeting point for Germanic naturalists and one of the most important collecting localities in the 19th century São Paulo, located nowadays in the municipalities of Iperó, Sorocaba and Araçoiaba da Serra (Pelzeln, 1883; Streseman, 1948).

Among the aforementioned naturalists, the Austrian Johann Natterer was the main responsible for collecting bats in the state (Vanzolini, 2004; de Vivo *et al.,* 2011); a total of 14 species of bats, more than a half of the species then known for the state according

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http://dx.doi.org/10.11606/issn.2176-7793.v47i3p43-128

TABLE 1: Species of bats collecteed by Johann Natterer in São Paulo, as listed by Pelzeln (1883).

Current name	Name as listed by Pelzeln	Locality
?	*Stenoderma (Uroderma) personatum*	Ypanema (= Ipanema, Iperó)
Carollia perspicillata	*Vampyrus (Carollia) brevicaudus*	Mattodentro, Ypanema
Anoura caudifer	*Lonchoglossa caudifera*	Mattodentro, Ypanema
Artibeus fimbriatus	*Stenoderma (Artibeus) perspicillatus*	Ypanema
Platyrrhinus lineatus	*Stenoderma (Vampyrops) lineatum*	Ypanema
Pygoderma bilabiatum	*Stenoderma (Pygoderma) bilabiatum*	Ypanema
Vampyressa pusilla	*Stenoderma (Chiroderma) pusillum*	Ypanema
Sturnira lilium	*Stenoderma (Sturnira) excisum*	Ypanema, Ytararé (= Itararé)
Sturnira lilium	*Stenoderma (Sturnira) albescens*	Ypanema
Tadarida brasiliensis	*Nyctinomus brasiliensis*	Ypanema, Ytararé
Molossus molossus	*Molossus velox*	Ypanema
Histiotus velatus	*Plecotus velatus*	Ypanema
Myotis levis	*Vespertilio nubilus*	S. Paulo, Ypanema
Myotis nigricans	*Vespertilio parvulus*	Ypanema
Eptesicus brasiliensis	*Vesperus nitens*	Ypanema
Lasiurus blossevillii	*Nycticejus Nattereri*	Ypanema

to Ihering (1894), were collected by the naturalist in São Paulo (Pelzeln, 1883; Table 1). The majority of the bat specimens collected in São Paulo by Sellow and Natterer were later studied by other Germanic authors (Wagner, 1842, 1843; Peters, 1866a, b; Pelzeln, 1883).

In 1894, Rudolph von Ihering, based on a few specimens deposited at the Museu Paulista, published the first checklist of mammals from São Paulo, in which 25 species of bats were present. Among many individuals, E. Garbe, R. Krone and J. Zech were the main collectors of bats from the state in the last decade of 1890 and first decades of the 20th century (Pira, 1904; Ameghino, 1907; Lima, 1926; Pinto, 1945).

The Brazilian João Leonardo de Lima made important contributions to the knowledge of the chiropterofauna of the State in the first decades of the 20th century (Lima, 1926). The most significant contribution in this period, however, was the monographic work of Carlos O. da Cunha Vieira (1942), entitled *"Ensaio Monográfico Sobre os Quirópteros do Brasil",* that was one the of the most comprehensive and detailed works about Brazilian bats at the time. Vieira (1942:222) considered the species number cited by von Ihering an overestimation and, based on literature review and museum records, recorded himself (Vieira, 1955) 39 species for the state of São Paulo.

Before the decade of 1960, bat sampling was carried out mainly by shooting or dip netting the animals in roosts or during flight (Kunz & Kurta, 1988; Vanzolini, 2004; Esbérard & Bergallo, 2005). The difficulty to sample bats during this period is evident: Travassos Filho (1944), for example, describes a 35-day-long expedition to the westernmost portion of São Paulo state, which sampled only 11 mammal specimens, none of which were bats.

Mist nets are first mentioned as the main bat sampling method in the state by Luiz D. Vizotto and Valdir A. Taddei, after second half of the 1960 decade (Vizotto & Taddei, 1968; Taddei, 1973). Other studies using mist nets occurred approximately simultaneously in other parts of Brazil such as in the states of Pará (Handley, 1967) and Rio de Janeiro (Peracchi & Albuquerque, 1971).

While the northwestern region of the state was intensively sampled with the mist net methodology (Vizotto & Taddei, 1968; Taddei, 1975a, b, 1979), the eastern portion of São Paulo received little attention. After 1975, however, Instituto Adolpho Lutz commissioned the collection of mammals and birds in the eastern and southeastern regions of the state due to an arbovirosis epidemic (Lopes, O.S. *et al.,* 1978; Iversson, 1977, 1980). At approximately the same time, the karstic area of southeastern São Paulo was sampled by Eleonora Trajano (1981, 1982, 1985, 1996).

After this period, bat collections were made in dense ombrophilous forests (*sensu* Veloso *et al.,* 1991) of the eastern state of São Paulo (*e.g.,* Trajano, 1985; Manço *et al.,* 1991; Fazzolari-Corrêa, 1995; Aires, 1998, 2003; Geraldes, 1999, 2005; Arnone, 2008), tropical semideciduous forest of the central, western and northwestern region (*e.g.,* Vizotto & Taddei, 1968, 1976; Taddei, 1975a, b, 1979; Taddei *et al.,* 1986; Reis *et al.,* 1996; Pedro *et al.,* 2001; Uieda & Chaves, 2005) and in the Cerrado (*e.g.,* Gargaglioni *et al.,* 1998, Sato *et al.,* 2015). Urban (Sazima, I. & Uieda, 1977; Silva *et al.,* 1996; Sodré *et al.,* 2008; Chaves *et al.,* 2012) and karstic areas (*e.g.,* Trajano, 1982, 1985; Campanhã & Fowler, 1993; Arnone, 2008) were surveyed.

To the moment, only two assessments of the threatened chiropterofauna of the state were made (Aguiar & Taddei, 1998; de Vivo *et al.,* 2010). In the most recent red list (de Vivo *et al.,* 2010), 25 species of bats are classified as "data deficient" and there are some discrepancies, in terms of species composition, between the checklist of species present in this work and the most recent one (de Vivo *et al.,* 2011).

As updated works of this nature, apart from the two checklists (de Vivo *et al.,* 2010, 2011), are inexistent for the state of São Paulo, this work aims to offer the first bibliographic review and annotated checklist of the bats from the state.

MATERIALS AND METHODS

Study site

The state of São Paulo has an area of approximately 248.600 square kilometers and lies between the geographic coordinates of 44°W to 54°W and 19°S to 26°S in Southeastern Brazil. There are three main vegetation formations (*sensu* Veloso *et al.,* 1991): Dense ombrophilous forest predominating in the eastern portion, especially in the montane areas of the Serra do Mar, but extending some kilometers to the west, tropical semideciduous forest predominating in the central-western portion of the state and tropical savanna (mostly *cerrado* and *cerradão* types) enclaves amidst those formations (Fig. 1).

Currently, the original forest cover comprises less than 13% of the area of the state (Victor *et al.,* 2005). At the beginning of the 20th century, in 1907, approximately 58% of the area of the state was covered by forests, three decades later, in 1935, only about 26.2% remained (Victor *et al.,* 2005). This intense deforestation was driven mainly by agriculture and cattle farms, and nowadays the landscape is dominated by urban centers, monocultures and pasture, with a few isolated forest fragments in the central, northern and western regions and a considerable continuum in the mountainous area to the east and in the south.

Data collection and analysis

Bibliographic review

Papers, books, book chapters and theses dealing with Chiroptera exclusively from the state of São Paulo or with significant distributional, ecological and/or taxonomic data about extinct and living bats from the state were found by searching at Web of Knowledge (http://sub3.isiknowledge.com) and Google Scholar (http://scholar.google.com.br). I used the following combination of keywords: morcegos, chiroptera, bats, São

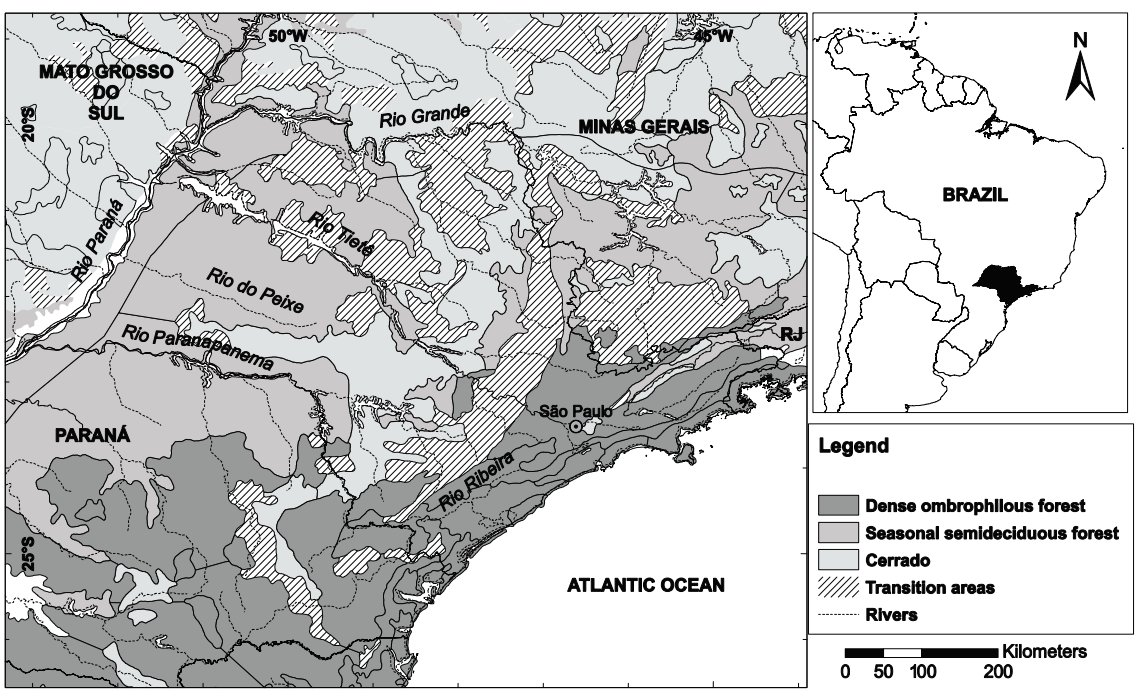

FIGURE 1: The state of São Paulo, in southeastern Brazil, with its main rivers, bordering states and vegetational formations. RJ = Rio de Janeiro.

Paulo, southeastern Brazil. I also looked for theses and dissertations in the libraries of the Instituto de Biociências da Universidade de São Paulo (IBUSP) and Museu de Zoologia da Universidade de São Paulo (MZUSP).

Specimens examined

A total of 4,138 specimens, preserved in alcohol, dried skins and skulls were examined. Three zoological collections that house the majority of the bat specimens collected in São Paulo were visited: Museu de Zoologia da Universidade de São Paulo, São Paulo (MZUSP), Departamento de Zoologia e Botânica da Universidade Estadual Paulista, São José do Rio Preto (DZSJRP) and Departamento de Zoologia da Universidade Estadual de Campinas, Campinas (ZUEC). Additionally, one specimen from the Museum für Naturkunde der Humboldt-Universität zu Berlin (ZMB_MAM) and three from the Coleção do Laboratório de Mamíferos da ESALQ/USP, Piracicaba (LMUSP) were analyzed. For the geographical coordinates, I consulted Paynter & Traylor (1991), Vanzolini (1992) and Trajano (1985).

The taxonomic arrangement follows the volume edited by Gardner (2008a) as a starting point. I included the recently described *Eptesicus taddeii* Miranda, Bernardi & Passos, 2006a and *Lonchophylla peracchii,* Dias, Esbérard & Moratelli, 2013. *Natalus macrourus* (Gervais, 1856a) is considered valid, instead of *Natalus espiritosantensis* (Ruschi, 1951), following Garbino & Tejedor (2013) and *Platyrrhinus incarum* (Thomas, 1912) is used instead of *Platyrrhinus helleri,* following Velazco *et al.* (2010b). *Thyroptera tricolor* Spix, 1823 is tentatively adopted here, since the form from São Paulo may represent a distinct taxon for which the valid name would be *Thyroptera juquiaensis* Vieira, 1942 (Gregorin *et al.,* 2006, Gregorin, R. *in prep.*). I have not considered *Myotis alter* a valid name, following Nogueira *et al.* (2014).

I compiled information about the type of roost used by the species and the main vegetal formation where the taxon was recorded. I compared the species composition along the three main vegetation formations of the state and calculated the Jaccard's index of similarity.

RESULTS

Chiropterology in São Paulo: the state of the art

The state of São Paulo has 79 bat species distributed in 43 genera and eight families (Table 2). Three species that were present on the last checklist (de Vivo

TABLE 2: Families, genera and species of bats recorded in the state of São Paulo.

Family Emballonuridae Gervais, 1855
- **Subfamily Emballonurinae** Gervais, 1855
  - *Diclidurus* Wied-Neuwied, 1819
    - *D. scutatus* Peters, 1869
  - *Peropteryx* Peters, 1867
    - *P. kappleri* Peters, 1867
    - *P. macrotis* (Wagner, 1843)
  - *Saccopteryx* Illiger, 1811
    - *S. leptura* (Schreber, 1774)

Family Noctilionidae Gray, 1821
- *Noctilio* Linnaeus, 1766
  - *N. albiventris* Desmarest, 1818
  - *N. leporinus* (Linnaeus, 1758)

Family Phyllostomidae Gray, 1825
- **Subfamily Phyllostominae** Gray, 1825
  - *Chrotopterus* Peters, 1865
    - *C. auritus* (Peters, 1856)
  - *Glyphonycteris* Thomas, 1896
    - *G. sylvestris* Thomas, 1896
  - *Lampronycteris* Sanborn, 1949
    - *L. brachyotis* (Dobson, 1879)
  - *Lonchorhina* Tomes, 1863
    - *L. aurita* Tomes, 1863
  - *Macrophyllum* Gray, 1838
    - *M. macrophyllum* (Schinz, 1821)
  - *Micronycteris* Gray, 1866
    - *Micronycteris* sp.
    - *M. megalotis* (Gray, 1842)
    - *M. microtis* Miller, 1898
  - *Mimon* Gray, 1847
    - *M. bennettii* (Gray, 1838)
  - *Phylloderma* Peters, 1865
    - *P. stenops* Peters, 1865
  - *Phyllostomus* Lacépède, 1799
    - *P. discolor* (J.A. Wagner, 1843)
    - *P. hastatus* (Pallas, 1767)
  - *Tonatia* Gray, 1827
    - *T. bidens* (Spix, 1823)
  - *Trachops* Gray, 1827
    - *T. cirrhosus* (Spix, 1823)
- **Subfamily Glossophaginae** Bonaparte, 1845
  - *Anoura* Gray, 1838
    - *A. caudifer* (É. Geoffroy, 1818)
    - *A. geoffroyi* Gray, 1838
  - *Glossophaga* É. Geoffroy, 1818
    - *G. soricina* (Pallas, 1766)

Subfamily Lonchophyllinae Griffiths, 1982
Lonchophylla Thomas, 1903
L. peracchii Dias, Esbérard & Moratelli, 2013
Subfamily Carolliinae Miller, 1924
Carollia Gray, 1838
C. perspicillata (Linnaeus, 1758)
Subfamily Stenodermatinae Gervais, 1856
Artibeus Leach, 1821
A. cinereus (Gervais, 1856)
A. fimbriatus Gray, 1838
A. lituratus (Olfers, 1818)
A. obscurus (Schinz, 1821)
A. planirostris (Spix, 1823)
Chiroderma Peters, 1860
C. doriae Thomas, 1861
C. villosum Peters, 1860
Platyrrhinus Saussure, 1860
P. incarum (Thomas, 1912)
P. lineatus (É. Geoffroy, 1810)
P. recifinus (Thomas, 1901)
Vampyressa Thomas, 1900
V. pusilla (Wagner, 1843)
Vampyrodes Thomas, 1900
V. caraccioli (Thomas, 1889)
Pygoderma Peters, 1863
P. bilabiatum (Wagner, 1843)
Sturnira Gray, 1842
S. lilium (É. Geoffroy, 1810)
S. tildae de la Torre, 1959
Subfamily Desmodontinae Bonaparte, 1845
Desmodus Wied-Neuwied, 1826
D. rotundus (É. Geoffroy, 1810)
Diaemus Miller, 1906
D. youngii (Jentink, 1893)
Diphylla Spix, 1823
D. ecaudata Spix, 1823
Family Furipteridae Gray, 1866
Furipterus Bonaparte, 1837
F. horrens (Cuvier, 1828)
Family Natalidae Gray, 1866
Natalus Gray, 1838
N. macrourus (Gervais, 1856)
Family Thyropteridae Miller, 1907
Thyroptera Spix, 1823
T. tricolor Spix, 1823
Family Molossidae Gervais, 1856
Subfamily Molossinae Gervais, 1856
Cynomops Thomas, 1920
C. abrasus (Temminck, 1826)
C. planirostris (Peters, 1866)
Eumops Miller, 1906
E. auripendulus (Shaw, 1800)
E. bonariensis (Peters, 1874)
E. glaucinus (Wagner, 1843)
E. hansae Sanborn, 1932
E. maurus (Thomas, 1901)
E. perotis (Schinz, 1821)
Molossops Peters, 1866
M. neglectus Williams & Genoways, 1980
M. temminckii (Burmeister, 1854)
Molossus É. Geoffroy, 1805
M. aztecus Sausurre, 1860
M. molossus (Pallas, 1766)
M. rufus É. Geoffroy, 1805
Nyctinomops Miller, 1902
N. aurispinosus (Peale, 1848)
N. laticaudatus (É. Geoffroy, 1805)
N. macrotis (Gray, 1839)
Promops Gervais, 1856
P. nasutus (Spix, 1823)
Tadarida Rafinesque, 1814
T. brasiliensis (I. Geoffroy, 1824)
Family Vespertilionidae Gray, 1821
Subfamily Vespertilioninae Gray, 1821
Eptesicus Rafinesque, 1820
E. brasiliensis (Desmarest, 1819)
E. diminutus Osgood, 1915
E. furinalis (d'Orbigny & Gervais, 1847)
E. taddeii Miranda, Bernardi & Passos, 2006
Histiotus Gervais, 1856
H. montanus (Philippi & Landbeck, 1861)
H. velatus (I. Geoffroy, 1824)
Lasiurus Gray, 1831
L. blossevillii ([Lesson, 1826])
L. cinereus (Beauvois, 1796)
L. ebenus Fazzolari-Corrêa, 1994
L. ega (Gervais, 1856)
Subfamily Myotinae Tate, 1942
Myotis Kaup, 1829
M. albescens (É. Geoffroy, 1806)
M. levis (I. Geoffroy, 1824)
M. nigricans (Schinz, 1821)
M. riparius Handley, 1960
M. ruber (É. Geoffroy, 1806)

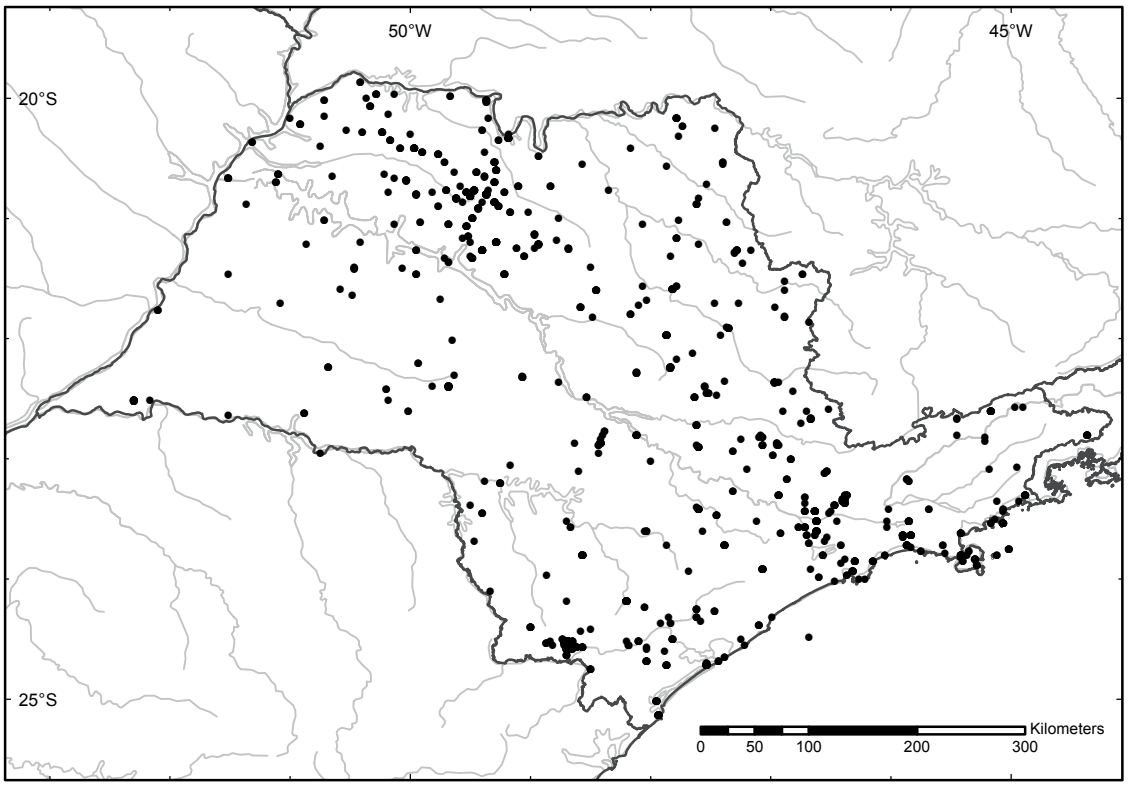

FIGURE 2: Localities in São Paulo where are least one specimen of bat was collected.

et al., 2011) were removed: *Micronycteris brosseti, Mimon crenulatum* and *Uroderma bilobatum.* The reason I removed *Micronycteris brosseti* and *Uroderma bilobatum* is explained in the annotated list. *Mimon crenulatum* was removed because there are no voucher specimens that support the presence of the species in the state, despite it being recorded in Uberlândia, which is close to the state of São Paulo (Pedro & Taddei, 1997).

A visual examination of the 374 plotted locality records where at least one bat specimen was collected shows that there is a large unsampled area in the western portion of São Paulo (Fig. 2, see gazetteer in Appendix 1). Even though this area harbors relatively large large protected areas such as the Parque Estadual (P.E.) Morro do Diabo, P.E. Rio do Peixe and P.E. Aguapeí, only one survey was carried out in the whole region (Reis *et al.,* 1996).

Among the three main vegetal formations found in the state, the seasonal semideciduous forest and cerrado are more similar to each other, and the dense ombrophilous forest is qualitatively and quantitatively distinct from them (Fig. 3, Table 3). The similarity observed between the seasonal semideciduous forest and the Cerrado may be caused by three factors: 1) these formations are close to each other; 2) these formations were not as intensively sampled as the dense ombrophilous forest; or 3) the two vegetations intermingles in São Paulo, making it difficult to differentiate between these two type of vegetations in the state. The dense ombrophilous forest harbors 72 species of bats, or 91% of the total for the state, of which 25 (35%) were recorded only in this region. In the seasonal semideciduous forest, 54 species were recorded, and in Cerrado 48 species were recorded (Appendix 2).

A total of 31 unpublished (theses, dissertations and abstracts) and 129 published (books, book chapters and papers) studies about bats from São Paulo were found (Appendix 3). The published material has ecology and natural history as main focus, but studies

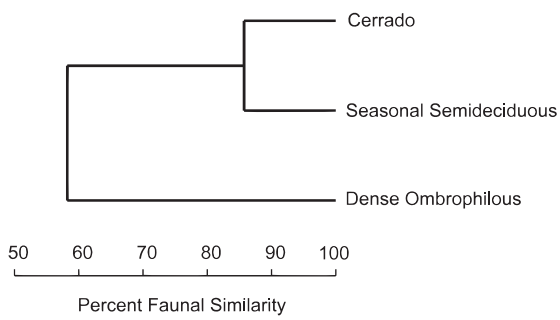

FIGURE 3: Faunal relationships among the three main vegetational formations in São Paulo. Similarity was quantified using Jaccard's coefficient (*J*). The bottom scale shows the percent faunal similarity (*J* × 100).

TABLE 3: Percent faunal similarity among the three main vegetational formations in the state of São Paulo.

	Dense Ombrophilous	Seasonal Semideciduous
Dense Ombrophilous		
Seasonal Semideciduous	60	
Cerrado	56.4	85.7

TABLE 4: Publications that dealt with bats from São Paulo, divided by their main subject.

Subject covered	Number of publications
Ecology/Natural history	41 (31.8%)
Sampling/Species list	36 (27.9%)
Systematics/Distribution	34 (26.3%)
Diseases	10 (7.8%)
Parasitology/Physiology	8 (6.2%)
Total	**129**

dealing with sampling and systematics are also significant (Table 4). The number of unpublished material may be underestimated, however, since many materials are not indexed on online systems.

There are seven records of fossilized remains of bats from São Paulo, found in the literature and visited collections: *Carollia* sp., *Chrotopterus auritus, Desmodus draculae, Molossus* sp., *Mimon bennetti, Myotis* sp. and *Mormopterus faustoi*. The first six are late Quaternary fossils from the karstic region of Iporanga (Ameghino, 1907; Trajano & de Vivo, 1991; Castro & Langer, 2011) and *M. faustoi* is one of the oldest Cenozoic bats known from South America, known from the Tremembé formation (Taubaté basin, dated as Miocene) (Paula Couto, 1956). Among these fossil species, *Desmodus draculae* and *Mormopterus faustoi* are extinct, and are not cited in the annotated list.

Eleven nominal taxa have the type locality in the state of São Paulo (Table 5). Of those, seven are currently accepted as valid names, at the specific or subspecific category. Five (41.6%) type-localities are in "Ypanema". The compilation of types of diurnal roots resulted in eleven main types identified, both natural and man-made (Table 6).

Protected areas where bats have been recorded in São Paulo were: Floresta Nacional de Ipanema (FLONA Ipanema), Iperó; Parque Estadual da Ilha Anchieta (P.E. da Ilha Anchieta), Ubatuba; Parque Estadual da Ilha do Cardoso (P.E. da Ilha do Cardoso) Cananéia; Parque Estadual de Ilhabela (PEI); Parque Estadual do Morro do Diabo (P.E. Morro do Diabo) Teodoro Sampaio; Parque Estadual da Serra da Cantareira (P.E. da Cantareira) São Paulo; Parque Estadual de Itapetinga, Atibaia; Serra do Japi, Jundiaí; Parque Estadual da Serra do Mar (PESM); Parque Estadual do Jaraguá (PEJ) São Paulo; Parque Estadual de Campos do Jordão (PECJ); Parque Estadual Turístico do Alto Ribeira (PETAR) Iporanga; Parque Estadual Invervales (P.E. Intervales); Estação Biológica de Boracéia (E.B. Boracéia) Salesópo-

TABLE 5: Bat *nomina* that have the type locality in São Paulo.

Taxon	Author	Year	Page	Type locality	Current species name
Dysopes abrasus[1]	Temminck	1826	232	Restricted to "Votuporanga, São Paulo, Brazil" by Eger (2008)	*Cynomops abrasus*
Phyllostoma bennettii[1]	Gray	1838	488	Restricted to "Ypanema" by Hershkovitz (1951)	*Mimon bennettii*
Phyllophora megalotis[1]	Gray	1842	257	Restricted to "Perequê, São Paulo, Brazil" by Cabrera (1958)	*Micronycteris megalotis*
Phyllostoma excisum	Wagner	1842	358	"Ypanema"	*Sturnira lilium*
Phyllostoma bilabiatum[1]	Wagner	1843	366	"Ypanema"	*Pygoderma bilabiatum*
Phyllostoma personatum[3]	Wagner	1843	366	"Ypanema"	?
Phyllostoma albescens	Wagner	1847	177	"Ypanema"	*Sturnira lilium*
Vespertilio nitens	Wagner	1855	810	Identified as "Ypanema" in Pelzeln (1883)	*Eptesicus brasiliensis*
Uroderma bilobatum[1]	Peters	1866	394	Restricted to "São Paulo" by Andersen (1908) (may be erroneous)	*Uroderma bilobatum*
Atalapha cinerea brasiliensis	Pira	1904	12	"Ignape" (= Iguape)	*Lasiurus cinereus*
Thyroptera albiventer juquiaensis[2]	Vieira	1942	391	"Fazenda Poço Grande, rio Juquiá, município de Iguape"	*Thyroptera tricolor*
Vampyressa nattereri	Goodwin	1963	16	"Probably Ipanema, district of São Paulo, Brazil"	*Vampyressa pusilla*
Lasiurus ebenus[1]	Fazzolari-Corrêa	1994	119	"Brasil: São Paulo: Parque Estadual da Ilha do Cardoso (25°05'S, 47°59'W)"	*Lasiurus ebenus*

[1]species considered valid;
[2]subspecies considered valid;
[3]It is not clear which species *Phyllostoma personatum* represents (see Gardner, 2008a).

TABLE 6: Types of roosts where bats have been recorded in São Paulo.

Type of roost	Species	Reference
Carbonatic caves	*Anoura caudifer*	Trajano (1985)
	Anoura geoffroyi	Vieira (1944), Trajano (1985)
	Artibeus lituratus	Trajano (1985)
	Chrotopterus auritus	Trajano (1985)
	Desmodus rotundus	Trajano (1985)
	Diaemus youngii	Trajano (1985)
	Diphylla ecaudata	Trajano (1985)
	Eptesicus taddeii	Arnone (2008)
	Furipterus horrens	Trajano (1985)
	Glyphonycteris sylvestris	Trajano (1985)
	Lampronycteris brachyotis	Taddei & Pedro (2001)
	Lasiurus ega	Arnone (2008)
	Lonchorhina aurita	Trajano (1985)
	Macrophyllum macrophyllum	Arnone (2008)
	Mimon bennetti	Trajano (1985)
	Natalus macrourus	Trajano (1985)
	Peropteryx macrotis	Trajano (1985)
	Phylloderma stenops	Trajano (1985)
	Sturnira tildae	Trajano (1985)
	Trachops cirrhosus	Trajano (1985)
Arenitic caves	*Anoura caudifer*	Campanhã & Fowler (1993), Filho *et al.* (2003)
	Carollia sp.	Filho *et al.* (2003)
	Carollia perspicillata	Campanhã & Fowler (1993)
	Chrotopterus auritus	Campanhã & Fowler (1993)
	Desmodus rotundus	Campanhã & Fowler (1993), Filho *et al.* (2003)
	Glossophaga soricina	Campanhã & Fowler (1993), Filho *et al.* (2003)
	Micronycteris megalotis	Campanhã & Fowler (1993)
	Myotis nigricans	Campanhã & Fowler (1993)
	Platyrrhinus lineatus	Campanhã & Fowler (1993)
Rock crevasses	*Chrotopterus auritus*[1]	Sazima, I. (1978)
	Desmodus rotundus	DZSJRP 14428, Gomes & Uieda (2004)
	Saccopteryx leptura	Garbino (2011)
Under bridges	*Lasiurus ega*	DZSJRP 2343
	Noctilio albiventris	McNab (1979)
	Noctilio leporinus	McNab (1979), Taddei *et al.* (1986)
Inside pipes and culvert	*Anoura caudifer*	McNab (1979)
	Carollia perspicillata	McNab (1979)
	Desmodus rotundus	Gomes & Uieda (2004)
	Glossophaga soricina	McNab (1979)
	Macrophyllum macrophyllum[2]	Taddei (1975a)
	Micronycteris megalotis	Gargaglioni *et al.* (1998)
Tree hollows and hollow logs	*Chrotopterus auritus*	McNab (1979)
	Cynomops abrasus	DZSJRP 14973
	Cynomops planirostris	Vizotto & Taddei (1976)
	Desmodus rotundus	Gimenez & Ferrarezi (2004)
	Diaemus youngii	McNab (1979)
	Lasiurus blossevillii	DZSJRP 3579
	Lasiurus cinereus	DZSJRP 16769
	Molossus molossus	Vieira (1944)
	Molossops temminckii	Vizotto & Taddei (1976)
	Noctilio leporinus	Gimenez & Ferrarezi (2004)
	Phyllostomus discolor	McNab (1979)
	Phyllostomus hastatus	McNab (1979)
	Tonatia bidens	Martuscelli (1995)

Type of roost	Species	Reference
Hollow spaces in fence poles and lamp posts	*Cynomops abrasus*	Taddei *et al.* (1976)
	Cynomops planirostris	Vizotto & Taddei (1976)
	Eptesicus brasiliensis	DZSJRP 4540
	Eumops bonariensis	DZSJRP 3292
	Eumops glaucinus	DZSJRP 3835
	Molossops temminckii	Vizotto & Taddei (1976)
Abandoned buildings	*Cynomops planirostris*	Vizotto & Taddei (1976)
	Chrotopterus auritus	Peracchi & Albuquerque (1976), Gargaglioni *et al.* (1998), Uieda *et al.* (2007), present study
	Desmodus rotundus	Gomes & Uieda (2004)
	Molossops temminckii	DZSJRP 2251
	Platyrrhinus lineatus	Rodrigues *et al.* (2011), present study
Occupied buildings	*Cynomops abrasus*	DZSJRP 2101
	Diclidurus scutatus[3]	Sodré & Uieda (2006)
	Eumops auripendulus	DZSJRP 3020
	Eumops maurus	Sodré *et al.* (2008)
	Eumops perotis	DZSJRP 16635
	Histiotus velatus	DZSJRP 18025
	Lasiurus cinereus	DZSJRP 4817
	Molossus molossus	Uieda *et al.* (1995)
	Nyctinomops aurispinosus	Taddei & Garutti (1981)
	Nyctinomops laticaudatus	Uieda *et al.* (1995)
	Nyctinomops macrotis	Uieda *et al.* (1995)
	Promops nasutus	Sazima, I. & Uieda (1977)
	Tadarida brasiliensis	Uieda (1998)
	Thyroptera tricolor	Vieira (1942)
Coffee granaries	*Anoura geoffroyi*	Vieira (1944)
	Carollia perspicillata	Vieira (1944)
	Platyrrhinus lineatus	Vieira (1944)
Mango tree leaves	*Lasiurus cinereus*	DZSJRP 14018
	Lasiurus ega	present study
Palm leaves	*Platyrrhinus lineatus*	Vieira (1944)

[1] described as "a small cave".
[2] tube for water outlet.
[3] found on the frame of a casement window.

lis; Estação Ecológica de Bananal (E.E. Bananal) Bananal;Estação Ecológica dos Caetetus (E.E. dos Caetetus); Estação Ecológica de Jataí (E.E. Jataí) Luiz Antônio; Estação Ecológica Juréia-Itatins (E.E. Juréia-Itatins); Estação Experimental de Itirapina (E.E. Itirapina); Reserva Municipal de Santa Genebra (RM Santa Genebra), Campinas and RRPN São Marcelo, Mogi-Guaçu.

Annotated List

Family Emballonuridae Gervais, 1855
Subfamily Emballonurinae Gervais, 1855
Diclidurus Wied-Neuwied, 1819
Diclidurus scutatus Peters, 1869 (Fig. 4)

Since they are rarely sampled using mist nets, all species of *Diclidurus* are rare in museum collections (Hood & Gardner, 2008). This single record represents the only known record for the species in the Atlantic Forest biome and the second record for Brazil. It is noteworthy that the animal was found in an urban area of the city of São Paulo (Sodré & Uieda, 2006).

Records: São Paulo, Bairro do Mandaqui (MZUSP 32344).

Peropteryx Peters, 1867
Peropteryx kappleri Peters, 1867 (Fig. 4)

Records of the species are scarce. Two records for São Paulo were compiled, one in the NE (Vieira, 1942) littoral region and other in the SE (Pira, 1904) littoral. *Peropteryx kappleri* has not been captured in São Paulo for more than a hundred years since it was first recorded (Pira, 1904; Lima, 1926).

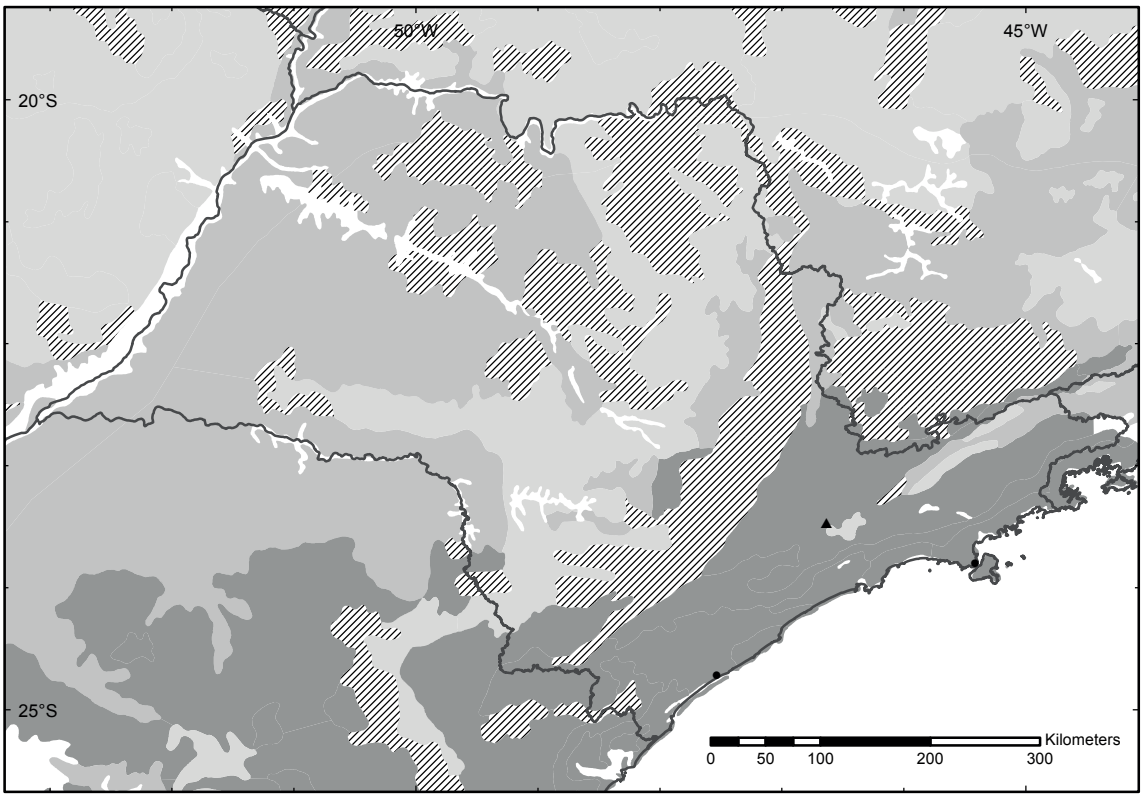

FIGURE 4: Localities of *Diclidurus scutatus* (▲) and *Peropteryx kappleri* (●) in the state of São Paulo.

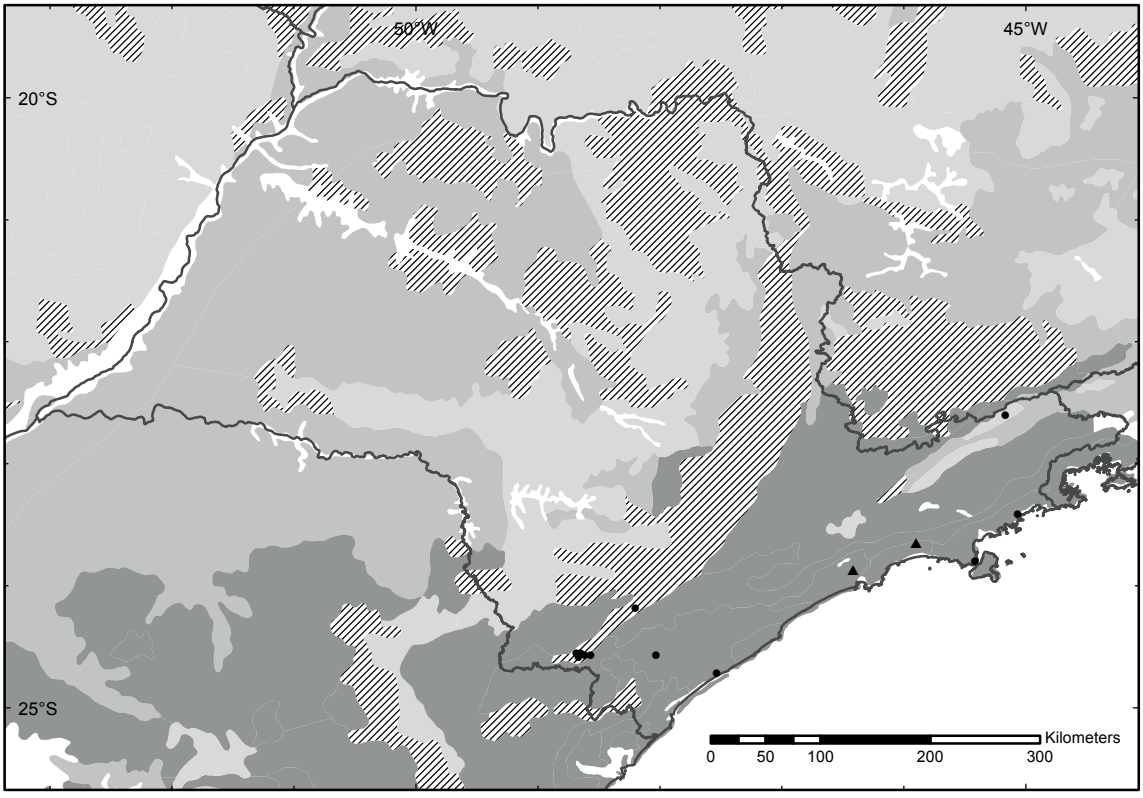

FIGURE 5: Localities of *Peropteryx macrotis* (●) and *Saccopteryx leptura* (▲) in the state of São Paulo.

Records: Iguape (Pira, 1904); São Sebastião (MZUSP 1335).

***Peropteryx macrotis* (Wagner, 1843) (Fig. 5)**

Recorded for the NE (Lima, 1926), S (Lima, 1926) and SE (Lima, 1926; Trajano, 1985). In São Paulo, this bat has been captured in roosts (Portfors *et al.,* 2000) or with mist nets assembled directly at cave openings (Trajano, 1985). Older records are based on less than 15 specimens collected before 1950.

Records: Iguape (MZUSP 640); Iporanga (MZUSP 6291); Iporanga, Caverna Água Quente (MZUSP 13267); Iporanga, Caverna Alambari de Baixo (MZUSP 6290); Iporanga, Caverna Betari (MZUSP 11561); Iporanga, Caverna Morro Preto (MZUSP 11855); Iporanga, Sumidouro do Davi (MZUSP 11932); Iporanga, Toca Berta Funda (MZUSP 11945); Jacupiranga, Sítio Pedra do Lençol (DZSJRP 15591); P.E. Intervales (Portfors *et al.,* 2000; de Vivo & Gregorin, 2001); Piquete (MZUSP 1255); São Sebastião (MZUSP 1334); Ubatuba (MZUSP 3381).

***Saccopteryx* Illiger, 1811**
***Saccopteryx leptura* (Schreber, 1774) (Fig. 5)**

Previously known from a single locality record, in NE (Garbino, 2011). We add herein a new record, based on an adult female from Cubatão (MZUSP 6068, FA = 42.42 mm, wing sacs not evident), E littoral region that was misidentified by Vieira as *Peropteryx macrotis*.

It is possible that roost searching, especially in karstic areas, rock crevasses or in buildings (Nogueira *et al.,* 2002), may yield more specimens of this species rarely caught in mist nets. The larger *Saccopteryx bilineata* also may occur in the state of São Paulo since it has been recorded for the city of Rio de Janeiro (Sanborn, 1937), which lies approximately 100 km east of the border of the state of São Paulo.

Records: Boracéia, Gruta da Santa (MZUSP 11481); Cubatão (MZUSP 6068, present study).

Family Noctilionidae Gray, 1821
***Noctilio* Linnaeus, 1766**
***Noctilio albiventris* Desmarest, 1818 (Fig. 6)**

In São Paulo, as in the states of Minas Gerais (Tavares *et al.,* 2010), Paraná (Miretzki, 2003) and Rio de Janeiro (Peracchi & Nogueira, 2010), the records are restricted to the western and northwestern regions.

Records: Andradina (ZUEC 2588); Buritama, Rio Tietê (DZSJRP 3571); Indiaporã, Rio Grande, at the border with Minas Gerais state (Taddei *et al.,* 1986); José Bonifácio, Avanhandava bridge (DZSJRP 2625); Novo Horizonte (DZSJRP 16772); Olímpia (DZSJRP 18147); Ouroeste, Arabá (DZSJRP 3149); Paulo de Faria (DZSJRP 14997); Penápolis (DZSJRP 10917); Sales (DZSJRP 16344); Teodoro Sampaio, P.E. Morro do Diabo (Reis *et al.,* 1996).

***Noctilio leporinus* (Linnaeus, 1758) (Fig. 7)**

Widely distributed in the state of São Paulo. Recorded for the S (Fazzolari-Corrêa, 1995), E (Silva *et al.,* 1996), NW (Vizotto & Taddei, 1968; Taddei *et al.,* 1986) and W (Reis *et al.,* 1996) regions. Silva *et al.* (1996) recorded *N. leporinus* in the urban region of the capital city of São Paulo. Breviglieri & Pedro (2008) reported the predation of *Poecilia reticulata* Peters, 1859 and *Phalloceros caudimaculatus* (Hensel, 1868) (Cyprinodontiformes, Poecilidae) by *N. leporinus* in NW.

Records: Bilac (DZSJRP 10925); Botucatu region (Uieda & Chaves, 2005); Cananéia, Ilha do Cardoso (MZUSP 27703); Dracena (DZSJRP 10940); Eldorado Paulista (DZSJRP 16123); Indiaporã (Taddei *et al.,* 1986); José Bonifácio, Usina Velha (DZSJRP 3416); Macedônia (DZSRJP 3409); Monte Aprazível (DZSJRP 2990); Mirassol (DZSRJP 4530); Nova Granada, bridge over Rio Turvo (DZSJRP 2507); Novo Horizonte (DZSJRP 16346); Olímpia (DZSJRP 18148); Onda Verde, bridge over Rio Castores (DZSJRP 16587); Pereira Barreto, bridge over Rio Tietê (DZSRJP 4763); Piacatu (DZSRJP 10935); Pindorama, Tenentes stream (Breviglieri & Pedro, 2008); Rubinéia, Rio Paraná, at the border with Mato Grosso do Sul state (DZSRJP 4677); São José do Rio Preto (DZSJRP 4136); São Sebastião, Instituto de Biologia Marinha (DZSJRP 11562); São Paulo (Silva *et al.,* 1996); São Paulo, Butantan (MZUSP 6299); Teodoro Sampaio, P.E. do Morro do Diabo (Reis *et al.,* 1996); Urupês, bridge over Rio Cubatão (DZSJRP 2717).

Family Phyllostomidae Gray, 1825
Subfamily Phyllostominae Gray, 1825
***Chrotopterus* Peters, 1865**
***Chrotopterus auritus* (Peters, 1856) (Fig. 8)**

The species is widely distributed in the state of São Paulo, recorded for every region of the state. Peracchi & Albuquerque (1976), Sazima, I. (1978) and Uieda *et al.* (2007) studied the feeding and roosting behavior of *C. auritus* from São Paulo.

