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Geographical and Seasonal Distributions of the Seedeaters *Sporophila bouvreuil* and *Sporophila pileata* (Aves: Emberizidae)

Érika Machado[1,2]
Luís Fábio Silveira[1,3]

ABSTRACT

Many species in the genus Sporophila *are migratory. Migration patterns, while poorly studied, may be influenced by seed production which can be very seasonal in some regions. The distribution of* S. bouvreuil *extends from the Amazon and Suriname south through a large part of the open regions of Brazil.* Sporophila pileata, *on the other hand, is found in southeastern and southern Brazil as well as Argentina and Paraguay. Both of these species migrate, but their movement patterns are poorly known. To better understand the geographical and the seasonal distributions of* S. bouvreuil *and* S. pileata, *we grouped the records into two categories: the breeding season (September to March) and the putative migration season (April to August). We found two areas of sympatry between* S. bouvreuil *and* S. pileata *in the Brazilian states of Minas Gerais and São Paulo. For* S. bouvreuil *we suggest that populations that breed in the Amazon migrate to the Cerrado or Caatinga, where they will encounter resident populations of the same species. These resident populations may take part in short distance migrations.* Sporophila pileata, *on the other hand, occur in the Cerrado and open areas within the Atlantic Forest and it is not yet possible to determine migratory tendencies or destinations in the non-breeding season.*

Keywords: Aves; *Sporophila pileata; Sporophila bouvreuil;* Migration; Seasonality.

INTRODUCTION

The genus *Sporophila* is widespread in the Americas with species found from Texas in the United States (*S. torqueola*) to Argentina (*e.g., S. caerulescens, S. ruficollis*). They are typically found in open habitats, while some species may be found in the forest interior (Schauensee, 1952; Austin, 1962; Paynter, 1970; Ridgely & Tudor, 1989; Sibley & Monroe, 1990). Four subspecies were traditionally recognized within the species *Sporophila bouvreuil.* A recent review (Machado, 2008; Machado & Silveira, submitted) shows that only two of those taxa are valid, but as valid species: *S. bouvreuil* (Statius Müller, 1776) and *S. pileata* (Sclater, 1864). *Sporophila bouvreuil* is found from the Brazilian state of Amapá, through the state of Amazonas, the islands of Mexiana and Marajó, in the state of Pará, to central Brazil, in the states of

1. Departamento de Zoologia, Instituto de Biociências, Universidade de São Paulo, Caixa Postal 11.461, CEP 05422-970, São Paulo, SP, Brasil and Museu de Zoologia, Universidade de São Paulo, Caixa Postal 42.494, CEP 04218-970, São Paulo, SP, Brasil.
2. E-mail: erikamcl79@gmail.com
3. E-Mail: lfsilvei@usp.br

Goiás and Mato Grosso, to Maranhão, Pernambuco, Bahia, Espírito Santo, Minas Gerais, Rio de Janeiro and northeastern São Paulo. There is also an isolated population in the savannas of southern Suriname (Ridgely & Tudor, 1989; Silva *et al.,* 1997; O'Shea, 2005; Aleixo & Poletto, 2007). *Sporophila pileata,* in contrast, is restricted more to the southwest of Brazil, in the states of São Paulo, Minas Gerais, Mato Grosso, southern Goiás and Mato Grosso do Sul, and reaching in the south the states of Parana and Rio Grande do Sul and barely into Argentina (Corrientes and Missiones) and Paraguay (Schauensee, 1952, 1966; Sick, 1967, 1997; Paynter, 1970; Ridgely & Tudor, 1989; Sibley & Monroe, 1990; Belton, 1994; Howard & Moore, 1994; Mikich & Bérnils, 2004).

Evidence suggests that many species in the genus *Sporophila* are migratory (Schauensee, 1952; Ridgely & Tudor, 1989; Sick, 1997; Areta & Almirón, 2009; Areta *et al.,* 2009), yet very little is known of their migratory patterns and movements (Silva, 1995). In Brazil, migration in *Sporophila* seems to be determined by rainfall, temperature and availability of food, such as seed production, that may be very seasonal in some regions (Silva, 1995; Sick, 1997; Capllonch, *pers. com.*). These seedeaters are social and often are found in small groups or large flocks, except during reproduction (Schauensee, 1952; Austin, 1962; Ridgely & Tudor, 1989).

Few studies address seasonal movement patterns and migration in the genus *Sporophila* (Silva, 1995, 1999; D'Angelo-Neto & Vasconcelos, 2007; Ortiz & Capllonch, 2007). Data gathering to examine migration patterns is very difficult, due to the mixture of non-migratory with migratory individuals (Willis, 1986). On the other hand, an effective bird banding program with these birds will be indispensable as a tool for uncovering migration patterns (Sick, 1983), such as that used in the study of migration in *S. caerulescens* in Argentina (Ortiz & Capllonch, 2007).