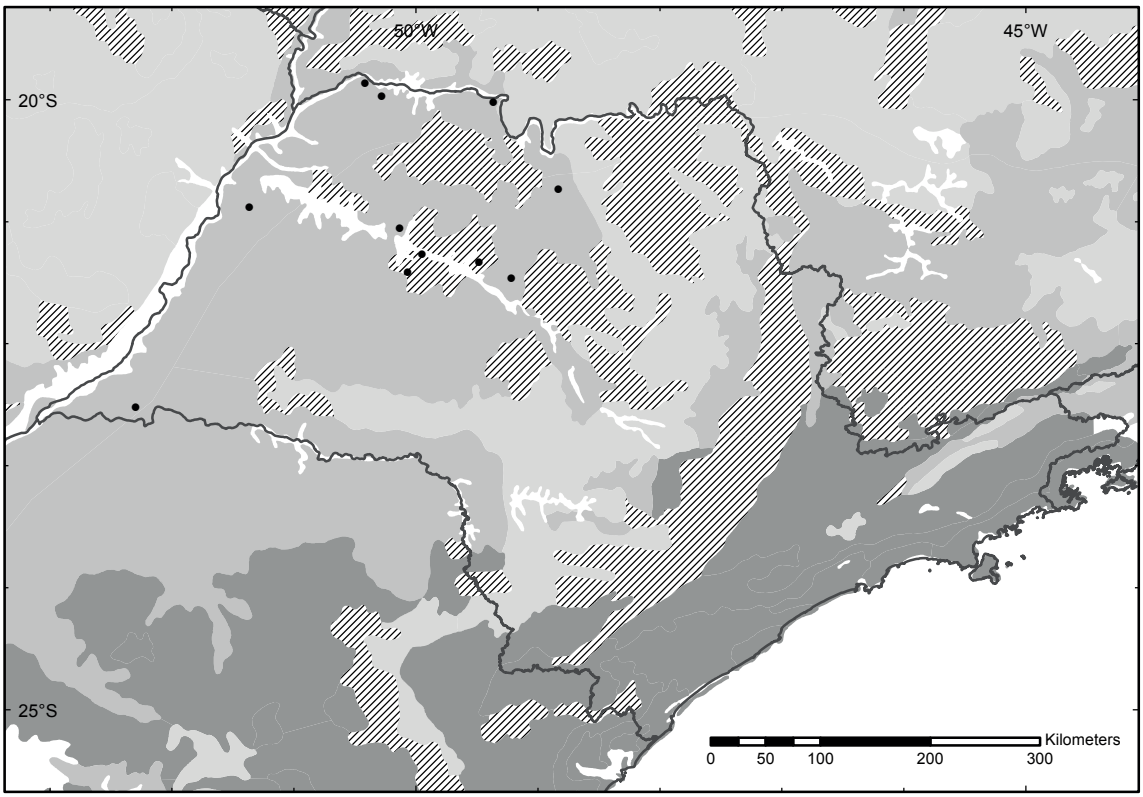

FIGURE 6: Localities of *Noctilio albiventris* in the state of São Paulo.

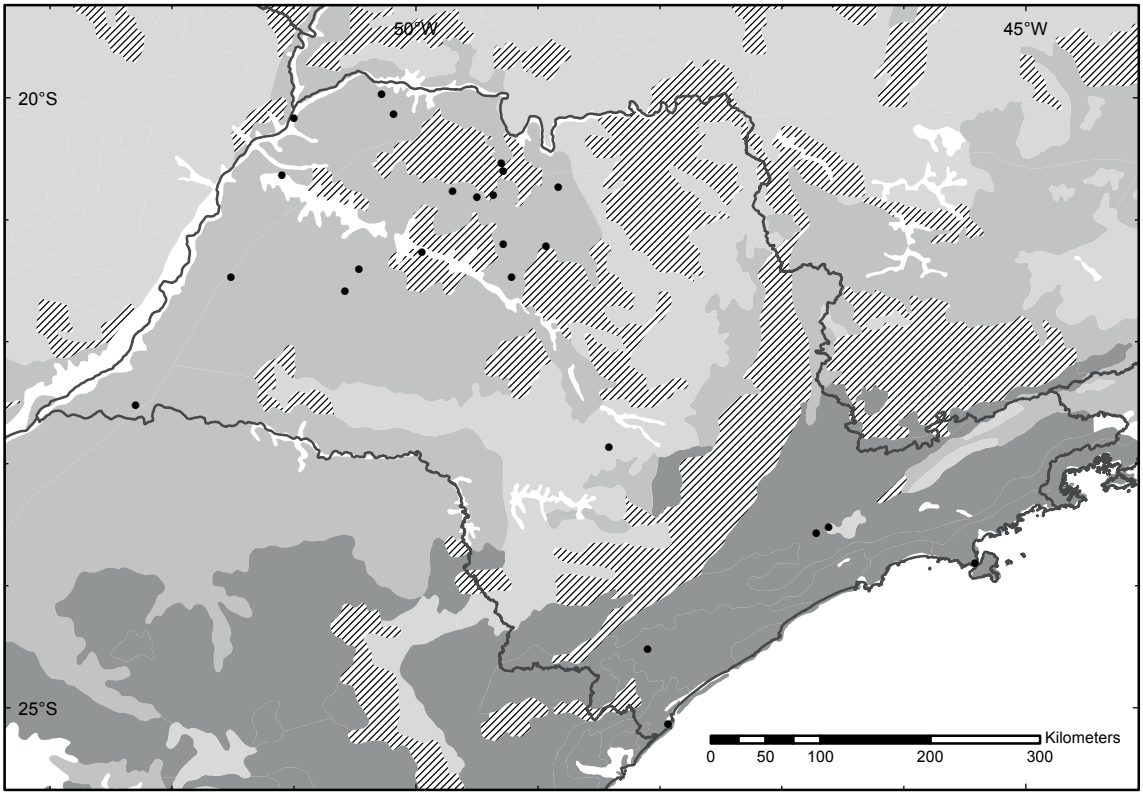

FIGURE 7: Localities of *Noctilio leporinus* in the state of São Paulo.

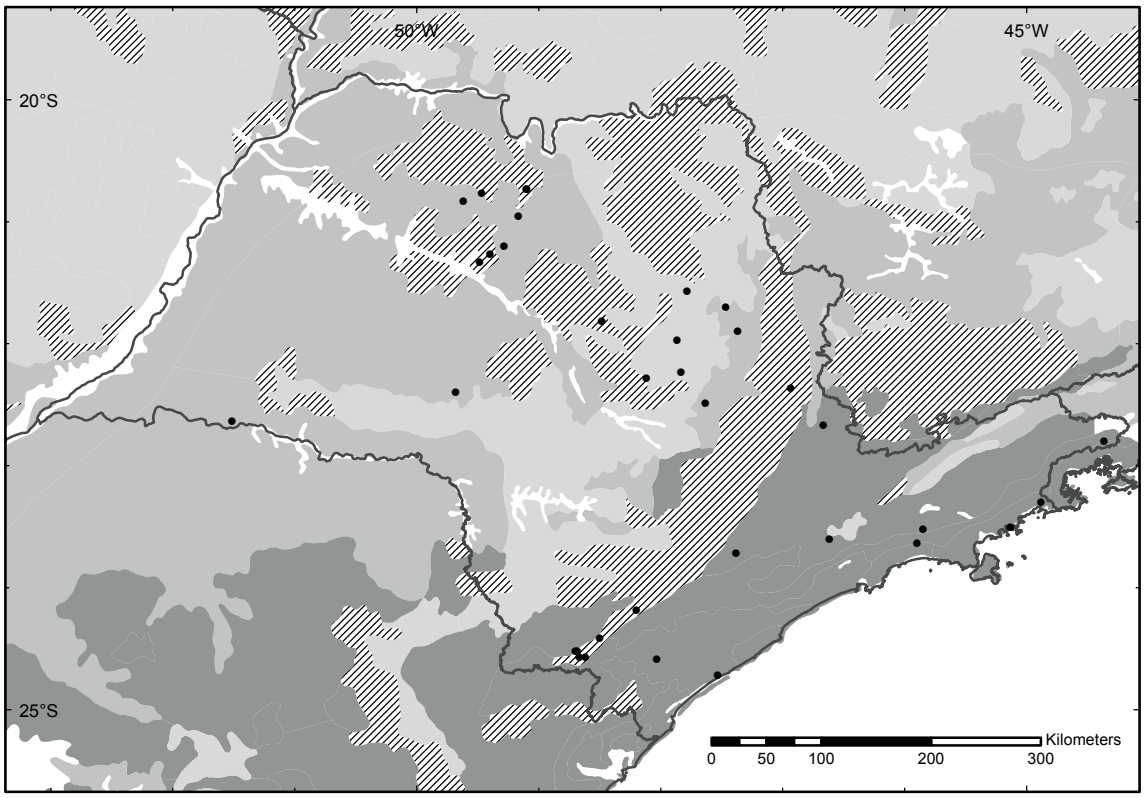

FIGURE 8: Localities of *Chrotopterus auritus* in the state of São Paulo.

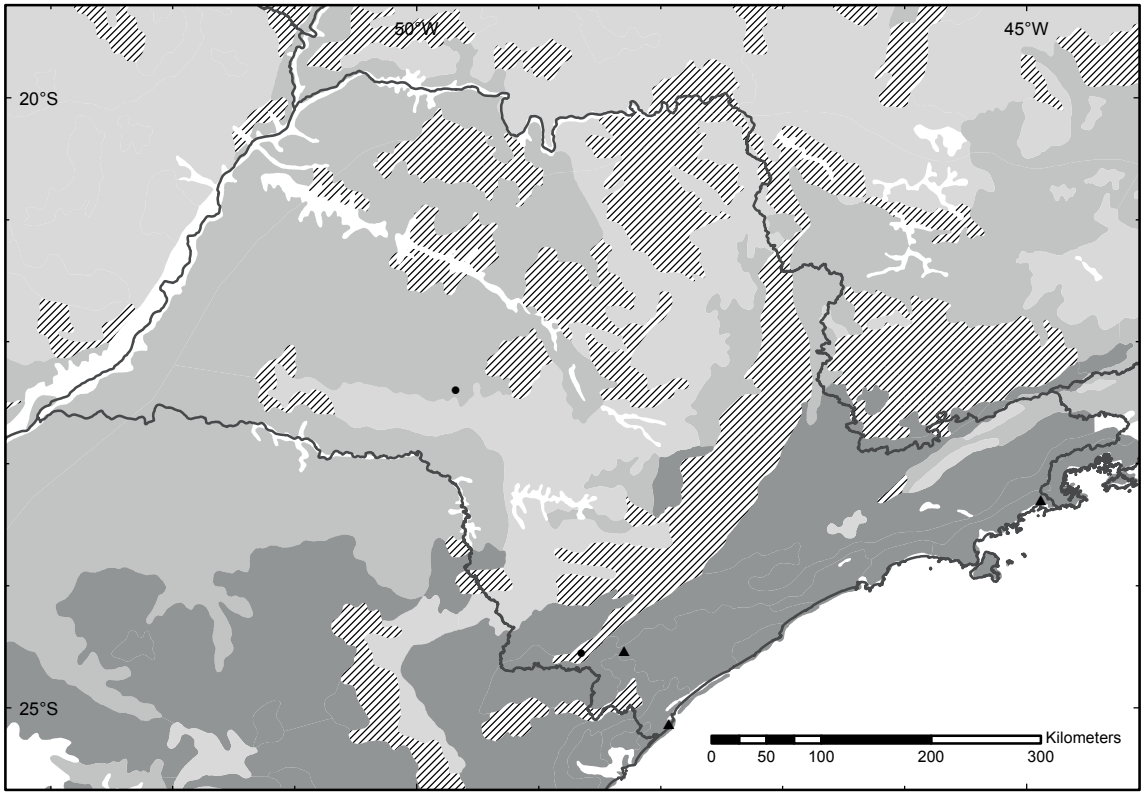

FIGURE 9: Localities of *Glyphonycteris sylvestris* (●) and *Lampronycteris brachyotis* (▲) in the state of São Paulo.

Records: Bananal, E.E. de Bananal, near Rio das Cobras (MZUSP 33655); Boracéia (MZUSP 27508); Brotas, Casa Grande (MZUSP 9584); E.E. dos Caetetus (Pedro *et al.,* 2001); Estação Experimental de Itirapina (Uieda *et al.,* 2007); Gavião Peixoto, Fazenda Santa Sofia (ZUEC 1010); Guapiaçu, km 27 of SP-425 highway (Taddei, 1975a); Ibiti (MZUSP 6658); Iguape (MZUSP 1477); Iporanga, Caverna Agua Suja de Cima (MZUSP 11887); Iporanga, Caverna Betari (MZUSP 11854); Iporanga, Caverna Morro Preto (MZUSP 12551); Iporanga, Gruta Aguas Quentes (MZUSP 11795); Iporanga, Gruta Caboclos I, Braço da Pescaria (MZUSP 8113); Irapuã (DZSRJP 3505); Itirapina, Caverna Cachoeira, A.P.A Corumbataí (Campanha & Fowler, 1993); Itirapina, Caverna Paredão, A.P.A. Corumbataí (Campanhã & Fowler. 1993); Luiz Antonio, E.E. Jataí (Gargaglioni *et al.,* 1998); Mirassol, Grota de Mirassol (DZSJRP 2610); Mogi-Guaçu (DZSJRP 15664); Narandiba, Fazenda Mosquito (LMUSP); Neves Paulista (DZSRJP 2814); Novo Horizonte (DZSJRP 14451); Olímpia, BR-265 highway, bridge over Rio Turvo (DZSJRP 2677); P.E. Intervales (Passos *et al.,* 2003); P.E. de Jacupiranga (DZSJRP 16274); Piedade (MZUSP 32998); Pirassununga, Fazenda Academia da F.A.B., Pirassununga (ZUEC 133); Sales (DZSJRP 16343); Santa Rita do Passa Quatro, R.E. de Vassununga (ZUEC 1565); São Paulo, Ipiranga (MZUSP 1480); Ubatuba, Praia do Lázaro (ZUEC 640); Ubatuba, Picinguaba (Geraldes, 2005); Uchoa (DZSJRP 4788); Urupês (DZSRJP 3941).

***Glyphonycteris* Thomas, 1896**
***Glyphonycteris sylvestris* Thomas, 1896 (Fig. 9)**

The first record for São Paulo is from Trajano (1982), where the species was caught in a karstic area. It was recently recorded for the seasonal semideciduous forest of the C (Pedro *et al.,* 2001).

Records: E.E. dos Caetetus (Pedro *et al.,* 2001); Iporanga, Caverna Alambari de Baixo (MZUSP 13310).

***Lampronycteris* Sanborn, 1949**
***Lampronycteris brachyotis* (Dobson, 1879) (Fig. 9)**

Records of this rarely sampled Phyllostominae are restricted to the S (Fazzolari-Corrêa, 1995) and SE (Taddei & Pedro, 1996) regions of the state. Taddei & Pedro (1996) captured 19 specimens in a cave. The unvouchered record made by Geraldes (2005) is listed here.

Records: Cananéia, P.E. Ilha do Cardoso (MZUSP 29083); Eldorado Paulista, Pedro Cubas (DZSJRP 15801); Ubatuba, Picinguaba (Geraldes, 2005).

***Lonchorhina* Tomes, 1863**
***Lonchorhina aurita* Tomes, 1863 (Fig. 10)**

Known from the southern region of the state (Trajano, 1982; Lopes, S.R. & Ditchfield, 2009) and the E and NE littoral (Geraldes, 2005). Trajano (1985) and Arnone (2008) reported a high capture rate of *L. aurita* in caves of S São Paulo, suggesting that the species may be locally abundant. Lopes, S.R. & Ditchfield (2009) found that the populations of *L. aurita* from southern Atlantic Forest are genetically distinct from the populations of the northern portion of the Atlantic Forest.

Records: Santos (MZUSP 35095); P.E. Intervales (Portfors *et al.,* 2000, de Vivo & Gregorin, 2001); Iporanga, Caverna Água Suja (MZUSP 11863, 12529); Iporanga, Caverna Santana (MZUSP 34048); Iporanga, Caverna Lage Branca (MZUSP 33974); Iporanga, Caverna Alambari de Baixo (MZUSP 33926); Iporanga, Caverna Areias de Cima (MZUSP 34059); Iporanga, next to Caverna do Morro Preto (MZUSP 34000); Juréia (Lopes, S.R. & Ditchfield, 2009); Saibadela (Lopes, S.R. & Ditchfield, 2009); Ubatuba, Picinguaba (Teixeira *et al.,* 2013).

***Macrophyllum* Gray, 1838**
***Macrophyllum macrophyllum* (Schinz, 1821) (Fig. 11)**

First mentioned for São Paulo by Vieira (1955). Recorded for the C (Vieira, 1955), NW (Taddei, 1975a) and SE regions. The additional record for SE, from Caverna Santana is the second occurrence of the species in caves of Brazil, the first being a record from the state of Bahia (Faria *et al.,* 2006).

Records: Cachoeira de Emas (MZUSP 7067); Icém (DZSJRP 4453); Icém, Ingás road, left margin of Rio Turvo (DZSRJP 4701); Iporanga, Caverna Santana (MZUSP 34030); Onda Branca, 10 km NW from Nova Granada (DZSJRP 16309); Sales, Fazenda Esplanada (DZSJRP 3347).

***Micronycteris* Gray, 1866**
***Micronycteris* sp. (Fig. 11)**

In their description of *Micronycteris brosseti,* Simmons & Voss (1998) report a specimen from "Rio Juquiá, Barra", in the state of São Paulo, based on the Field Museum (Chicago) specimen FMNH 92997. Upon reanalysis, however, the specimen could not be conclusively identified as *M. brosseti* (R. Moratelli *pers. comm.*). Considering the > 3,000 km gap be-

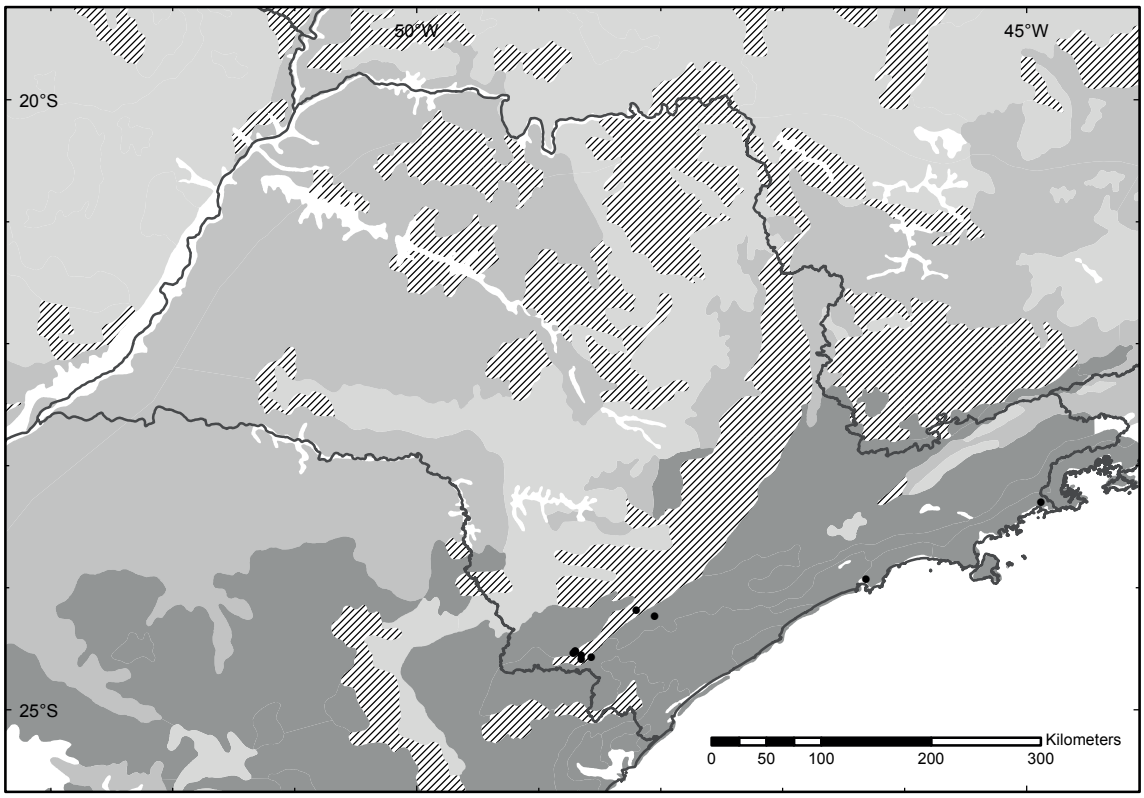

FIGURE 10: Localities of *Lonchorhina aurita* in the state of São Paulo.

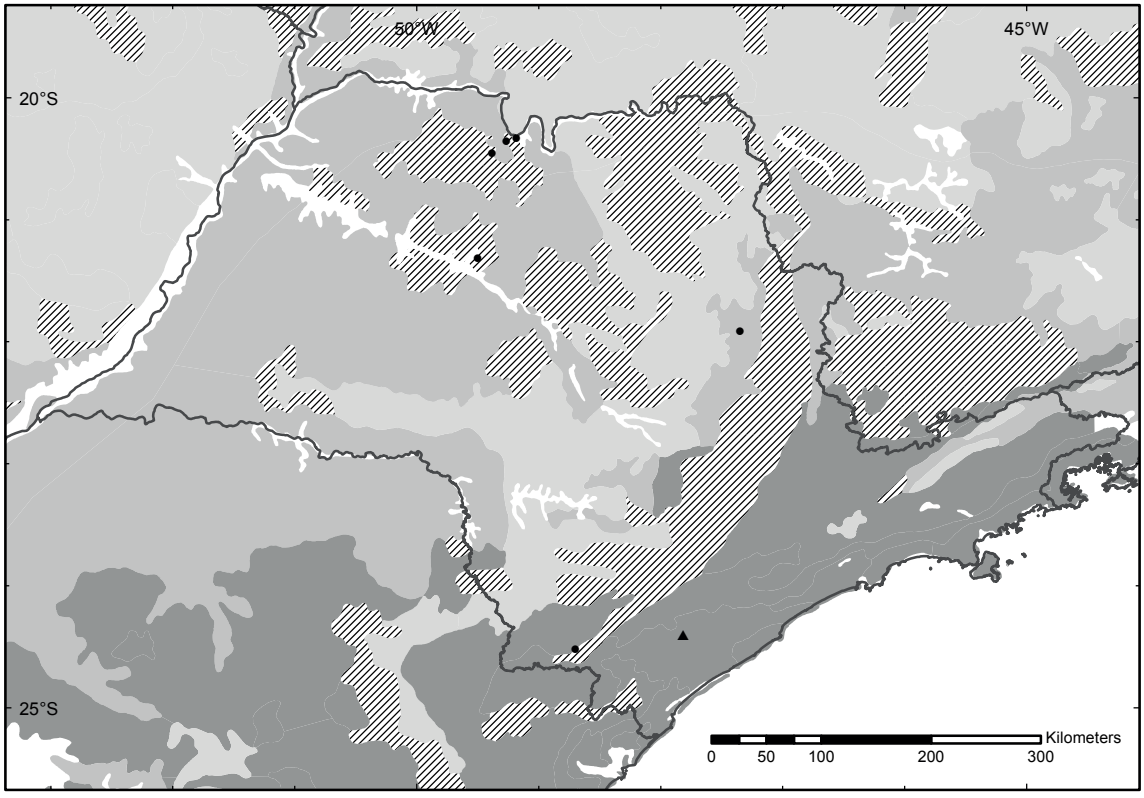

FIGURE 11: Localities of *Macrophyllum macrophyllum* (●) and *Micronycteris* sp. (▲) in the state of São Paulo.

tween the record from São Paulo and the type locality of *M. brosseti,* I prefer to remove the species from the list until further evidence about its occurrence in São Paulo is presented and the true identity of the Field Museum specimen is asserted.

Records: Rio Juquiá, Barra (Simmons & Voss, 1998).

***Micronycteris megalotis* (Gray, 1842) (Fig. 12)**

Cabrera (1958), based on the first locality record mentioned by Andersen (1906), arbitrarily restricted the type locality of *M. megalotis* from "Brasil" to "Perequé, São Paulo". The exact locality, however, cannot be pinpointed, since there are several toponyms named "Perequê" in the littoral of São Paulo.

Micronycteris megalotis is widely distributed in the state, being recorded in N (Gargaglioni *et al.,* 1998), NE (Vieira, 1942), W, E (Vieira, 1942; 1944), S, SE, NW (Taddei, 1975a) regions. As pointed out by Williams & Genoways (2008), some specimens identified as *M. megalotis* may be *M. microtis,* as many authors applied the name *M. megalotis* to all *Micronycteris* without whitish venter. Guimarães (1944) studied ectoparasitic bat flies of *M. megalotis.* Fenton *et al.* (1999) studied echolocation calls and foraging behavior of *M. megalotis* in São Paulo.

Records: Anhembi (Tavoloni, 2006); Botucatu region (Uieda & Chaves, 2005); Mirassol, Grota de Mirassol (DZSJRP 3574); E.E. Jataí (Gargaglioni *et al.,* 1998); Guarulhos, rural area (Chaves *et al.,* 2012); Indaiatuba, Fazenda Itaoca (ZUEC 303); Iporanga, Caverna Água Quente (MZUSP 13274); Iporanga, Caverna Córrego Seco (MZUSP 13271); Iporanga, Caverna Hipotenusa (MZUSP 12072); Iporanga, Caverna Morro Preto (MZUSP 34017); Itirapina, Cachoeira cave, A.P.A Corumbataí (Campanha & Fowler, 1993); Juquitiba (MZUSP 33024); Monte Alegre do Sul (MZUSP 24006); Oscar Bressane (DZSJRP 14395); P.E. Intervales (Fenton *et al.,* 1999; de Vivo & Gregorin, 2001); Pariquera-Açu (DZSJRP 15844); Perequê (?) (Andersen, 1906, type locality of *Phyllophora megalotis* Gray, 1842); Piquete (MZUSP 1228); Primeiro Morro, Rio Ipiranga (MZUSP 16189); Ribeira, Abismo do Porco (MZUSP 12019); São Paulo, P.E. da Cantareira (MZUSP 31458), Sorocaba (MZUSP 1211).

***Micronycteris microtis* Miller, 1898 (Fig. 13)**

According to Moras & Tavares (2014), *M. megalotis* is differentiated from *M. microtis* by a longer ear (more than 22 mm) with longer fur on its proximal third (8-10 mm). There are only two published records of the species, one for the semideciduous seasonal forest in C (Pedro *et al.,* 2001) and other for the dense ombrophilous forest of the S (Passos *et al.,* 2003). Herein I add two additional records, for the SE and E regions of the state. For the present study, the most useful character for identifying *M. microtis* was its short ear fur, I stress, however, that this single morphological trait may be an individual variation and not a diagnostic character of a distinct species.

Records: E.E. dos Caetetus (Pedro *et al.,* 2001; Porter *et al.,* 2007); Iporanga, mata próxima a Caverna Santana (MZUSP 34008, present study); P.E. Intervales (Passos *et al.,* 2003); Santos (MZUSP 35092, present study).

***Mimon* Gray, 1847**
***Mimon bennettii* (Gray, 1838) (Fig. 14)**

The type locality of *Mimon bennettii* was restriced to "Ypanema, São Paulo, Brazil" (currently known as Fazenda Ipanema, Iperó) by Hershkovitz (1951) based on the first precise locality record made by Thomas (1902). A morphometric analysis (Gregorin *et al.,* 2008) showed that the *M. bennettii* from the Atlantic forest and from the northern Brazilian Amazon has a smaller forearm length when compared to specimens from the Cerrado.

Records of *Mimon bennettii* in São Paulo are restricted to the C (Uieda & Chaves, 2005), E and SE (Trajano, 1985; de Vivo & Gregorin, 2001). In São Paulo, the species was captured in caves, sharing roosts with *Carollia perspicillata, Desmodus rotundus, Diphylla ecaudata* and *Myotis nigricans* (Trajano, 1985).

Records: Bertioga, Boracéia (Geraldes, 2005); Botucatu region (Uieda & Chaves, 2005); Buri (MZUSP 30901); Campinas, Joaquim Egídio (DZSJRP 15673); Campinas, Souzas (ZUEC 1141); Guarulhos, Horto Florestal (Chaves *et al.,* 2012); Juquitiba (MZUSP 30781); Ipanema (Thomas, 1902, type locality of *Phyllostoma bennettii* Gray, 1838), Itatiba (DZSJRP 13549); Itaporanga (MZUSP 14086), Salto de Pirapora (MZUSP 31727); Santos (MZUSP 25090); Taguaí (DZSJRP 14374), P.E. Intervales (de Vivo & Gregorin, 2001), Ribeira, Caverna Tiraprosa (MZUSP 11998), Iporanga, mata próxima a Caverna Santana (MZUSP 33979), Iporanga, Caverna da Passoca (MZUSP 12760), Iporanga, Caverna Água Quente (MZUSP 33912); Ubatuba, Picinguaba (Geraldes, 2005).

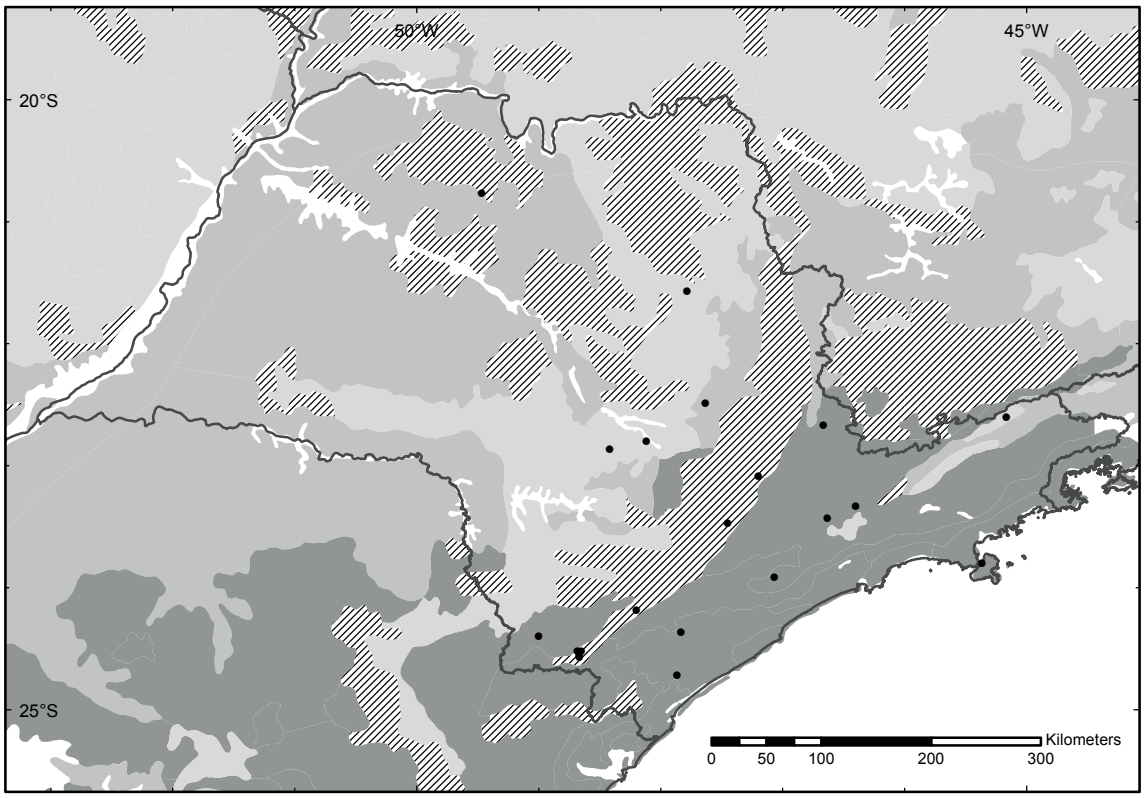

FIGURE 12: Localities of *Micronycteris megalotis* in the state of São Paulo.

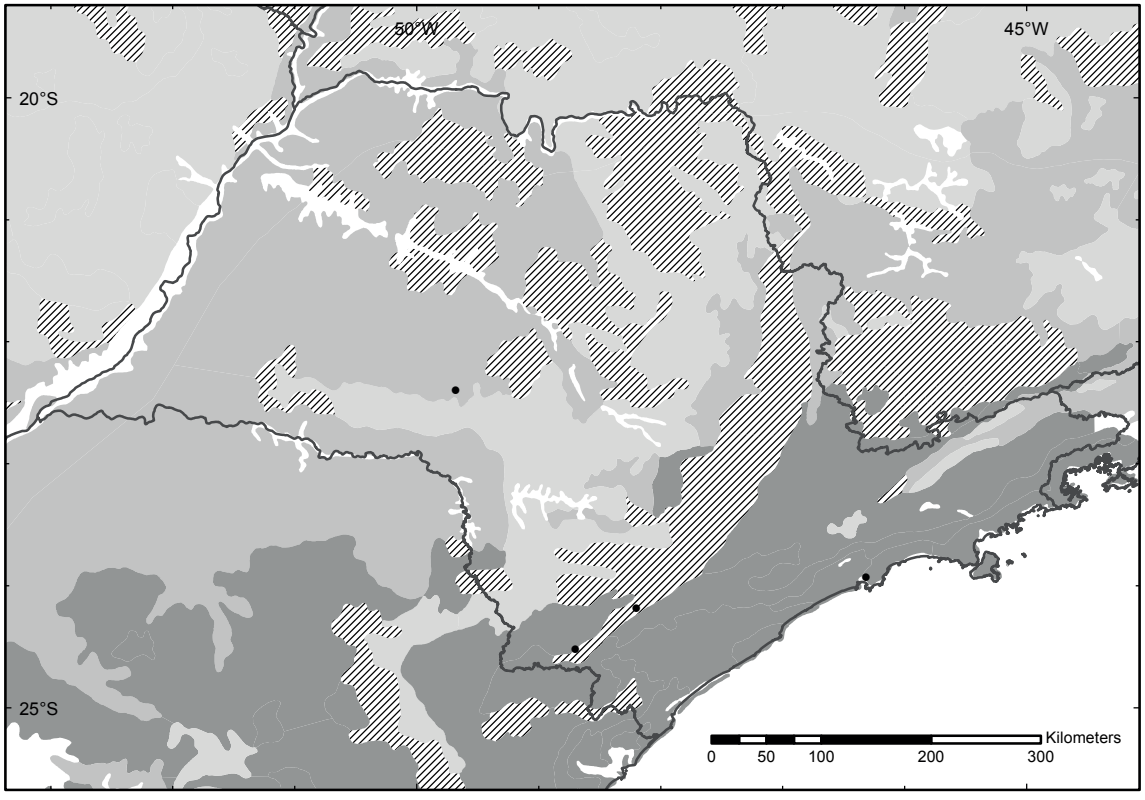

FIGURE 13: Localities of *Miconycteris microtis* in the state of São Paulo.

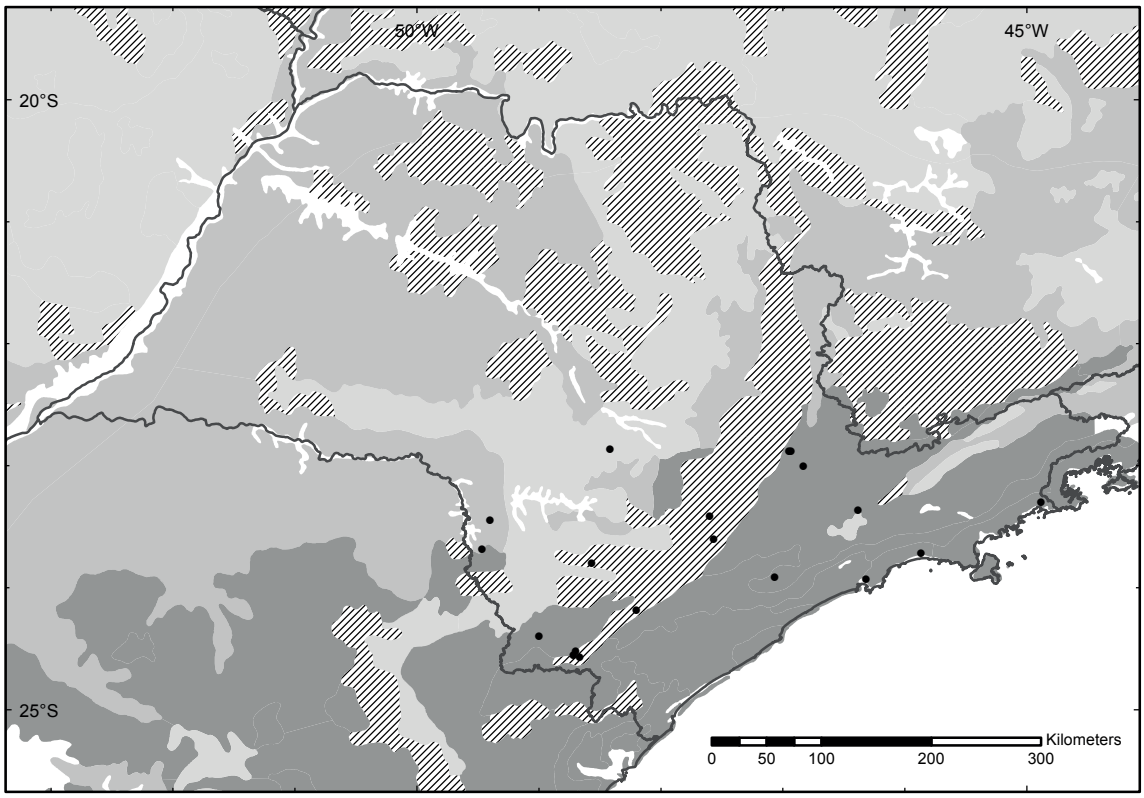

FIGURE 14: Localities of *Mimon bennettii* in the state of São Paulo.

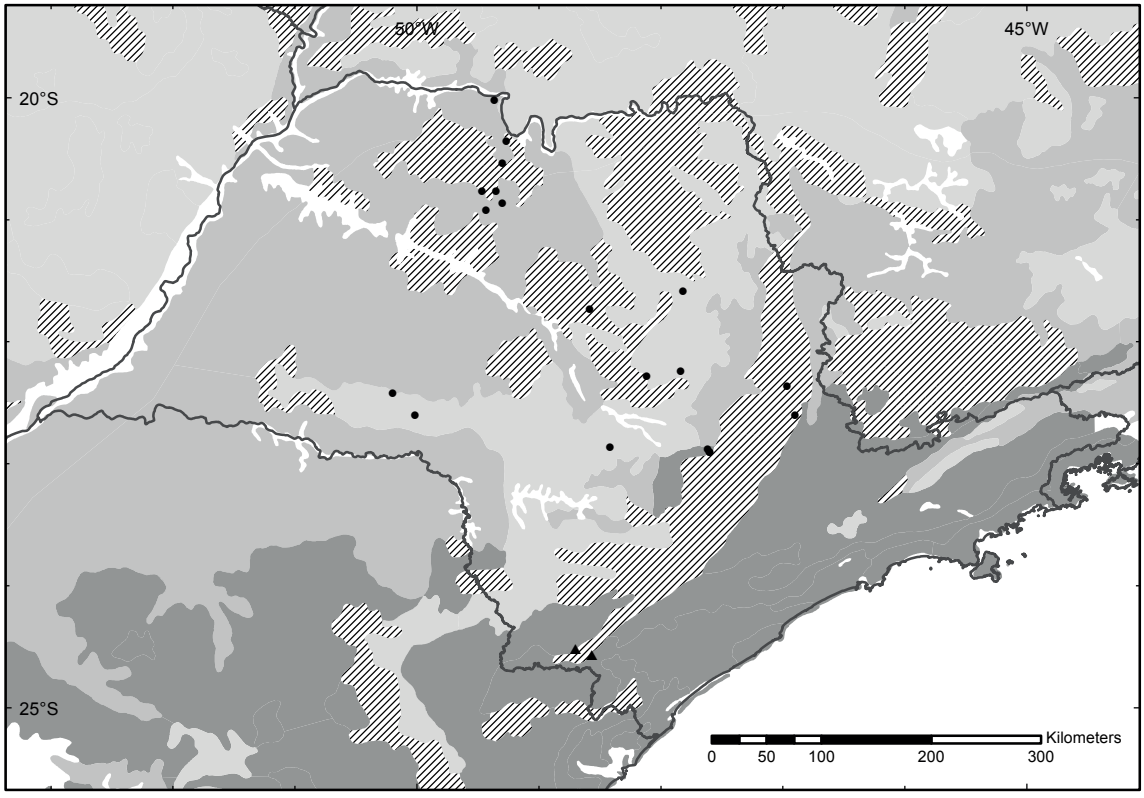

FIGURE 15: Localities of *Phylloderma stenops* (▲) and *Phyllostomus discolor* (●) in the state of São Paulo.

***Phylloderma* Peters, 1865**
***Phylloderma stenops* Peters, 1865 (Fig. 15)**

In São Paulo, was recorded only for the Alto Vale do Ribeira, a karstic region in SE (Trajano, 1982; Arnone, 2008). The S and SE region of the state (probably including the NE region of the adjacent state of Paraná) may be the meridional limit of the species distribution (Williams & Genoways, 2008).

Records: Iporanga, Caverna Água Suja (MZUSP 12553); Iporanga, mata do Parque (MZUSP 34002).

***Phyllostomus* Lacépède, 1799**
***Phyllostomus discolor* (J.A. Wagner, 1843) (Fig. 15)**

Was sampled in the N (Gargaglioni *et al.,* 1998), NW (Vizotto & Taddei, 1968; McNab, 1979) and C. In São Paulo, *Phyllostomus discolor* was recorded only in areas of seasonal semideciduous forest and Cerrado. Moreover, it appears to be absent from the more humid S, SE, E and NE littoral regions of the state, since this region has been extensively sampled during the years and the surveys failed to capture the species (Trajano, 1985; Manço *et al.,* 1991; Fazzolari-Corrêa, 1995; Passos *et al.,* 2003). Fischer (1992) reported *P. discolor* feeding on nectar of *Bauhinia ungulata* L. on Cerrado remnants of C São Paulo.

Records: Bady Bassit (DZSJRP 16653); Batatais (MZUSP 15801); Botucatu region (Uieda & Chaves, 2005); Brotas (ZUEC 1347); Campinas, Fazenda Rio das Pedras, Barão Geraldo (ZUEC 393); Campinas, Reserva Municipal de Santa Genebra (Faria, 1996); Campos Novos Paulista, Fazenda Santa Lúcia (MZUSP 28808); Echaporã (DZSJRP 14383); Icém, on the banks of Rio Turvo (DZSJRP 2472); Itirapina, Estação Experimental de Itirapina (Sato *et al.,* 2008); Luiz Antonio, E.E. Jataí (Gargaglioni *et al.,* 1998); Mogi-Guaçu, RPPN São Marcelo (Silveira *et al.,* 2011); Mirassol, Grota de Mirassol (DZSJRP 2835); Nova Europa (MZUSP 14087); Nova Granada, km 45 of SP-355 road (DZSJRP 2364); Paulo de Faria (DZSJRP 4487); Santo Antonio de Posse, Fazenda Dona Amélia (ZUEC 534); São José do Rio Preto, bosque municipal (DZSJRP 18175); São José do Rio Preto, Engenheiro Schmidt (MZUSP 3788).

***Phyllostomus hastatus* (Pallas, 1767) (Fig. 16)**

This species is widely distributed in the state of São Paulo. Has been recorded for the N (Taddei, 1975a), C (Uieda & Chaves, 2005), E, NE, S and SE regions.

Records: Batatais (MZUSP 6616); Botucatu region (Uieda & Chaves, 2005); Campinas, Reserva Municipal de Santa Genebra (ZUEC 403); Cosmorama (DZSJRP 4508); Estrela d'Oeste (DZSJRP 3555); Fernandópolis (DZSJRP 3657); Guapiaçu (DZSJRP 4705); Guzolândia (DZSJRP 4573); Icém, gruta do Ferrador – Hidrelétrica de Marimbondo (DZSJRP 2544); Ilhabela, Bairro do Perequê (ZUEC 1106); Ipiguá (DZSJRP 2282); Irapuã (DZSJRP 3727); Itapura (MZUSP 1724); José Bonifácio (DZSJRP 4204); Limeira, Cemitério Municipal (ZUEC 1969); Macaubal (DZSJRP 2813), Mágda (DZSJRP 3065), Mirassol, Grota de Mirassol (DZSJRP 2836); Mirassol, Sítio Progresso (DZSJRP 2053); Monte Belo, Ponte sobre o Rio Cubatão (DZSJRP 2977); Neves Paulista (DZSJRP 16800); Nhandeara (DZSJRP 2495), Nova Aliança (DZSJRP 4652); Nova Europa, Fazenda Itaquerê (MZUSP 16465); Nova Granada (DZSJRP 2890), Nova Granada, km 10 da SP-355 (DZSJRP); Novo Horizonte (DZSJRP 16009); Onda Verde (DZSJRP 4727); Ouroeste (*obs. pess.*); P.E. Intervales (de Vivo & Gregorin, 2001); Pereira Barreto (Taddei, 1975a); Planalto (DZSJRP 14441); Ribeirão Preto (MZUSP 16291); Santa Albertina (DZSJRP 3218); Santa Fé do Sul (DZSJRP 4659); São Paulo, Butantan (MZUSP 15696); São José do Rio Preto, km 8 of SP-355 highway (DZSJRP 2563); São Sebastião, praia de Maresias (MZUSP 8120); Simonsen (Taddei, 1975a); Teodoro Sampaio, P.E. Morro do Diabo (Reis *et al.,* 1996); Ubatuba, Praia da Fortaleza (MZUSP 14002); Urupês, Bairro das Palmeiras (DZSJRP 2557); Urupês, Cemitério Municipal (DZSJRP 2957); Votuporanga (DZSJRP 2064).

***Tonatia* Gray, 1827**
***Tonatia bidens* (Spix, 1823) (Fig. 17)**

Recorded for the eastern portion of the state, from the NE (Aires, 1998), S (Vieira, 1942) and SE (de Vivo & Gregorin, 2001) regions. Martuscelli (1995) recorded 25 species of birds used as food items by *T. bidens* in P.E. Ilha do Cardoso, S São Paulo.

Records: Bertioga, Boracéia (Geraldes, 2005); Cananéia, Ilha do Cardoso (MZUSP 27602); Ilha de São Sebastião (MZUSP 2520); Ilhabela, P.E. Ilhabela (Teixeira *et al.,* 2013); Ipanema (Thomas, 1902); Iporanga, Caverna Alambari de Baixo (MZUSP 33932); Iporanga, Caverna Betari (MZUSP 33948); Iporanga, Caverna do Couto (MZUSP 13283); Iporanga, Caverna Hipotenusa (MZUSP 12059); Iporanga, Caverna Ouro Grosso (MZUSP 11787); Iporanga, Caverna Santana (MZUSP 34034); Iporanga, mata próxima a Caverna Santana

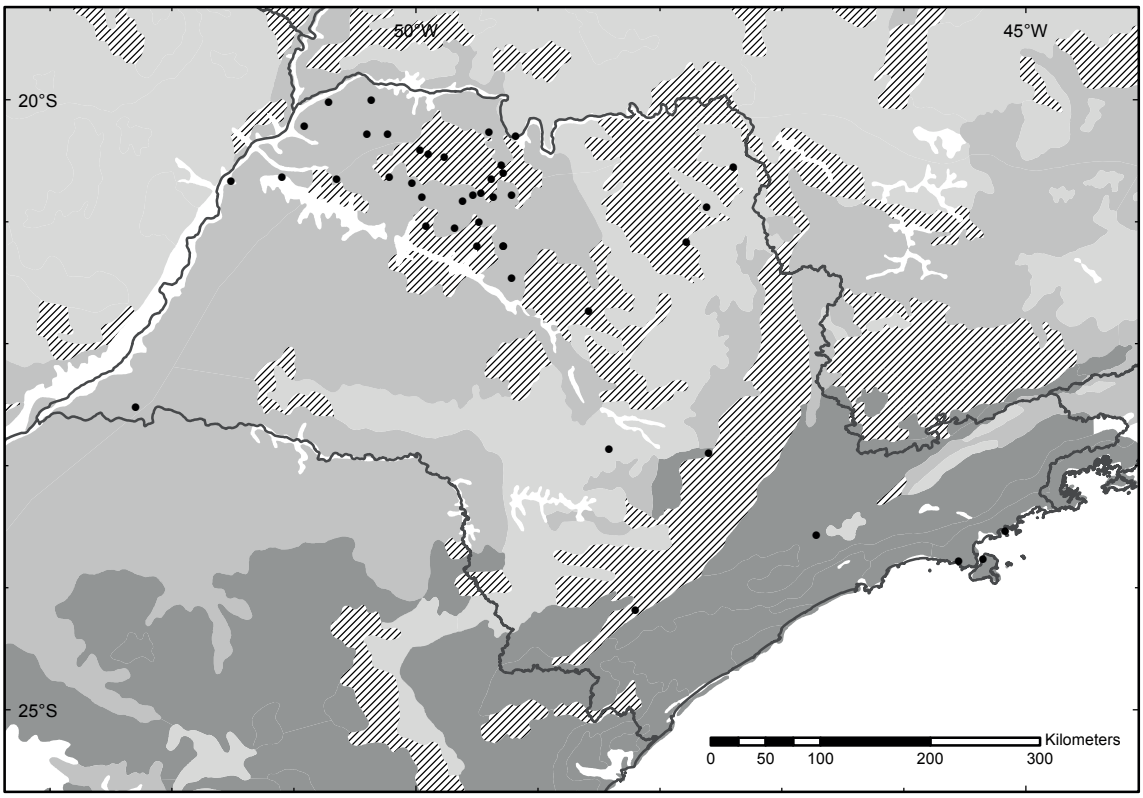

FIGURE 16: Localities of *Phyllostomus hastatus* in the state of São Paulo.

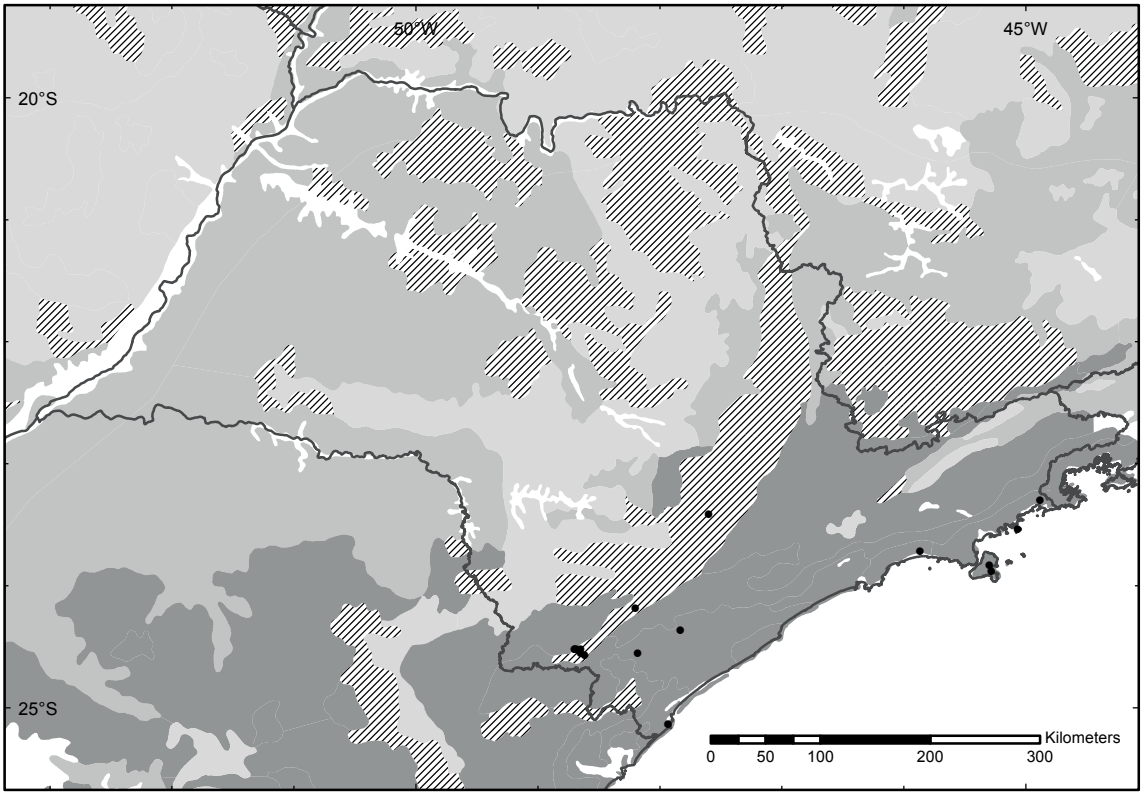

FIGURE 17: Localities of *Tonatia bidens* in the state of São Paulo.

(MZUSP 33978); P.E. Intervales (de Vivo & Gregorin, 2001); Primeiro Morro, Rio Ipiranga (MZUSP 18459); Primeiro Morro, Rio Ribeira do Iguape (MZUSP 17292); Ubatuba, P.E. da Ilha Anchieta (MZUSP 29457); Ubatuba, Picinguaba (Geraldes, 2005).

***Trachops* Gray, 1827**
***Trachops cirrhosus* (Spix, 1823) (Fig. 18)**

All records of this species are restricted to the dense ombrophilous forest of the S (Fazzolari-Corrêa, 1995), E, SE and NE regions of the state of São Paulo (the Atlantic coast). Trajano (1985) captured specimens of *T. cirrhosus* inside caves in SE São Paulo.

Records: Bertioga, Boracéia (Geraldes, 2005); Cananéia, P.E. da Ilha do Cardoso (MZUSP 27781); Iguape (MZUSP 1338); Ilhabela, P.E. Ilhabela (Teixeira *et al.,* 2013); Iporanga, Caverna Santana (MZUSP 34052); Iporanga, Caverna Betari (MZUSP 11666); Iporanga, Caverna Jeremias (MZUSP 33966); P.E. Intervales (de Vivo & Gregorin, 2001); Peruíbe, E.E. de Juréia-Itatins (Teixeira *et al.,* 2013); Ubatuba, Picinguaba (Geraldes, 2005).

Subfamily Glossophaginae Bonaparte, 1845
***Anoura* Gray, 1838**
***Anoura caudifer* (É. Geoffroy, 1818) (Fig. 19)**

This relatively common bat was first recorded for São Paulo by Pelzeln (1883). The species has been recorded for every region of the state since then. In the karstic region of SE São Paulo, Trajano (1985) recorded *A. caudifer* in an unusually high frequency suggesting that the species has the same ecological role as *Glossophaga soricina* in other areas. Campanhã & Fowler (1993) registered *A. caudifer* using arenitic caves. Silva *et al.* (1996) recorded *A. caudifer* in urban areas of the city of São Paulo. Fischer (1992) reported *A. caudifer* feeding on nectar of *Bauhinia ungulata* L. (Leguminosae) on Cerrado remnants of São Paulo. Graciolli (2003a) described a new species of bat fly (*Strebla,* Streblidae) on *Anoura caudifer* from P.E. Intervales.

Records: Amparo, Fazenda Estiva (DZSJRP 13495); Apiaí, Gruta dos Vieira (MZUSP 15806); Araras, Fazenda Santana, 10 km W of Araras (DZSJRP 11402); Atibaia, Parque Municipal Grota Funda (ZUEC 1671); Atibaia, Parque Florestal do Itapetinga (= Parque Municipal Grota Funda) (ZUEC 2156); Barra do Turvo (MZUSP 22185); Boracéia (MZUSP 24004); Boracéia, Varjão do Guaratuba (MZUSP 26434); Botucatu, Fazenda Lageado (ZUEC 123); Brotas (ZUEC 1349); Buri (MZUSP 30908); Cajuru, Fazenda Santa Carlota (MZUSP 31596); Campinas, Souzas (ZUEC 429); Campos do Jordão, P.E. Campos do Jordão (ZUEC 1870); Cananéia (MZUSP 26356); Cananéia, Ilha do Cardoso (MZUSP 27701); Caraguatatuba (MZUSP 15681); Eldorado Paulista (DZSJRP 16226); Engenheiro Ferraz Station (= Chapéu) (MZUSP 17312); Fernando Prestes, Serra do Itaimbé (DZSJRP 13630); Franca (MZUSP 841); Guapiaçu (DZSJRP 4608); Icém (DSJRP 3559); Iguape (MZUSP 26305); Iguape, E.E. Juréia-Itatins (ZUEC 1167); Ilha Solteira (MZUSP 14094); Ilhabela, Ilha de Búzios (MZUSP 16369); Ilhabela, Ilha de São Sebastião (MZUSP 2518); Ilhabela, Ilha Vitória (MZUSP 2519); Ilhabela, Bairro do Perequê (ZUEC 1118); Ipanema (Pelzeln, 1883); Ipiguá (DSJRP 2286); Iporanga, Caverna Água Suja (MZUSP 12526); Iporanga, Caverna Córrego Seco (MZUSP 12023); Iporanga, Caverna Gurutuva (MZUSP 12074); Iporanga, Caverna Hipotenusa (MZUSP 12092); Iporanga, Gruta do Grilo (MZUSP 12769); Iporanga, Gruta do Sítio Novo (MZUSP 12057); Iporanga, Gruta do Zezo (MZUSP 12770); Iporanga, Gruta dos Macaquinhos (MZUSP 11946); Irapuá (DSJRP 2758); Itapira (DZSJRP 12555); Itapura (MZUSP 16093); Itatiba (DZSJRP 13557); Itirapina, Caverna do Paredão, A.P.A. Corumbataí (Campanhã & Fowler. 1993); Itirapina, Estação Experimental de Itirapina (Sato *et al.,* 2008); Itobi (DZSJRP 13085); Jacupiranga (MZUSP 26381); José Bonifácio (DZSJRP 4682); Jundiaí, Serra do Japi (ZUEC 1139); Juquiá, Fazenda Poço Grande (MZUSP 5720); Juquiá, Fazenda Pouso Alto (ZUEC 139); Juquiá, Cabeceira da Anta (MZUSP 5842); Juquitiba (MZUSP 30841); Lagoinha (DZSJRP 13486); Luiz Antonio, E.E. Jataí (Gargaglioni *et al.,* 1998); Macaubal (DSJRP 2035); Marília (DZSJRP 14394); Mato Dentro (Pelzeln, 1883); Mendonça, Monte Belo (DZSJRP 2973); Monte Alegre do Sul (MZUSP 6241); Monte Aprazível (DSJRP 2113); Nhandeara (DSJRP 2503); Nova Aliança (DSJRP 3621); Nova Aliança, Nova Itapirema (DSJRP 4057); Nova Granada (DSJRP 16323); Onda Verde (DSJRP 2294); Orindiúva (DZSJRP 15065); P.E. Intervales (de Vivo & Gregorin, 2001); Paulo de Faria (DSJRP 3392); Piedade (MZUSP 31070); Piquete (MZUSP 3547); Piraju, Fazenda Santa Lucia (MZUSP 29006); Poloni (DSJRP 2184); Quatá (DZSJRP 14048); Riacho Grande (MZUSP 30607); São Carlos, Fazenda Canchim (Muylaert *et al.,* 2014); São José do Rio Preto (DSJRP 3981); São Paulo (MZUSP 15683); São Paulo, P.E. da Cantareira (MZUSP 31501); São Sebastião, CEBIMar USP (DZSJRP 11572); Soro-

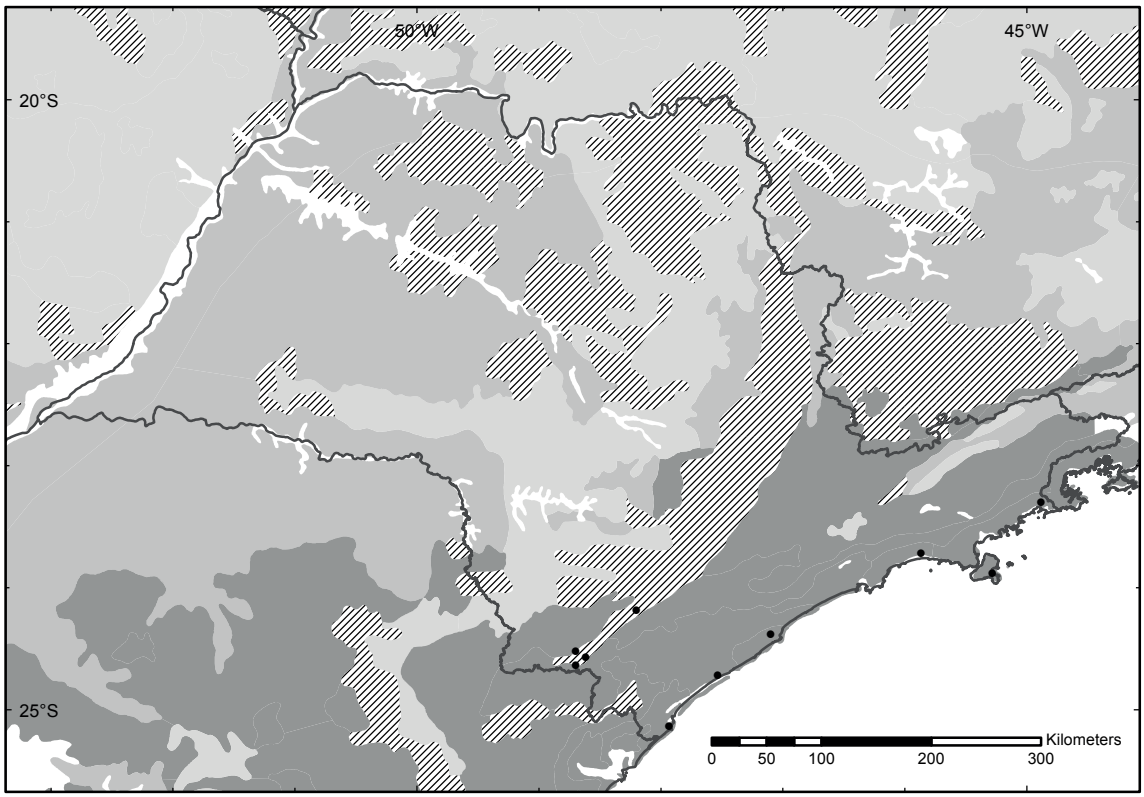

FIGURE 18: Localities of *Trachops cirrhosus* in the state of São Paulo.

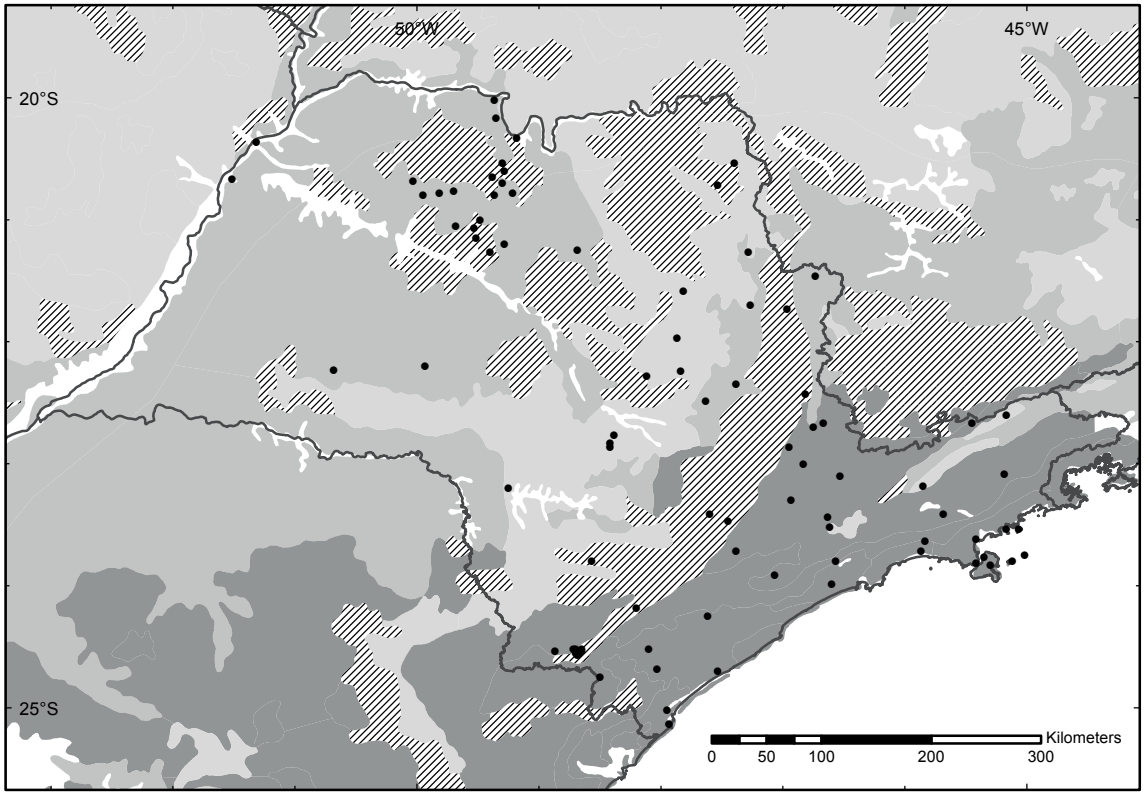

FIGURE 19: Localities of *Anoura caudifer* in the state of São Paulo.

caba (MZUSP 15814); Talhados, Talhadinho stream (Breviglieri, 2011); Tambaú, Fazenda Ipiranga de Baixo (DZSJRP 12580); Tapiratiba, Fazenda Vargedo (DZSJRP 13475); Ubatuba, Praia da Fortaleza (ZUEC 309); Ubatuba, Praia do Lázaro (ZUEC 645); Ubatuba, P.E. da Ilha Anchieta (MZUSP 29448); Urupês (DSJRP 2922); Vitoriana (MZUSP 7057).

***Anoura geoffroyi* Gray, 1838 (Fig. 20)**

First recorded for the N region of the state by Vieira (1942). Trajano (1985) recorded *A. geoffroyi* in one of 32 surveyed caves in SE São Paulo and suggested that the species is locally common but has a restricted distribution. It has been also recorded for the C, in a Cerrado area. Vieira (1944) reported the species roosting in a coffee granary and inside a cave. Guimaráes (1944) and Bertola *et al.* (2005) published about parasitic bat flies of *A. geoffroyi* in São Paulo.

Records: Apiaí, Gruta do Calcáreo Branco (MZUSP 12771); Atibaia, Parque Municipial Grota Funda (ZUEC 1847); Bananal, E.E. de Bananal (MZUSP 33676); Boracéia (MZUSP 17642); Botucatu region (Uieda & Chaves, 2005); Campinas, Souzas (ZUEC 428); Cananéia (MZUSP 26330); Casa Grande (MZUSP 16409); Iguape (MZUSP 26524); Iguape, E.E. Juréia-Itatins (ZUEC 1291); Ilha do Cardoso (MZUSP 28151); Ipanema (MZUSP 15857); Iporanga, Caverna Alambari de Baixo (MZUSP 33914); Ituverava (MZUSP 3010); Jacupiranga (DZSJRP 15976); Juquiá, Fazenda Pouso Alto (ZUEC 138); Miracatu, Sítio Refúgio (MZUSP 26787); Mogi das Cruzes (MZUSP 21044); P.E. Intervales (de Vivo & Gregorin, 2001); Piedade (MZUSP 33005); São Carlos, Fazenda Canchim (Muylaert *et al.,* 2014); São Paulo (MZUSP 1215); São Paulo, Ipiranga (MZUSP 1332, 3658); São Paulo, P.E. da Cantareira (MZUSP 31504); São Paulo, P.E. do Jaraguá (MZUSP 31963); Ubatuba, Praia do Lázaro (ZUEC 644).

***Glossophaga* É. Geoffroy, 1818**
***Glossophaga soricina* (Pallas, 1766) (Fig. 21)**

This common species has been recorded for every region of the state. *Glossophaga soricina* was one of three species caught in a sandstone cave in N (Filho *et al.,* 2003), while it was absent from carbonatic caves (Trajano, 1985). The ecology of *G. soricina* from São Paulo, especially its role as a pollinator, was studied by several authors (*e.g.,* Sazima, M. *et al.,* 1982; Sazima, M. & Sazima, 1987; Sazima, M. *et al.,* 2003). Motta-Junior & Taddei (1992) published a case of predation by *Asio stygius* (Strigidae). Sodré *et al.* (2007) reported the rabies virus in *G. soricina* from the city of São Paulo.

Records: Altinópolis (Filho *et al.,* 2003); Analândia (DZSJRP 14008); Anhembi (Tavoloni, 2006); Barra Bonita (MZUSP 21569); Barra do Rio Dourado (MZUSP 5953); Batatais (MZUSP 6619); Bertioga (MZUSP 26435); Botucatu (DZSJRP 16401); Buri (MZUSP 20925); Cachoeira de Emas (MZUSP 7349); Cajuru, Fazenda Santa Carlota (MZUSP 31320); Cananéia (MZUSP 26328); Cananéia, Ilha do Cardoso (MZUSP 27977); Cedral (DZSJRP 15996); Cosmorama (DZSJRP 2201); Cotia (MZUSP 31921); E.E. Caetetus (Pedro *et al.,* 2001); Echaporã, Fazenda Fortuna (DZSJRP 14057); Eldorado Paulista (DZSJRP 15961); Engenheiro Schmidt (Taddei, 1975b); Fernandópolis (DZSJRP 4596); Floreal (DZSJRP 2233); Franca (MZUSP 974); Franco da Rocha (MZUSP 7204); Gastão Vidigal (Taddei, 1975b); Guapiaçu (DZSJRP 4606); Guaraci (DZSJRP 3132); Guarulhos, Candinhas House (Chaves *et al.,* 2012); Guarulhos, private property used as recreational area (Chaves *et al.,* 2012); Guarulhos, private proptery on a hill (Chaves *et al.,* 2012); Guarulhos, rural area (Chaves *et al.,* 2012); Guarulhos, Horto Florestal (Chaves *et al.,* 2012); Icém (DZSJRP 4794); Iguape (MZUSP 15841); Indiaporã (Taddei, 1975b); Iporanga, Caverna Areias de Baixo (MZUSP 34057); Iporanga, Gruta do Betari (MZUSP 13270); Iporanga, Caverna Córrego Seco (MZUSP 33950); Iporanga, near Caverna Córrego Seco (MZUSP 33999); Irapuã (DZSJRP 3542); Itajobi (DZSJRP 4699); Itapetininga (MZUSP 16421); Itirapina, Estação Experimental de Itirapina (Sato *et al.,* 2008); José Bonifácio (DZSJRP 4690); José Bonifácio, Ponte de Avanhandava (DZSJRP 4792); Juquitiba (MZUSP 32977); Lins (MZUSP 5959); Luiz Antonio, E.E. Jataí (Gargaglioni *et al.,* 1998); Macaubal (DZSJRP 2746); Marília (DZSJRP 14895); Meridiano (DZSJRP 3111); Mirassol (DZSJRP 18109); Mirassolândia (DZSJRP 4361); Mogi das Cruzes (MZUSP 21051); Monte Aprazível (DZSJRP 2078); Neves Paulista (DZSJRP 14449); Nhandeara (DZSJRP 2499); Nipoã (DZSJRP 2134); Nova Aliança (DZSJRP 3481); Nova Europa, Fazenda Itaquerê (MZUSP 16206); Nova Granada (DZSJRP 3362); Nova Itapirema (Taddei, 1975b); Novo Horizonte (DZSJRP 3240); Onda Verde (DZSJRP 2000); P.E. Intervales (de Vivo & Gregorin, 2001); Palmeira d'Oeste (DZSJRP 2205); Pariquera-Açu (MZUSP 26403); Parisi (DSJRP 3191); Paulo de Faria (DZSJRP 3358); Pereira Barreto (DZSJRP 4500); Peruíbe, E.E. Juréia-Itatins (Teixeira *et al.,* 2013); Pindorama, Fazenda

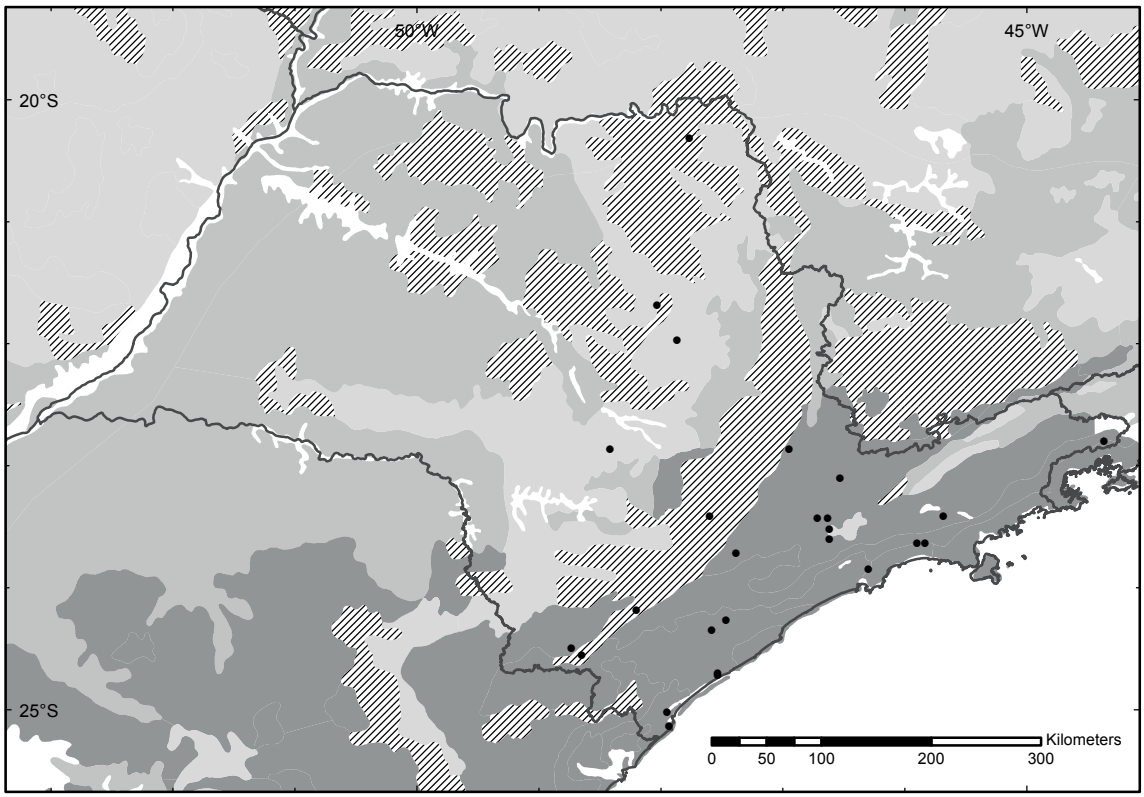

FIGURE 20: Localities of *Anoura geoffroyi* in the state of São Paulo.

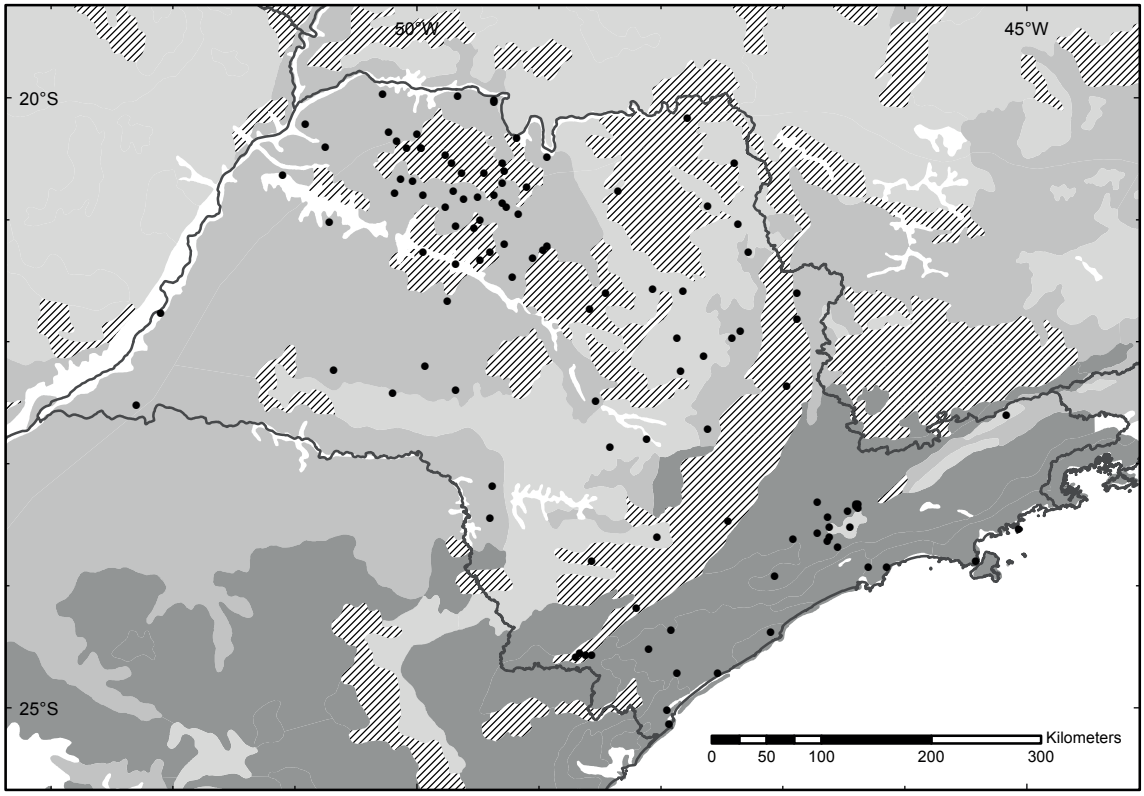

FIGURE 21: Localities of *Glossophaga soricina* in the state of São Paulo.

Experimental (Breviglieri, 2011); Pindorama, Roberto (DZSJRP 16552); Pindorama, Tenentes stream (Breviglieri, 2011); Piquete (MZUSP 148); Piracicaba (MZUSP 1209); Piraju, Sítio Araras (DZSJRP 14377); Pirassununga (MZUSP 1266); Porto Epitácio (MZUSP 16260); Potirendaba (DZSJRP 2346); Quatá (DZSJRP 14398); Ribeirão Preto (MZUSP 16334); Rincão (MZUSP 484); Riolândia (Taddei, 1975b); RPPN São Marcelo, Mogi-Guaçu (Silveira *et al.,* 2011); Sales (Taddei, 1975b); Santa Fé do Sul (MZUSP 9402); São Bernardo do Campo (MZUSP 17944); São Carlos, Fazenda Canchim (Motta-Junior & Taddei, 1992; Muylaert *et al.,* 2014); São Carlos, private reserve of UFSCAR (Muylaert *et al.,* 2014); São José do Rio Pardo (MZUSP 14091); São José do Rio Preto (MZUSP 6227); São Paulo (MZUSP 3403); São Paulo, Água Funda (MZUSP 17947); São Paulo, Butantan (MZUSP 7042); São Paulo, Ipiranga (MZUSP 6110); São Paulo, Itaquera (MZUSP 24236); São Paulo, P.E. da Cantareira (MZUSP 31507); São Sebastião (MZUSP 32052); Sete Barras (MZUSP 22192); Silvânia (MZUSP 6247); Sorocaba (MZUSP 15844); Taguaí, Fazenda Primavera (DZSJRP 14379); Talhados, Talhadinho stream (Breviglieri, 2011); Tanabi, Ecatu (DZSJRP 3242); Teodoro Sampaio, P.E. do Morro do Diabo (Reis *et al.,* 1996); Terra Roxa (MZUSP 14092); Ubautba, P.E. da Ilha Anchieta (MZUSP 29446); Uchôa (DZSJRP 3456); Urupês (DZSJRP 3075); Valentim Gentil (Taddei, 1975b); Vargem Grande do Sul, Fazenda Ribeirão Preto da Forquilha (DZSJRP 14984); Votuporanga (DZSJRP 2065).

Subfamily Lonchophyllinae Griffiths, 1982
***Lonchophylla* Thomas, 1903**
***Lonchophylla peracchii* Dias, Esbérard & Moratelli, 2013 (Fig. 22)**

Teixeira *et al.* (2013) provided the first record for the species and genus in São Paulo. The record, from the dense ombrophilous forest in the NE is adjacent to the record from Ilha Grande, in the state of Rio de Janeiro. To the moment, this is the southernmost record for *L. peracchii.*

Records: Ubautba, Picinguaba (Teixeira *et al.,* 2013).

Subfamily Carolliinae Miller, 1924
***Carollia* Gray, 1838**
***Carollia perspicillata* (Linnaeus, 1758) (Fig. 23)**

This common frugivore has been recorded for every region of the state. Vieira (1944) reported *C. perspicillata* roosting in a coffee granary. Sazima, M. *et al.* (2003) studying the species in São Paulo, hypothesized that some Solanaceae, such as *Dyssochroma viridiflorum,* were reproductively bat-dependent. Guimarães (1944) studied Streblidae flies from *C. perspicillata* in São Paulo.

Records: Anhembi (Tavoloni, 2006); Apiaí, Gruta do Calcáreo Branco (MZUSP 12757); Apiai, Gruta dos Vieira (MZUSP 11938); Barra de Icapara (MZUSP 17330); Barra do Rio Dourado (MZUSP 5951); Barra do Turvo (MZUSP 22186); Boracéia, Varjao do Guaratuba (MZUSP 21046); Botucatu region (Uieda & Chaves, 2005); Buri (MZUSP 30898); Cajuru, Fazenda Santa Carlota (MZUSP 32144); Campos do Jordão (MZUSP 17666); Cananéia (MZUSP 22187); Caraguatatuba (MZUSP 15701); Casa Grande (MZUSP 21048); E.E. Caetetus (Pedro *et al.,* 2001); E.E. da Juréia, Rio Verde, Itatins (MZUSP 32149); Cubatão, Grande Fenda I (MZUSP 33271); Cunha, Sitio Três Pinheiros (MZUSP 32156); Ecatu (Taddei, 1975b); Engenheiro Ferraz Station (= Chapéu Station) (MZUSP 17299); Engenheiro Schmidt (Taddei, 1975b); Guapiaçu (Taddei, 1975b); Guarulhos, area with poultry pen, surrounded by forest (Chaves *et al.,* 2012); Guarulhos, Candinhas House (Chaves *et al.,* 2012); Guarulhos, Horto Florestal (Chaves *et al.,* 2012); Guarulhos, private property on a hill (Chaves *et al.,* 2012); Guarulhos, private property used as recreational area (Chaves *et al.,* 2012); Guarulhos, rural area (Chaves *et al.,* 2012); Icém (Taddei, 1975b); Iguape (MZUSP 21047); Iguape, Sítio Shirata (MZUSP 20612); Ilha do Cardoso (MZUSP 27531); Ilha de São Sebastião (MZUSP 3209); Ilha Solteira (MZUSP 14099); Ilhabela, P.E. Ilhabela (Teixeira *et al.,* 2013); Ipanema (MZUSP 15964); Iporanga (MZUSP 15700); Iporanga, Bairro da Serra (MZUSP 11782); Iporanga, Caverna Água Suja (MZUSP 24105); Iporanga, Caverna Alambari de Baixo (MZUSP 33919); Iporanga, Caverna Areias de Baixo (MZUSP 34053); Iporanga, Caverna Areias de Cima (MZUSP 12527); Iporanga, Caverna Betari (MZUSP 33946); Iporanga, Caverna Córrego Seco (MZUSP 11957); Iporanga, Caverna do Couto (MZUSP 12071); Iporanga, Caverna Gurutuva (MZUSP 12086); Iporanga, Caverna Hipotenusa (MZUSP 12081); Iporanga, Caverna Lage Branca (MZUSP 11910); Iporanga, Caverna Morro Preto (MZUSP 34011); Iporanga, Caverna Ouro Grosso (MZUSP 12031); Iporanga, Caverna Santana (MZUSP 12070); Iporanga, Gruta do Grilo (MZUSP 11939); Iporanga, Gruta do Jeremias (MZUSP 23176); Iporanga, Gruta dos Macaquinhos (MZUSP 11907); Iporanga, Gruta do

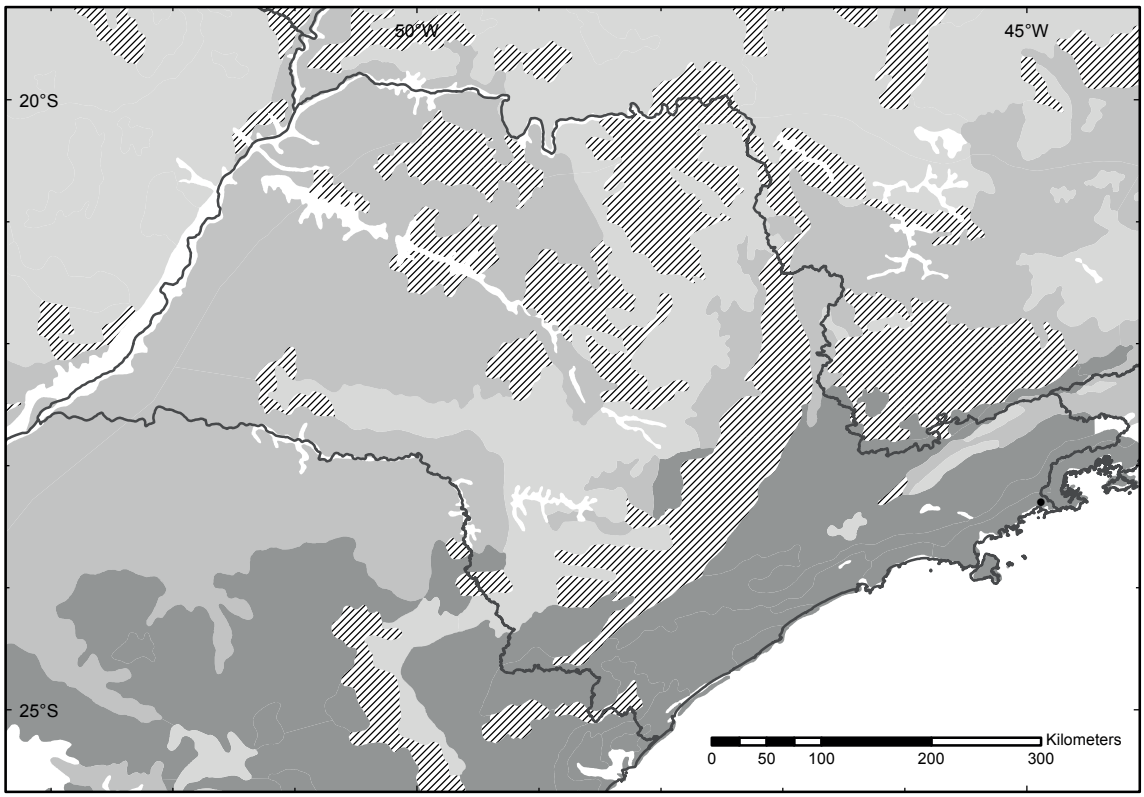

FIGURE 22: Localities of *Lonchophylla peracchii* in the state of São Paulo.

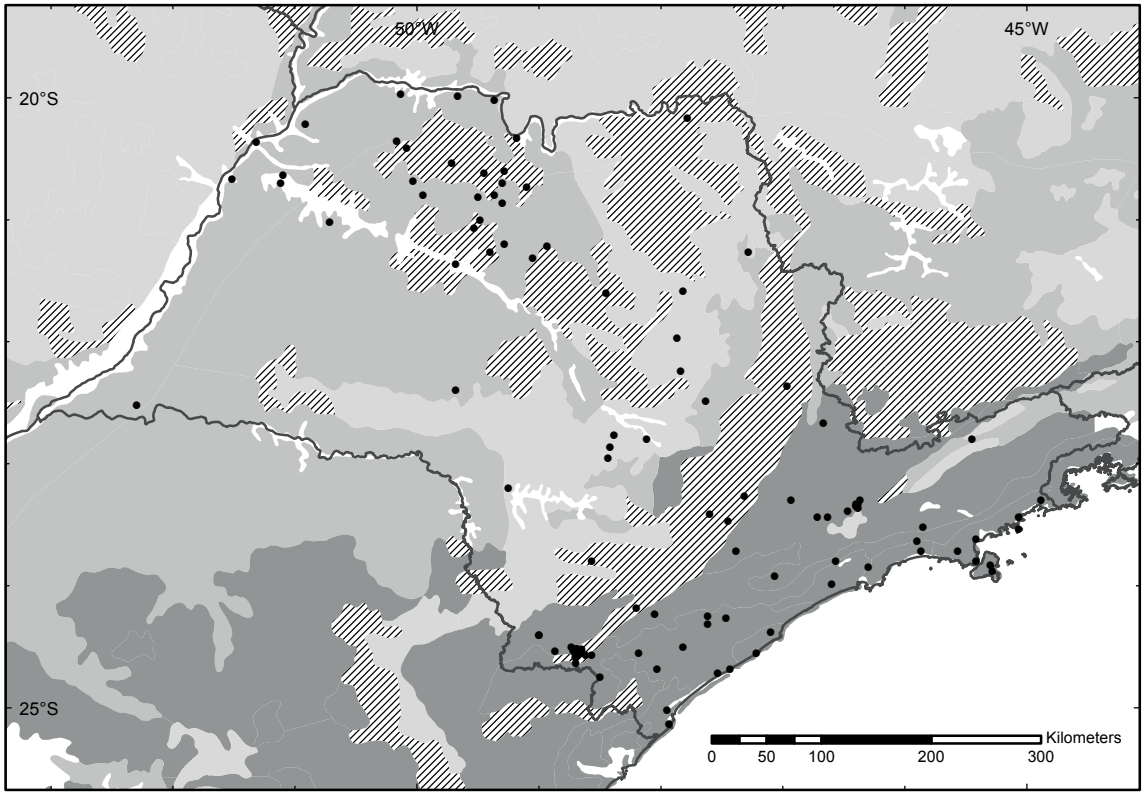

FIGURE 23: Localities of *Carollia perspicillata* in the state of São Paulo.

Sítio Novo (MZUSP 11793); Iporanga, Gruta do Zezo (MZUSP 11925); Irapuã (Taddei, 1975b); Itajobi (Taddei, 1975b); Itapura (MZUSP 15924); Itirapina, Estação Experimental de Itirapina (Sato *et al.,* 2008); Itirapina, Caverna do Paredão, A.P.A. Corumbataí (Campanha and Fowler. 1993); Itu, Fazenda Pau d'Alho (MZUSP 15699); Jacupiranga (MZUSP 26543); Juquiá (MZUSP 5723); Juquiá, Cabeceira da Anta (MZUSP 5841); Juquiá, Fazenda Poço Grande (MZUSP 7100); Juquitiba (MZUSP 30783); Luiz Antonio, E.E. Jataí (Gargaglioni *et al.,* 1998); Lussanvira (MZUSP 15934); Macaubal (Taddei, 1975b); Meridiano (Taddei, 1975b); Mira Estrela (Taddei, 1975b); Miracatu (MZUSP 21045); Mirassol (Taddei, 1975b); Mirassolândia (Taddei, 1975b); Mogi das Cruzes, Área Enterpa (MZUSP 33157); Monte Alegre do Sul (MZUSP 6228); Monte Belo (Taddei, 1975b); Nhandeara (Taddei, 1975b); Nova Aliança (Taddei, 1975b); Nova Itapirema (Taddei, 1975b); Onda Verde (Taddei, 1975b); P.E. Intervales (de Vivo & Gregorin, 2001); P.E. Serra do Japi (MZUSP 32148); Paulo de Faria (Taddei, 1975b); Pereira Barreto (Taddei, 1975b); Peruíbe, E.E. de Juréia-Itatins (Teixeira *et al.,* 2013); Piedade (MZUSP 31069); Pindorama, Fazenda Experimental (Breviglieri, 2011); Pindorama, Tenentes stream (Breviglieri, 2011); Piraju, Fazenda Santa Lucia (MZUSP 28988); Registro (MZUSP 26379); Riacho Grande (MZUSP 30606); Ribeira, Abismo do Porco (MZUSP 11959); Ribeira, Caverna Tiraprosa (MZUSP 11976); Ribeirão Grande, Água Preta (MZUSP 32141); Ribeirão Preto (MZUSP 15735); Riolândia (Taddei, 1975b); RPPN São Marcelo, Mogi-Guaçu (Silveira *et al.,* 2011); Salesópolis, E.B. de Boracéia (MZUSP 32151); Santa Fé do Sul (Taddei, 1975b); São Carlos, UFSCAR *campus* (Muylaert *et al.,* 2014); São Carlos, Fazenda Canchim (Muylaert *et al.,* 2014); São José do Rio Preto (MZUSP 6225); São José do Rio Preto, Fazenda Santa Maria (MZUSP 5680); São Paulo, P.E. da Cantareira (MZUSP 1229); São Paulo, P.E. do Jaraguá (MZUSP 31967); São Paulo, Sitio Vieira (MZUSP 32019); São Sebastião (MZUSP 1226); Serra de Botucatu (MZUSP 7687); Sete Barras, Saibadela (MZUSP 32143); Silvânia (MZUSP 6249); Sorocaba, Gruta do Monge (MZUSP 11673); Sorocaba (MZUSP 1212); Talhados, Talhadinho stream (Breviglieri, 2011); Teodoro Sampaio, P.E. Morro do Diabo (Reis *et al.,* 1996); Ubatuba, Fazenda Capricórnio, Bairro Taquaral (MZUSP 32146); Ubatuba, P.E. da Ilha Anchieta (MZUSP 29444); Ubatuba, Picinguaba (Teixeira *et al.,* 2013); Urupês (Taddei, 1975b); Valentim Gentil (Taddei, 1975b); Vitoriana (MZUSP 7059).

Subfamily Stenodermatinae Gervais, 1856
***Artibeus* Leach, 1821**
***Artibeus cinereus* (Gervais, 1856) (Fig. 24)**

Records of this bat from São Paulo are scarce. It has been caught only in areas of dense ombrophilous forest in the NE and S littoral region and in the SE. The specimen MZUSP 2020 is badly damaged and has no associated skull, but its identification could be made based on the absence of a dorsal white stripe, presence of facial stripes and relatively small forearm. Passos *et al.* (2010) reported the southernmost record of the species, for the E state of Paraná.

Records: Cananéia, Ilha do Cardoso (MZUSP 27952); Iporanga, next to Caverna Santana (MZUSP 33986); São Sebastião (MZUSP 2020).

***Artibeus fimbriatus* Gray, 1838 (Fig. 25)**

New records of parasitic bat flies were recorded for the species in São Paulo by Bertola *et al.* (2005). Passos *et al.* (2003) studied frugivory of *A. fimbriatus* in the state.

Records: Anhembi (Tavoloni, 2006); Boracéia (MZUSP 17655); Botucatu region (Uieda & Chaves, 2005); Buri (MZUSP 30932); Cananéia, Ilha do Cardoso (MZUSP 27697); E.E. dos Caetetus (Pedro *et al.,* 2001); Guarulhos, area owned by a beverage company (Chaves *et al.,* 2012); Guarulhos, area with poultry pen, surrounded by forest (Chaves *et al.,* 2012); Guarulhos, Candinhas House (Chaves *et al.,* 2012); Guarulhos, Horto Florestal (Chaves *et al.,* 2012); Guarulhos, private property on a hill (Chaves *et al.,* 2012); Guarulhos, private property used as recreational area (Chaves *et al.,* 2012); Guarulhos, rural area (Chaves *et al.,* 2012); Iguape (MZUSP 21032); Iporanga, Caverna Água Suja (MZUSP 33906); Iporanga, Caverna Água Suja de Cima (MZUSP 12541); Iporanga, Caverna Águas Quentes (MZUSP 11978); Iporanga, Caverna Areias de Cima (MZUSP 13282); Iporanga, Caverna Alambari de Baixo (MZUSP 13277); Iporanga, Caverna Córrego Seco (MZUSP 33956); Iporanga, Caverna do Couto (MZUSP 33963); Iporanga, Caverna Lage Branca (MZUSP 33969); Iporanga, Caverna Morro Preto (MZUSP 12545); Iporanga, mata próxima a Caverna Santana (MZUSP 34003); Iporanga, Região do Cateto (MZUSP 12079); Jacupiranga (MZUSP 21091); Lins, Fazenda Varjão (MZUSP 5950); Mogi das Cruzes (MZUSP 4141); P.E. Intervales (de Vivo & Gregorin, 2001); São Carlos, UFSCAR *campus* (Muylaert *et al.,* 2014); São

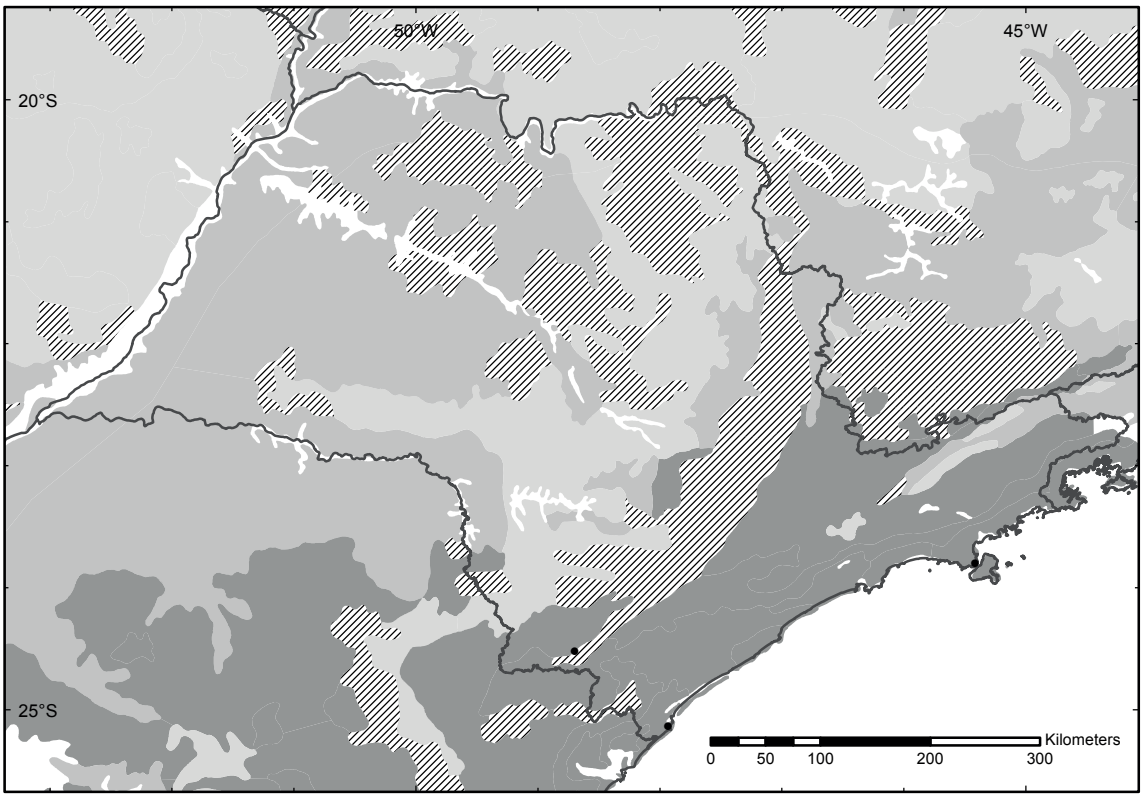

FIGURE 24: Localities of *Artibeus cinereus* in the state of São Paulo.