In an analysis of the seasonal distribution and migration in two populations of *S. lineola,* two populations, one from the Caatinga and another from southern Brazil, could be described (Silva, 1995). Subsequently, three types of movement patterns were discovered in the *Sporophila:* local (five species), regional (four species) and long distance (14 species, including *Sporophila bouvreuil*). Also, wintering grounds (non-breeding) were identified for 11 of the 14 long distance migrants (Silva, 1999).

Recent study of migration in *S. c. caerulescens* in northern Argentina determined that males arrived on the breeding grounds in mid November, followed approximately two weeks later by females. Captures increased through December when all individuals showed signs of reproductive activity. By early January reproduction was at its peak and young birds were observed in February, while in April migration began again. However, the wintering ground is still unknown (Ortiz & Capllonch, 2007). Field observations with *S. lineola* in Minas Gerais suggest that birds from the south migrate from the southern and eastern part of the state in towards the western central region of the state (D'Angelo-Neto & Vasconcelos, 2007).

Other species of seedeaters have been found in Minas Gerais during September on the São Francisco River (*S. castaneiventris* and *S. cinnamomea*) and in Pirapora (*S. palustris* and *S. melanogaster;* Sick, 1997). In grasslands on an island in the upper São Francisco River hundreds of seedeaters were seen flocking together, including *S. hypoxantha, S. melanogaster, S. ruficollis, S. palustris, S. bouvreuil, S. nigricollis, S. cinnamomea* and *S. castaneiventris* (Sick, 1997). *Sporophila melanogaster* is known to breed in the state of Santa Catarina in October and November and populations begin to disappear by late February (Piacentini, *pers. com.*). In March in Rio Grande do Sul this species was observed foraging, while also in February and March it was seen in the Distrito Federal (Sick, 1997), suggesting that it also has sedentary and migratory populations. *Sporophila hypoxantha* is found in large flocks between November and December in the Pantanal of Mato Grosso and in the high plains of São Joaquim in the state of Santa Catarina where it was nesting at the same time (Sick, 1997). This species has also been seen along with *S. hypochroma* and *S. palustris* at the Parque Nacional das Emas, in Goiás, in October 1989 in a large, mixed species flock (Sick, 1997). Despite all these sightings and observations, movement patterns, migration and sedentary populations of *Sporophila* are still unknown.

Similarly, migrational or sedentary tendencies in *S. bouvreuil* and *S. pileata* are also very poorly understood, with few anecdotal observations. *Sporophila bouvreuil* disappears in the central plains during the driest months of the year and returns in higher concentrations along the Lago Paranoá in Brasília during October and November with the occasional rare appearance in August (Antas, 1988). This species is common during February and March in Poconé in the Pantanal in the state of Mato Grosso (Cintra & Yamashita, 1990). *Sporophila pileata* is apparently resident and common in the summer in the central part of the state of Rio Grande do Sul (Belton, 1994). Little else is known about the movement patterns of these two species. Here, we attempt to define summer (reproductive) and winter regions for these two species of seedeaters in Brazil.

MATERIAL AND METHODS

To describe locations and seasons, we used location information on the labels of 144 museum specimens of *S. bouvreuil* and 30 of *S. pileata,* housed in the following ornithological collections in Brazil: Departamento de Zoologia, Universidade Federal de Minas Gerais (DZUFMG), in Belo Horizonte, Minas Gerais; Museu de Biologia Melo Leitão (MBML) in Santa Teresa, Espírito Santo; Museu de Ciências Naturais da Fundação Zoobotânica (MCN) in Porto Alegre, Rio Grande do Sul; Museu de História Natural de Taubaté (MHNT), Taubaté, São Paulo; Museu Paraense Emílio Goeldi (MPEG) in Belém, Pará; Museu de Zoologia da Universidade de São Paulo (MZUSP) in São Paulo; Museu Nacional do Rio de Janeiro (MNRJ) in Rio de Janeiro; and Coleção Rolf Grantsau (RG), São Bernardo do Campo, São Paulo. Additionally other international institutions were consulted: American Museum of Natural History (AMNH), New York; The Academy of Natural Sciences (ANSP), Philadelphia; Field Museum of Natural History (FMNH), Chicago; Museum of Comparative Zoology (MCZ), Cambridge; Natural History Museum of Los Angeles County (LACM), Los Angeles; Naturhistorisches Museum Wien (NMW), Vienna; United States National Museum, Smithsonian Institution (USMN), Washington; Muséum National d'Histoire Naturelle (MNHN), Paris; British Museum of Natural History (BMNH), Tring; Zoologisches Staatssammlung München (ZSM), Munich; Rijksmuseum van Natuurlijke Histoire (RMNH), Leiden. Records from international institutions provided 26 specimens of *S. bouvreuil* and 30 of *S. pileata.* Finally, additional data from published records and field observations (ours as well as those of our colleagues) supplemented the above sources. From the literature and field observations, we obtained respectively, 26 records of *S. bouvreuil* and nine of *S. pileata,* and 73 records of *S. bouvreuil* and 29 of *S. pileata.* Each unique location was considered as one coordinate (locations in Appendix 1). When possible the numbers and sexes of individuals were also noted.