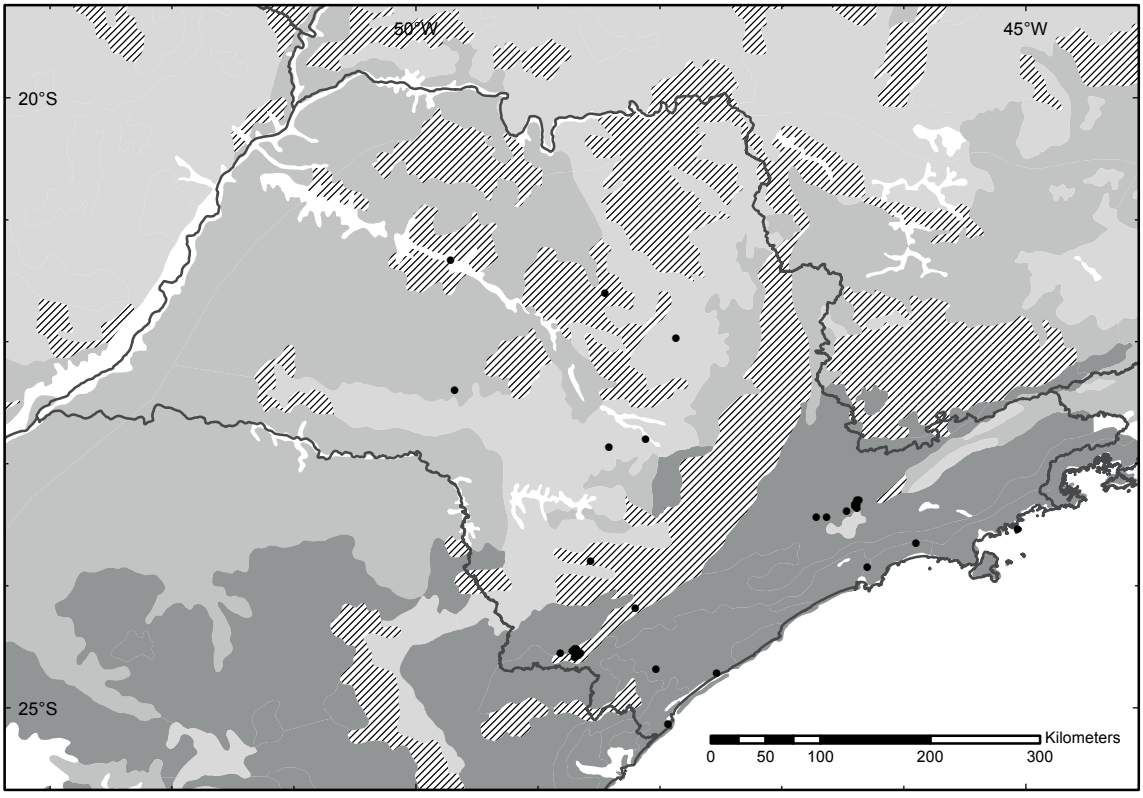

FIGURE 25: Localities of *Artibeus fimbriatus* in the state of São Paulo.

Carlos, Fazenda Canchim (Muylaert *et al.,* 2014); São Paulo, P.E. da Cantareira (MZUSP 31542); São Paulo, P.E. do Jaraguá (MZUSP 319678); Ubatuba, P.E. da Ilha Anchieta (MZUSP 29433).

***Artibeus lituratus* (Olfers, 1818) (Fig. 26)**

This common frugivore bat was recorded for every region of the state. *Artibeus lituratus* has been found in caves (Trajano, 1985) and urban areas of the state (Silva *et al.,* 1996). Taddei (1969), Passos *et al.* (2003), Tavoloni (2006) and Sato *et al.* (2008) studied the feeding behavior of *A. lituratus* from São Paulo.

Records: Anhembi (Tavoloni, 2006); Araçatuba (MZUSP 6264); Avanhandava (MZUSP 1289); Barra Bonita (MZUSP 21566); Barra do Ribeira (MZUSP 26440); Barra do Turvo (MZUSP 22092); Bauru (MZUSP 3319); Bebedouro (MZUSP 17661); Bertioga (MZUSP 21013); Boracéia, Varjão do Guaratuba (MZUSP 16408); Botucatu region (Uieda & Chaves, 2005); Buri (MZUSP 30914); Caieiras (MZUSP 3694); Cananéia (MZUSP 26480); Cananéia, Ilha do Cardoso (MZUSP 22102); Caraguatatuba (MZUSP 26545); Casa Grande (MZUSP 26447); Cerqueira César (MZUSP 3755); Cruzeiro (MZUSP 2018); Cubatão, Bacia I, Copebrás (MZUSP 33276); E.E. dos Caetetus (Pedro *et al.,* 2001); E.E. da Juréia (MZUSP 16265); Engenheiro Schmidt (Taddei. 1979); Estrela d'Oeste (Taddei, 1979); Fazenda Intervales (MZUSP 26880); Fernandópolis (Taddei, 1979); Franco da Rocha (MZUSP 7204); Guarulhos, area with poultry pen, surrounded by forest (Chaves *et al.,* 2012); Guarulhos, Candinhas House (Chaves *et al.,* 2012); Guarulhos, Horto Florestal (Chaves *et al.,* 2012); Guarulhos, private proptery on a hill (Chaves *et al.,* 2012); Guarulhos, private property used as recreational area (Chaves *et al.,* 2012); Guarulhos, rural area (Chaves *et al.,* 2012); Ilhabela, P.E. Ilhabela (Teixeira *et al.,* 2013); Iporanga (MZUSP 14048); Iporanga, Caverna Alambari de Baixo (MZUSP 16295); Iporanga, Caverna Betari (MZUSP 11865); Iporanga, Caverna Córrego Seco (MZUSP 12006); Iporanga, Caverna Morro Preto (MZUSP 12550); Iguape (MZUSP 26458); Irapuã (Taddei, 1979); Itirapina, Estação Experimental de Itirapina (Sato *et al.,* 2008); Jacupiranga (MZUSP 21016); Jundiaí, P.E. da Serra do Japi (Marinho-Filho, 1992); Juquitiba (MZUSP 33031); Luiz Antônio, E.E. Jataí (Gargaglioni *et al.,* 1998); Marapuama (Taddei, 1979); Mirassol, Grota de Mirassol (Taddei, 1979); Mirassol, Sítio Progresso (Taddei, 1979); Mirassolândia (Taddei, 1979); Mogi das Cruzes (MZUSP 4140); Mogi-Guaçu, RPPN São Marcelo (Silveira *et al.,* 2011); Nova Europa, Fazenda Itaquerê (MZUSP 14089); Nova Itapirema (Taddei, 1979); Pariquera-Açu (MZUSP 26404); Piedade (MZUSP 33030); Pindorama, Fazenda Experimental (Breviglieri, 2011); Pindorama, Tenentes stream (Breviglieri, 2011); Piquete (MZUSP 182); Piracicaba (MZUSP 17659); Registro (MZUSP 21008); Sales (Taddei, 1979); Santos (MZUSP 35088); São Carlos, UFSCAR *campus* (Muylaert *et al.,* 2014); São Carlos, Fazenda Canchim (Muylaert *et al.,* 2014); São José do Rio Preto (Taddei, 1979); São Paulo (MZUSP 2941); São Paulo, Cantareira (MZUSP 15909); São Paulo, Ipiranga (MZUSP 14053); São Paulo, Sítio Pirizal (MZUSP 31995); Serra Negra (MZUSP 14085); Simonsen (Taddei, 1979); Talhados, Talhadinho stream (Breviglieri, 2011); Teodoro Sampaio, P.E. Morro do Diabo (Reis *et al.,* 1996); Ubatuba, P.E. da Ilha Anchieta (MZUSP 29429); Urupês (Taddei, 1979).

***Artibeus obscurus* (Schinz, 1821) (Fig. 27)**

Has been recorded for the Atlantic coast of the state. Bertola *et al.* (2005) recorded new bat flies for the species in São Paulo.

Records: Bananal, E.E. de Bananal, próximo ao Rio das Cobras (MZUSP 33660); Cananéia, Ilha do Cardoso (MZUSP 27674); Ilhabela, P.E. Ilhabela (Teixeira *et al.,* 2013); Iporanga, Caverna Alambari de Baixo (MZUSP 33918); P.E. Intervales (Passos *et al.,* 2003); Peruíbe, E.E. de Juréia, Itatins (Teixeira *et al.,* 2013); Santos (MZUSP 35089); São Paulo, P.E. da Cantareira (Bertola *et al.,* 2005); Ubatuba, P.E. da Ilha Anchieta (MZUSP 29430).

***Artibeus planirostris* (Spix, 1823) (Fig. 28)**

The species occurs in every region of the state. Taddei (1979) provides morphometrical data of specimens from São Paulo.

Records: Avanhandava (MZUSP 1299); Barra do Turvo (MZUSP 22091); Bauru (MZUSP 5787); Boracéia (MZUSP 17656); Boracéia, Varjão do Guaratuba (MZUSP 26432); Cananéia (MZUSP 22094); Caraguatatuba (MZUSP 26415); Cosmorama (Taddei, 1979); Engenheiro Schmidt (Taddei, 1979); Fernandópolis (Taddei, 1979); Icém (Taddei, 1979); Iguape (MZUSP 21095); Ilhabela, Ilha Vitória (MZUSP 2454); Indiaporã (Taddei, 1979); Itapura (MZUSP 1727); Jundiaí, P.E. da Serra do Japi (Marinho-Filho, 1992); Luiz Antônio, E.E. Jataí (Gargaglioni *et al.,* 1998); Macaubal (Taddei, 1979);

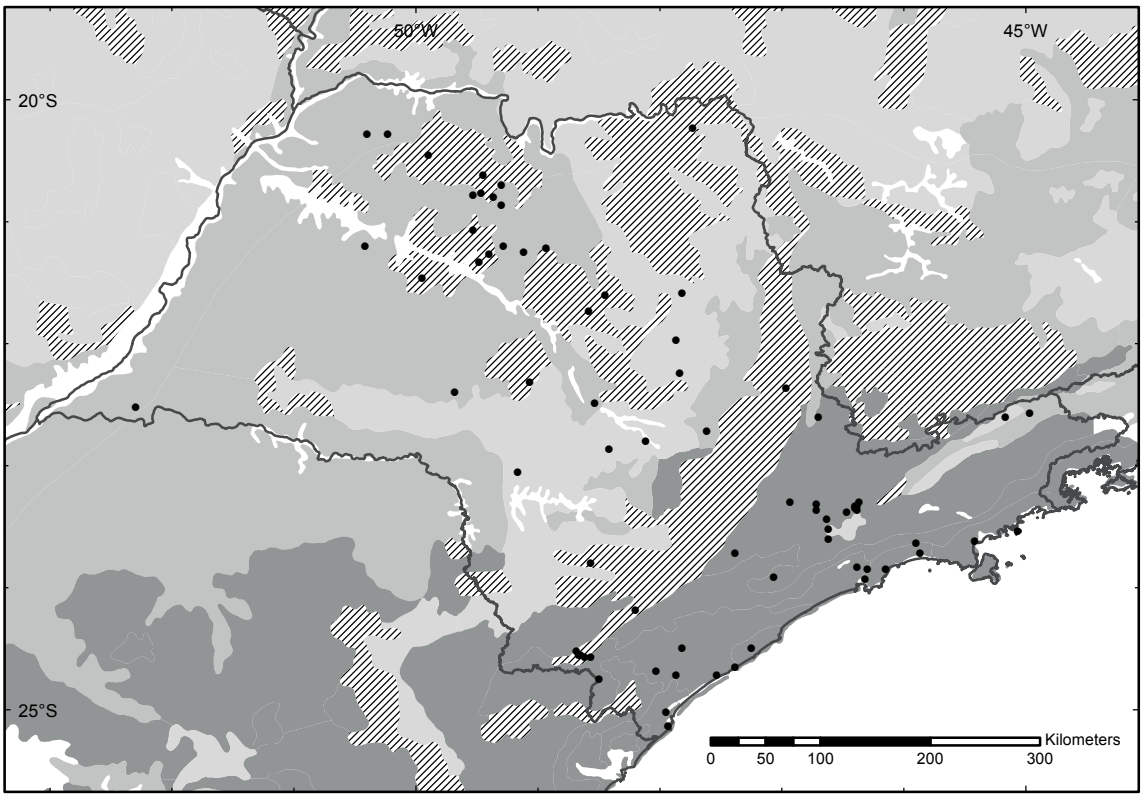

FIGURE 26: Localities of *Artibeus lituratus* in the state of São Paulo.

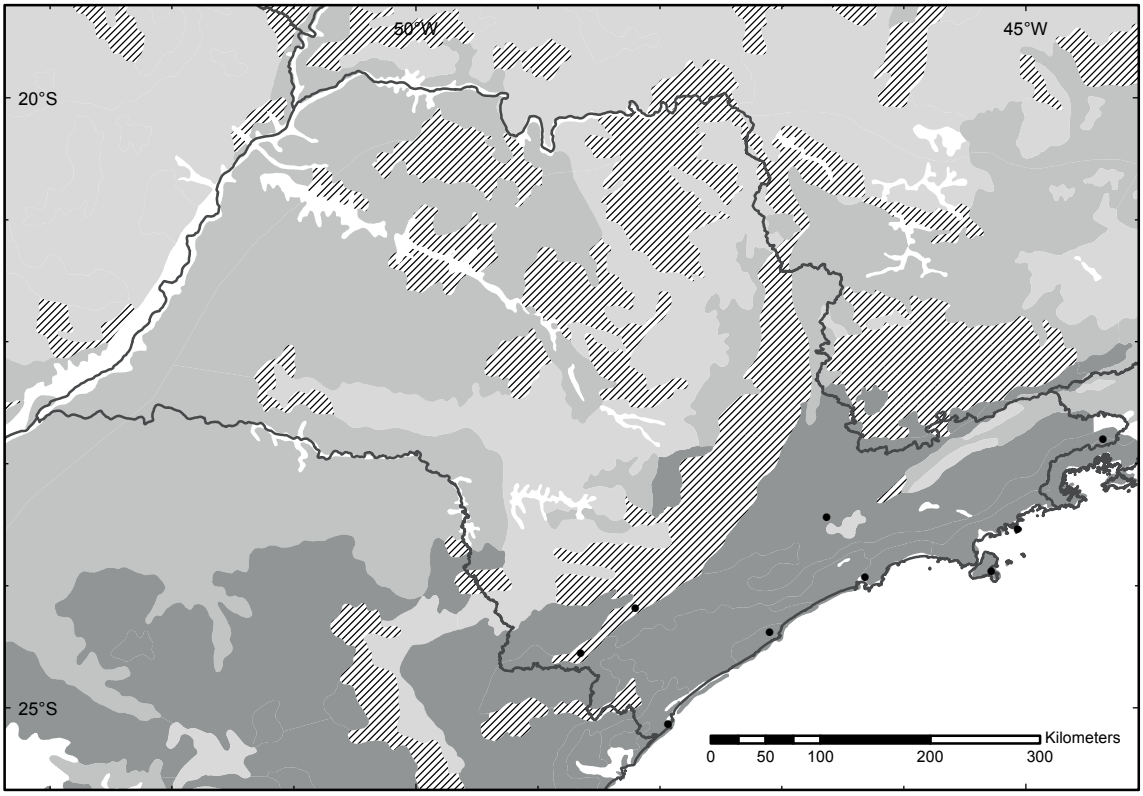

FIGURE 27: Localities of *Artibeus obscurus* in the state of São Paulo.

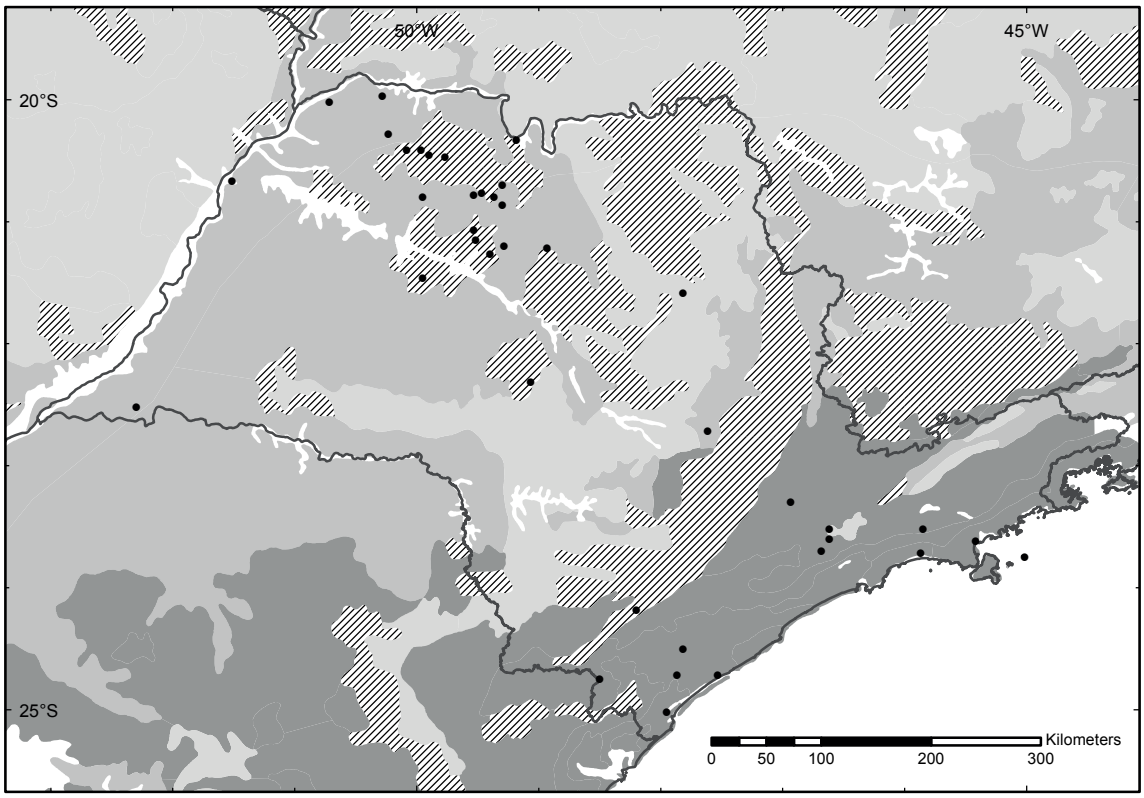

FIGURE 28: Localities of *Artibeus planirostris* in the state of São Paulo.

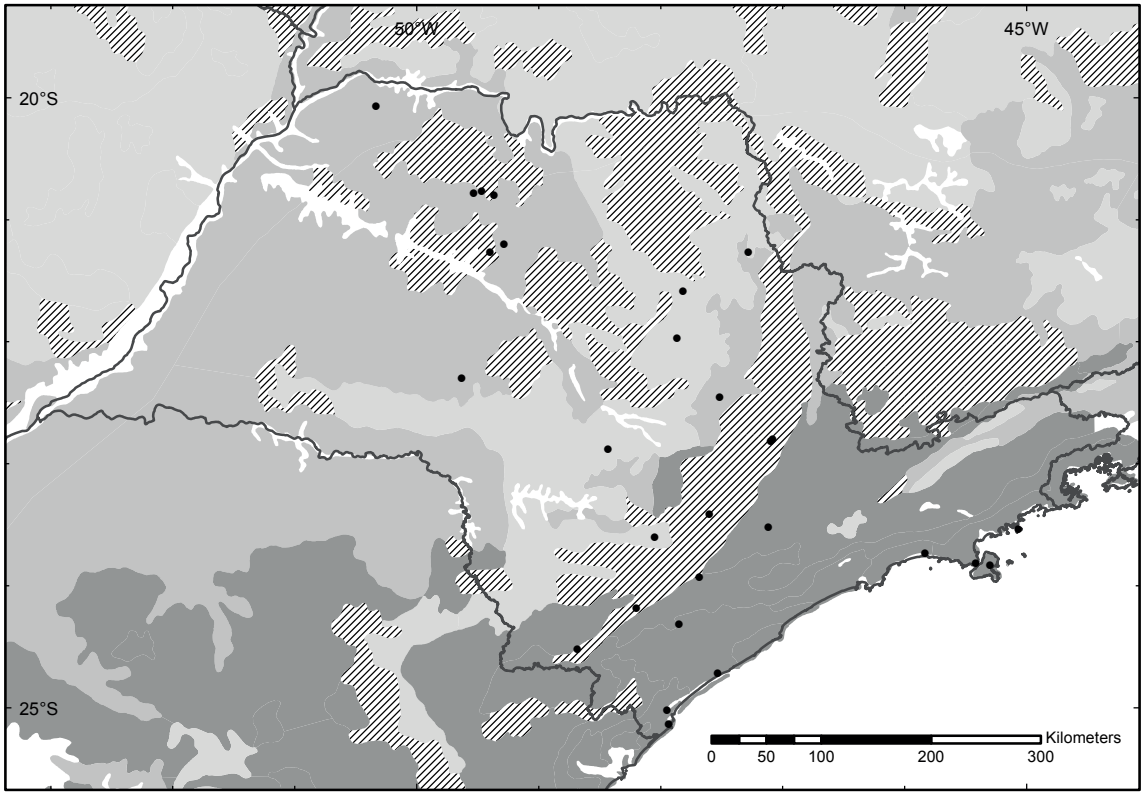

FIGURE 29: Localities of *Chiroderma doriae* in the state of São Paulo.

Mirassol, Grota de Mirassol (Taddei, 1979); Mirassol, Sítio Progresso (Taddei, 1979); Nova Aliança, Monte Belo (Taddei, 1979); Nova Itapirema (Taddei, 1979); P.E. Intervales (Passos *et al.,* 2003); Pariquera-Açu (MZUSP 22217); Pindorama, Fazenda Experimental (Breviglieri, 2011); Pindorama, Tenentes stream (Breviglieri, 2011); Piracicaba (MZUSP 15811); Registro (MZUSP 21021); Santa Albertina (Taddei, 1979); São José do Rio Preto (Taddei, 1979); São Paulo (MZUSP 5767); São Paulo, Ibirapuera (MZUSP 8472); São Paulo, Interlagos (MZUSP 10314); São Paulo, Ipiranga (MZUSP 3390); Simonsen (Taddei, 1979); Talhados, Talhadinho stream (Breviglieri, 2011); Teodoro Sampaio, P.E. Morro do Diabo (Reis *et al.,* 1996); Urupês (Taddei, 1979); Valentim Gentil (Taddei, 1979); Votuporanga (Taddei, 1979)

Chiroderma Peters, 1860
Chiroderma doriae Thomas, 1861 (Fig. 29)

Initially assumed to be endemic to the Atlantic Forest, the species is now known to be present in the adjacent Cerrado areas and in the Pantanal. It is also widely distributed in São Paulo. Recorded from the N (Taddei, 1973), C (Uieda & Chaves, 2005), NE littoral (Aires, 1998), S and SE regions. Arnone (2008) captured the species in a cave. Motta-Junior & Taddei (1992) listed the species among the food items of *Asio stygius* (Strigidae). Taddei (1980) studied the natural history of the species in São Paulo. Aguiar & Taddei (1998) classified *C. doriae* as "Vunerable" for the state of São Paulo, in the most recent assessment, however, the species was not considered threatened (Miretzki, 2010).

Records: Bertioga, Boracéia (Geraldes, 2005); Botucatu region (Uieda & Chaves, 2005); Campinas, Reserva Municipal de Santa Genebra (Faria, 1996); Campinas, Fazenda Rio das Pedras (ZUEC 783); Cananéia (MZUSP 26354); Cananéia, Ilha do Cardoso (MZUSP 28037); Cajuru, Fazenda Santa Carlota (MZUSP 35028); E.E. dos Caetetus (Pedro *et al.,* 2001); Guarani D'Oeste, Cachoeira dos Índios (Taddei, 1979); Iguape (MZUSP 21082); Ilhabela, P.E. Ilhabela (MZUSP 35029); Iporanga, Caverna Morro Preto (MZUSP 34012); Irapuã (Taddei, 1979); Itapetininga (Gardner, 2008b); Jundiaí, P.E. Serra do Japi (Marinho-Filho, 1992); Luiz Antônio, E.E. Jataí (Gargaglioni *et al.,* 1998); Mirassol, Grota de Mirassol (Taddei, 1979); Mirassol, Sítio Progresso (Taddei, 1979); P.E. Intervales (Passos *et al.,* 2003); Pilar do Sul, Fazenda João XXIII (LMUSP, GTG01); Santa Getrudes, Fazenda Paraguassú (ZUEC 1002); São Carlos (Motta-Junior & Taddei, 1992); São José do Rio Preto (Taddei, 1979); São Roque (MZUSP 15112); São Sebastião, CEBIMar, USP (DZSJRP 10049); Sete Barras, Barra do Ribeirão Onça Parda (MZUSP 10632); Ubatuba, Picinguaba (Geraldes, 2005), Ubatuba, P.E. da Ilha Anchieta (MZUSP 29456); Urupês (Taddei, 1979).

Chiroderma villosum Peters, 1860 (Fig. 30)

Recorded for the NW, N and C regions of São Paulo. While *C. villosum* shows a wider global distribution than *C. doriae* (Gardner, 2008a), the species appears to have a more restricted distribution than *C. doriae* in the state of São Paulo, being absent from the eastern region, which is predominantly a dense ombrophilous forest area (I re-identified the specimen from the SE region, MZUSP 26354, and confirmed it as *C. doriae*), and presenting fewer records from the state in general. Specimen DZSJRP 16694, an adult male, previously identified as *C. doriae* is a *C. villosum* (FA = 48 mm, parallel upper inner incisors).

Aguiar & Taddei (1998) consider *C. villosum* as "presumed to be threatened", and the latest list of the threatened fauna of the state classifies the species as "Data Deficient". From the few known localities in São Paulo, I suggest that the species is absent from the dense ombrophilous forest of the Atlantic coast of the state. On a survey in a "Cerradão" and riparian forest area in São Paulo (Gargaglioni *et al.,* 1998), *C. villosum* was less abundant than *C. doriae.* Due to the scarce number of records, I believe that more attention should be paid to this rarely sampled bat.

Records: Itirapina, Estação Experimental de Itirapina (Sato *et al.,* 2008); Luiz Antônio, E.E. Jataí (Gargaglioni *et al.,* 1998); Mirassol, Grota de Mirassol (Taddei, 1979); Mirassol, Sítio Progresso (Taddei, 1979); Neves Paulista (DZSJRP 16694); Santa Gertrudes, Fazenda Paraguassú (ZUEC 968).

Platyrrhinus Saussure, 1860
Platyrrhinus incarum (Thomas, 1912) (Fig. 31)

The first records for the state come from Taddei & Vincente-Tranjan (1998) (classified as *Platyrrhinus helleri*), who captured the species in the NW region of the state. I herein add a new record, from Icém, based on a skull (DZSJRP 3030).

Records: Adamantina (DZSJRP 11305); Bilac (DZSJRP 10725); Icém (DZSJRP 3030); Olímpia (DZSJRP 10121); Santópolis do Aguapeí (DZSJRP 11034).

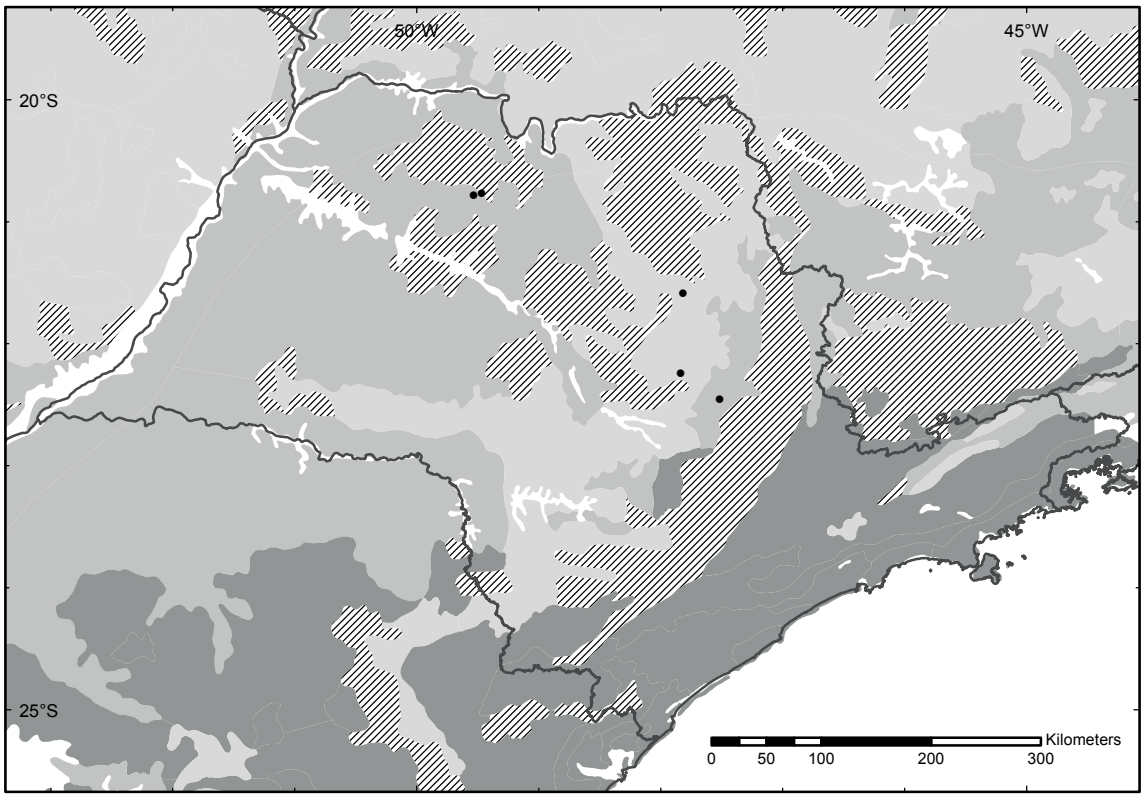

FIGURE 30: Localities of *Chiroderma villosum* in the state of São Paulo.

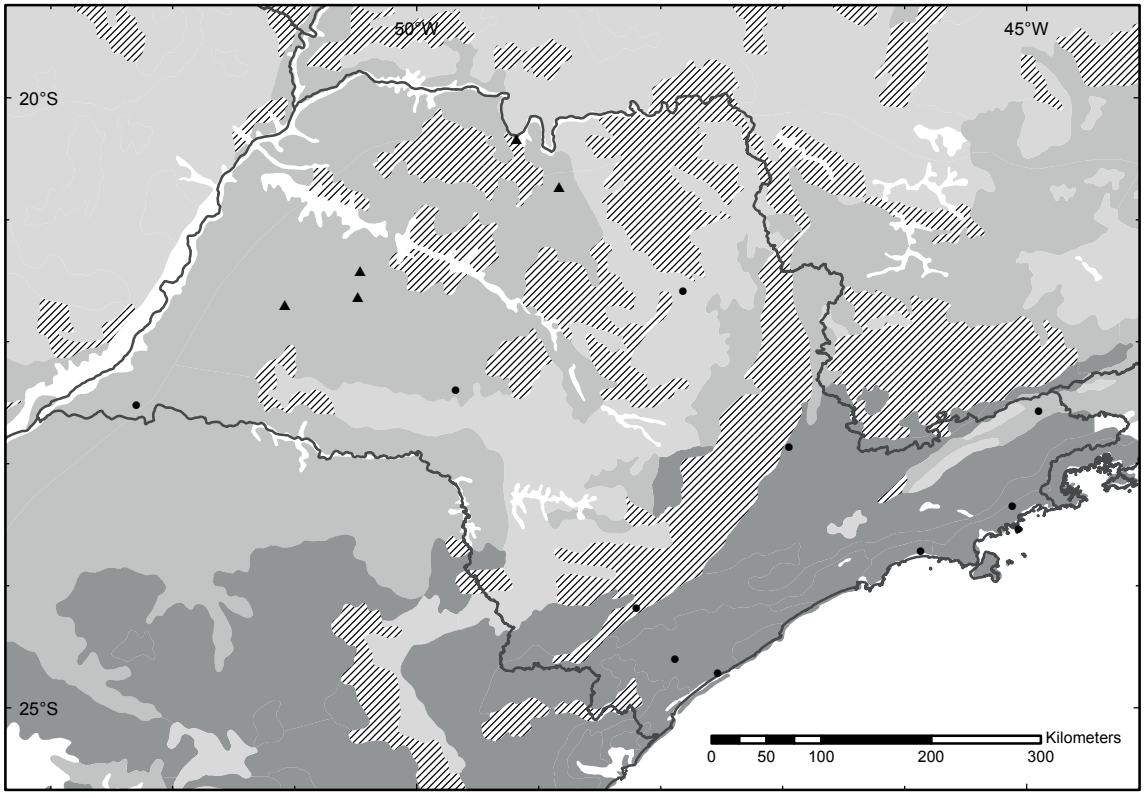

FIGURE 31: Localities of *Platyrrhinus incarum* (▲) and *Platyrrhinus recifinus* (●) in the state of São Paulo.

***Platyrrhinus lineatus* (É. Geoffroy, 1810) (Fig. 32)**

This commonly captured frugivore has been recorded for every major region of the state. Vieira (1944) reported the species roosting in a coffee granary in Monte Alegre and also stated that the species was observed roosting in palm leaves near the Museu Paulista (São Paulo, Ipiranga). Farina *et al.* (2011) recorded a case of predation of *Platyrrhinus lineatus* by a species of jay, *Cyanocorax chrysops* (Corvidae), in NW.

Records: Anhembi (Tavoloni, 2006); Barra Bonita (MZUSP 21561); Boracéia (MZUSP 14217); Botucatu region (Uieda & Chaves, 2005); Cananéia (MZUSP 22216); Cananéia, Ilha do Cardoso (MZUSP 27530); Cosmorama (Taddei, 1979); E.E. dos Caetetus (Pedro *et al.,* 2001); Echaporã, Fazenda Tupã (MZUSP 28804); Engenheiro Schmidt (Taddei, 1979); Fernandópolis (Taddei, 1979); Guarani d'Oeste, Cachoeira dos Índios (Taddei, 1979); Guarulhos, Candinhas house (Chaves *et al.,* 2012); Guarulhos, rural area (Chaves *et al.,* 2012); Icém (Taddei, 1979); Iguape (MZUSP 26314); Ilhabela, Ilha Vitória (MZUSP 2447); Iporanga, Caverna Alambari de Baixo (MZUSP 13281); Iporanga, Caverna Córrego Seco (MZUSP 33957); Irapuã (Taddei, 1979); Itapura (MZUSP 1731); Itirapina, Estação Experimental de Itirapina (Sato *et al.,* 2008); Itirapina, Cachoeira cave, A.P.A Corumbataí (Campanha & Fowler, 1993); Jacupiranga (MZUSP 26380); Juquiá (MZUSP 6686); Juquiá, Fazenda Poço Grande (MZUSP 5712); Jundiaí, P.E. Serra do Japi (Marinho-Filho, 1992); Luiz Antônio, E.E. Jataí (Gargaglioni *et al.,* 1998); Marapuama (Taddei, 1979); Mato Dentro (MZUSP 15795); Mirassol, Grota de Mirassol (Taddei, 1979); Mirassol, Sítio Progresso (Taddei, 1979); Mogi das Cruzes (MZUSP 4142); Mogi-Guaçu. RPPN São Marcelo (Silveira *et al.,* 2011); Monte Alegre do Sul (MZUSP 6252); Nhandeara (Taddei, 1979); Nova Itapirema (Taddei, 1979); Onda Verde (Taddei, 1979); P.E. Intervales (de Vivo & Gregorin, 2001); Pariquera-Açu (MZUSP 22200); Piedade (MZUSP 33015); Pilar do Sul, Fazenda Vitória (LMUSP GTG); Pindorama, Fazenda Experimental (Breviglieri, 2011); Pindorama, Tenentes stream (Breviglieri, 2011); Piquete (MZUSP 1357); Piracicaba (MZUSP 1219); Piraju, Fazenda Santa Lúcia (MZUSP 29007); Registro (MZUSP 26378); Santos (MZUSP 35085); São Carlos, UFSCAR *campus* (Muylaert *et al.,* 2014); São Carlos, Fazenda Canchim (Muylaert *et al.,* 2014); São José do Rio Preto (Taddei, 1979); São Paulo (MZUSP 5750); São Paulo, Ipiranga (MZUSP 1347); São Paulo, P.E. da Cantareira (MZUSP 31508); São Sebastião (MZUSP 6782); Simonsen (Taddei, 1979); Talhados, Talhadinho stream (Breviglieri, 2011); Torrinha, Rio Tibiriçá (MZUSP 6173); Ubatuba, P.E. da Ilha Anchieta (MZUSP 29440); Urupês (Taddei, 1979); Valparaíso (Farina *et al.,* 2011).

***Platyrrhinus recifinus* (Thomas, 1901) (Fig. 31)**

Although the records are scare, the species is widely distributed in the state.

Records: Bertioga, Boracéia, Varjão do Guaratuba (MZUSP 26422); Campinas, Souzas (ZUEC 1143); E.E. dos Caetetus (Pedro *et al.,* 2001); Iguape (Gardner, 2008c); Lavrinhas (ZUEC 2532); Luiz Antônio, E.E. Jataí (Gargaglioni *et al.,* 1998); Núcleo Santa Virginia, P.E. da Serra do Mar (MZUSP 34654); P.E. Intervales (Passos *et al.,* 2003); Pariquera-Açu, Estação Experimental (DZSJRP 16175); Teodoro Sampaio, P.E. Morro do Diabo (Reis *et al.,* 1996); Ubatuba, P.E. da Ilha Anchieta (MZUSP 29443).

***Uroderma* Peters, 1866**
***Uroderma bilobatum* Peters, 1866**

Peters (1866a) described *Uroderma* based on an exemplar from "São Paulo in Brasilien" donated by Dr. Rüppel and identified as *Phyllostoma personatum* Wagner. Peters (1866a:588) stated that *P. personatum* Wagner belonged to the *Artibeus* with five upper and lower cheek teeth and hence proposed the name *Uroderma* to these forms. The specimen which Wagner (1843) based his description of *Phyllostoma personatum* was collected by Natterer on "Ypanema" but could not be found (Peters, 1866b:395; Pelzeln, 1883:34), and for this reason and based on the description made by Wagner, Peters (1866b:395) was convinced that the specimen he had in hand was a new species, and not *Phyllostoma personatum.*

Peters (1866b) described *Uroderma bilobatum* afterwards, based on four specimens; one from "St. Paulo in Brasilien", two from Cayenne and one from the Frankfurt museum that was the one donated to him by Dr. Rüppel, which locality was not mentioned. Carter & Dolan (1978) were able to locate the syntype of *U. bilobatum* from São Paulo that is housed in the Zoologisches Museum der Humboldt Universität, Berlin. The type locality was restricted to São Paulo by Andersen (1908). I located the specimen ZMB_MAM 411, that is the lectotype of *Uroderma bilobatum.* The specimen labels says the species is from "São Paulo Brasil" and that it was collected by Sellow, but the collection catalogue lists only "Brasil" as the locality (Fig. 33). In light of the available

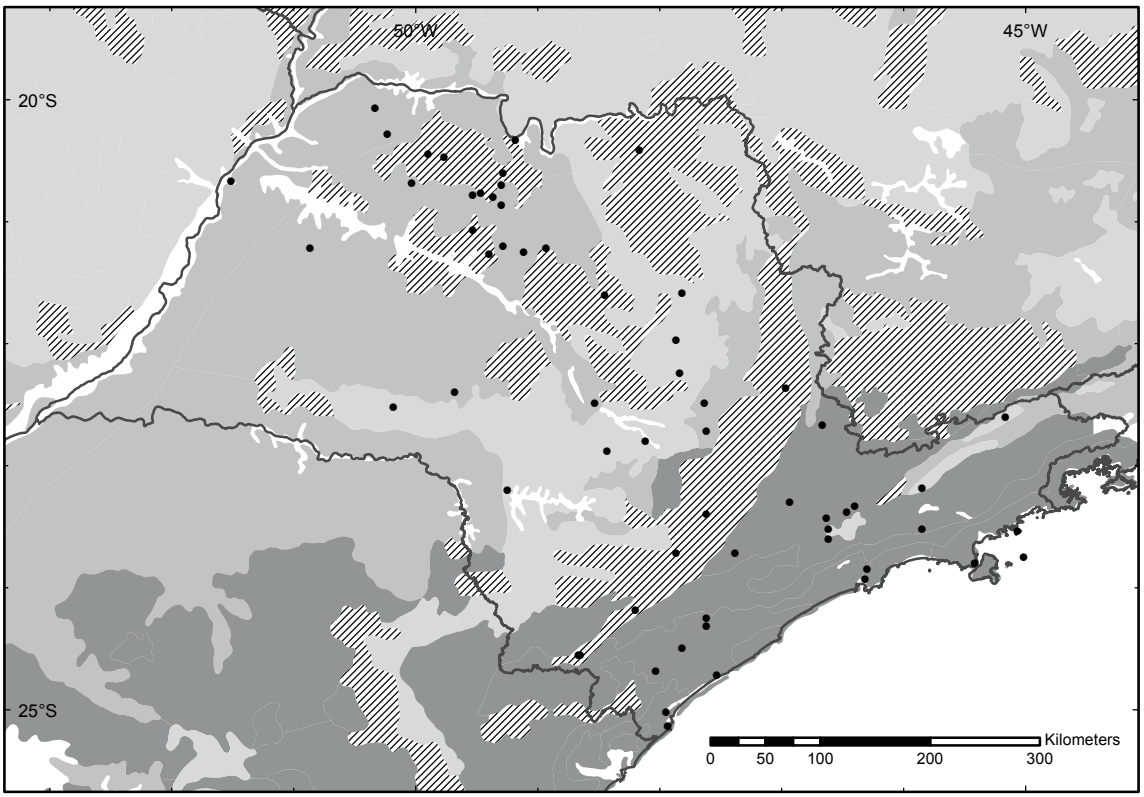

FIGURE 32: Localities of *Platyrrhinus lineatus* in the state of São Paulo.

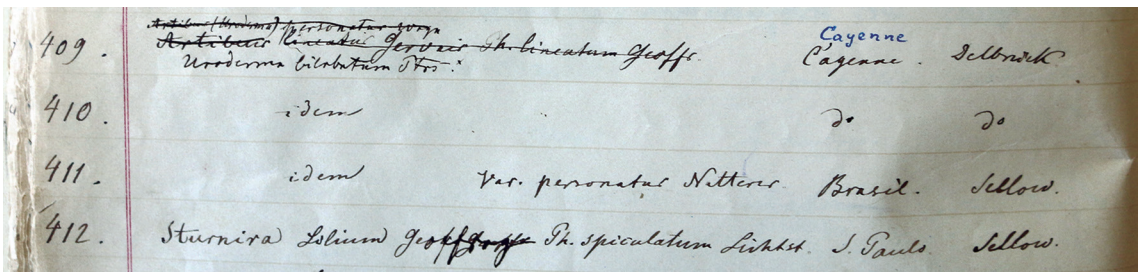

FIGURE 33: Catalogue of the mammal collection of the Museum für Naturkunde der Humboldt-Universität zu Berlin (ZMB_MAM), handwritten by Wilhelm Peters. Note that the locality of the lectotype of *Uroderma bilobatum* (ZMB_MAM 411) is noted only as "Brasilien".

evidence, and the fact that the species has not been captured in São Paulo, save from released animals whose identity cannot be confirmed (Muylaert *et al.,* 2014), ever since its description by Peters, I remove the species from the São Paulo list. The record from Sato *et al.* (2015) is a *Platyrrhinus.*

Records: The record from São Paulo (Peters, 1866b, Andersen, 1908) may be erroneous and was not mapped.

Vampyressa Thomas, 1900
Vampyressa pusilla (Wagner, 1843) (Fig. 34)

This small stenodermatine is represented in São Paulo by few records. Pelzeln (1883) records the species from "Ypanema". Recorded for the N (Taddei, 1979), W (Reis *et al.,* 1996), C (Uieda & Chaves, 2005), NE, E and S littoral (Pelzeln, 1883).

Records: Boracéia, Varjão do Guaratuba (MZUSP 21081); Botucatu region (Uieda & Chaves, 2005); Cananéia (MZUSP 26508); Cananéia, P.E. Ilha do Cardoso (MZUSP 27729); E.E. dos Caetetus (Pedro *et al.,* 2001); Ipanema (Pelzeln, 1883, type locality of *Vampyressa nattereri* Goodwin, 1963); Iporanga, mata próxima a Caverna Santana (MZUSP 33983); Itirapina, Estação Experimental de Itirapina (Sato *et al.,* 2008); Mirassol, Sítio Progresso (DZSJRP 3920); Mogi-Guaçu, RPPN São Marcelo (Silveira *et al.,* 2011); Teodoro Sampaio, P.E. Morro do Diabo (Reis

et al., 1996); Ubatuba, P.E. da Ilha Anchieta (MZUSP 29438); Ubatuba, Picinguaba (Geraldes, 2005).

***Vampyrodes* Thomas, 1900**
***Vampyrodes caraccioli* (Thomas, 1889) (Fig. 34)**

Velazco *et al.* (2010a) reported the first occurrence for the state and provided biometric data of the species in E São Paulo. Recently, the species was recorded for the state of Paraná, south of São Paulo (Carvalho, F. *et al.,* 2014).

Records: Núcleo São Sebastião, P.E. da Serra do Mar (MZUSP 34655).

***Pygoderma* Peters, 1863**
***Pygoderma bilabiatum* (Wagner, 1843) (Fig. 35)**

Has a wide distribution in the state of São Paulo. Records are from the W, NW, C, NE, SE and S. The first record for the species in São Paulo comes from Wagner (1843:366) who described *Phyllostoma bilabiatum* based on specimens collected at "Ypanema". Remnants of *P. bilabiatum* were found in pellets of the stygian owl, *Asio stygius,* in a Cerrado area (Motta-Junior & Taddei, 1992).

Records: Atibaia, Parque Florestal do Itapetinga (ZUEC 2155); Bananal, E.E. de Bananal, próximo ao Rio das Cobras (MZUSP 33651); Boracéia (MZUSP 20159); Botucatu (MZUSP 7210); Campinas, Reserva Municipal de Santa Genebra (Faria, 1996); Cananéia (MZUSP 26355); Cananéia, Ilha do Cardoso (MZUSP 27969); Casa Grande (MZUSP 26454); Cubatão, trilha anterior à Grande Fenda (MZUSP 33273); Iguape (MZUSP 22193); Iguape, E.E. de Juréia-Itatins (ZUEC 1145); Ipanema (Wagner, 1843, type locality of *Phyllostoma bilabiatum*); Iporanga, Caverna do Morro Preto (MZUSP 34016); Iporanga, mata próxima a Caverna Alambari de Baixo (MZUSP 33994); Iporanga, mata próxima a Caverna Santana (MZUSP 33984); Itapetininga (MZUSP 16428); Itirapina, Estação Experimental de Itirapina (Sato *et al.,* 2008); Juquitiba (MZUSP 32997); Mogi-Guaçu, RPPN São Marcelo (Silveira *et al.,* 2011); P.E. Intervales (de Vivo & Gregorin, 2001); Peruíbe, E.E. de Juréia-Itatins (ZUEC 1956); Piedade (MZUSP 32993); Piquete (MZUSP 1366); Rio Feio, Aguapeí (MZUSP 18430); São Carlos (Motta-Junior & Taddei, 1992); São Paulo, Ipiranga (MZUSP 3553); São Paulo, Interlagos (MZUSP 18878); São Paulo, P.E. da Cantareira (Bertola *et al.,* 2005); São Paulo, Sítio Pirizal (MZUSP 31996); São José do Rio Preto, Engenheiro Schmidt (DZSJRP 3500); Teodoro Sampaio, P.E. Morro do Diabo (Reis *et al.,* 1996); Ubatuba, P.E. da Ilha Anchieta (MZUSP 29437); Ubatuba, Picinguaba (Geraldes, 2005).