Geographical coordinates were mapped with ArcView 3.3. Timing (breeding season – September to March, and wintering season – April to August) information was gathered from the records as much as possible and used to group the information by Brazilian Biomes (Cerrado, Caatinga, Amazon Forest and Atlantic Forest, classified according to Nimer (1989) and Ab'Sáber (2003)) to determine migration patterns.

RESULTS AND DISCUSSION

Geographical distribution

Sporophila bouvreuil (*sensu* Machado, 2008 and Machado & Silveira, submitted) is found in open areas throughout most of northern South America, from Suriname (Ridgely & Tudor, 1989; O'Shea, 2005 and specimens in RMNH) and French Guiana (specimens in ANSP) to Argentina and throughout Brazil in the open habitat (Figure 1). Despite the ample distribution, some states have few records, such as Amazonas (one sighting, Aleixo & Poletto, 2007), Amapá (one, Silva *et al.,* 1997), Tocantins (one specimen and some observations in 2001 and 2005, Pacheco, *pers. com.*) and Rio Grande do Norte (Grupo Ornitológico Potiguar, *pers. com.*). The record for *S. bouvreuil* from Santa Teresa, in the state of Espírito Santo, is questioned and believed to be an escaped individual (Willis & Oniki, 2002), although the species had already been seen between the cities of Vitória and Santa Teresa (Forrester, 1993). Thus, the status on this area of Espírito Santo State remains still unresolved.

Sporophila pileata is limited to the southeast of Brazil (in the states of Minas Gerais, São Paulo, Mato Grosso do Sul, Goiás, Paraná, Rio Grande do Sul) and adjacent countries (Paraguay and Argentina). This species is found in the Cerrado and open areas within the Altantic Forest formation and its transition zone with the Cerrado, and is found in the Pantanal of Mato Grosso and the southern grasslands of Rio Grande do Sul. Finally, it is found in the Chaco of Paraguay and Argentina (Figure 1).

Seasonality

Sporophila bouvreuil has been reported from 62 locations in the open areas within the Amazon Forest, found throughout the year except June, and in greatest numbers during September – November (Figure 2). The lack of reports for June may merely be a sampling artifact. September to November, when numbers are greatest, is also the breeding season. This suggests arrival on their breeding territories by September and the drop in abundance in December suggests that is when they migrate away from their breeding grounds, when they move to the Cerrado or possibly the Caatinga.

In the Cerrado and Caatinga, the species has 335 records, in every month of the year but with the greatest numbers (n = 242) during the breeding season between September and December. An increase

in numbers of males in December (n = 109) suggests that they arrive after leaving the Amazon or Atlantic Forest and that these individuals will overwinter in Cerrado and Caatinga (Figure 2). And, the populations of Cerrado and Caatinga also reproduce in these regions, perhaps with some short-distance migration (Figure 3).

In the Atlantic Forest, of the total of 132 records, 103 were from the months of September to March. More records during this period may be due to the increased activity associated with reproduction and territory defense. The few (n = 29) records from April to August suggest that at least some of the individuals do not migrate (Figure 2). *Sporophila pileata* was recorded 132 times in the Cerrado, Atlantic Forest and southern grasslands together, during the entire year, but more between the months of November to February, during the reproductive season (Figures 4, 5).