***Sturnira* Gray, 1842**
***Sturnira lilium* (É. Geoffroy, 1810) (Fig. 36)**

Bertola *et al.* (2005) reported new occurrence of bat flies in *S. lilium.* Sazima, M. *et al.* (2003) provided new information about seed dispersion of *S. lilium* in the state. The water opossum (*Chironectes minimus*) preyed on mist netted *S. lilium* (Breviglieri & Pedro, 2010) in NW. Mello *et al.* (2008) studied the seasonal abundance of *S. lilium* in a montane forest in SE.

Records: Anhembi (Tavoloni, 2006); Apiaí (MZUSP 26390); Araraquara (DZSJRP 14937); Atibaia (DZSJRP 14423); Bady Bassit (DZSJRP 16614); Bananal, E.E. de Bananal (MZUSP 33654); Boracéia (MZUSP 14207); Boracéia, Varjão do Guaratuba (MZUSP 26429); Botucatu region (Uieda & Chaves, 2005); Buri (MZUSP 30899); Campinas, Fazenda Rio das Pedras (ZUEC 145); Campos Novos Paulista, Fazenda Santa Lúcia (MZUSP 28809); Cananéia (MZUSP 26496), Cananéia, Ilha do Cardoso (MZUSP 27528); Capivari (DZSJRP 14954); Caraguatatuba (MZUSP 26420); Casa Grande (MZUSP 16410); Catanduva (DZSJRP 14359); E.E. dos Caetetus (Pedro *et al.,* 2001); Eldorado (DZSJRP 15963); Fazenda Intervales (MZUSP 26681); Girassol (DZSJRP 15671); Guarulhos, area owned by a beverage company (Chaves *et al.,* 2012); Guarulhos, area with poultry pen, surrounded by forest (Chaves *et al.,* 2012); Guarulhos, Candinhas House (Chaves *et al.,* 2012); Guarulhos, Horto Florestal (Chaves *et al.,* 2012); Guarulhos, private property on a hill (Chaves *et al.,* 2012); Guarulhos, private property used as recreational area (Chaves *et al.,* 2012); Guarulhos, rural area (Chaves *et al.,* 2012); Iguape (MZUSP 1224); Ilhabela, Ilha de São Sebastião, Península das Cabeçudas (MZUSP 32049); Iporanga, Caverna Água Suja (MZUSP 13287); Iporanga, Caverna Alambari de Baixo (MZUSP 12002); Iporanga, Bairro da Serra (MZUSP 11783); Iporanga, Caverna Córrego Seco (MZUSP 33953-55); Irapuã (DZSJRP 2933); Itapetininga (MZUSP 16419); Itatiba (DZSJRP 14936); Itirapina, Estação Experimental de Itirapina (Sato *et al.,* 2008); Jacupiranga (MZUSP 22201); Jundiaí (MZUSP 9352); Jundiaí, Serra do Japi (Marinho-Filho, 1992); Juquitiba (MZUSP 30784); Luiz Antônio, E.E. Jataí (Gargaglioni *et al.,* 1998); Miracatu, Sítio Refúgio (MZUSP 26786); Mirassol (DZSJRP 18105); Mirassol, Grota de Mi-

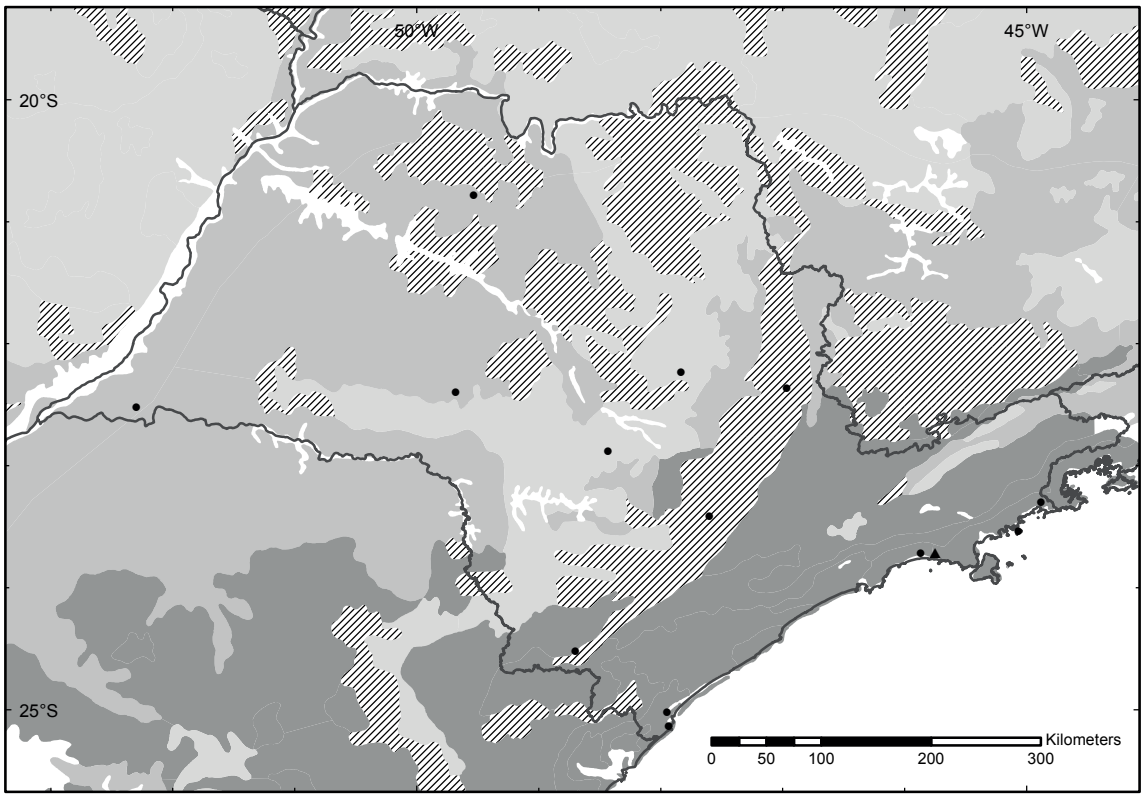

FIGURE 34: Localities of *Vampyressa pusilla* (●) and *Vampyrodes caraccioli* (▲) in the state of São Paulo.

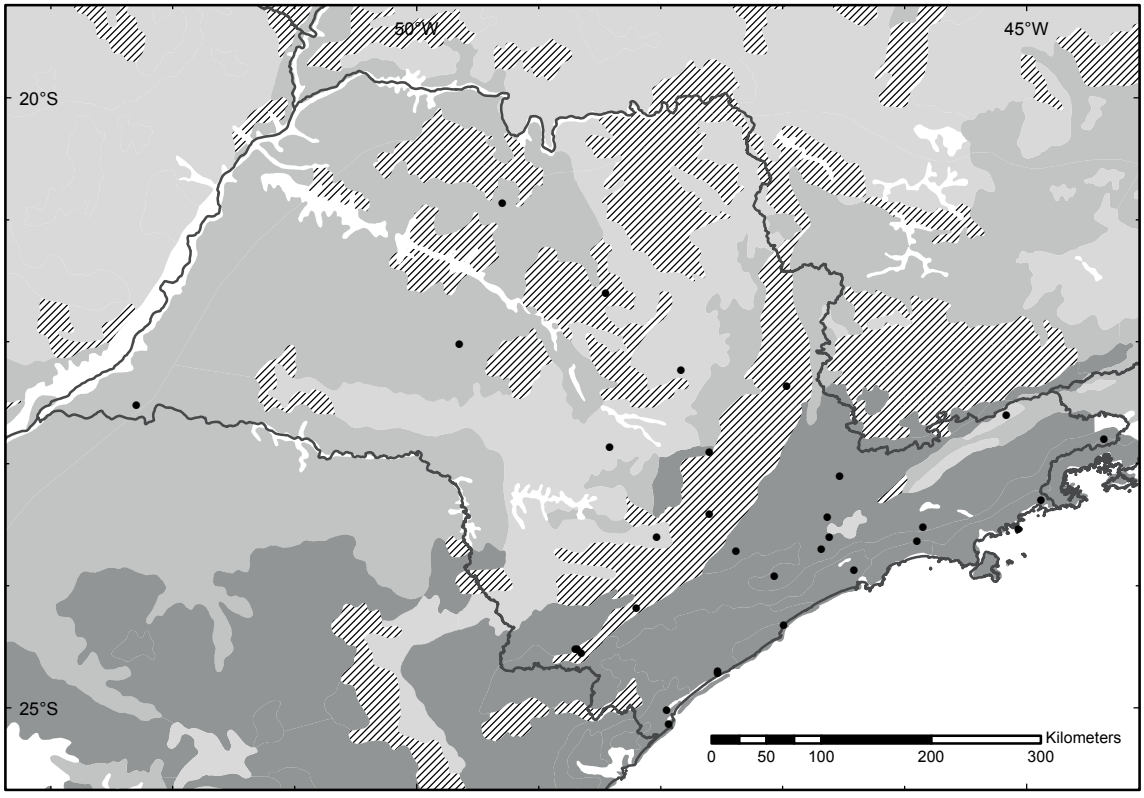

FIGURE 35: Localities of *Pygoderma bilabiatum* in the state of São Paulo.

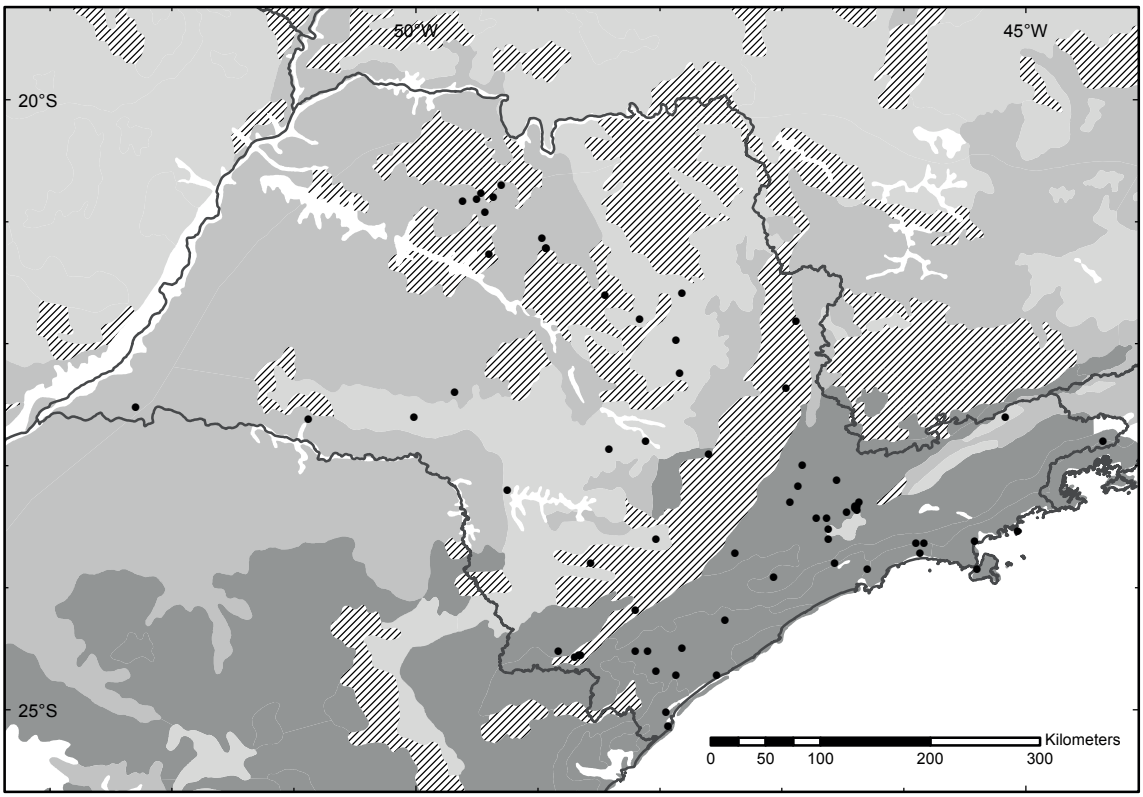

FIGURE 36: Localities of *Sturnira lilium* in the state of São Paulo.

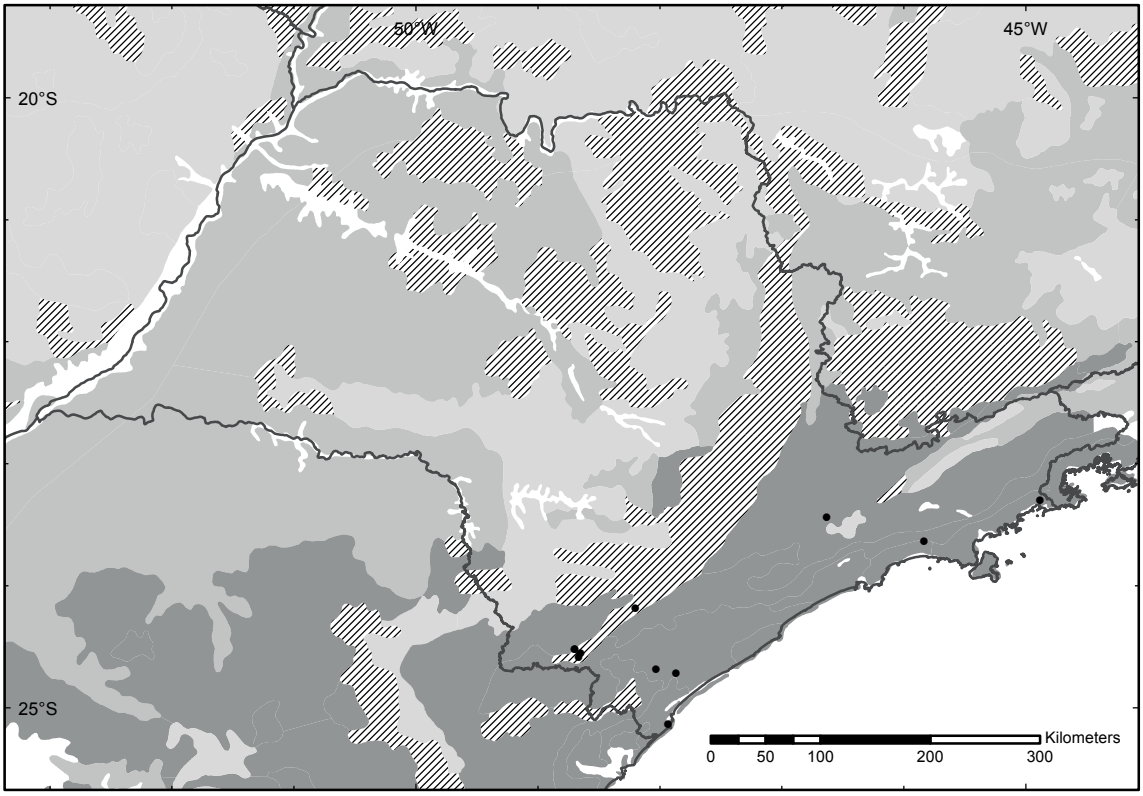

FIGURE 37: Localities of *Sturnira tildae* in the state of São Paulo.

rassol (DZSJRP 2848); Mogi das Cruzes (MZUSP 4143); Neves Paulista (DZSJRP 16698); Pariquera-Açu (MZUSP 21063); Piedade (MZUSP 31062); Pindorama (DZSJRP 16547); Pindorama, Fazenda Experimental (Breviglieri, 2011); Pindorama, Tenentes stream (Breviglieri, 2011); Piquete (MZUSP 147); Piraju, Fazenda Santa Lúcia (MZUSP 29005); Registro (MZUSP 21061); Riacho Grande (MZUSP 30603); RPPN São Marcelo, Mogi-Guaçu (Silveira *et al.,* 2011); Talhados, Talhadinho stream (Breviglieri, 2011); São Carlos, Fazenda Canchim (Muylaert *et al.,* 2014); São Carlos, private reserve of UFSCAR (Muylaert *et al.,* 2014); São José do Rio Preto (DZSJRP 15617); São Paulo (MZUSP 509); São Paulo, Ipiranga (MZUSP 15835); São Paulo, P.E. da Cantareira (MZUSP 31552), São Paulo, P.E. do Jaraguá (MZUSP 31973-75); São Paulo, Sítio Pirizal (MZUSP 32012); Teodoro Sampaio, P.E. do Morro do Diabo (Reis *et al.,* 1996); Ubatuba, P.E. da Ilha Anchieta (MZUSP 29439); Vargem Grande do Sul (DZSJRP 14983).

***Sturnira tildae* de la Torre, 1959 (Fig. 37)**

First recorded in São Paulo by Trajano (1982). In the state the species is known from karstic regions in SE (Trajano, 1985) and from the littoral regions of the NE (Geraldes, 2005) and S (Fazzolari-Corrêa, 1995).

Records: Bertioga, Boracéia (Geraldes, 2005); Cananéia, P.E. Ilha do Cardoso (MZUSP 27666); P.E. Intervales (MZUSP 26889); Iporanga, Caverna Santana (MZUSP 34033); Iporanga, mata próxima a Caverna Santana (MZUSP 34009); Iporanga, mata próxima a Caverna Alambari de Baixo (MZUSP 33993); Iporanga, Toca Berta Funda (MZUSP 12540); Jacupiranga (DZSJRP 15237); Pariquera-Açu (DZSJRP 16197); São Paulo, P.E. da Cantareira (Bertola *et al.,* 2005); Ubatuba, Picinguaba (Geraldes, 2005).

Subfamily Desmodontinae Bonaparte, 1845
***Desmodus* Wied-Neuwied, 1826**
***Desmodus rotundus* (É. Geoffroy, 1810) (Fig. 38)**

Guimarães (1944) studied parasitic bat flies of *D. rotundus* in São Paulo. Campanhã & Fowler (1995) and Gomes & Uieda (2004) analyzed the demographics of *D. rotundus* colonies. Taddei *et al.* (1991) studies the rabies virus on *D. rotundus* from São Paulo. Ferraz *et al.* (2007) reported a recent case of rabies for *D. rotundus* in an urban area in São Paulo.

Records: Altinópolis (Filho *et al.,* 2003); Anhembi (Tavoloni, 2006); Apiaí, Gruta Calcáreo Branco (MZUSP 12768); Apiaí, Gruta do Chapéu (MZUSP 11905); Apiaí, Gruta dos Vieira (MZUSP 11899); Ariranha (DZSJRP 14433); Atibaia (DZSJRP 14428) Bálsamo (DZSJRP 2749); Barra de Icapara (MZUSP 19699); Barra do Una (MZUSP 9462); Barretos (DZSJRP 15647); Bilac (DZSJRP 14915); Biritiba-Mirim, Santa Catarina (MZUSP 9463); Botucatu, Fazenda Monte Alegre (DZSJRP 15729); Brotas (DZSJRP 14907); Buri (MZUSP 32991); Cachoeira de Emas (MZUSP 7063); Campinas, Fazenda Santa Genebra (ZUEC 536); Cananéia, Ilha do Cardoso (MZUSP 27684); Capivari (DZSJRP 14440); Casa Grande (MZUSP 9306); Cordeirópolis (DZSJRP 15028); Cosmorama (DZSJRP 2986); E.E. dos Caetetus (Pedro *et al.,* 2001); Eldorado Paulista (DZSJRP 16204); Engenheiro Schmidt (DZSJRP 4798); Fazenda Intervales (de Vivo & Gregorin, 2001); Fartura (DZSJRP 14365); Fernando Prestes (DZSJRP 15636); Guareí, Gruta do Morro do Cerro (MZUSP 17590); Guarulhos, area owned by a beverage company (Chaves *et al.,* 2012); Guarulhos, private property on a hill (Chaves *et al.,* 2012); Guarulhos, private property used as recreational area (Chaves *et al.,* 2012); Icém (DZSJRP 2606); Iguape (MZUSP 1350); Ilha Vitória (MZUSP 2374); Iporanga, Caverna Água Quente (MZUSP 11794); Iporanga, Caverna Água Suja (MZUSP 11941); Iporanga, Caverna Alambari de Baixo (MZUSP 11992); Iporanga, Caverna Areias de Baixo (MZUSP 11956); Iporanga, Caverna Areias de Cima (MZUSP 11909); Iporanga, Caverna Betari (MZUSP 11983); Iporanga, Caverna Córrego Seco (MZUSP 11796); Iporanga, Caverna Lage Branca (MZUSP 12557); Iporanga, Caverna Morro Preto (MZUSP 12405); Iporanga, Caverna da Passoca (MZUSP 12765); Iporanga, Caverna Santana (MZUSP 12068); Iporanga, Gruta do Couto (MZUSP 11933), Iporanga, Gruta do Jeremias (MZUSP 12039); Iporanga, Sumidouro do Davi (MZUSP 11896); Iporanga, Toca Berta Funda (MZUSP 12556); Irapuã (DZSJRP 15481); Itirapina, Estação Experimental de Itirapina (Sato *et al.,* 2015); José Bonifácio (DZSJRP); Juquitiba (MZUSP 30829); Jundiaí, Serra do Japi (Marinho-Filho, 1992); Lupércio (DZSJRP 14369); Mendonça, Monte Belo (DZSJRP 2971); Mirassol, Grota de Mirassol (DZSJRP 4263); Mirassol, Sítio Progresso (DZSJRP 4052); Mirassolândia (DZSJRP 4436); Monte Alegre do Sul (MZUSP 6743); Neves Paulista (DZSJRP 16395); Nova Aliança, Nova Itapirema (DZSJRP 4038); Novo Horizonte (DZSJRP 14460); Piedade (MZUSP 31061); Piraju, Fazenda Santa Lucia (MZUSP 29008); Quatá (DZSJRP 14046); Riacho Grande (MZUSP 30609); Ribeira, Abismo do

Porco (MZUSP 11967); Ribeira, Caverna Tiraprosa (MZUSP 12003); Ribeirão Preto (MZUSP 15115); Rio Claro (DZSJRP 14933);Santos (MZUSP 35093); São Carlos, Fazenda Canchim (Muylaert *et al.,* 2014); São José do Rio Preto, Fazenda Santa Maria (MZUSP 5678); São Paulo (MZUSP 21194); São Paulo, Engenheiro Marsilac, (MZUSP 21207); São Paulo, Engenheiro Marsilac, Sitio Boa Vista (MZUSP 24238); São Paulo, P.E. da Cantareira (MZUSP 31491); São Sebastião (MZUSP 1451); Socorro (DZSJRP 15485); Tabapuã (DZSJRP 14454); Taguaí (DZSJRP 14370); Tapiratiba (DZSJRP 14435); Ubatuba, P.E. da Ilha Anchieta (MZUSP 29441); Urupês (DZSJRP 2475); Valinhos (DZSJRP 14917); Vargem Grande do Sul (DSJRP 14952); Votuporanga (DZSJRP 2819).

***Diaemus* Miller, 1906**
***Diaemus youngii* (Jentink, 1893) (Fig. 39)**

Recorded from the NW (Vizotto & Taddei, 1968), C (Uieda & Chaves, 2005), SE (Trajano, 1985), and NE regions of São Paulo. Classified as "Vunerable" in the state of São Paulo by Miretzki (2010), the author cited four records of the species for the state while I could find eleven. The species does seem to be locally rare and Arnone (2008) failed to capture *D. youngii* in an area the species was caught two decades before (Trajano, 1985). Sazima, I. & Uieda (1980) and Uieda (1993) reported notes on the feeding behavior of *D. youngii* in São Paulo.

Records: Bilac, Fazenda Lontra (DZSJRP 10705); Botucatu region (Uieda & Chaves, 2005); Guararema (MZUSP 15156); Itajobi, Fazenda Águas Claras (DZSJRP 15025); Mirassol, Grota de Mirassol (DZSJRP 2556); Santa Gertrudes, Fazenda Paraguassú (ZUEC 887); São José do Rio Preto, Mata dos Macacos (DZSJRP 16978); São Paulo, Butantan (MZUSP 4036, Vieira, 1942); São Sebastião, Barra do Una (MZUSP 9462, present study); Iporanga, Caverna Alambari de Baixo (MZUSP 13280); Uchoa (DZSJRP 16615).

***Diphylla* Spix, 1823**
***Diphylla ecaudata* Spix, 1823 (Fig. 40)**

Records of this species are restricted to the dense ombrophilous forest area in the SE (Trajano, 1982) and on the littoral of the S, E and NE regions.

Records: Barra de Icapara (MZUSP 20415); Bertioga (Geraldes, 2005); 5 km N of Biritiba-Mirim (DZSJRP 10013); Boracéia (Geraldes, 2005); Cananéia, Ilha do Cardoso (MZUSP 28155); Casa Grande (MZUSP 9308); Guarulhos, area with poultry pen, surrounded by forest (Chaves *et al.,* 2012); Guarulhos, private property used as recreational area (Chaves *et al.,* 2012); Guarulhos, rural area (Chaves *et al.,* 2012); Iporanga, Caverna Alambari de Baixo (MZUSP 11979); Iporanga, Caverna Areias de Baixo (MZUSP 11913); Iporanga, Caverna Betari (MZUSP 33944); Iporanga, Caverna Córrego Seco (MZUSP 33952); Iporanga, Caverna Morro Preto (MZUSP 34015); Iporanga, Caverna Santana (MZUSP 12009); Iporanga, close to Caverna Betari (MZUSP 33998); Jacupiranga (DZSJRP 16272); Jacupiranga, 15 km S (DZSJRP 16245); Juquitiba (MZUSP 30782); P.E. Intervales (de Vivo & Gregorin, 2001); near Registro (DZSJRP 12547); Ribeira, Caverna Tiraprosa (MZUSP 11972); São Sebastião (MZUSP 1227); Ubatuba, praia do Puruba (ZUEC 1997).

Family Furipteridae Gray, 1866
***Furipterus* Bonaparte, 1837**
***Furipterus horrens* (Cuvier, 1828) (Fig. 41)**

The species is known from the S and SE regions of the state where it is associated with karstic enviroments, being caught with mist-nets assembled directly at cave openings (Trajano, 1985; Portfors *et al.,* 2000) or while foraging near caves (Manço *et al.,* 1991; Passos *et al.,* 2003). In São Paulo the species is known to cohabit roosts with *Tonatia bidens, Chrotopterus auritus, Anoura caudifer, Carollia perspicillata, Artibeus lituratus* and *Desmodus rotundus* (Trajano, 1985). Fenton *et al.* (1999) studied stomach contents of *F. horrens* from S São Paulo. Due to its very restricted distribution in the state, the species was classified as "near threatened" by Aguiar & Taddei (1998) and Miretzki (2010).

Records: Iporanga, Gruta Águas Quentes (MZUSP 12013); Iporanga, Caverna Água Suja de Cima (MZUSP 11947); Iporanga, Caverna Ouro Grosso (MZUSP 11790); Iporanga, Gruta do Grilo (MZUSP 12763); Iporanga, Gruta do Jeremias (MZUSP 33968); Iporanga, Jaguatirica (MZUSP 11936); P.E. Intervales (Portfors *et al.,* 2000; de Vivo & Gregorin, 2001).

Family Natalidae Gray, 1866
***Natalus* Gray, 1838**
***Natalus macrourus* (Gervais, 1856a) (Fig. 42)**

Known from SE São Paulo, where the genus *Natalus* reaches its meridional distributional limit (Trajano, 1982). As in elsewhere, the species in São Paulo is always associated with caves (Taddei & Uieda, 2001; Tejedor, 2006). Due to its restricted roosting habitat and to the fact that the species is always found in low

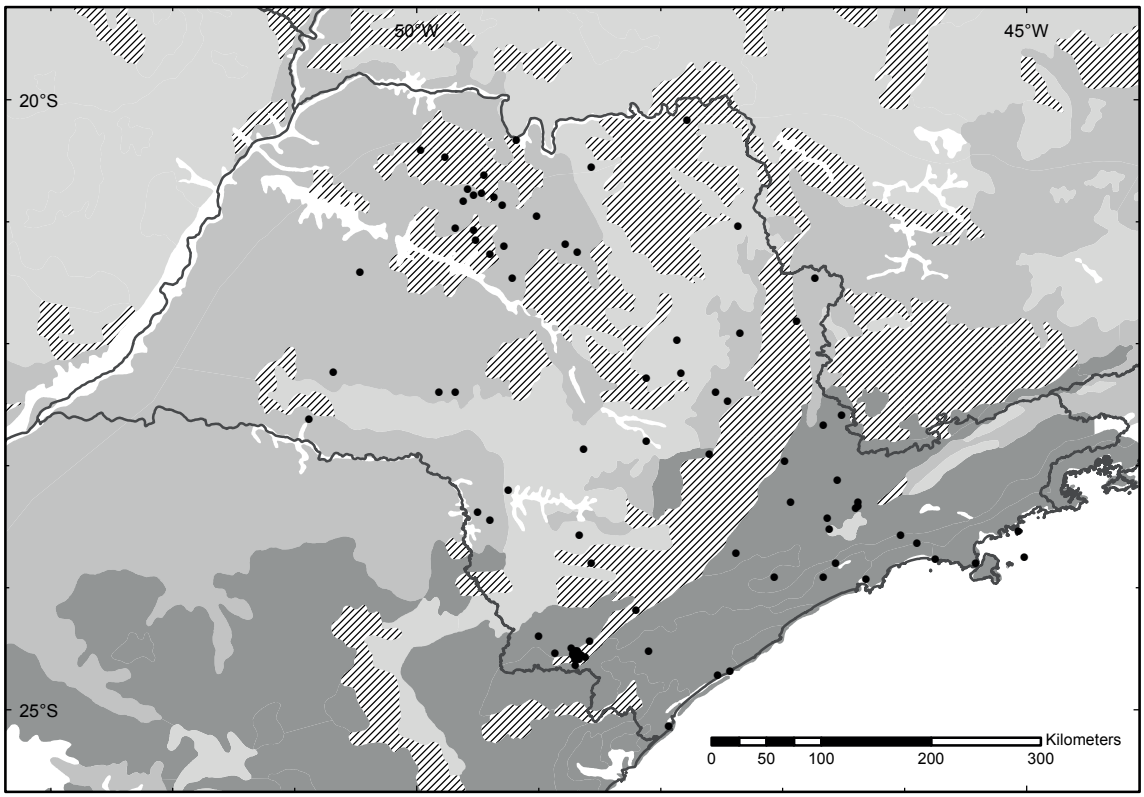

FIGURE 38: Localities of *Desmodus rotundus* in the state of São Paulo.

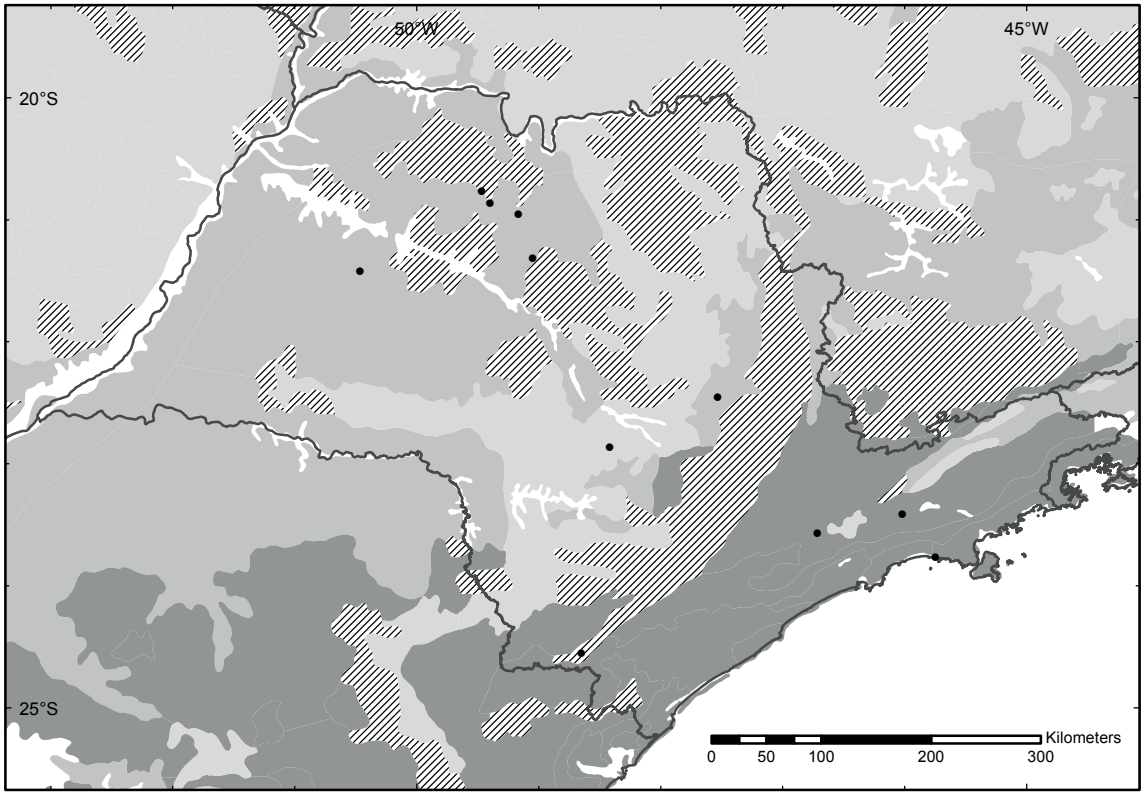

FIGURE 39: Localities of *Diaemus youngii* in the state of São Paulo.

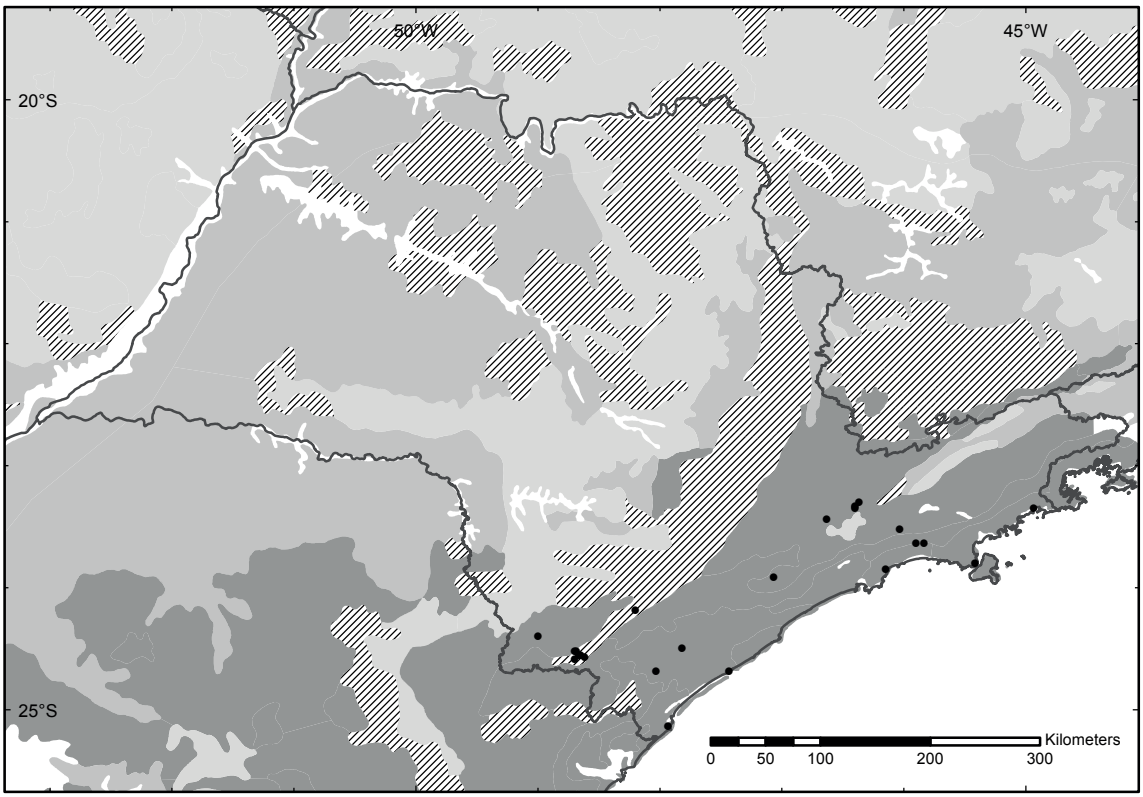

FIGURE 40: Localities of *Diphylla ecaudata* in the state of São Paulo.

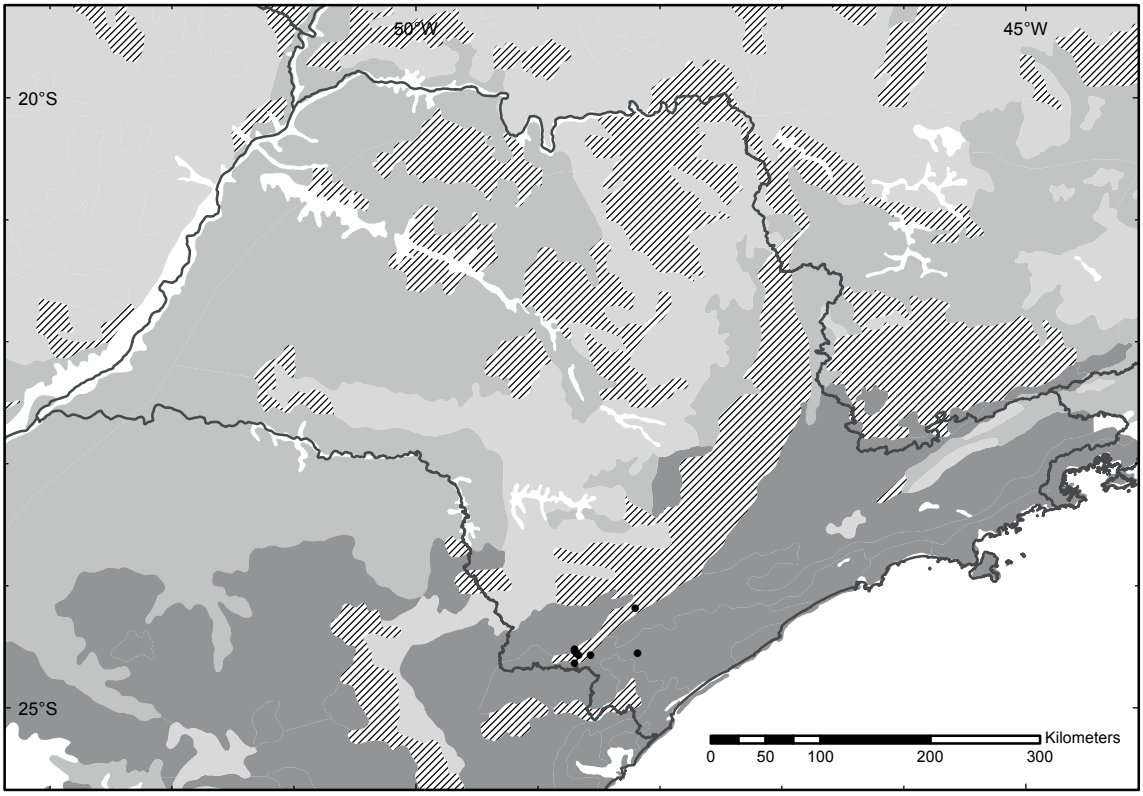

FIGURE 41: Localities of *Furipterus horrens* in the state of São Paulo.

population densities in São Paulo (Trajano, 1985), it was classified as "Vunerable" in the threatened species list of the state (Miretzki, 2010). Trajano (1985) found *N. macrourus* cohabiting caves with *Anoura caudifer, Carollia perspicillata* and *Desmodus rotundus.*

Gurgel-Filho *et al.* (2015) argued that the animal described and illustrated in Gervais (1856a) is not a species of *Natalus,* mainly because the plate does not show a dorsoventrally flattened rostrum and only two pairs of incisors are present. A closer inspection at Gervais' text, however, clearly indicates that the animal he described had a dorsoventrally flattened rostrum: *"Le crâne est aplati à la région naso-faciale"* (Gervais, 1856a:52). Since the plates were drawn to faithfully represent the dentition only, the partially drawn rostral profile should not be taken as the real shape of the specimen. Moreover, the combination of characters mentioned by Gervais can only refer to a species of the genus *Natalus:* large and acute lower canines; three pairs of upper dilambdodont molars; three pairs of lower and upper pre-molars; first and second upper premolars separated from the third by a small diastema; no noseleaf; long legs and tail reaching the distal margin of the uropatagium (Gervais, 1856a, b).

In light of the available evidence, and considering that only one species of *Natalus* is believed to occur in Brazil south of Rio Amazonas (Tejedor, 2011), I contend to keep the name *Natalus macrourus.*

Records: Iporanga, Caverna Areias de Cima (MZUSP 34068); Iporanga, Caverna Gurutuva (MZUSP 12073); Iporanga, Caverna Santana (MZUSP 13288).

Family Thyropteridae Miller, 1907
***Thyroptera* Spix, 1823**
***Thyroptera tricolor* Spix, 1823 (Fig. 42)**

According to Vieira (1942, 1955), the form from São Paulo would belong to the subspecies *Thyroptera tricolor juquiaensis.* Gregorin *et al.* (2006) and Gregorin (*in* Vivo *et al.,* 2011) stated that this form, distinguished from the nominal *Thyroptera t. tricolor* by a more yellowish venter and a smaller forearm, may represent a distinct species. Esbérard *et al.* (2007) found five additional records of *T. tricolor* for the Atlantic Forest that matched the description of *T. t. juquiaensis* and Passos *et al.* (2010) published the southernmost known record of the species, for the Brazilian state of Paraná, south of São Paulo.

I present herein two additional records for the state of São Paulo, both from dense ombrophilous forest regions in the eastern and northeastern portions of the state. Those are new records of *T. tricolor* for São Paulo more than 50 years after the capture of the type specimen of *T. t. juquiaensis,* which took place in 1940, in the southeastern region of São Paulo (Vieira, 1942:391). Both specimens (MZUSP 35004, 35005) have the small forearm (MZUSP 35004 = 34.71 mm; MZUSP 35005 = 33.96 mm) and yellowish venter typical of the *juquiaensis* taxon. The species is classified as "Vulnerable" for the state (Miretzki, 2010) based on habitat loss and scarce records.

Records: Bertioga, Boracéia (Geraldes, 2005, present study); Fazenda Poço Grande, Rio Juquiá (MZUSP 5702, holotype of *Thyroptera albiventer juquiaensis* Vieira, 1942); Ubatuba, Picinguaba (Geraldes, 2005, present study).

Family Molossidae Gervais, 1856
Subfamily Molossinae Gervais, 1856
***Cynomops* Thomas, 1920**
***Cynomops abrasus* (Temminck, 1826) (Fig. 43)**

The species is widely distributed in São Paulo state. Has been recorded for the metropolitan region of São Paulo city by Silva *et al.* (1996). Taddei *et al.* (1976) studied the biology of *Cynomops abrasus* from São Paulo.

Records: Aspásia (DZSJRP 14973); Bady Bassit (DZSJRP 14363); Mirassol (DZSJRP 4561); Monte Aprazível (DZSJRP 2101); Nipoã (DZSJRP 2162); Nova Aliança (DZSJRP 3306); Nova Granada (DZSJRP 2885); Paraíso (DZSJRP 16879); Pindorama, Fazenda Experimental (DZSJRP 18018); Santa Gertrudes, Fazenda Paraguassú (ZUEC 1095); São José do Rio Preto, Engenheiro Schmidt (DZSJRP 16612); São Paulo (Silva *et al.,* 1996); São Vicente (MZUSP 26711); Sumaré, Horto Florestal (ZUEC 1008); Votuporanga (DZSJRP 3179).

***Cynomops planirostris* (Peters, 1866) (Fig. 44)**

Vizotto & Taddei (1976), based on animals from São Paulo, provided information about the natural history of the species.

Records: E.E. dos Caetetus (Pedro *et al.,* 2001); Ipiguá (DZSJRP 4754); Neves Paulista (DZSJRP 15707); São José do Rio Preto (DZSJRP 18030); Urupês (DZSJRP 3082); Valinhos (DZSJRP 15608).

***Eumops* Miller, 1906**
***Eumops auripendulus* (Shaw, 1800) (Fig. 45)**

The species is widely distributed in the state, occurring in all regions. It is also found inside occupied buildings.

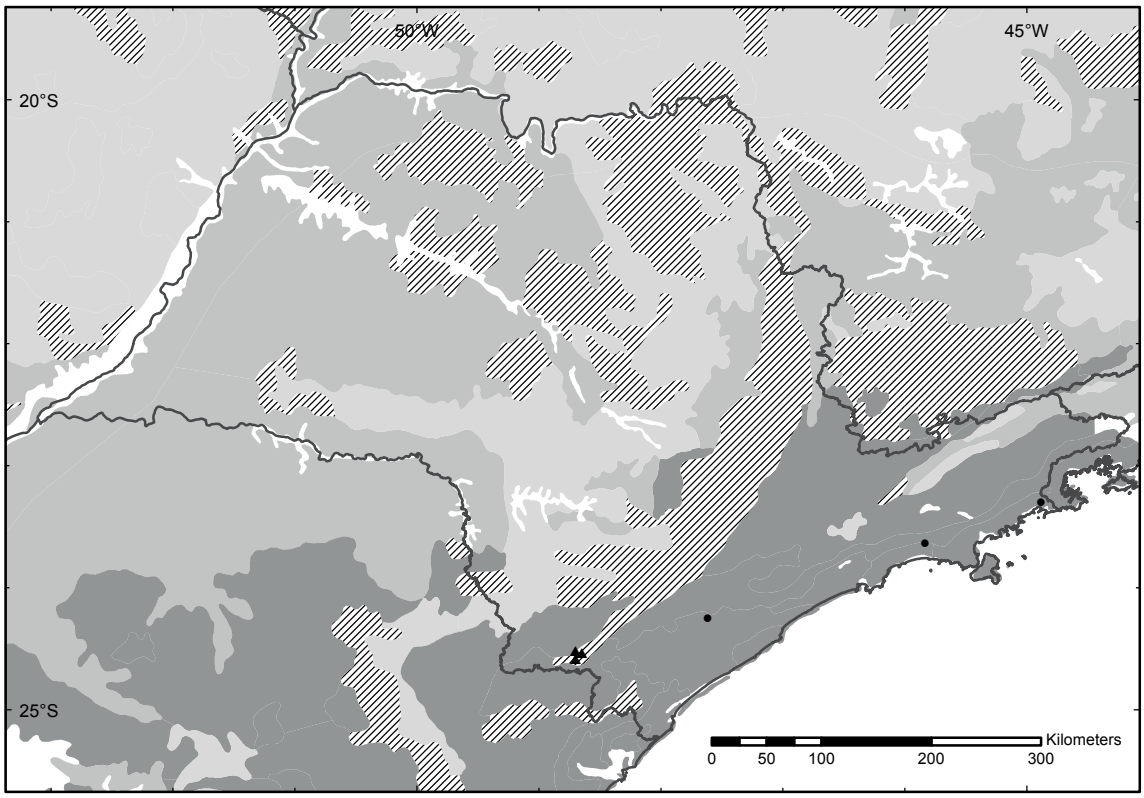

FIGURE 42: Localities of *Natalus macrourus* (▲) and *Thyroptera tricolor* (●) in the state of São Paulo.

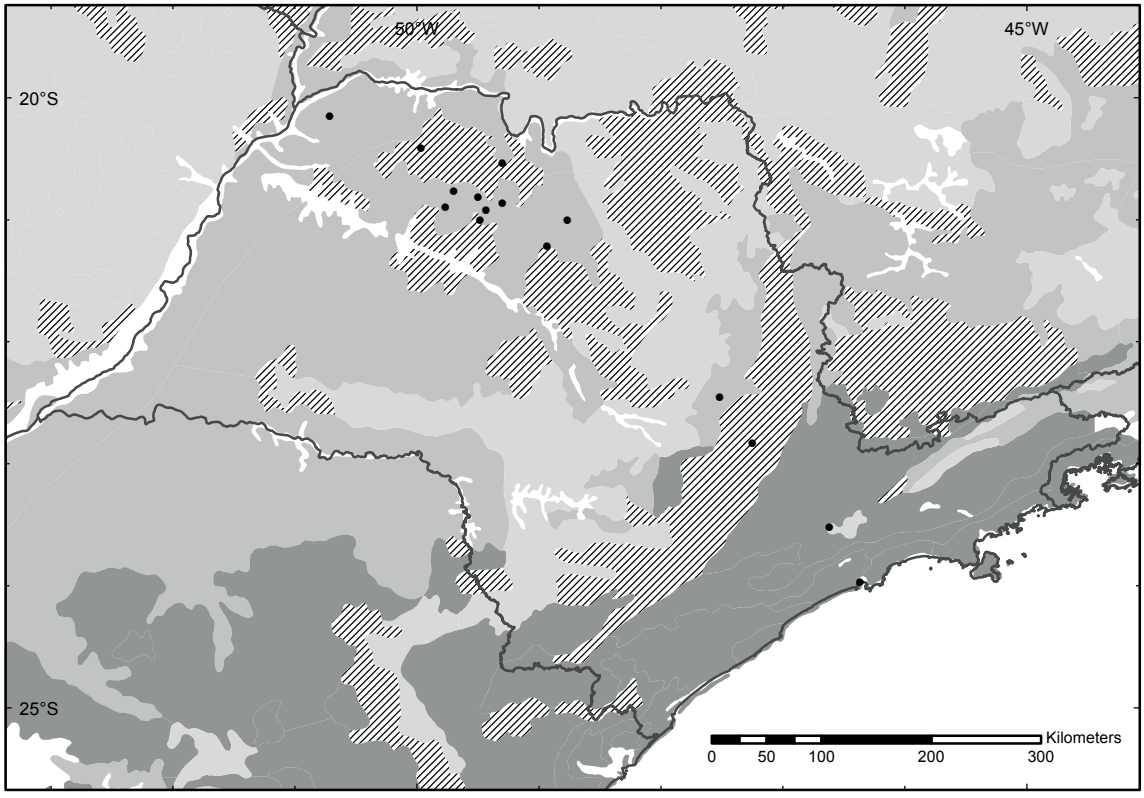

FIGURE 43: Localities of *Cynomops abrasus* in the state of São Paulo.

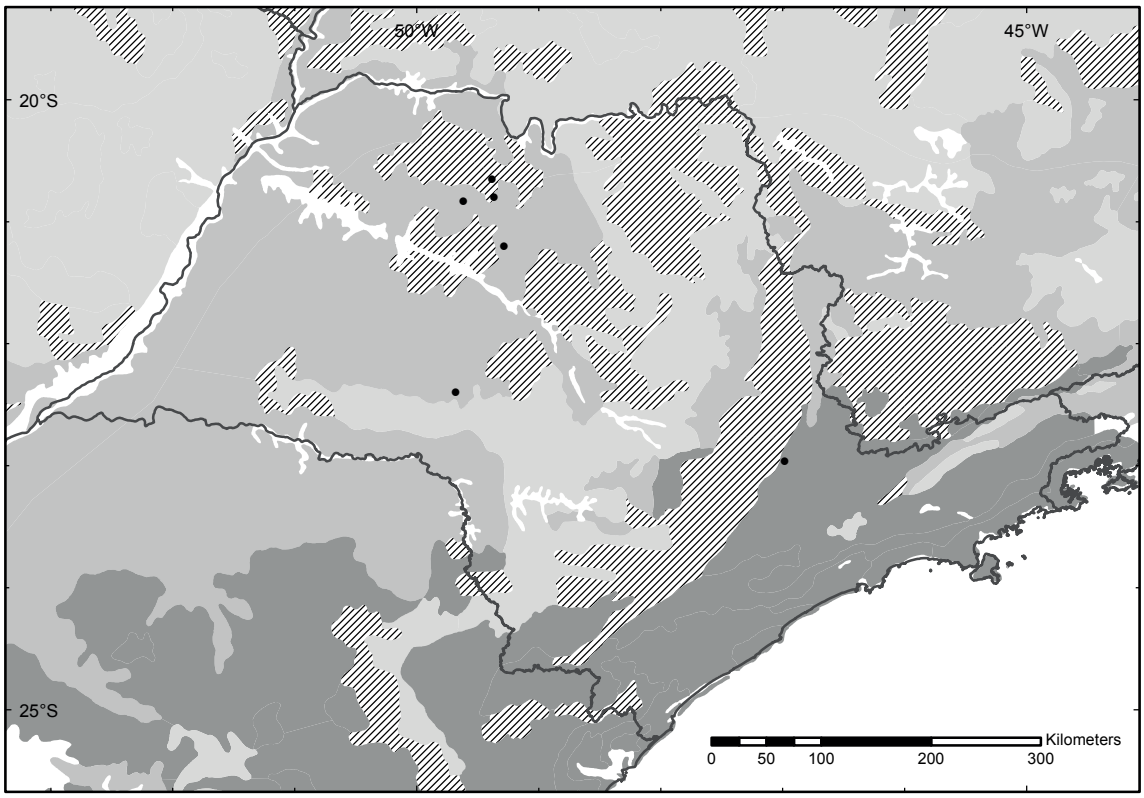

FIGURE 44: Localities of *Cynomops planirostris* in the state of São Paulo.

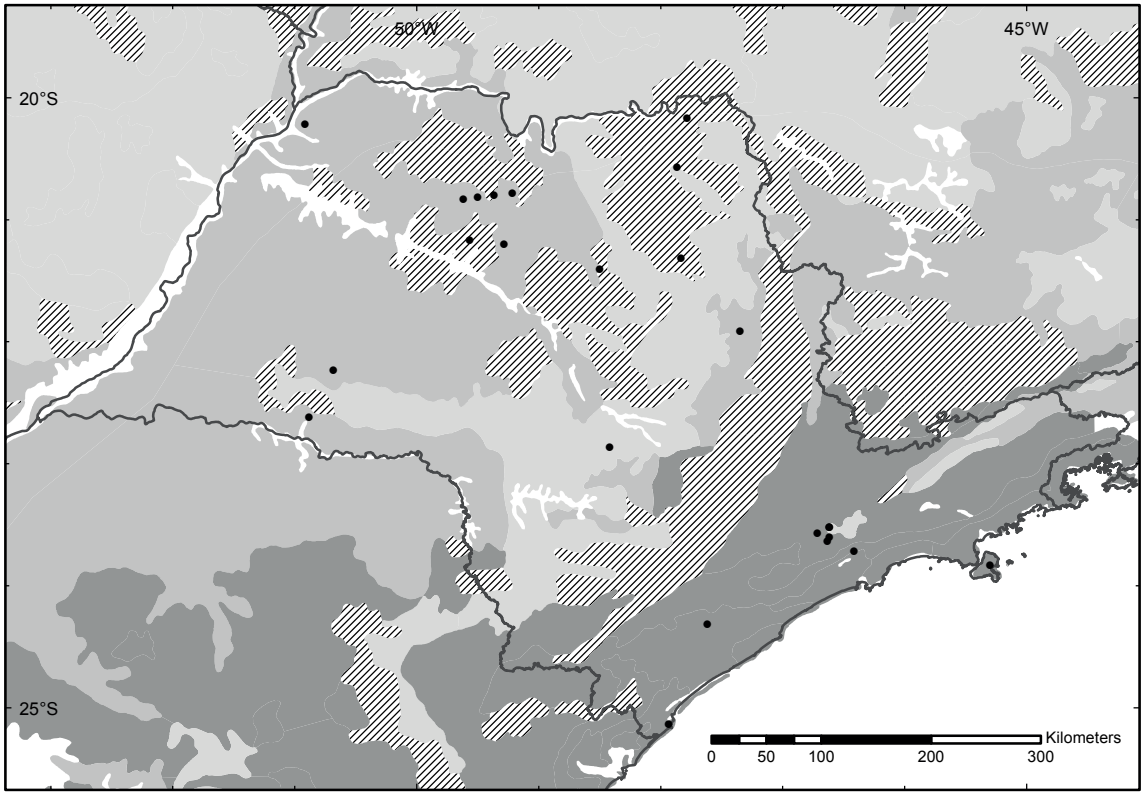

FIGURE 45: Localities of *Eumops auripendulus* in the state of São Paulo.

Records: Botucatu (DZSJRP 17013); Cachoeira de Emas (MZUSP 7669); Cananéia, Ilha do Cardoso (MZUSP 27535); Capivari (MZUSP 9044); Cravinhos (MZUSP 9046); Guapiaçu (DZSJRP 16968); Ilhabela, Ilha de São Sebastião (MZUSP 2099); Juquiá (MZUSP 7061); Mendonça (DZSJRP 2855); Mirassol (DZSJRP 3020); Neves Paulista (DZSJRP 3339); Quatá (DZSJRP 14392); Ribeirão Pires (DZSJRP 15607); Ribeirão Preto (MZUSP 15446); Ribeirão Preto, Fazenda Resfriado (MZUSP 15381); Santa Fé do Sul (DZSJRP 3303); São Joaquim da Barra (MZUSP 15379); São José do Rio Preto (DZSJRP 4849); São Paulo (MZUSP 1354); São Paulo, Água Funda (MZUSP 15658); São Paulo, Butantan (MZUSP 5816); São Paulo, Ipiranga (MZUSP 5825); São Paulo, Pinheiros (MZUSP 5818); Taquaritinga (DZSJRP 4134); Urupês (DZSJRP 2913).

***Eumops bonariensis* (Peters, 1874) (Fig. 46)**

This molossid bat is represented by few records, but seems to be widely distributed in São Paulo. Gregorin & Taddei (2002) suggest that the taxon may be a species complex, mainly separated by size, and the taxon occurring in São Paulo would be *Eumops bonariensis beckeri* Sanborn, 1932.

Records: Casa Grande (MZUSP 17587); Guaraci (DZSJRP 3106); Irapuã (DZSJRP 3312); São José do Rio Preto (DZSJRP 3292).

***Eumops glaucinus* (Wagner, 1843) (Fig. 47)**

In Cerrado remnants in C São Paulo, this species was the most abundant bat prey of *Asio stygius* (Motta-Junior & Taddei, 1992).

Records: Cedral (DZSJRP 16887); Irapuã (DZSJRP 3835); Mirassol (DZSJRP 4534); Nova Aliança (DZSJRP 17055); Nova Granada (DZSJRP 16977); Onda Verde (DZSJRP 16718); Planalto (DZSJRP 14406); Rio Claro (DZSJRP 16488); São Carlos, Fazenda Canchim (Motta-Junior & Taddei, 1992); São José do Rio Preto (DZSJRP 4567); São Paulo (MZUSP 15656); Urupês (DZSJRP 3275).

***Eumops hansae* Sanborn, 1932 (Fig. 48)**

Gregorin (2001) reported the first record of the species from the state, based on an animal identified by A.L. Gardner and deposited in MZUSP. Only this record is known for São Paulo.

Records: São Paulo (MZUSP 15442).

***Eumops maurus* (Thomas, 1901) (Fig. 49)**

This rarely captured species was recorded for São Paulo by Sodré *et al.* (2008), where it was caught alive in an apartment in the metropolitan area of the city of São Paulo. It can be identified by the two lateral white spots on the abdomen.

Records: São Paulo (Sodré *et al.,* 2008, based on specimen CCZ 761/05).

***Eumops perotis* (Schinz, 1821) (Fig. 49)**

The records are restricted to the interior of the state, in Cerrado and Seasonal Semideciduous Forest areas.

Records: Araraquara (DZSJRP 14912); Bady Bassit (DZSJRP 17026); Botucatu region (Uieda & Chaves, 2005); Brotas (DZSJRP 15711); Cedral (DZSJRP 16467); Mirassol (DZSJRP 17059); Ribeirão Preto (MZUSP 15644); Ribeirão Preto, Fazenda Resfriado (MZUSP 15663); Monte Mor (MZUSP 15645).

***Molossops* Peters, 1866**
***Molossops neglectus* Williams & Genoways, 1980 (Fig. 50)**

All the records of this species are restricted to the E, in areas of Dense Ombrophilous Forest.

Records: Boracéia (MZUSP 15410); Buri (MZUSP 30939); E.E. dos Caetetus (Pedro *et al.,* 2001); Guarulhos, Candinhas House (Chaves *et al.,* 2012); Itu, Fazenda Pau d'Alho (MZUSP 15411); São Paulo, P.E. da Cantareira (MZUSP 31461).

***Molossops temminckii* (Burmeister, 1854) (Fig. 51)**

Was recorded for the N, W and S regions of the state, in areas of Cerrado and seasonal semideciduous forest. Vizotto & Taddei (1976) provided information on the natural history of *M. temminckii.*

Records: Bady Bassit (DZSJRP 16764); Botucatu (ZUEC 569); Buri (MZUSP 32980); E.E. Jataí (Gargaglioni *et al.,* 1998); Irapuã (DZSJRP 3317); Itatinga (ZUEC 196); Meridiano (DZSJRP 3182); Mirassol (DZSJRP 18104); Mirassol, Grota de Mirassol (DZSJRP 17072); Neves Paulista (DZSJRP 16501); Nhandeara (DZSJRP 2251); Nova Aliança

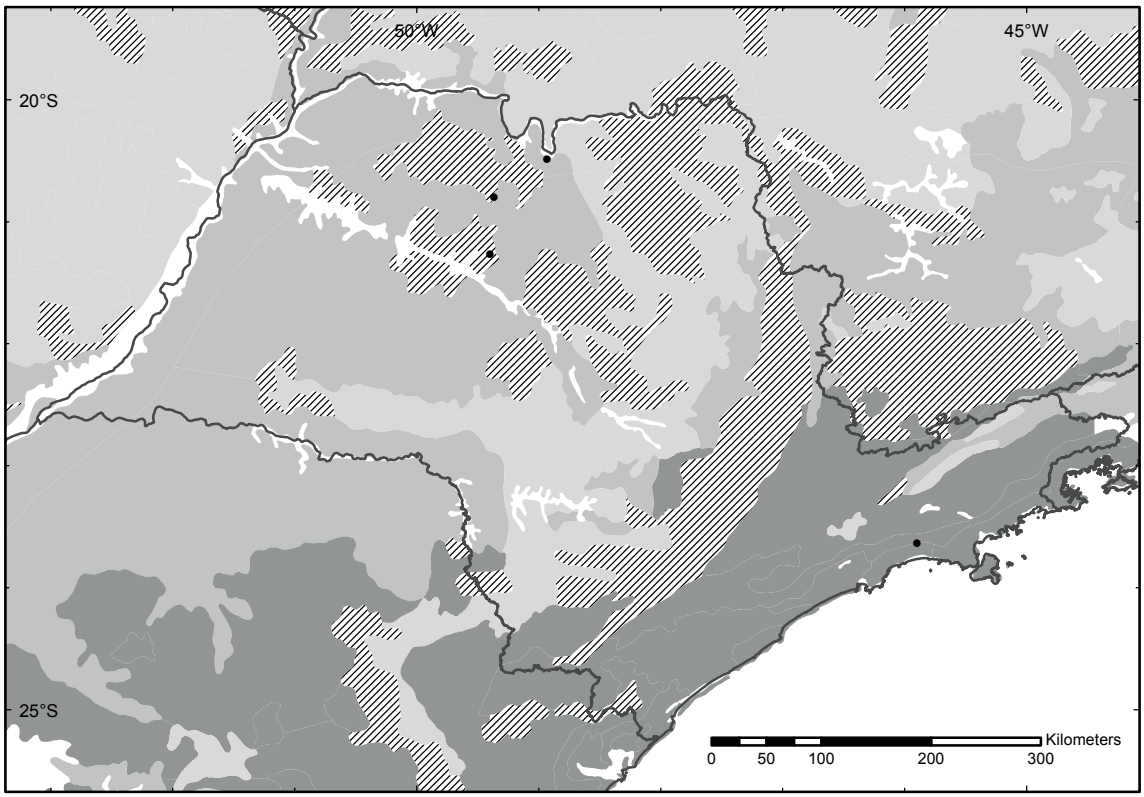

FIGURE 46: Localities of *Eumops bonariensis* in the state of São Paulo.

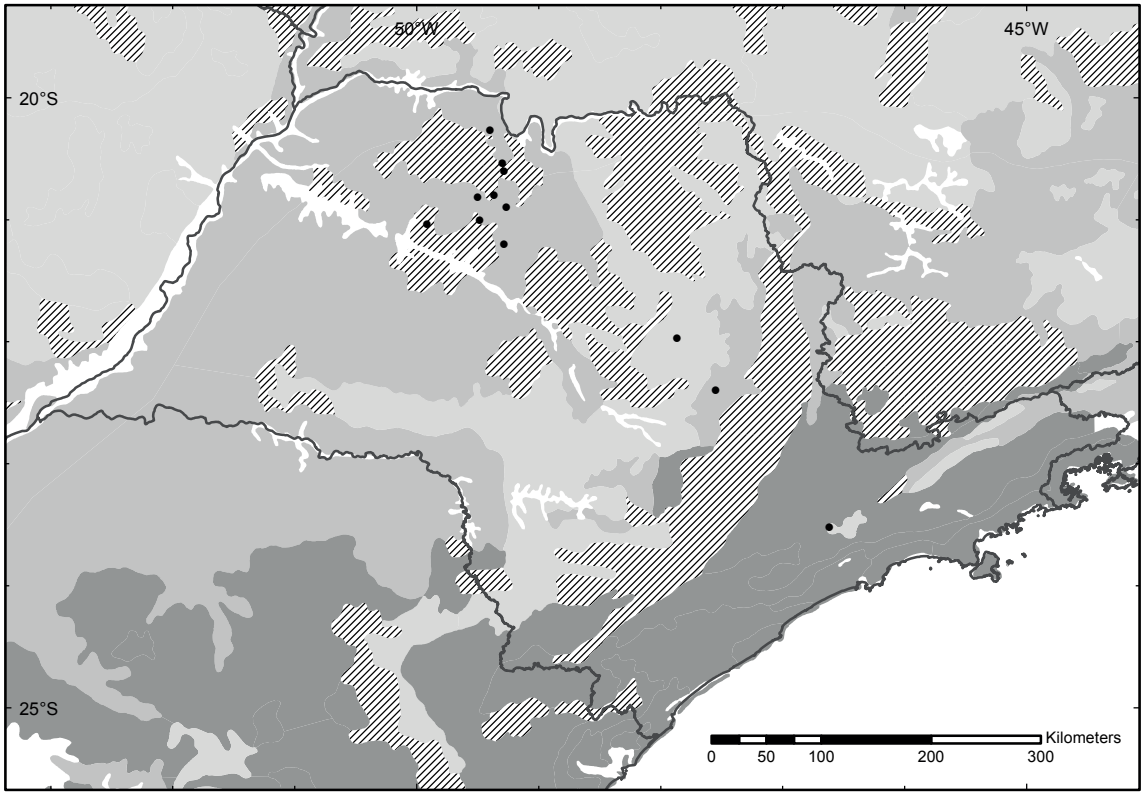

FIGURE 47: Localities of *Eumops glaucinus* in the state of São Paulo.

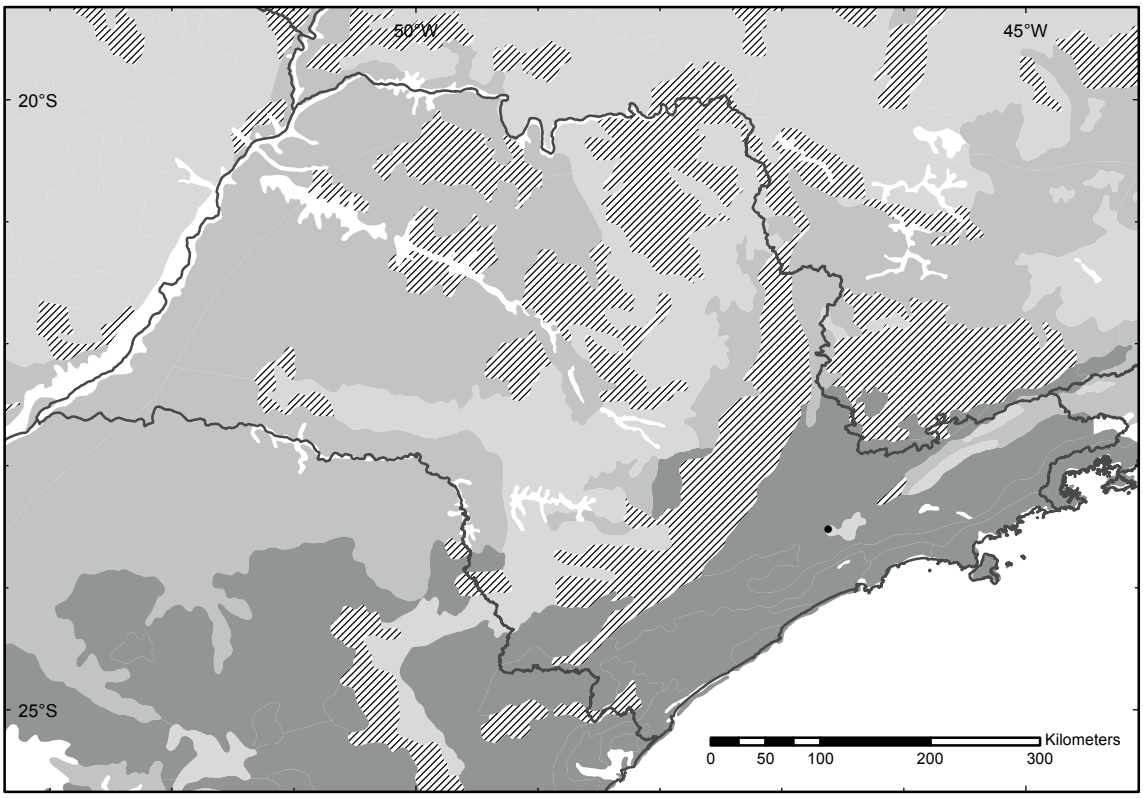

FIGURE 48: Single known locality of *Eumops hansae* in the state of São Paulo.

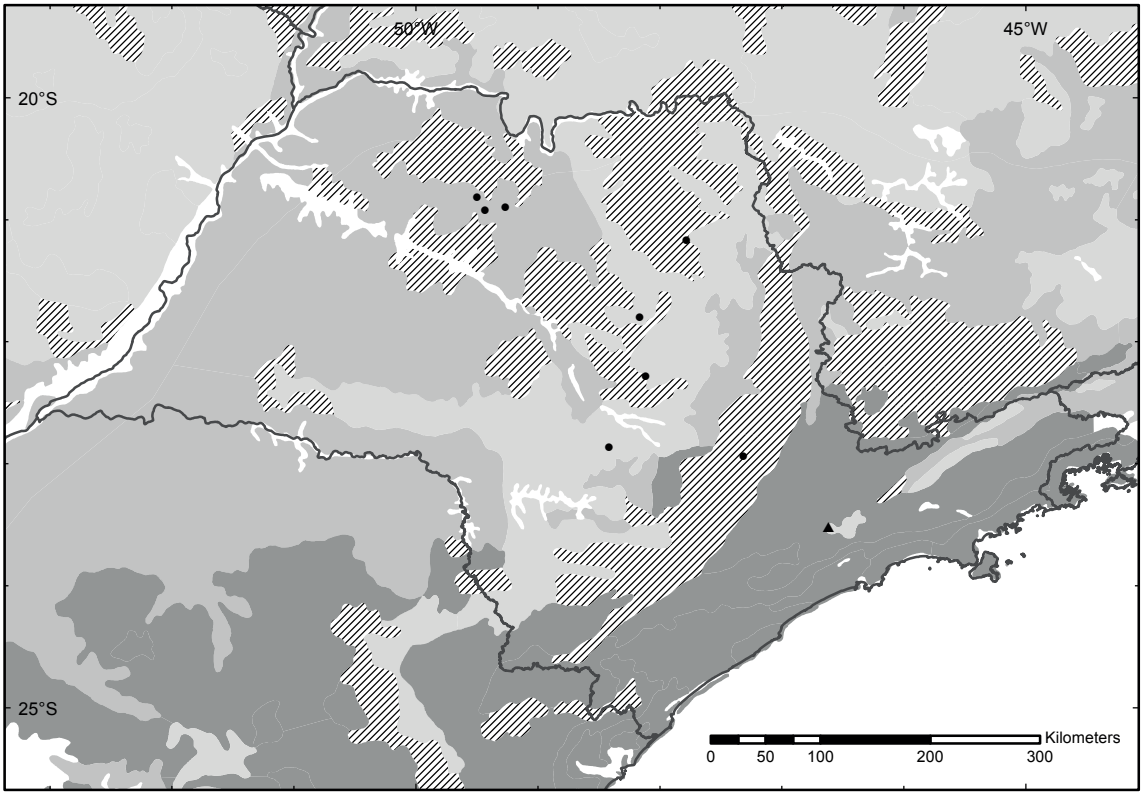

FIGURE 49: Localities of *Eumops maurus* (▲) and *Eumops perotis* (●) in the state of São Paulo.

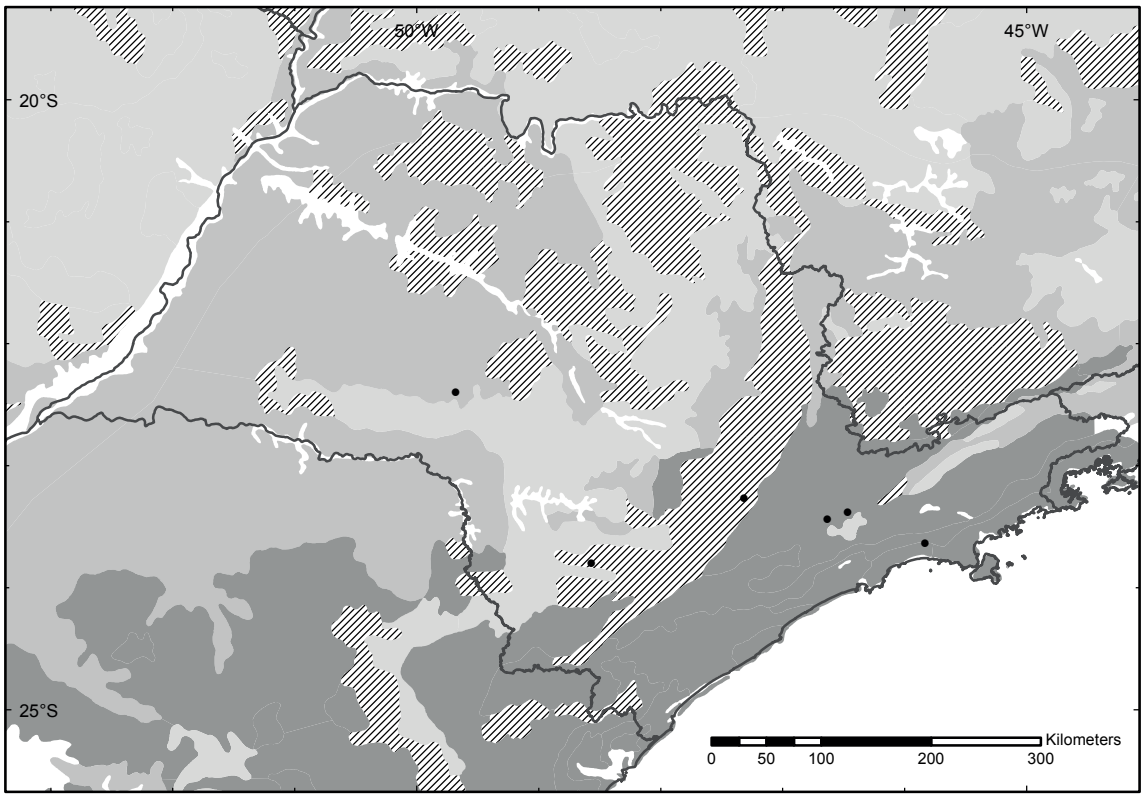

FIGURE 50: Localities of *Molossops neglectus* in the state of São Paulo.

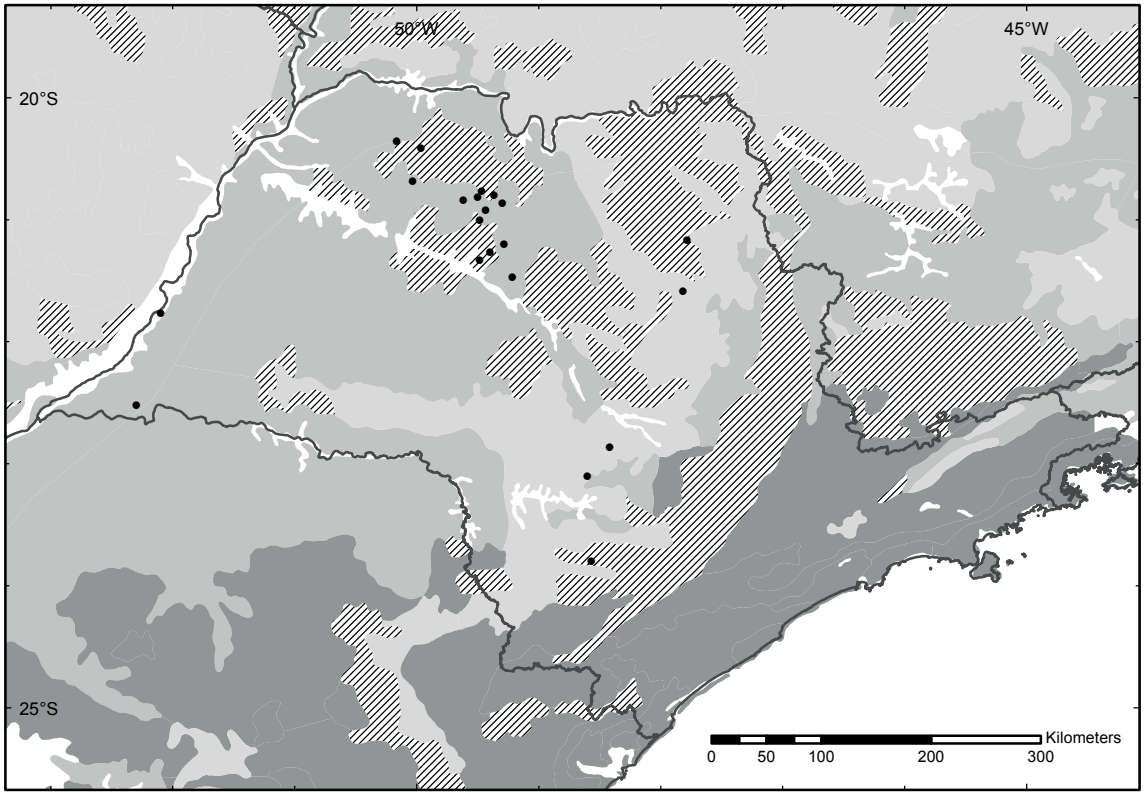

FIGURE 51: Localities of *Molossops temminckii* in the state of São Paulo.

TABLE 7: Measurements of adult females of *Molossus aztecus* and *Molossus molossus* from São Paulo.

Specimen number	Locality	Taxon	Sex	Forearm length	Greatest length of skull	Condyloincisive length	Mastoid breadth	Zygomatic breadth	Braincase breadth	Postorbital constriciton	Breadth across upper canines	Breadth across upper molars	Maxillary toothrow length	Mandible length	Length of mandibular toothrow
DZSJRP 16457	Catanduva, São Paulo	*Molossus aztecus*	F	38.3	16.2	14.9	10	10.5	9.3	3.9	4.6	7.5	6	11.5	6.5
DZSJRP 4519	São José do Rio Preto, São Paulo	*Molossus molossus*	F	37.2	15.8	14.9	10	9.8	8.3	3.2	4	7	5	10.9	5.9
DZSJRP 4532	São José do Rio Preto, São Paulo	*Molossus molossus*	F	35.9	15.1	14	9.8	10	8.5	3.5	4.5	7.3	5.8	10.2	6.5
DZSJRP 3264	Irapuã, São Paulo	*Molossus molossus*	F	37.4	15.1	14.2	9.9	10	8.4	3.5	3.8	7	5	10.2	6
DZSJRP 3268	Irapuã, São Paulo	*Molossus molossus*	F	36.2	15	14.4	9.7	9.9	8.3	3.6	3.8	7	5.4	10.4	6
DZSJRP 3337	Urupês, São Paulo	*Molossus molossus*	F	36.3	15.6	15	10	10.2	8.2	3.5	4.4	7.3	6	11	6.4

(DZSJRP 3307); Novo Horizonte (DZSJRP 3174); Ribeirão Preto (MZUSP 15427); Porto Epitácio (MZUSP 4144); Sales (DZSJRP 3250); São José do Rio Preto (DZSJRP 3296); São José do Rio Preto, Engenheiro Schmidt (DZSJRP 18117); Teodoro Sampaio, P.E. Morro do Diabo (Reis *et al.,* 1996); Urupês (DZSJRP 3185); Votuporanga (DZSJRP 3247).

Molossus É. Geoffroy, 1805
Molossus aztecus Sausurre, 1860 (Fig. 52)

Gregorin *et al.* (2011) provided the first record of *M. aztecus* for Brazil. Based on the upper inner incisors shape, the more globose skull and on the larger skull measurements, I present the first record of *M. aztecus* for the NW region of the state (Fig. 53, Table 7).

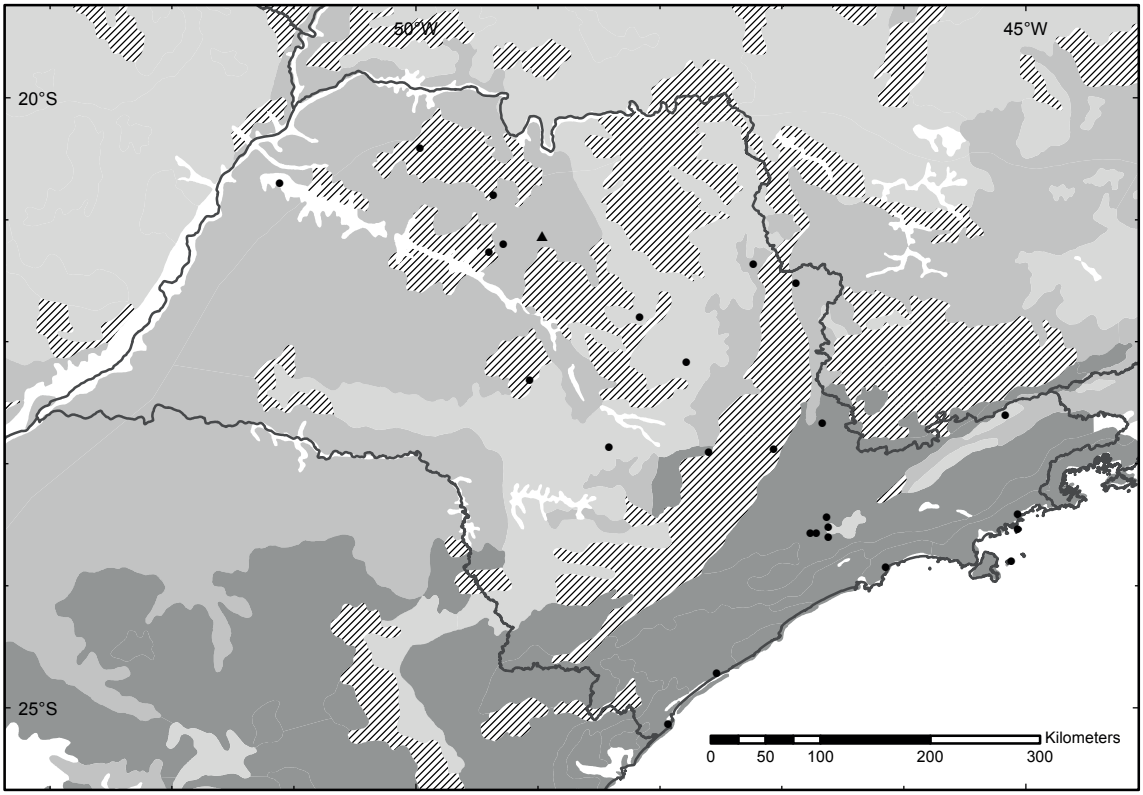

FIGURE 52: Localities of *Molossus aztecus* (▲) and *Molossus molossus* (●) in the state of São Paulo.

Records: Catanduva (DZSJRP 16457).

***Molossus molossus* (Pallas, 1766) (Fig. 52)**

This species is the most commonly sampled molossid in the state of São Paulo. It has been recorded for every region and is commonly found inside human residences (Uieda *et al.,* 1995). Vieira (1944) reported *M. molossus* roosting in tree hollows.

Records: Araraquara (MZUSP 15455); Barueri (MZUSP 15583); Bauru (MZUSP 1306); Bertioga (MZUSP 26406); Botucatu (Uieda *et al.,* 1995); Cajuru, Fazenda Santa Carlota (MZUSP 31495); Campinas (Uieda *et al.,* 1995); Campinas, Reserva Municipal de Santa Genebra (ZUEC 761); Cananéia, Ilha do Cardoso (MZUSP 27539); Iguape (MZUSP 1340); Ilhabela, Ilha de Búzios (MZUSP 10268); Irapuã (DZSJRP 3264); Lussanvira (MZUSP 15394); Monte Alegre do Sul (MZUSP 6499); Osasco (MZUSP 8216); Piquete (MZUSP 1237); Ribeirão Preto (MZUSP 15628); São José do Rio Preto (DZSJRP 4519); São Paulo (MZUSP 7271); São Paulo, Butantan (MZUSP 8033); São Paulo, Cantareira (MZUSP 1242); São Paulo, Ipiranga (MZUSP 3380); Ubatuba (MZUSP 1882); Ubatuba, P.E. da Ilha Anchieta (MZUSP 29454); Urupês (DZSJRP 3337); Votuporanga (DZSJRP 2822).

***Molossus rufus* É. Geoffroy, 1805 (Fig. 54)**

This species is the largest *Molossus* occurring in São Paulo, and has been recorded for every region.

Records: Américo Brasiliense (ZUEC 1451); Bauru (MZUSP 5846); Cedral (DZSJRP 17044); Conchas (MZUSP 13734); Guarujá (MZUSP 15425); Iguape (MZUSP 21083); Itirapina, Estação Experimental de Itirapina (Sato *et al.,* 2015); Monte Mor (ZUEC 333); Pariquera-Açu (MZUSP 22179); Pedregulho (ZUEC 1985); Rio Claro (ZUEC 2698); Santos (MZUSP 6067); São Paulo, Santo Amaro (MZUSP 15470).

***Nyctinomops* Miller, 1902**
***Nyctinomops aurispinosus* (Peale, 1848) (Fig. 55)**

The species was first recorded for São Paulo by Taddei & Garutti (1981). Silva *et al.* (1996) recorded *N. aurispinosus* for the urban area of the city of São Paulo.

Records: E.E. dos Caetetus (Pedro *et al.,* 2001); Ribeirão Preto (MZUSP 15463); São José do Rio Preto (DZSJRP 4786); São Paulo (Silva *et al.,* 1996).

***Nyctinomops laticaudatus* (É. Geoffroy, 1805) (Fig. 56)**

Nyctinomops laticaudatus is the only mammal known to occur on the Ilha da Queimada Grande, *contra* Gimenez & Ferrarezi (2004), who listed also *N. macrotis* for the island based on a misidentification of the specimen MZUSP 7440. Motta-Junior & Taddei (1992) registered *N. laticaudatus* as a food item of Stygian owls in Cerrado remnants of C São Paulo.

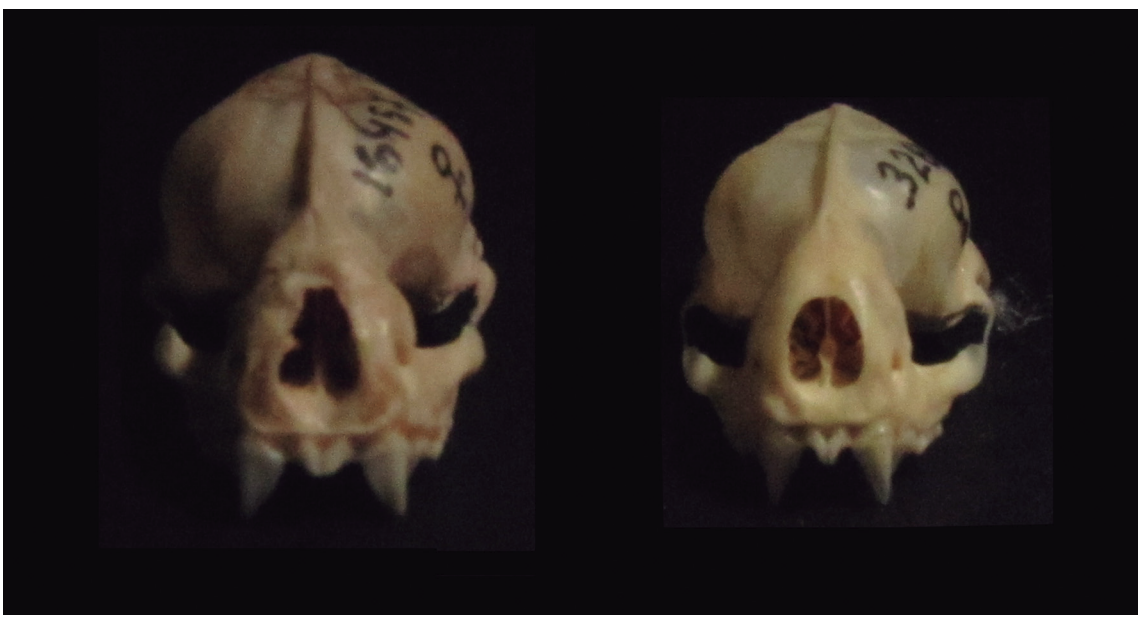

FIGURE 53: Frontal view of skulls of *Molossus aztecus* (left, DZSJRP 16457) and *Molossus molossus* (right, DZSJRP 3268).

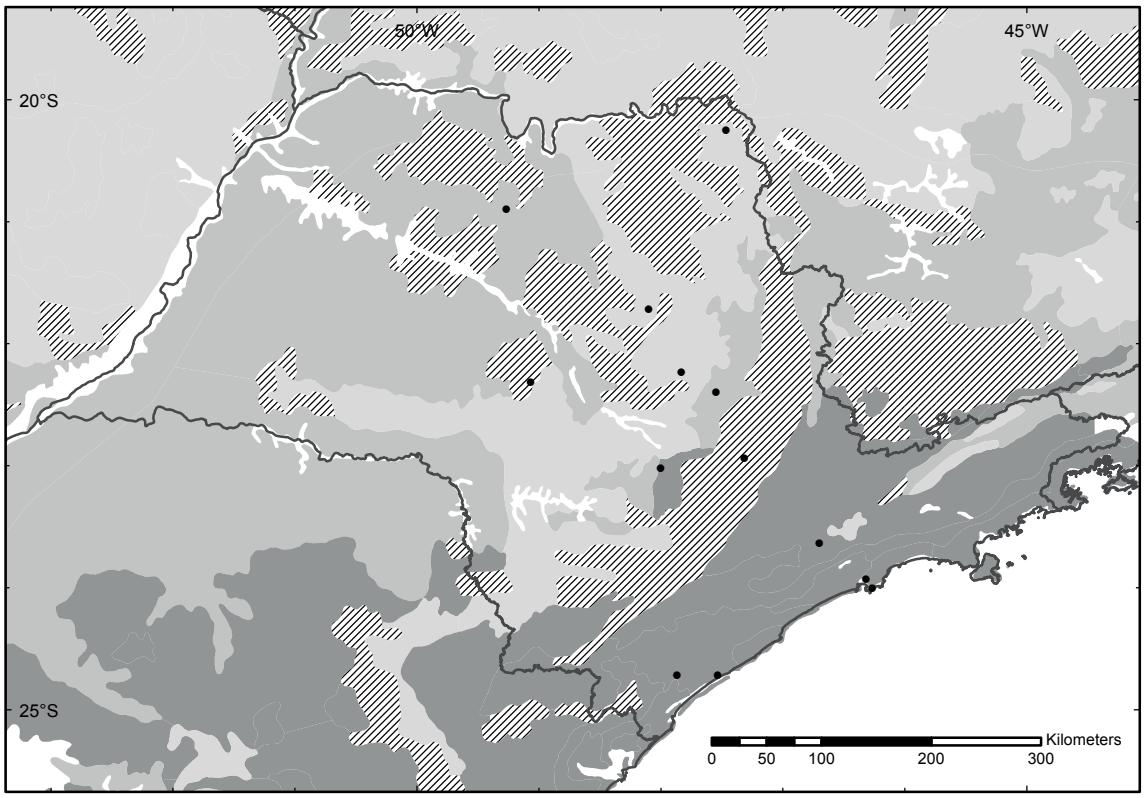

FIGURE 54: Localities of *Molossus rufus* in the state of São Paulo.

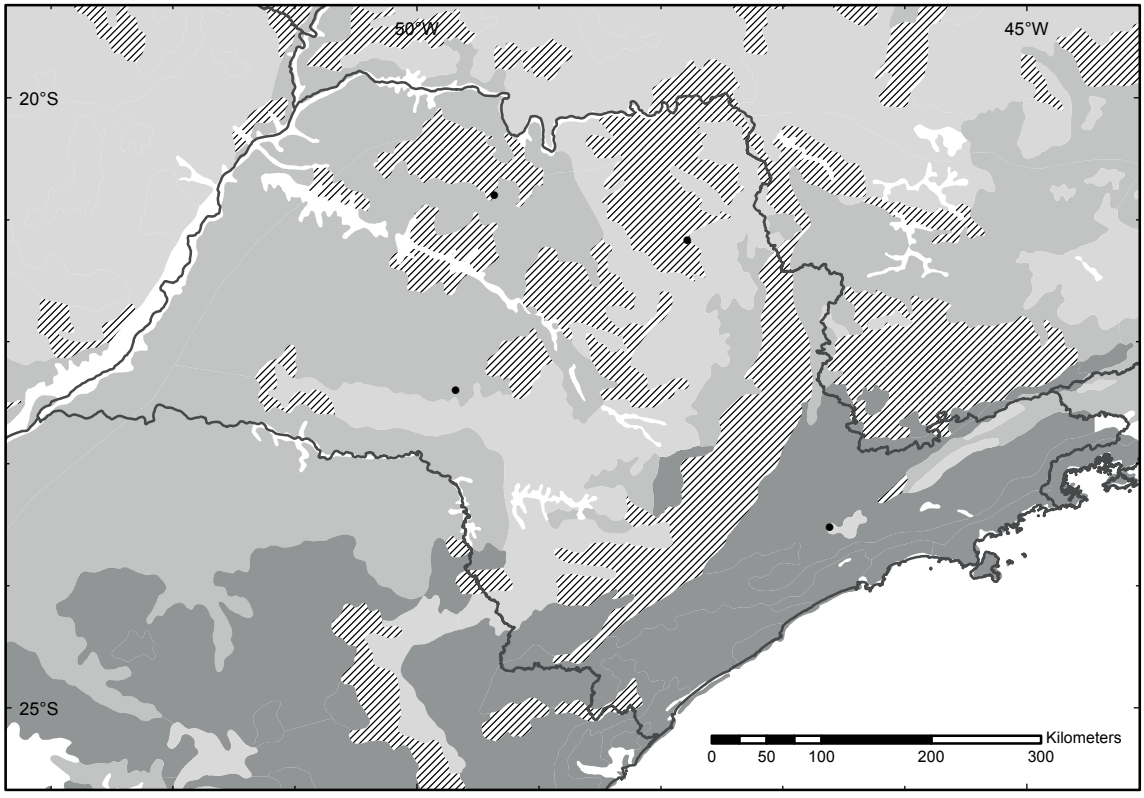

FIGURE 55: Localities of *Nyctinomops aurispinosus* in the state of São Paulo.

Records: Boracéia (MZUSP 6785); Botucatu region (Uieda & Chaves, 2005); Guarujá, Ilha do Arvoredo (MZUSP 15426); Guarulhos (Uieda *et al.,* 1995); Iguape (MZUSP 1310); Itanhaém, Ilha da Queimada Grande (MZUSP 7440); Ilha de São Sebastião, Ponta da Agulha (MZUSP 15397); Piracicaba (MZUSP 506); Ribeirão Preto (MZUSP 15401); São Carlos, Fazenda Canchim (Motta-Junior & Taddei, 1992); São José do Rio Preto (DZSJRP 16593); São Paulo (MZUSP 1342); São Paulo, Ipiranga (MZUSP 5850).

***Nyctinomops macrotis* (Gray, 1839) (Fig. 57)**

The species has been recorded for the NW, C and E portions of the state, showing a wide distribution.

Records: São Carlos, Fazenda Canchim (Motta-Junior & Taddei, 1992); São José do Rio Preto (DZSJRP 16840); São Paulo (MZUSP 8119), São Paulo, Ipiranga (MZUSP 5850).

***Promops* Gervais, 1856**
***Promops nasutus* (Spix, 1823) (Fig. 58)**

The first record for the state comes from Sazima, I. & Uieda (1977), who studied aspects of the natural history of a colony of *P. nasutus* roosting inside the roof of a building located in the downtown area of the city of Campinas. The records are restricted to the interior, in Cerrado and seasonal semideciduous forest.

Records: Bauru (MZUSP 502); Campinas (ZUEC 400); Pederneiras (MZUSP 15438).

***Tadarida* Rafinesque, 1814**
***Tadarida brasiliensis* (I. Geoffroy, 1824) (Fig. 59)**

Widely distributed, recorded for the NW, N, E and SE. *Tadarida brasiliensis* was the second commonest bat in the urban area of the metropolis of São Paulo (Silva *et al.,* 1996). Araújo (1940) described a new genus species of Nematoda from the digestive tract of *Tadarida brasiliensis.* Uieda (1998) reported the first case of rabies in *T. brasiliensis* from São Paulo.

Records: Aparecida do Norte (MZUSP 6841); Bananal, E.E. de Bananal (MZUSP 33675); Boracéia (MZUSP 8501); Botucatu (Uieda, 1998); Campinas (ZUEC 590); Campos do Jordão (MZUSP 29512); Icém (DZSJRP 2840); Ipanema (Pelzeln, 1883); Itararé (Pelzeln, 1883); Lussanvira (MZUSP 15394); Osasco (MZUSP 7495); Ouroeste, Arabá (DZSJRP 3151); P.E. Intervales (de Vivo & Gregorin, 2001); Paranapiacaba (MZUSP 15447); Primeiro Morro, Rio Ribeira do Iguape (MZUSP 15443); São José dos Campos (MZUSP 22458); São José do Rio Preto (DZSJRP 2331); São Paulo (MZUSP 6178); São Paulo, Centro (MZUSP 26231); São Paulo, Ipiranga (MZUSP 5779); Urupês (DZSJRP 2413).

Family Vespertilionidae Gray, 1821
Subfamily Vespertilioninae Gray, 1821
***Eptesicus* Rafinesque, 1820**
***Eptesicus brasiliensis* (Desmarest, 1819) (Fig. 60)**

Silva *et al.* (1996) registered *E. brasiliensis* from the urban area of São Paulo.

Records: Boracéia (MZUSP 6799); Buri (MZUSP 30906); Cananéia, Ilha do Cardoso (MZUSP 27736); Cunha, Sitio Três Pinheiros (MZUSP 32135); Irapuã (DZSJRP 2929); Itirapina, Estação Experimental de Itirapina (Sato *et al.,* 2008); Juquitiba (MZUSP 30825); Mirassol, Grota de Mirassol (DZSJRP 4346); Mogi das Cruzes, Departamento Químico Enterpa (MZUSP 32134); Porto Epitácio (MZUSP 5802); São Paulo (Silva *et al.,* 1996); São Paulo, Butantan (MZUSP 7778); São Paulo, P.E. da Cantareira (MZUSP 31474); São Paulo, Santo Amaro (MZUSP 7045); São Paulo, Sitio Pirizal (MZUSP 32007); Ubatuba, P.E. da Ilha Anchieta (MZUSP 29451); Urupês (DZSJRP 3206); Votuporanga (DZSJRP 3019).

***Eptesicus diminutus* Osgood, 1915 (Fig. 61)**

The few records of this vespertilionid are restricted to the E.

Records: Cananéia, Ilha do Cardoso (MZUSP 27767); São Paulo (MZUSP 18704); São Paulo, P.E. da Cantareira (MZUSP 31467); Sete Barras, Ribeirão Onça Parda (MZUSP 10444); Ubatuba (MZUSP 1890).

***Eptesicus furinalis* (d'Orbigny & Gervais, 1847) (Fig. 61)**

The species was first recorded in the state by Motta-Junior & Taddei (1992), where cranial remains of the species were found in owl pellets in a Cerrado area in the central portion of the state.

Records: Iporanga, next to Caverna Alambari de Baixo (MZUSP 33989); Neves Paulista (DZSJRP 14308); Piedade (MZUSP 31071); São Carlos, Fazenda Canchim (Motta-Junior & Taddei, 1992); São José do Rio Preto (DZSJRP 16931).

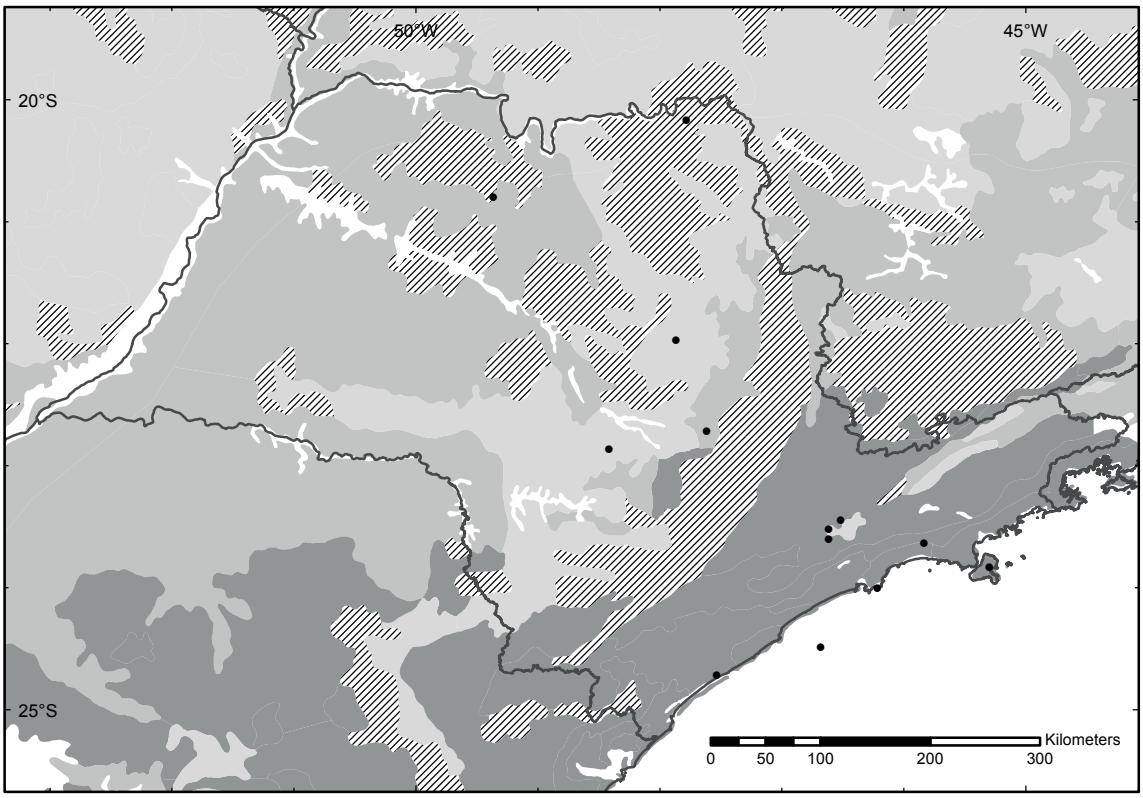

FIGURE 56: Localities of *Nyctinomops laticaudatus* in the state of São Paulo.

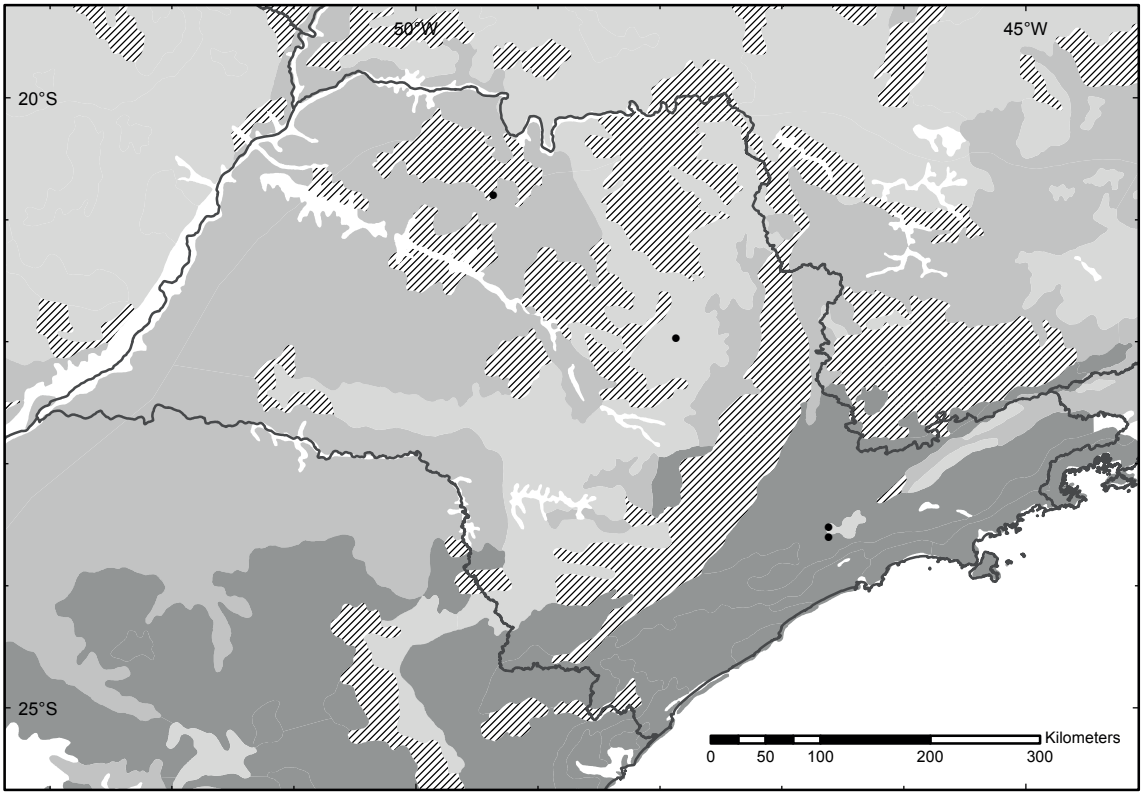

FIGURE 57: Localities of *Nyctinomops macrotis* in the state of São Paulo.

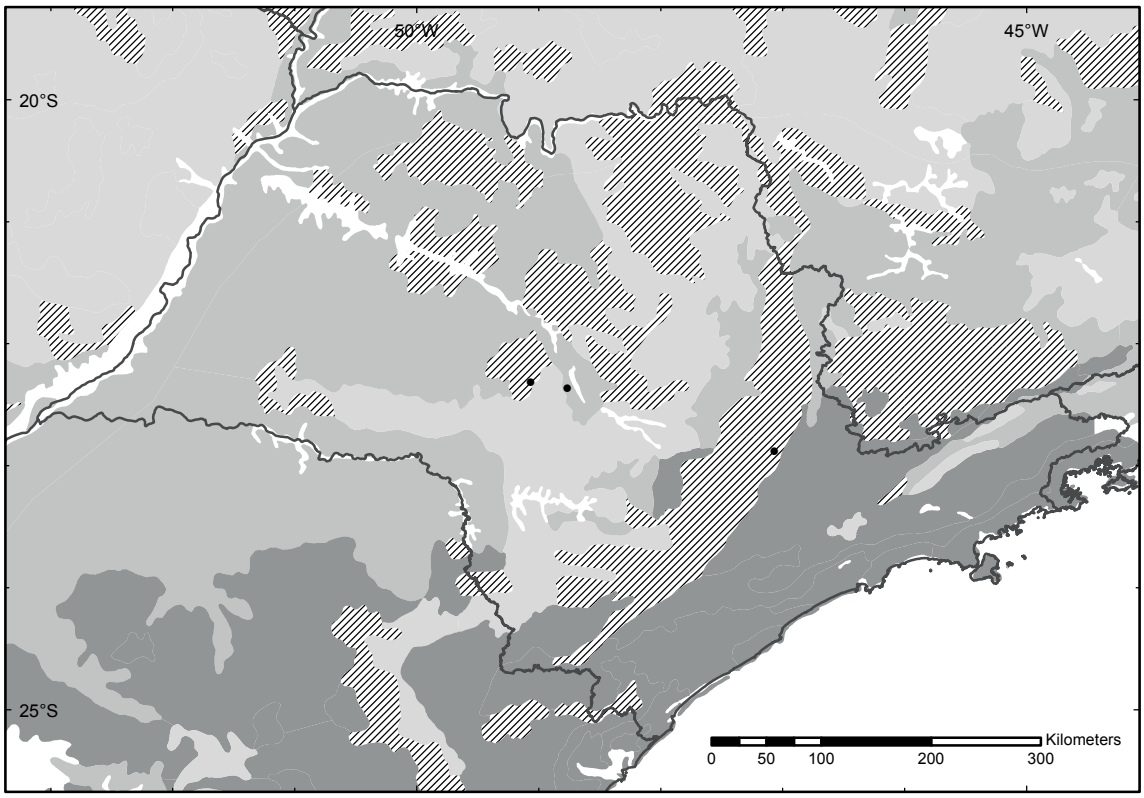

FIGURE 58: Localities of *Promops nasutus* in the state of São Paulo.

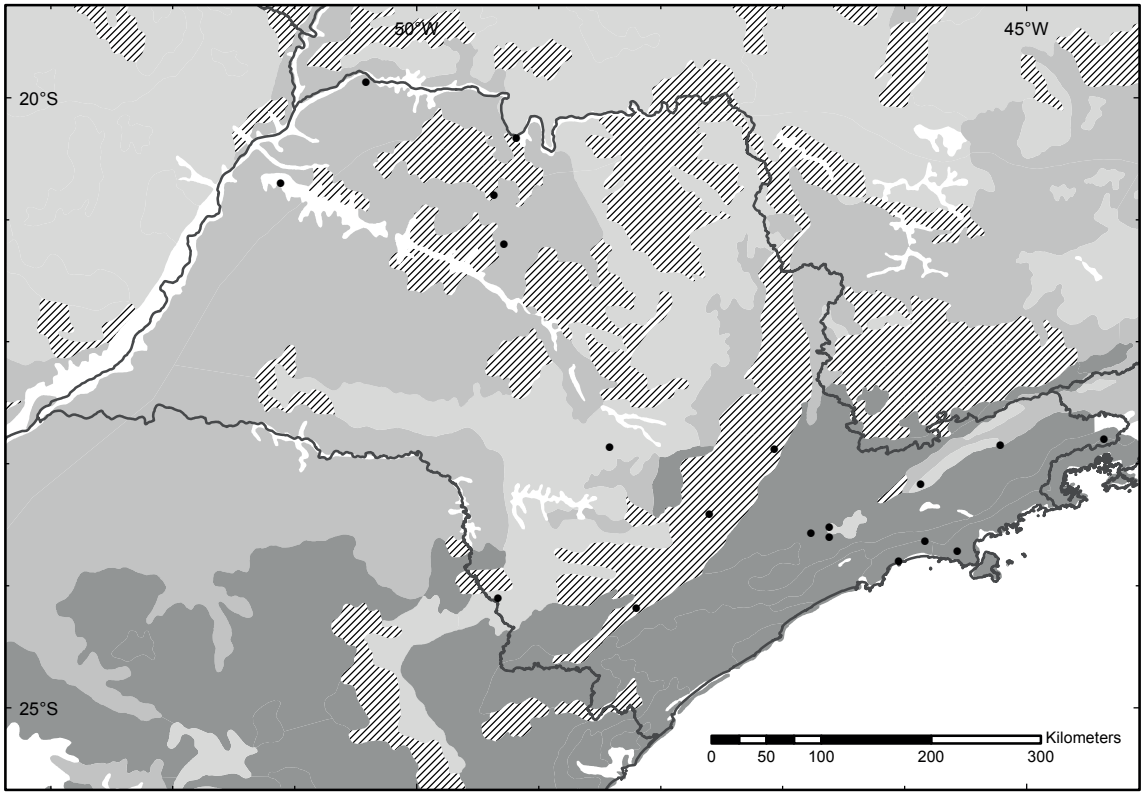

FIGURE 59: Localities of *Tadarida brasiliensis* in the state of São Paulo.

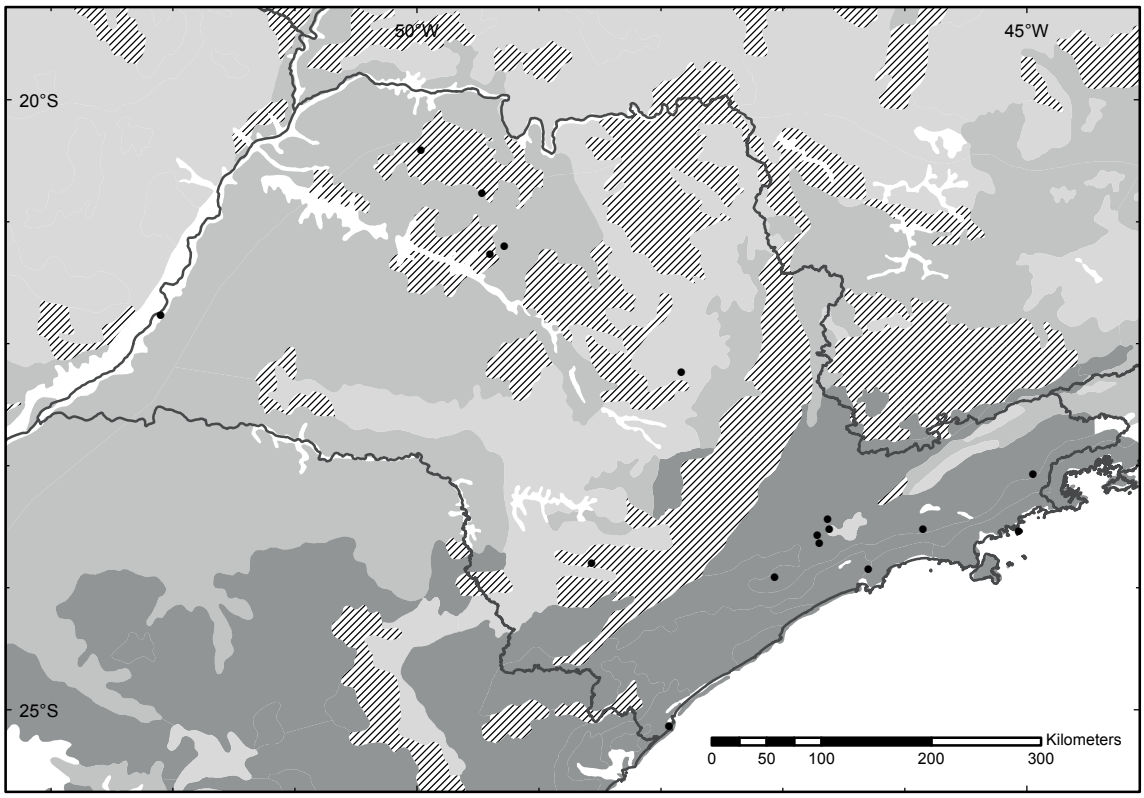

FIGURE 60: Localities of *Eptesicus brasiliensis* in the state of São Paulo.

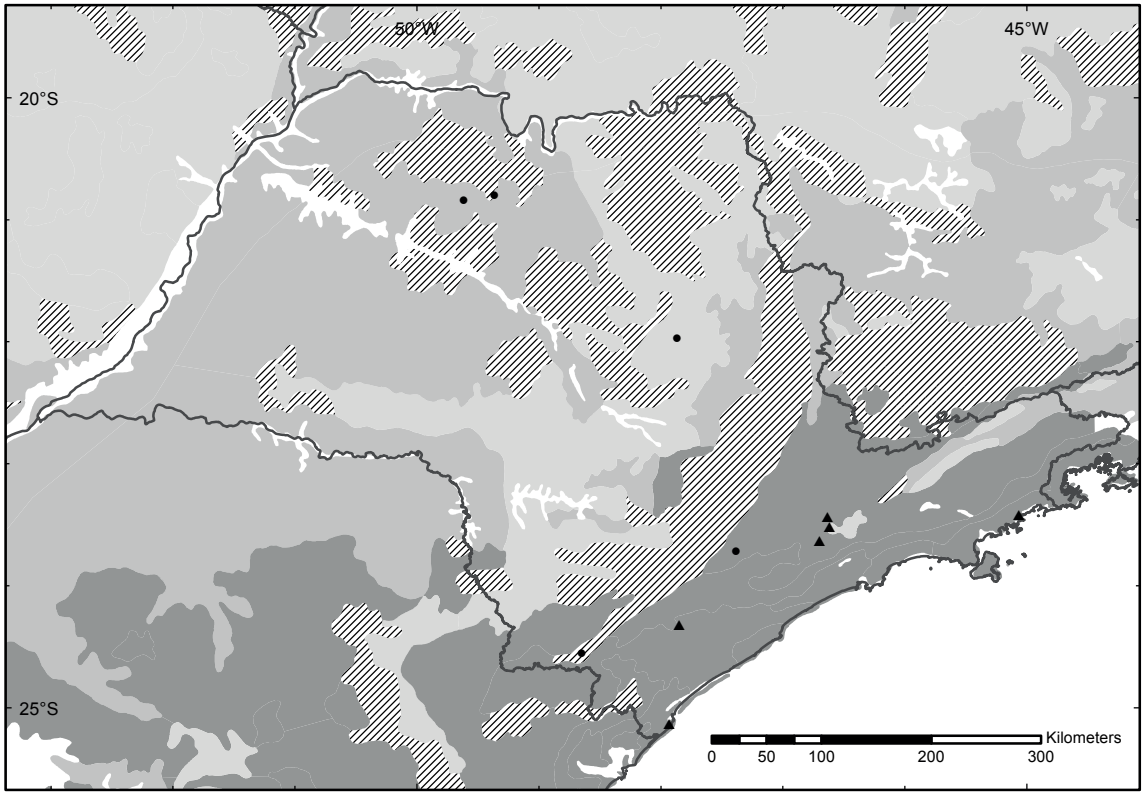

FIGURE 61: Localities of *Eptesicus diminutus* (▲) and *Eptesicus furinalis* (●) in the state of São Paulo.

***Eptesicus taddeii* Miranda, Bernardi & Passos, 2006 (Fig. 62)**

This recently described species was recorded for São Paulo in its original description (Miranda *et al.,* 2006a), based on a specimen collected by the Instituto Adolpho Lutz in 1976. The other, more recent, records for the state come from the karstic area of Iporanga (Arnone, 2008) and from the central portion of the state (Miranda *et al.,* 2010).

Records: Botucatu (Carvalho *in* Miranda *et al.,* 2010); Iguape, Barra do Ribeira (MZUSP 26455); Iporanga, next to Caverna Alambari de Baixo (MZUSP 33991).

***Histiotus* Gervais, 1856**
***Histiotus montanus* (Philippi & Landbeck, 1861) (Fig. 62)**

In this study, the first record of *H. montanus* for São Paulo is presented, based on a specimen with short interauricular band, more round ear (triangular in *H. velatus*), and without the fold in its base (Fig. 63). This record fills the distributional gap previously known for the species (Miranda *et al.,* 2006b; Carvalho, W.D. *et al.,* 2013).

Records: Águas da Prata, Cascata (MZUSP 3554).

***Histiotus velatus* (I. Geoffroy, 1824) (Fig. 64)**

The species has been recorded for all regions of the state, including the metropolitan region of São Paulo (Silva *et al.,* 1996). Fenton *et al.* (1999) studied the diet and echolocation calls of *H. velatus* at P.E. Intervales. Bertola *et al.* (2005) reported new records of bat flies on *H. velatus* in São Paulo.

Records: Anhembi (MZUSP 8470); Batatais (MZUSP 6628); Boracéia (MZUSP 15100); Botucatu (MZUSP 6679); Buri (MZUSP 30938); Cachoeira de Emas (MZUSP 6653); Cajuru (MZUSP 6781); Cajuru, Fazenda Santa Carlota (MZUSP 31393); Campinas (ZUEC 1558); Campos do Jordão, P.E. Campos do Jordão (ZUEC 1431); Cássia dos Coqueiros (MZUSP 17509); Iporanga, next to Caverna Santana (MZUSP 33988); Praia Grande, Cidade Ocian (MZUSP 15229); Ipanema (Pelzeln, 1883); Nova Europa, Fazenda Itaquerê (MZUSP 15329); Osasco (MZUSP 6069); P.E. Intervales (Fenton *et al.,* 1999); Piquete (MZUSP 15350); Piracicaba (MZUSP 481); Pontal (MZUSP 15321); Ribeirão Pires (MZUSP 6265); Santa Getrudes, Fazenda Para-

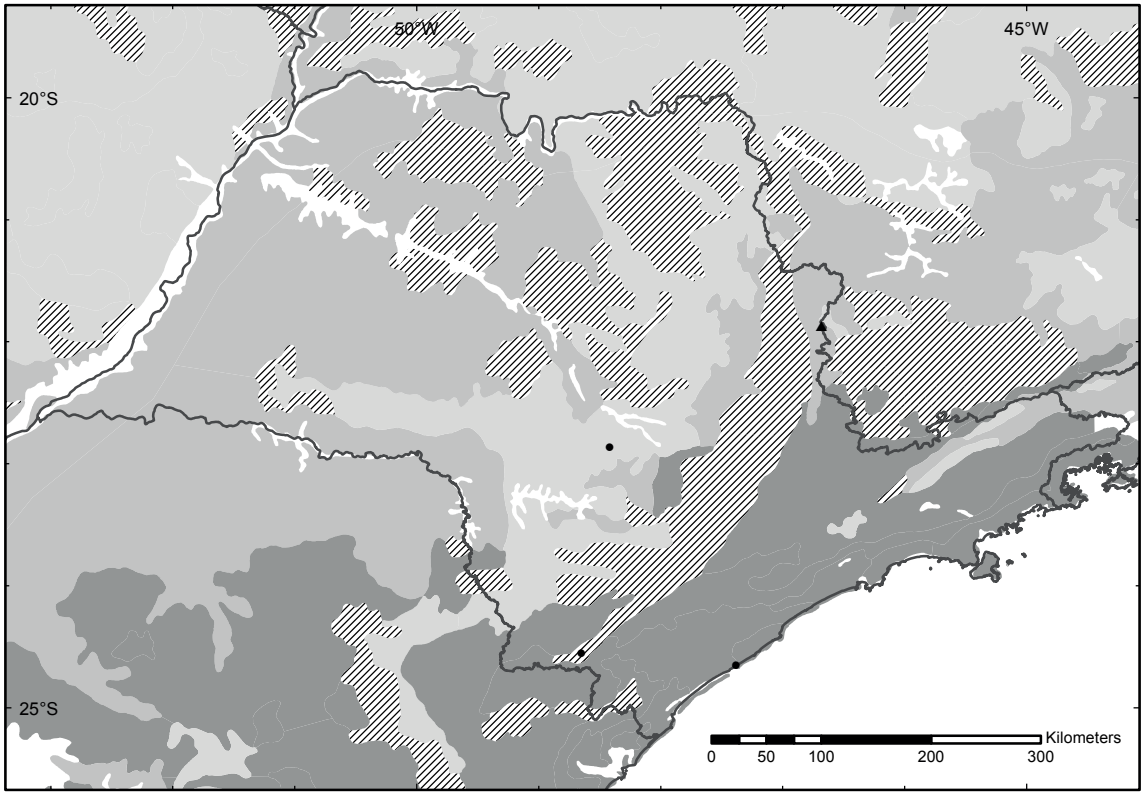

FIGURE 62: Localities of *Eptesicus taddeii* (●) and *Histiotus montanus* (▲) in the state of São Paulo.

FIGURE 63: Detail of the ear of *Histiotus montanus* (MZUSP 3554). Note the non-triangular shape of the ear and the absence of a internal folding at the base. (Photo: Anderson Feijó).

guassú (ZUEC 1100); São Carlos, Fazenda Canchim (Motta-Junior & Taddei, 1992); São José dos Campos (ZUEC 2529); São José do Rio Preto (DZSJRP 18025); São José do Rio Preto, Engenheiro Schmidt (DZSJRP 18131); São Paulo (MZUSP 7703); São Paulo, Ipiranga (MZUSP 1295); São Paulo, P.E. da Cantareira (MZUSP 31465); São Paulo, P.E. do Jaraguá (MZUSP 31977); São Paulo, Santo Amaro (MZUSP 1903).

Lasiurus Gray, 1831
Lasiurus blossevillii ([Lesson, 1826]) (Fig. 65)

The red bat shows a widespread distribution in the state. It was first recorded in São Paulo by Pelzeln (1883) based on material collected by Johann Natterer on Ipanema.

Records: Bady Bassit (DZSJRP 16618); Boracéia (MZUSP 8116); Botucatu region (Uieda & Chaves, 2005); Cachoeira de Emas (MZUSP 15332); Campinas (MZUSP 15366); Campinas, Unicamp (ZUEC 1629); Catanduva (DZSJRP 16434); Cedral (DZSJRP 16973); E.E. dos Caetetus (Pedro *et al.,* 2001); Florínea, Fazenda Palmira (MZUSP 6274); Guarani d'Oeste (DZSJRP 3301); Ipanema (Pelzeln, 1883);

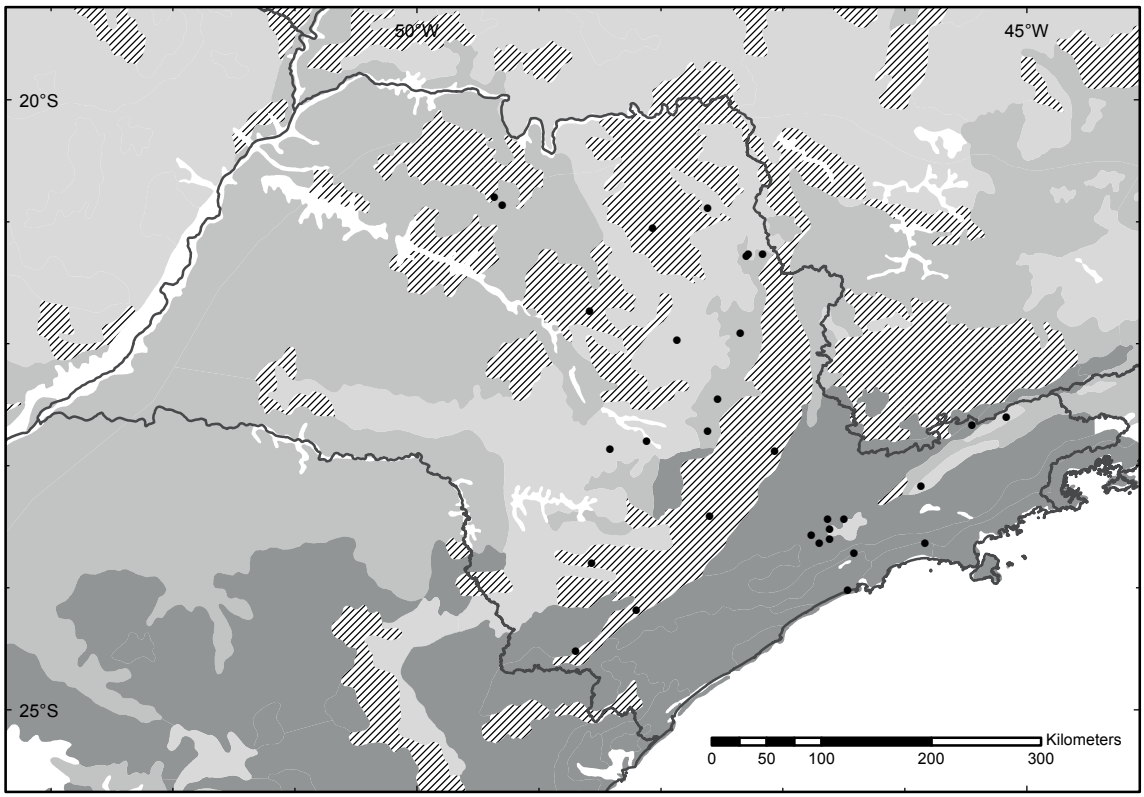

FIGURE 64: Localities of *Histiotus velatus* in the state of São Paulo.

Irapuá (DZSJRP 3579); Jaci (DZJRP 16509); Luiz Antonio, E.E. Jataí (Gargaglioni *et al.,* 1998); Mirassol (DZSJRP 3985); Rio das Pedras (MZUSP 287); São Carlos, Fazenda Canchim (Motta-Junior & Taddei, 1992); São José do Rio Preto (DZSJRP 16295); São Paulo (MZUSP 8118); São Paulo, Butantan (MZUSP 15338); São Paulo, Ipiranga (MZUSP 24005); São Vicente (MZUSP 6555); Votuporanga (DZSJRP 3356).

***Lasiurus cinereus* (Beauvois, 1796) (Fig. 66)**

The species has been recorded for every region of the state, including the metropolitan area of São Paulo (Silva *et al.,* 1996).

Records: Bebedouro (DZSJRP 17078); Botucatu (DZSJRP 15737); Campinas, Reserva Municipal de Santa Genebra (ZUEC 1608); Campinas, Unicamp (ZUEC 1005); Catanduva (DZSJRP 14018); Fernandópolis (DZSJRP 3656); Guarani d'Oeste (DZSJRP 3315); Irapuá (DZSJRP 3520); Jales (DZSJRP 3618); Jundiaí (MZUSP 15369); Meridiano (DZSJRP 3324); Mirassol (DZSJRP 4817); Novo Horizonte (DZSJRP 16769); Potirendaba (DZSJRP 4847); Ribeirão Preto (DZSJRP 14028); São Carlos, Fazenda Canchim (Motta-Junior & Taddei, 1992); São José dos Campos (DZSJRP 3366); São Paulo (MZUSP 5968); São Paulo, Ipiranga (MZUSP 1324); Urupês (DZSJRP 2917).

***Lasiurus ebenus* Fazzolari-Corrêa, 1994 (Fig. 67)**

The original description of *L. ebenus* was based on a single individual collected at the P.E. da Ilha do Cardoso, extreme south of São Paulo, in 1991 (Fazzolari-Corrêa, 1994). As pointed out by de Vivo (1998), the assumption that *L. ebenus* is an endemic mammal to the state of São Paulo is weak at best, since vespertilionid bats normally have wide distributional range and this species is known only from the type locality, which lies less than 20 kilometers northeast from the border of the neighboring state of Paraná.

Records: Cananéia, P.E. da Ilha do Cardoso (MZUSP 28125, holotype of *Lasiurus ebenus* Fazzolari-Corrêa, 1994).

***Lasiurus ega* (Gervais, 1856) (Fig. 67)**

In the state of São Paulo, as in Minas Gerais (Almeida, E.O. *et al.,* 2002), *L. ega* was recorded using

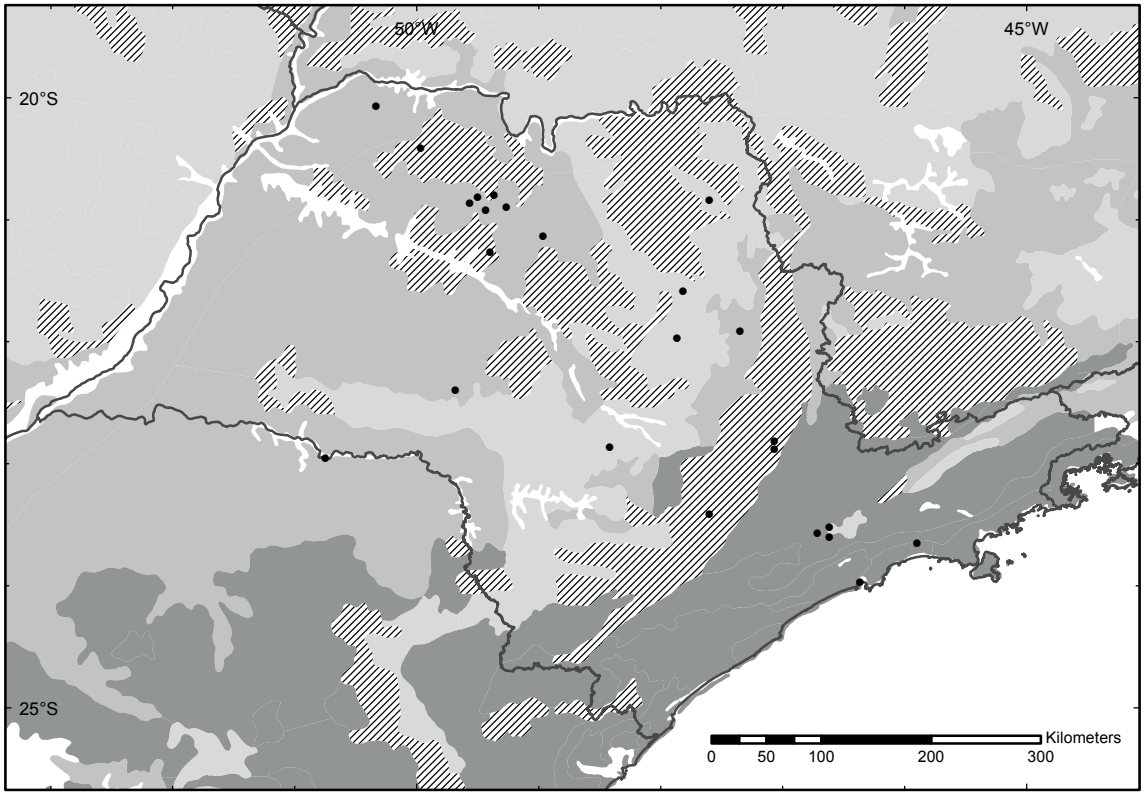

FIGURE 65: Localities of *Lasiurus blossevillii* in the state of São Paulo.

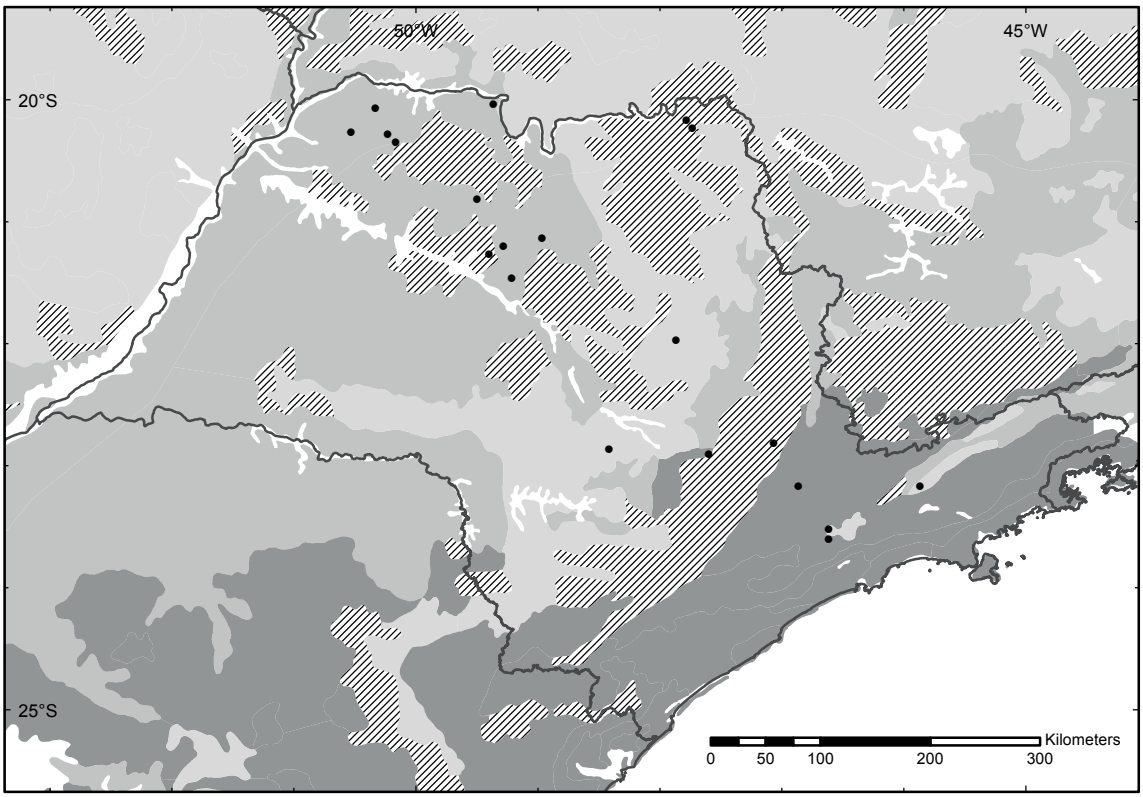

FIGURE 66: Localities of *Lasiurus cinereus* in the state of São Paulo.

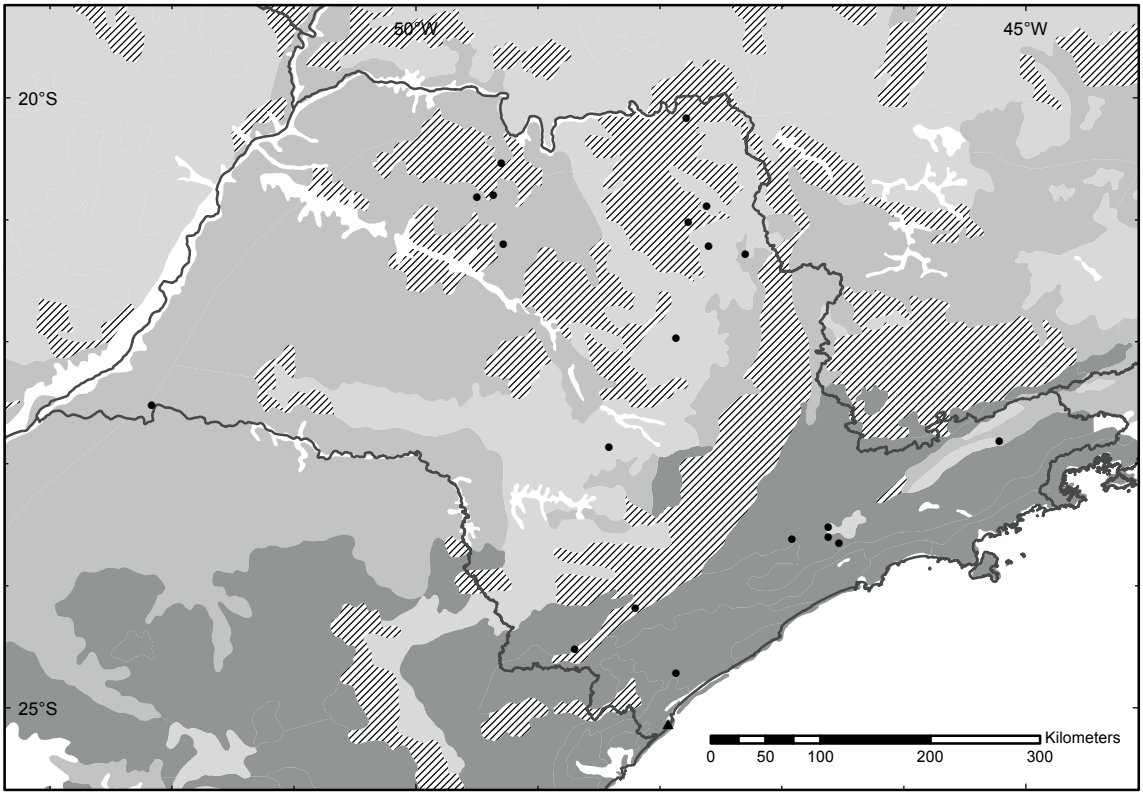

FIGURE 67: Localities of *Lasiurus ebenus* (▲) and *Lasiurus ega* (●) in the state of São Paulo.

FIGURE 68: Individuals of *Lasiurus ega* roosting in a mango tree (*Mangifer* sp.), in the urban area of Teodoro Sampaio, São Paulo.

caves as roosts (Arnone, 2008). In Cerrado remnants of C São Paulo, *L. ega* was prey to stygian owls, *Asio stygius* (Motta-Junior & Taddei, 1992). Silva *et al.* (1996) recorded the species for the urban area of the city of São Paulo. Individuals of *Lasiurus ega* were positive for the rabies virus, in São Paulo (Almeida, M.F.D. *et al.,* 2011).

Records: Batatais (MZUSP 6223); Botucatu (DZSJRP 16385); Cajuru, Fazenda Boa Vista (MZUSP 6263); Cotia (Almeida, M.F.D. *et al.,* 2011); Guaratinguetá (MZUSP 6550); Iporanga, Caverna Água Suja (MZUSP 33911); Jardinópolis (MZUSP 9043); Mirassol (DZSJRP 18158); Nova Granada (DZSJRP 2343); Pariquera-Açu (DZSJRP 16082); P.E. Intervales (de Vivo & Gregorin, 2001); Ribeirão Preto (MZUSP 15230); Santo André (Almeida, M.F.D. *et al.,* 2011); São Carlos, Fazenda Canchim (Motta-Junior & Taddei, 1992); São José do Rio Preto (DZSJRP 16644); São Paulo (MZUSP, 1321); São Paulo, Ipiranga (MZUSP 1322); Serrana (MZUSP 17505); Teodoro Sampaio (Fig. 68); Urupês (DZSJRP 2427).

Subfamily Myotinae Tate, 1942
***Myotis* Kaup, 1829**
***Myotis albescens* (É. Geoffroy, 1806) (Fig. 69)**

This species shows a widespread distribution in São Paulo. Bertola *et al.* (2005) reported new occurrence of bat flies in *M. albescens* from São Paulo.

Records: Avanhandava (MZUSP 1292); Buri (MZUSP 30907); Fernando Prestes (Moratelli *et al.,* 2011); Itatiba (Moratelli *et al.,* 2011); Juquitiba (MZUSP 32976); São Paulo, P.E. da Cantareira (Bertola *et al.,* 2005); Ubatuba, P.E. da Ilha Anchieta (MZUSP 29450).

***Myotis levis* (I. Geoffroy, 1824) (Fig. 70)**

Araújo (1940) described a new genus and species of Nematoda from the digestive tract *Myotis levis* and *Tadarida brasiliensis* from Casa Grande, São Paulo.

Records: Cananéia, Ilha do Cardoso (MZUSP 27680); Casa Grande (MZUSP 15069); Casa Grande, Bar-

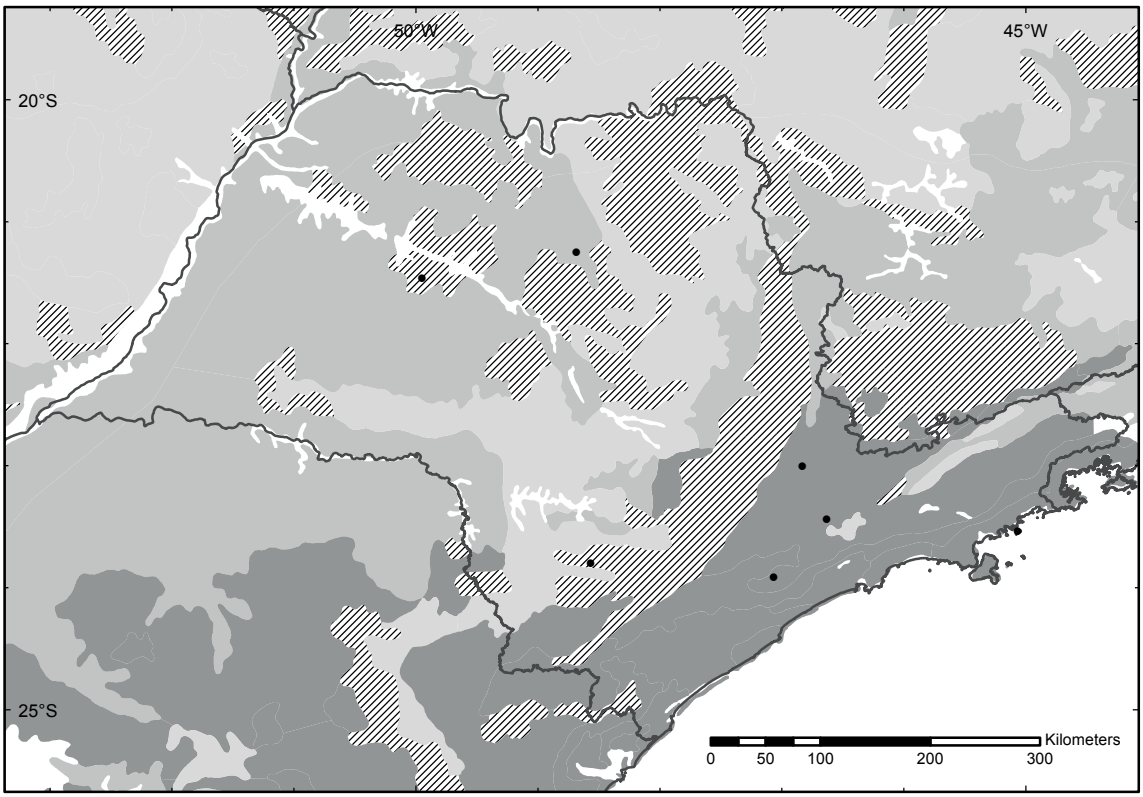

FIGURE 69: Localities of *Myotis albescens* in the state of São Paulo.

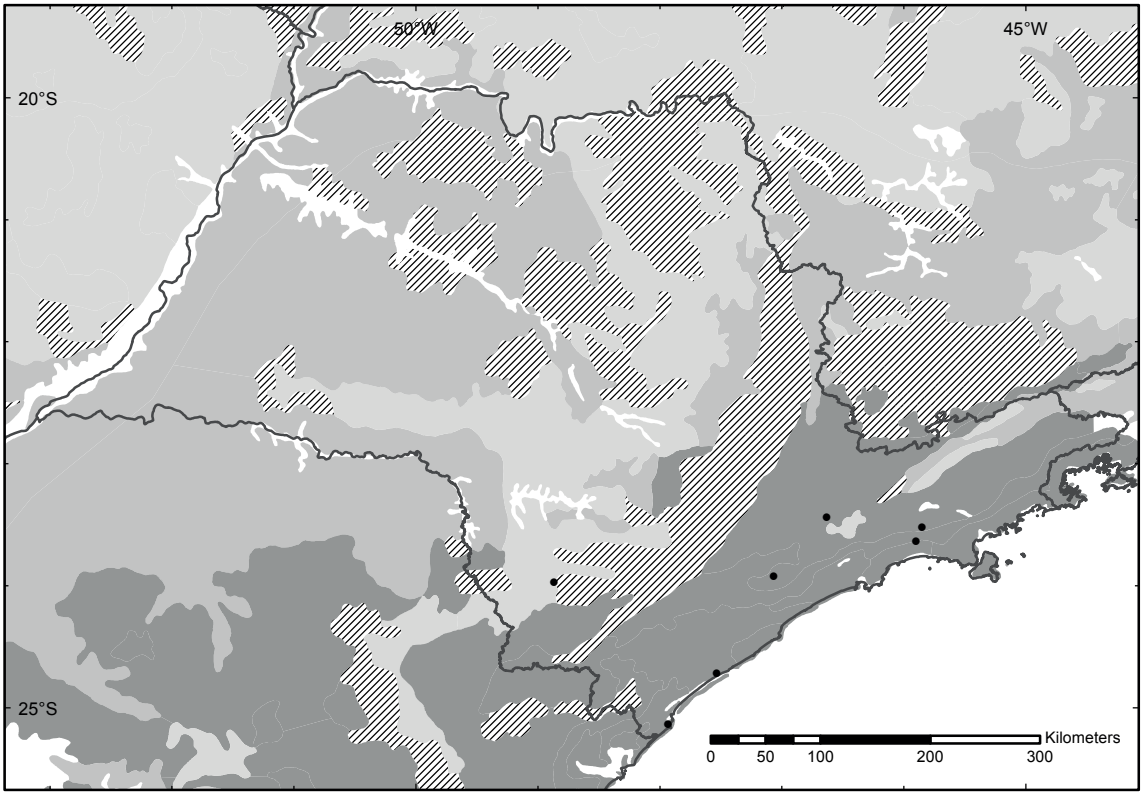

FIGURE 70: Localities of *Myotis levis* in the state of São Paulo.

ragem (MZUSP 16411); Iguape (MZUSP 8253); Itapeva (Moratelli *et al.,* 2011); Juquitiba (MZUSP 33036); Salesópolis, E.B. de Boracéia (MZUSP 32585); São Paulo, P.E. da Cantareira (MZUSP 31535).

***Myotis nigricans* (Schinz, 1821) (Fig. 71)**

This is the commonest *Myotis* occurring in the state, recorded also for the metropolitan area of São Paulo (Silva *et al.,* 1996). Bertola *et al.* (2005) reported new occurrence of bat flies (Diptera: Streblidae) in *M. nigricans* from São Paulo and Graciolli (2003b) described a new bat fly form the genus *Anatrichobius* collected on the species.

Records: Botucatu, Edgardia (Moratelli *et al.,* 2011); Buri (MZUSP 30912); Cajuru, Fazenda Santa Carlota (MZUSP 32127); Cananéia, Ilha do Cardoso (MZUSP 23533); Fernando Prestes (Moratelli *et al.,* 2011); Ilhabela, Ilha de São Sebastião, Península das Cabeçudas (MZUSP 32054); Itirapina, Estação Experimental de Itirapina (Sato *et al.,* 2008); P.E. Intervales (Graciolli, 2003b); Santos (MZUSP 35086); São José do Rio Preto (Moratelli *et al.,* 2011); São Paulo (Silva *et al.,* 1996); São Sebastião (MZUSP 2152); Ubatuba, P.E. da Ilha Anchieta (MZUSP 29452).

***Myotis riparius* Handley, 1960 (Fig. 72)**

Records of *M. riparius* are restricted to the eastern portion of the state.

Records: Bananal, E.E. de Bananal (MZUSP 33650); Boracéia (MZUSP 15325); Buri (MZUSP 30919); Cananéia, P.E. Ilha do Cardoso (MZUSP 27747); Ilhabela, Ilha Vitória (MZUSP 2517); Iporanga, Caverna Santana (MZUSP 34031); Iporanga, mata próxima a Caverna Alambari de Baixo (MZUSP 33996); Piedade (MZUSP 32963); Salesópolis, E.B. de Boracéia (MZUSP 20160); Santos (MZUSP 35087); São Paulo, P.E. da Cantareira (MZUSP 31466); Juquitiba (MZUSP 30821).

***Myotis ruber* (É. Geoffroy, 1806) (Fig. 73)**

This bat, once thought to be an Atlantic Forest endemic, has only been captured in the eastern portion of the state. Bertola *et al.* (2005) reported new records of bat flies for the species. Aguiar & Taddei

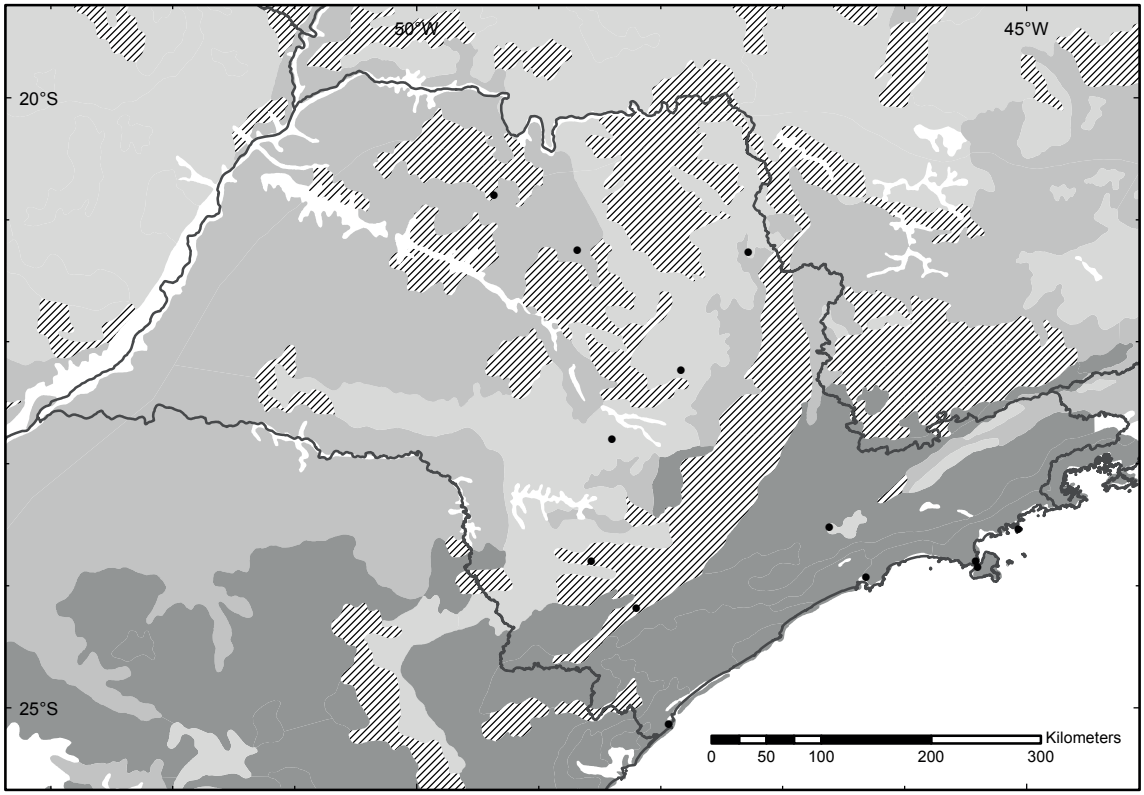

FIGURE 71: Localities of *Myotis nigricans* in the state of São Paulo.

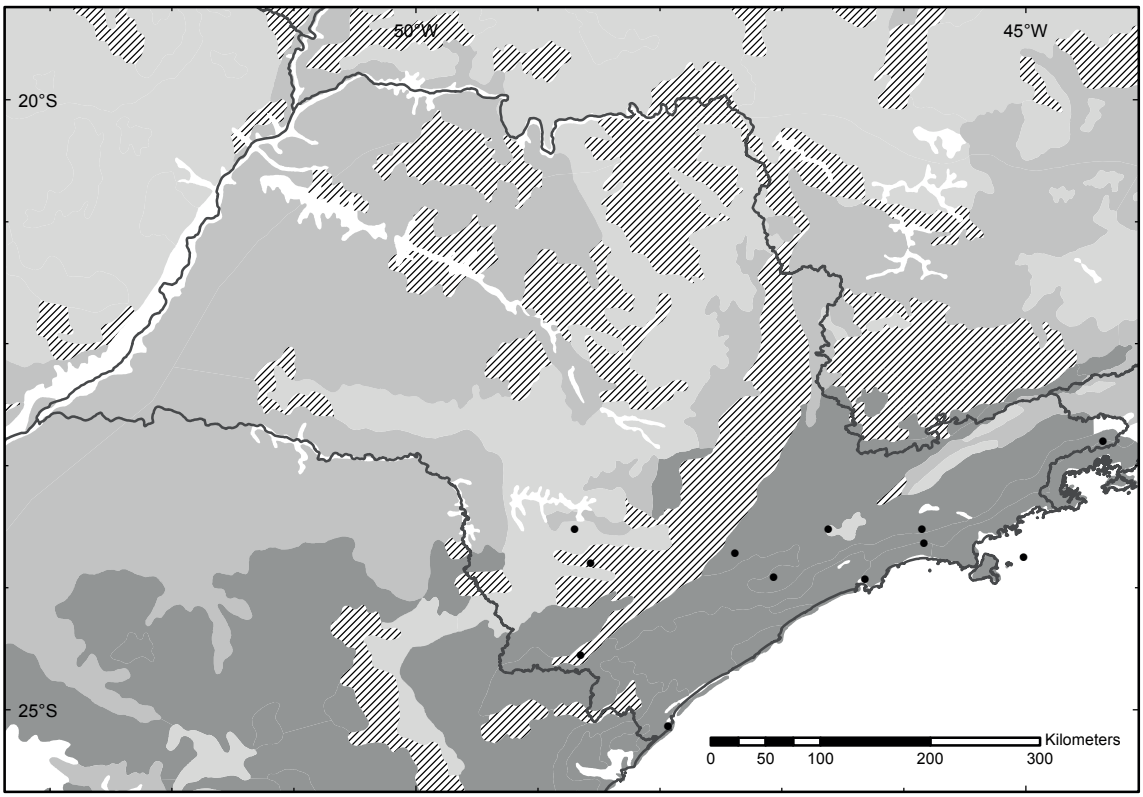

FIGURE 72: Localities of *Myotis riparius* in the state of São Paulo.

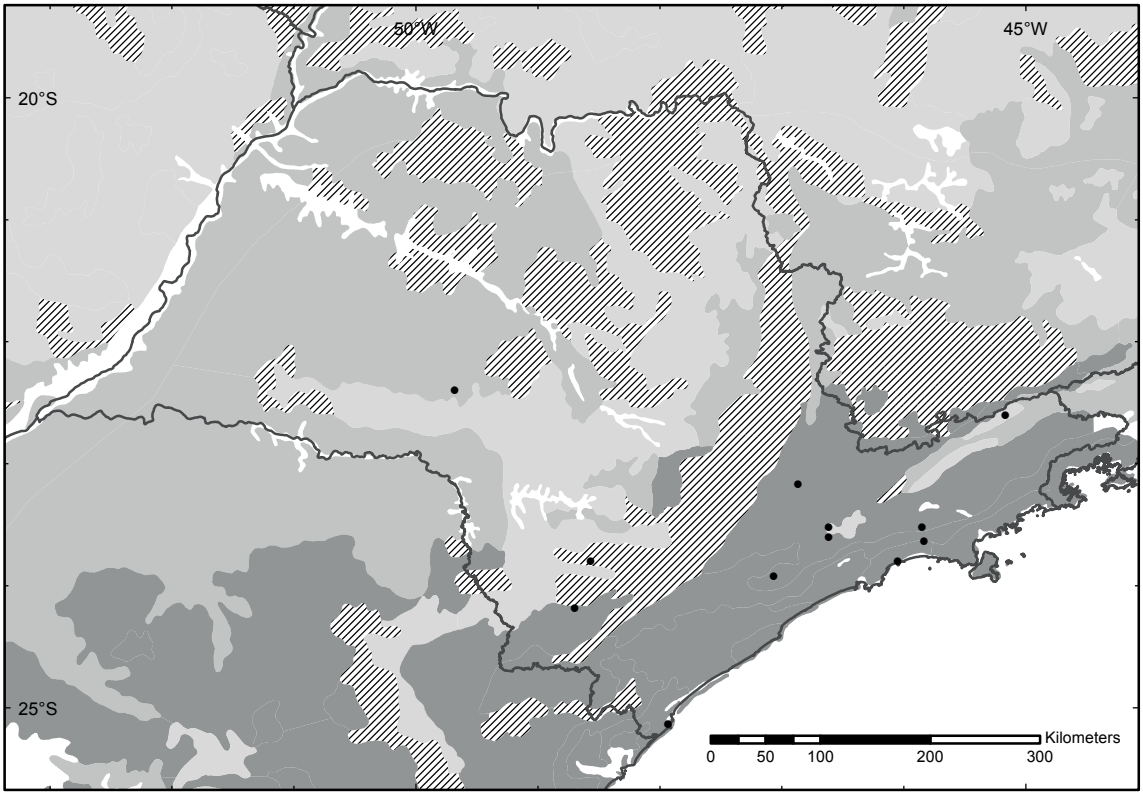

FIGURE 73: Localities of *Myotis ruber* in the state of São Paulo.

(1998) classified it as "vulnerable" and de Vivo *et al.* (2010) as "least concern".

Records: Boracéia (MZUSP 28359); Buri (MZUSP 32971); Cananéia, Ilha do Cardoso (MZUSP 27595); E.E. dos Caetetus (Pedro *et al.,* 2001); Juquitiba (MZUSP 30808); Jundiaí, Trilha III, after Sítio das Hortênsias (MZUSP 32583); P.E. Intervales (de Vivo & Gregorin, 2001); Paranapiacaba (MZUSP 5797); Piquete (MZUSP 15255); Salesópolis, E.B. de Boracéia (MZUSP 32584); São Paulo, Ipiranga (MZUSP 15253); São Paulo, P.E. da Cantareira (MZUSP 31534); São Paulo, P.E. do Jaraguá (MZUSP 31971).

RESUMO

O Estado de São Paulo possui um número elevado de espécies de mamíferos, das quais boa parte é representada pelos morcegos. Nesse estudo eu realizei uma revisão histórica sobre a pesquisa em morcegos no estado de São Paulo e forneço a primeira lista comentada e revisão bibliográfica para o estado. Um total de 79 espécies viventes pertencentes a oito famílias de morcegos ocorrem em São Paulo. Pelo menos sete espécies são representadas por fósseis, duas dessas extintas. Eu também apresento registros de espécies raramente amostradas no estado, tais como Diaemus youngii, Diphylla ecaudata, Saccopteryx leptura, Thyroptera tricolor *e* Micronycteris microtis. *Três espécies,* Micronycteris brosseti, Mimon crenulatum *e* Uroderma bilobatum *foram retiradas da lista. Também confirmamos a ocorrência de* Histiotus montanus *e* Molossu aztecus *no estado.*

Palavras-Chave: Abrigos diurnos; Amostragem; Chiroptera; Distribuição; Lista anotada; Morcego; Nomenclatura.

ACKNOWLEDGEMENTS

I would like to thank my supervisor and curator at MZUSP, Mario de Vivo and also Juliana Gualda, the collection manager, Ivan Sazima and Karina Rebelo at ZUEC, Eliana Versute and Cristiano Barbalho at DZSJRP, Frieder Mayer and Christiane Funk at ZMB, Alexandre Percequillo at LMUSP. I thank R.S. Marcondes, M. Brandão, C. Aquino, F. Nascimento, A. Feijó and R. Gregorin for the comments and support during the production of this paper. Thank you also to C.C. Aires, R. Muylaert, R. Moratelli and T.M. Sato, for information about bats captured in São Paulo. This work received financial support from CNPq/PIBIC, through the grant 116366/2008-7.

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Aceito por Mário de Vivo em: 26/10/2016
Publicado em: 01/12/2016

APPENDIX 1

Gazetteer of localities

The localities in the gazetteer are arranged alphabetically, in the following manner:

Municipality, Locality, Coordinates

Adamantina, 21°42'S 51°05'W
Águas da Prata, Cascata, 21°52'S 46°41'W
Altinópolis, 21°02'S 47°22'W
Américo Brasiliense, 21°43'S 48°06'W
Amparo, 22°42'S 46°45'W
Analândia, 22°07'S 47°39'W
Andradina, 20°53'S 51°22'W
Anhembi, 22°48'S 48°07'W
Aparecida do Norte, 22°51'S 45°13'W
Apiaí, 24°31'S 48°50'W
Apiaí, Gruta dos Vieira, 24°32'S 48°52'W
Araçatuba, 21°12'S 50°25'W
Araraquara, 21°48'S 48°10'W
Araras, 22°21'S 47°23'W
Ariranha, 21°11'S 48°47'W
Aspásia, 20°09'S 50°43'W
Atibaia, 23°07'S 46°33'W
Atibaia, Parque Florestal do Itapetinga, 23°06'S 46°32'W
Avanhandava, 21°28'S 49°57'W
Bady Bassitt, 20°55'S 49°26'W
Bálsamo, 20°44'S 49°35'W
Bananal, E.E. de Bananal, próximo ao Rio das Cobras, not located
Bananal, Estação Ecológica de Bananal, 22°48'S 44°22'W
Bananal, Trilha atrás da casa do Beto, E.E. de Bananal, not located
Barra Bonita, 22°29'S 48°32'W
Barra do Turvo, 24°45'S 48°30'W
Barretos, 20°33'S 48°34'W
Barueri, 23°31'S 46°53'W
Batatais, 20°53'S 47°37'W
Bauru, 22°19'S 49°04'W
Bebedouro, 20°14'S 47°44'W
Bertioga, 23°51'S 46°09'W
Bertioga, Boracéia, 23°38'S 45°50'W
Bertioga, Boracéia, Varjão do Guaratuba, 23°43'S 45°52'W
Bertioga, Guaratuba, 23°47'S 45°54'W
Bilac, 21°25'S 50°28'W
Biritiba-Mirim, 23°34'S 46°02'W
Biritiba-Mirim, 5 km N of Biritiba-Mirim, 23°31'S 46°02'W
Biritiba-Mirim, Santa Catarina, not located
Botucatu, 22°52'S 48°25'W
Botucatu, Edgardia, 22°48'S 48°24'W
Botucatu, Fazenda Lageado, 22°50'S 48°25'W
Botucatu, Fazenda Monte Alegre, 22°52'S 48°38'W
Botucatu, Serra de Botucatu, 22°57'S 48°26'W
Botucatu, Vitoriana, 22°46'S 48°23'W

Brotas, 22°17'S 48°07'W
Buri, 23°48'S 48°34'W
Buritama, 21°03'S 50°08'W
Caieiras, 23°22'S 46°43'W
Cajuru, 21°17'S 47°18'W
Cajuru, Fazenda Boa Vista, not located
Cajuru, Fazenda Santa Carlota, 21°22'S 47°14'W
Cajuru, near creek, Santana, Fazenda Santa Carlota, not located
Cajuru, Santana, Fazenda Santa Carlota, not located
Campinas, 22°53'S 47°04'W
Campinas, Barão Geraldo, Fazenda Rio das Pedras, 22°54'S 47°36'W
Campinas, Joaquim Egídio, 22°53'S 46°56'W
Campinas, Reserva Municipal Santa Genebra, 22°54'S 47°36'W
Campinas, Souzas, 22°52'S 46°57'W
Campinas, Unicamp, 22°49'S 47°04'W
Campos do Jordão, 23°43'S 45°34'W
Campos do Jordão, Parque Estadual de Campos do Jordão, 22°40'S 45°27'W
Campos Novos Paulista, 22°36'S 50°01'W
Campos Novos Paulista, Fazenda Santa Lúcia, not located
Cananéia, 25°01'S 47°57'W
Cananéia, Ilha do Cardoso (= Parque Estadual da Ilha do Cardoso), 25°08'S 47°56'W
Capivari, 22°37'S 50°53'W
Caraguatatuba, 23°37'S 45°25'W
Cássia dos Coqueiros, 21°16'S 47°10'W
Catanduva, 21°08'S 48°58'W
Cedral, 20°54'S 49°16'W
Cerqueira César, 23°03'S 49°10'W
Conchas, 23°01'S 48°00'W
Cordeirópolis, 22°28'S 47°27'W
Cosmorama, 20°28'S 49°46'W
Cotia, 23°37'S 46°55'W
Cravinhos, 21°19'S 47°45'W
Cruzeiro, 22°34'S 44°58'W
Cubatão, 23°52'S 46°25'W
Cubatão, Bacia I, Copebrás, 23°50'S 46°23'W
Cubatão, Estação Piassagüera, 23°50'S 46°22'W
Cubatão, Grande Fenda I, not located
Cunha, 23°04'S 44°57'W
Cunha, Sítio Três Pinheiros, not located
Dracena, 21°28'S 51°31'W
Echaporã, 22°25'S 50°12'W
Echaporã, Fazenda Tupã, 22°31'S 50°11'W
Eldorado Paulista, 24°31'S 48°06'W
Eldorado Paulista, Pedro Cubas, 24°32'S 48°18'W
Estrela d'Oeste, 20°17'S 50°24'W
Fartura, 23°23'S 49°30'W
Fernando Prestes, 21°15'S 48°41'W
Fernandópolis, 20°17'S 50°14'W
Floreal, 20°40'S 50°08'W
Florínia, Fazenda Palmira, córrego Flores, Assis, Rio Paranapanema, 22°57'S 50°45'W
Franca, 20°32'S 47°24'W
Franco da Rocha, 23°19'S 46°43'W
Gastão Vidigal, 20°47'S 50°11'W

Gavião Peixoto, Fazenda Santa Sofia, 21°49'S 48°29'W
Guapiaçu, 20°47'S 49°13'W
Guapiaçu, km 27 of SP-425 highway, 20°44'S 49°06'W
Guaraci, 20°29'S 48°56'W
Guarani d'Oeste, 20°04'S 50°20'W
Guararema, 23°25'S 46°01'W
Guaratinguetá, 22°49'S 45°13'W
Guareí, Gruta do Morro do Cerro, not located
Guarujá, 24°00'S 46°16'W
Guarujá, Ilha do Arvoredo, 24°00'S 46°13'W
Guarulhos, 23°27'S 46°31'W
Guarulhos, area owned by a beverage company, 23°18'S 46°23'W
Guarulhos, area with poultry pen, surrounded by forest, 23°18'S 46°22'W
Guarulhos, Candinhas house, 23°23'S 46°28'W
Guarulhos, Horto Florestal, 23°22'S 46°23'W
Guarulhos, private property on a hill, 23°20'S 46°23'W
Guarulhos, private property used as recreational area, 23°21'S 46°24'W
Guarulhos, rural area, 23°20'S 46°24'W
Guzolândia, 20°39'S 50°39'W
Icém, 20°20'S 49°11'W
Icém, Estrada de Ingás, left margin of Rio Turvo, 20°21'S 49°16'W
Icém, UHE Marimbondo, 20°18'S 49°11'W
Iguape, 24°43'S 47°32'W
Iguape, Barra do Ribeira, 24°39'S 47°23'W
Iguape, Estação Ecológica da Juréia, Rio Verde, Itatins, 24°33'S 47°13'W
Iguape, Estação Ecológica de Juréia, Itatins, 24°42'S 47°32'W
Iguape, Sítio Shirata, not located
Ilha Comprida/Iguape, Barra de Icapara, 24°41'S 47°26'W
Ilha Solteira, 20°22'S 51°19'W
Ilhabela, Bairro do Perequê, 23°46'S 45°21'W
Ilhabela, Ilha de São Sebastião, 23°50'S 45°18'W
Ilhabela, Ilha de São Sebastião, Península das Cabeçudas, 23°51'S 45°24'W
Ilhabela, Ilha de São Sebastião, Ponta da Agulha, not located
Ilhabela, Ilha dos Búzios, 23°48'S 45°07'W
Ilhabela, Ilha Vitória, 23°45'S 45°01'W
Ilhabela, Parque Estadual de Ilhabela, 23°53'S 45°17'W
Indaiatuba, 23°05'S 47°12'W
Indiaporã, 19°58'S 50°17'W
Iperó, Ipanema, 23°25'S 47°36'W
Ipeúna, Caverna do Fazendão, Área de Proteção Ambiental Corumbataí, 22°29'S 47°38'W
Ipiguá, 20°39'S 49°23'W
Iporanga, 24°34'S 48°34'W
Iporanga, Bairro da Serra, 24°34'S 48°42'W
Iporanga, Caverna Água Suja de Cima, Água Suja, 24°31'S 48°42'W
Iporanga, Caverna Águas Quentes, Água Quente, 24°34'S 48°40'W
Iporanga, Caverna Alambari de Baixo, 24°33'S 48°39'W
Iporanga, Caverna Areias de Baixo, 24°35'S 48°42'W
Iporanga, Caverna Areias de Cima, 24°35'S 48°42'W
Iporanga, Caverna Betari, 24°34'S 48°37'W
Iporanga, Caverna Córrego Seco, 24°33'S 48°40'W
Iporanga, Caverna da Passoca, 24°33'S 48°43'W
Iporanga, Caverna de Santana, 24°31'S 48°42'W
Iporanga, Caverna do Couto, 24°31'S 48°41'W

Iporanga, Caverna do Morro Preto, 24°31'S 48°41'W
Iporanga, Caverna Gurutuva, 24°32'S 48°39'W
Iporanga, Caverna Hipotenusa, 24°31'S 48°39'W
Iporanga, Caverna Lage Branca, 24°32'S 48°43'W
Iporanga, Caverna Ouro Grosso, 24°33'S 48°11'W
Iporanga, Gruta Caboclos 1, Braço da Pescaria, 24°25'S 48°30'W
Iporanga, Gruta do Espírito Santo, not located
Iporanga, Gruta do Grilo, 24°32'S 48°42'W
Iporanga, Gruta do Jeremias, 24°38'S 48°42'W
Iporanga, Gruta do Sítio Novo, 24°34'S 48°41'W
Iporanga, Gruta do Zezo, 24°31'S 48°43'W
Iporanga, Gruta dos Macaquinhos, 24°33'S 48°42'W
Iporanga, Jaguatirica, not located
Iporanga, Mata do Parque, not located
Iporanga, Região do Cateto, 24°33'S 48°49'W
Iporanga, Sumidouro do Davi, 24°33'S 48°41'W
Iporanga, Toca Berta Funda, 24°35'S 48°40'W
Iporanga/Apiaí, Gruta do Chapéu, 24°26'S 48°35'W
Irapuã, 21°16'S 49°24'W
Itajobi, 21°19'S 49°03'W
Itanhaém, Ilha da Queimada Grande, 24°29'S 46°41'W
Itapetininga, 23°36'S 48°02'W
Itapeva, 23°58'S 48°52'W
Itapira, 22°26'S 46°49'W
Itaporanga, 23°41'S 49°28'W
Itapura, 20°40'S 51°31'W
Itararé, 24°06'S 49°20'W
Itatiba, 23°00'S 46°50'W
Itatinga, 23°06'S 48°36'W
Itirapina, Caverna da Cachoeira, Área de Proteção Ambiental Corumbataí, not located
Itirapina, Caverna do Paredão, Área de Proteção Ambiental Corumbataí, 22°29'S 47°38'W
Itirapina, Estação Experimental de Itirapina, 22°14'31'S 47°50'11'W
Itobi, 21°44'S 46°58'W
Itu, 23°16'S 47°19'W
Itu, Fazenda Pau d'Alho, not located
Ituverava, 20°19'S 47°46'W
Jaci, 20°52'S 49°34'W
Jacupiranga, 24°41'S 48°02'W
Jacupiranga, Sítio Pedra do Lençol, 19 km SW of Jacupiranga, 24°34'S 48°02'W
Jales, 20°16'S 50°32'W
Jardinópolis, 21°01'S 47°46'W
José Bonifácio, 21°03'S 49°41'W
José Bonifácio, Ponte de Avanhandava, 21°16'S 49°57'W
Jundiaí, 23°10'S 46°52'W
Jundiaí, Parque Estadual da Serra do Japi, 23°18'S 46°56'W
Jundiaí, Trilha III depois do Sítio das Hortênsias, not located
Juquiá, 24°19'S 47°37'W
Juquiá, Cabeceira da Anta, not located
Juquiá, Fazenda Poço Grande, 24°15'S 47°37'W
Juquiá, Fazenda Poço Grande, Rio Juquiá, 24°15'S 47°37'W
Juquiá, Fazenda Pouso Alto, 24°21'S 47°35'W
Juquiá, Primeiro Morro, 24°22'S 47°50'W
Juquitiba, 23°55'S 47°04'W

Lagoinha, 23°05'S 45°11'W
Lavrinhas, 22°34'S 44°54'W
Limeira, city cemetery, 22°33'S 47°24'W
Lins, 21°40'S 49°45'W
Lins, Fazenda Varjão, 21°20'S 49°43'W
Luís Antônio, Estação Ecológica Jataí, 21°35'S 47°49'W
Lupércio, 22°24'S 49°49'W
Macaubal, 20°48'S 49°57'W
Macedônia, 20°08'S 50°11'W
Magda, 20°38'S 50°13'W
Marapuama (= Marapoama), 21°15'S 49°07'W
Marília, 22°12'S 49°56'W
Matão, Silvânia, Gruta do Monge, 21°37'S 48°18'W
Mendonça, 21°10'S 49°34'W
Mendonça, Monte Belo, 21°09'S 49°31'W
Mendonça, Monte Belo, Ponte sobre o Rio Cubatão, 21°12'S 49°30'W
Meridiano, 20°21'S 50°10'W
Mira Estrela, 19°58'S 50°08'W
Miracatu, 24°16'S 47°28'W
Miracatu, Sítio Refúgio, not located
Mirassol, 20°49'S 49°30'W
Mirassol, Grota de Mirassol, 20°46'S 49°28'W
Mirassol, Sítio Progresso, 20°47'S 49°32'W
Mirassolândia, 20°37'S 49°27'W
Mogi das Cruzes, 23°51'S 46°18'W
Mogi das Cruzes, Área Enterpa, not located
Mogi-Guaçu, 22°22'S 46°56'W
Mogi-Guaçu, RPPN São Marcelo, 22°22'S 46°58'W
Monte Alegre do Sul (= Ibiti), 22°40'S 46°40'W
Monte Aprazível, 20°46'S 49°42'W
Monte Mor, 22°56'S 47°19'W
Narandiba, Fazenda Mosquito, 22°38'S 51°31'W
Neves Paulista, 20°50'S 49°37'W
Nhandeara, 20°41'S 50°02'W
Nipoã, 20°54'S 49°46'W
Nova Aliança, 21°00'S 49°29'W
Nova Aliança, Nova Itapirema, 21°04'S 49°32'W
Nova Europa, Fazenda Itaquerê, 21°44'S 48°35'W
Nova Granada, 10 km NW from Nova Granada, Onda Branca, 20°27'S 49°23'W
Nova Granada, 20°32'S 49°18'W
Novo Horizonte, 21°28'S 49°13'W
Olímpia, 20°44'S 48°50'W
Olímpia, BR-265 highway, bridge over Rio Turvo, 20°44'S 49°06'W
Onda Verde, 20°36'S 49°17'W
Orindiúva, 20°10'S 49°21'W
Osasco, 23°34'S 46°46'W
Oscar Bressane, 22°19'S 50°16'W
Ouroeste, 20°00'S 50°22'W
Ouroeste, Arabá, 19°52'S 50°25'W
Palmeira d'Oeste, 20°24'S 50°45'W
Paraíso, 21°00'S 48°46'W
Pariquera-Açu, 24°43'S 47°52'W
Pariquera-Açu, Estação Experimental de Pariquera-Açu, 24°36'S 47°53'W

Parisi, 20°18'S 50°00'W
Paulo de Faria, 20°01'S 49°22'W
Pederneiras, 22°22'S 48°46'W
Pedregulho, 20°15'S 47°28'W
Penápolis, 21°25'S 50°04'W
Pereira Barreto, 20°38'S 51°06'W
Pereira Barreto, Lussanvira, 20°42'S 51°07'W
Peruíbe, Estação Ecológica de Juréia, Itatins, 24°23'S 47°06'W
Piacatu, 21°35'S 50°35'W
Piedade, 23°43'S 47°23'W
Pilar do Sul, Fazenda João XXIII, 23°56'04'S 47°41'55'W
Pilar do Sul, Fazenda Vitória, 23°24'S 47°37'W
Pindorama, Fazenda Experimental, 21°13'S 48°56'W
Pindorama, Roberto, 21°15'S 48°58'W
Pindorama, Tenentes stream, 21°13'S 48°56'W
Piquete, 22°36'S 45°10'W
Piracicaba, 22°43'S 47°37'W
Piracicaba, Rio das Pedras, 22°50'S 47°36'W
Piraju, 23°11'S 49°23'W
Piraju, Fazenda Santa Lúcia, 23°12'S 49°15'W
Pirassununga, 21°58'S 47°25'W
Pirassununga, Cachoeira de Emas, 21°55'S 47°21'W
Pirassununga, Cachoeira de Emas, Fazenda Academia da F.A.B., 21°54'S 47°22'W
Pirassununga, Fazenda Academia da F.A.B., Rio Mogi Guaçu, 21°56'S 47°22'W
Planalto, 21°02'S 49°55'W
Poloni, 20°47'S 49°49'W
Pontal, 21°03'S 48°04'W
Potirendaba, 20°02'S 49°22'W
Praia Grande, Cidade Ocian, 24°01'S 46°28'W
Presidente Epitácio, Porto Epitácio, 21°46'S 52°06'W
Presidente Venceslau, 21°52'S 51°49'W
Quatá, 22°14'S 50°41'W
Registro, 24°30'S 47°49'W
Ribeira, Abismo do Porco, not located
Ribeira, Caverna Tiraprosa, 24°24'S 49°00'W
Ribeirão Grande, Água Preta, 22°48'S 45°27'W
Ribeirão Pires, 23°43'S 46°25'W
Ribeirão Preto, 21°10'S 47°47'W
Ribeirão Preto, Fazenda Resfriado, not located
Rincão, 21°34'S 48°04'W
Rio Claro, 22°24'S 47°33'W
Riolândia, 19°59'S 49°40'W
Rubinéia, 20°10'S 51°00'W
Sabino/Avanhandava/Lins, Barra do Rio Dourado, 21°22'S 49°41'W
Sales de Oliveira, Sítio Raio de Luar, km 355 of Anhanguera highway, 20°46'S 47°58'W
Sales, 21°20'S 49°29'W
Sales, Fazenda Esplanada, 21°19'S 49°30'W
Salesópolis, Boracéia, Gruta da Santa, 23°39'S 45°54'W
Salesópolis, Casa Grande (Barragem), not located
Salesópolis, Casa Grande, 23°38'S 45°54'W
Salesópolis, Estação Biológica de Boracéia, 23°31'S 45°51'W
Salto de Pirapora, 23°36'S 47°34'W
Santa Albertina, 20°01'S 50°43'W

Santa Fé do Sul, 20°13'S 50°55'W
Santa Gertrudes, Fazenda Paraguassú, 22°27'S 47°32'W
Santa Rita do Passa Quatro, Reserva Estadual Vassununga, 21°42'S 47°28'W
Santo André, 23°39'S 46°32'W
Santo André, Paranapiacaba, 23°48'S 46°03'W
Santo Antonio de Posse, Fazenda Dona Amélia, 22°36'S 46°54'W
Santopólis do Aguapeí, 21°38'S 50°29'W
Santos, 23°56'S 46°19'W
Santos, Estação Engenheiro Ferraz (= Chapéu), 23°59'S 46°36'W
São Bernardo do Campo, 23°41'S 46°33'W
São Bernardo do Campo, Distrito de Riacho Grande, 23°48'S 46°34'W
São Carlos, Fazenda Canchim, 21°58'S 47°52'W
São Carlos, Private reserve of UFSCAR, 21°96'S 47°87'W
São Joaquim da Barra, 20°34'S 47°52'W
São José do Barreiro, Fazenda do Bonito, Serra da Bocaina, 22°42'S 44°38'W
São José do Rio Pardo, 21°36'S 46°53'W
São José do Rio Preto, 20°48'S 49°22'W
São José do Rio Preto, bosque municipal, 20°46'S 49°21'W
São José do Rio Preto, Engenheiro Schmidt, 20°52'S 49°18'W
São José do Rio Preto, Fazenda Santa Maria, not located
São José do Rio Preto, Fazenda Santa Terezinha, not located
São José do Rio Preto, Mata dos Macacos, 20°52'S 49°24'W
São José dos Campos, 23°10'S 45°52'W
São José dos Campos, Ribeirão Mato Dentro, 23°11'S 45°51'W
São Paulo, Água Funda, 23°38'S 46°38'W
São Paulo, Butantan, 23°34'S 46°43'W
São Paulo, Centro, 23°31'S 46°37'W
São Paulo, Engenheiro Marsilac, 23°55'S 46°40'W
São Paulo, Engenheiro Marsilac, Sítio Boa Vista, not located
São Paulo, Ibirapuera, 23°36'S 46°37'W
São Paulo, Interlagos (Olalla), 23°42'S 46°41'W
São Paulo, Ipiranga, 23°36'S 46°37'W
São Paulo, Itaquera, 23°31'S 46°27'W
São Paulo, Mandaqui, 23°28'S 46°38'W
São Paulo, Parque Estadual da Cantareira, Núcleo Pedra Grande, 23°26'S 46°38'W
São Paulo, Parque Estadual do Jaraguá, 23°26'S 46°43'W
São Paulo, Pinheiros, 23°31'S 46°37'W
São Paulo, Santo Amaro, 23°38'S 46°42'W
São Paulo, Sítio Pirizal, not located
São Paulo, Sítio Vieira, not located
São Roque, 23°31'S 47°07'W
São Sebastião, 23°48'S 45°25'W
São Sebastião, Barra do Una (close to São Sebastião e Biritiba Mirim), 23°46'S 45°45'W
São Sebastião, Instituto de Biologia Marinha (CEBImar USP), 23°49'S 45°25'W
São Sebastião, Praia de Maresias, 23°47'S 45°33'W
São Vicente, 23°58'S 46°22'W
Serra Negra, 22°36'S 46°42'W
Serrana, 21°13'S 47°36'W
Sete Barras, 24°22'S 47°55'W
Sete Barras, Barra do Rio Juquiá, 24°24'S 47°49'W
Sete Barras, Ribeirão Onça Parda, 24°19'S 47°51'W
Sete Barras, Saibadela, 24°14'S 48°03'W
Simonsen, 20°27'S 49°54'W

Socorro, 22°35'S 46°31'W
Sorocaba, 23°28'S 47°27'W
Sorocaba, Gruta do Monge, not located
Sumaré, Horto Florestal, 22°50'S 47°15'W
Tabapuã, 20°57'S 49°01'W
Taguaí, 23°27'S 49°24'W
Talhados, Talhadinho stream, 20°42'S 49°18'W
Tambaú, 21°42'S 47°16'W
Tanabi, 20°37'S 49°38'W
Tanabi, Ecatu, 20°32'S 49°43'W
Tapiratiba, 21°28'S 46°44'W
Taquaritinga, 21°24'S 48°30'W
Teodoro Sampaio, 22°31'S 52°10'W
Teodoro Sampaio, Parque Estadual do Morro do Diabo, 22°31'S 52°18'W
Terra Roxa, 20°46'S 48°21'W
Torrinha, Rio Tibiriçá, 20°25'S 48°10'W
Ubatuba, 23°25'S 45°04'W
Ubatuba, Bairro Taquaral, Fazenda Capricórnio, 23°26'S 45°04'W
Ubatuba, Ilha Anchieta, 23°32'S 45°04'W
Ubatuba, Parque Estadual da Ilha Anchieta, 23°32'S 45°04'W
Ubatuba, Picinguaba, 23°18'S 44°53'W
Ubatuba, Praia da Fortaleza, 23°32'S 45°10'W
Ubatuba, Praia do Lázaro, 23°25'S 45°41'W
Ubatuba, Praia do Puruba, 23°21'S 44°56'W
Uchoa, 20°57'S 49°10'W
Urupês, 21°12'S 49°17'W
Urupês, Bairro das Palmeiras, not located
Urupês, city cemetery, not located
Valentim Gentil, 20°25'S 50°05'W
Valinhos, 22°58'S 46°59'W
Valparaíso, 21°13'S 50°52'W
Valparaíso, Fazenda Jacarezinho, 20°59'S 50°51'W
Vargem Grande do Sul, 21°49'S 46°53'W
Votuporanga, 20°25'S 49°58'W
Barra do Ribeirão, not located
E.E. da Juréia, 24°30'S 47°15'W
Estação Ecológica dos Caetetus, 22°24'S 49°41'W
Estação Experimental de Itirapina, 22°14'S 47°50'W
Estrada do Mar, not located
Núcleo Santa Virgínia, Parque Estadual da Serra do Mar, 23°21'S 45°07'W
Núcleo São Sebastião, Parque Estadual da Serra do Mar, 23°43'32'S 45°45'11'W
Parque Estadual de Jacupiranga, 24°35'S 48°02'W
Parque Estadual Intervales (= Fazenda Intervales), 24°11'S 48°12'W
Primeiro Morro, Rio Ribeira do Iguape, not located
Rio Feio (= Aguapeí), 22°01'S 49°39'W
Sabirúna, not located
Silvania, 21°01'S 50°43'W

APPENDIX 2

Species matrix for the three main vegetation formations in São Paulo:

	Dense_Ombrophilous	Seasonal_Semideciduous	Cerrado
Diclidurus_scutatus	1	0	0
Peropteryx_kappleri	1	0	0
Peropteryx_macrotis	1	0	0
Saccopteryx_leptura	1	0	0
Noctilio_albiventris	0	1	1
Noctilio_leporinus	1	1	1
Chrotopterus_auritus	1	1	1
Glyphonycteris_sylvestris	1	1	0
Lampronycteris_brachyotis	1	0	0
Lonchorhina_aurita	1	0	0
Macrophyllum_macrophyllum	1	1	1
*Micronycteris*_sp.	1	0	0
Micronycteris_megalotis	1	1	1
Micronycteris_microtis	1	1	0
Mimon_bennettii	1	1	0
Phylloderma_stenops	1	0	0
Phyllostomus_discolor	0	1	1
Phyllostomus_hastatus	1	1	1
Tonatia_bidens	1	0	0
Trachops_cirrhosus	1	0	0
Anoura_caudifer	1	1	1
Anoura_geoffroyi	1	1	1
Glossophaga_soricina	1	1	1
Carollia_perspicillata	1	1	1
Lonchophylla_peracchi	1	0	0
Artibeus_cinereus	1	0	0
Artibeus_fimbriatus	1	1	1
Artibeus_lituratus	1	1	1
Artibeus_obscurus	1	0	0
Artibeus_planirostris	1	1	1
Chiroderma_doriae	1	1	1
Chiroderma_villosum	0	1	1
Platyrrhinus_incarum	0	1	1
Platyrrhinus_lineatus	1	1	1
Platyrrhinus_recifinus	1	1	1
Vampyressa_pusilla	1	1	1
Vampyrodes_caraccioli	1	0	0
Pygoderma_bilabiatum	1	1	1
Sturnira_lilium	1	1	1
Sturnira_tildae	1	0	0
Desmodus_rotundus	1	1	1
Diaemus_youngii	1	1	1
Diphylla_ecaudata	1	0	0
Furipterus_horrens	1	0	0
Natalus_macrourus	1	0	0
Thyroptera_tricolor	1	0	0
Cynomops_abrasus	1	1	1
Cynomops_planirostris	1	1	0

	Dense_Ombrophilous	Seasonal_Semideciduous	Cerrado
Eumops_auripendulus	1	1	1
Eumops_bonariensis	1	1	1
Eumops_glaucinus	1	1	1
Eumops_hansae	1	0	0
Eumops_maurus	1	0	0
Eumops_perotis	1	1	1
Molossops_neglectus	1	1	1
Molossops_temminckii	0	1	1
Molossus_aztecus	0	1	0
Molossus_molossus	1	1	1
Molossus_rufus	1	1	1
Nyctinomops_aurispinosus	1	1	1
Nyctinomops_laticaudatus	1	1	1
Nyctinomops_macrotis	1	1	1
Promops_nasutus	1	1	1
Tadarida_brasiliensis	1	1	1
Eptesicus_brasiliensis	1	1	1
Eptesicus_diminutus	1	0	0
Eptesicus_furinalis	1	1	1
Eptesicus_taddeii	1	1	1
Histiotus_montanus	0	1	0
Histiotus_velatus	1	1	1
Lasiurus_blossevillii	1	1	1
Lasiurus_cinereus	1	1	1
Lasiurus_ebenus	1	0	0
Lasiurus_ega	1	1	1
Myotis_albescens	1	1	1
Myotis_levis	1	0	1
Myotis_nigricans	1	1	1
Myotis_riparius	1	0	0
Myotis_ruber	1	1	0

APPENDIX 3

List of published (papers, books) and unpublished (theses, conference papers) material that dealt with bats from São Paulo state.

Unpublished material

1. Aires, C.C. 1998. *Inventário e soroprevalência para raiva e leptospirose dos morcegos (Chiroptera, Mammalia) do Parque Estadual da Ilha Anchieta, Ubatuba, São Paulo.* (Undergraduate Thesis). Faculdades Integradas de Guarulhos, Guarulhos.
2. Aires, C.C. 2003. *Aspectos ecológicos sobre as espécies de morcegos (Mammalia, Chiroptera) no Núcleo Pedra Grande, Parque Estadual da Cantareira, São Paulo, SP.* (M.Sc. Thesis). Universidade Estadual Paulista, Botucatu.
3. Alberts, C.C. & Curado, A.M.F. 1984. *Levantamento da fauna de mamíferos da Fazenda Santa Carlota, município de Cajuru, estado de São Paulo.* (Undergraduate Thesis). Universidade de São Paulo, Ribeirão Preto.
4. Aloíse, B.V.B. 1987. *Lista preliminar dos quirópteros da região de Botucatu (Mammalia, Chiroptera).* (Undergraduate Thesis). Universidade Estadual Paulista, Botucatu.
5. Alves, G.M. 1999. *Morcegos na Fazenda Lageado: concepções dos moradores e riqueza de espécies em uma trilha ecológica.* (Undergraduate Thesis). Universidade Estadual Paulista, Botucatu.
6. Alves, L.A. 2008. *Estrutura da comunidade de morcegos (Mammalia: Chiroptera) do Parque Estadual da Ilha do Cardoso, São Paulo, SP.* (M.Sc. Thesis). Universidade Federal do Mato Grosso do Sul, Campo Grande.
7. Arnone, I.S. 2008. *Estudo da comunidade de morcegos na area cárstica do Alto Ribeira-São Paulo: uma comparação com 1980.* (M.Sc. Thesis). Universidade de São Paulo, São Paulo.
8. Bacchi, R. 2013. *Padrão de atividade e comportamento de forrageio de Noctlio [sic] leporinus (Chiroptera, Noctilionidae) na região de Cananéia, litoral sul do estado de São Paulo.* (Undergraduate Thesis). Universidade Federal do Paraná, Curitiba.
9. Breviglieri, C.P.B. 2008. *Diversidade de morcegos (Chiroptera; Mammalia) em três áreas do noroeste paulista, com ênfase nas relações tróficas em Phyllostomidae.* (M.Sc. Thesis). Universidade Estadual Paulista, Botucatu.
10. Carvalho, M.C. 2008. *Frugivoria por morcegos em Floresta Estacional Semidecidua: dieta, riqueza de espécies e germinação de sementes após passagem pelo sistema digestivo.* (Ms.C. Thesis). Universidade Estadual Paulista, Botucatu, Instituto de Biociências.
11. Chaves, M.E. 2003. *Morcegos em edificações urbanas do município de Botucatu, São Paulo (Mammalia, Chiroptera).* (M.Sc. Thesis). Universidade Estadual Paulista, Rio Claro.
12. Faria, D.S. 1996. *Utilização de recursos alimentares por morcegos filostomídeos fitófagos da Reserva da Santa Genebra.* (M.Sc. Thesis). Universidade Estadual de Campinas, São Paulo.
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