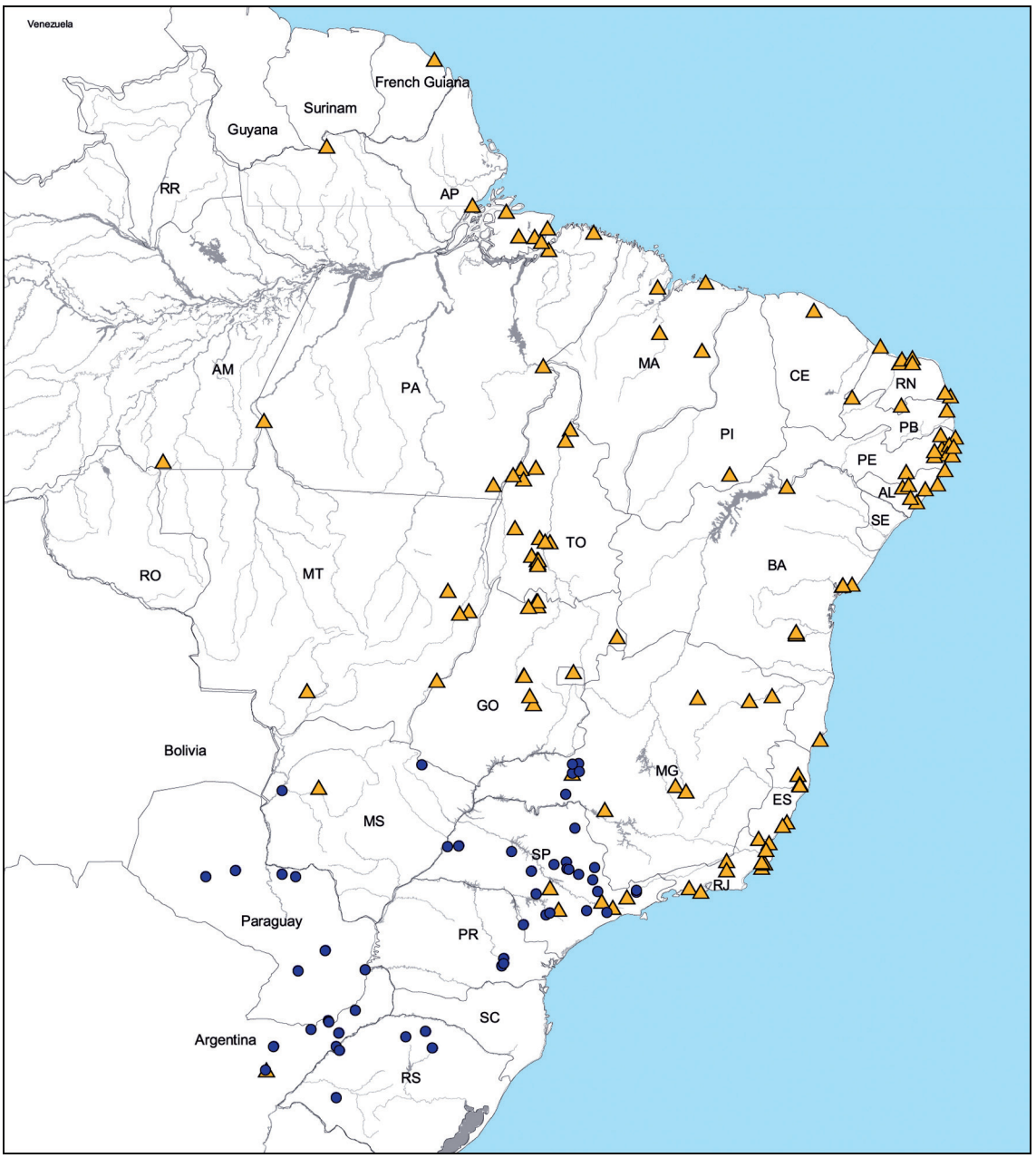

FIGURE 1: Distribution map showing the sighting or collection locations of *Sporophila bouvreuil* (yellow triangles) and *S. pileata* (blue circules).

Where these birds spend their non-breeding time remains unknown.

Sporophila bouvreuil and *S. pileata* are sympatric in the western part of the state of Minas Gerais, near Indianópolis and in southwestern and central São Paulo. These two species may both be found in February near Itirapina (São Paulo). In southwestern São Paulo, records are relatively close to one another near Avaré (*S. pileata*) and Botucatu (*S. bouvreuil,* the two separated by 52 km) and Aracaçú (*S. pileata*) and Itapetininga (*S. bouvreuil,* separated by 32 km). In the southeast *S. bouvreuil* and *S. pileata* have been recorded within 40 km of each other near Franco da Rocha and Itatiba, São José dos Campos and Tremembé and finally São José dos Campos and Taubaté (respectively). The two are found even closer together near São Paulo and São Bernardo do Campo (18 km), and Mogi das Cruzes and São Bernardo do Campo (33 km, respectively, Figure 1). For a species that regularly migrates greater distances (see introduction), these must be considered short distances and in fact, suggests a broad contact zone between the two species.

Both species have been recorded in the state of Mato Grosso do Sul, yet not in sympatry. *Sporophila pileata* has not yet been reported from Santa Catarina, yet, is known from northern Rio Grande do Sul near Santa Catarina (Damiani *et al.,* 2007; Damiani, *pers. com.*). During field study in the high plains of Santa Catarina, only *S. melanogaster* and *S. hypoxantha* were found. Only *S. frontalis, S. plumbea, S. collaris, S. caerulescens, S. hypoxantha* and *S. melanogaster* are reported from the state of Santa Catarina (Rosário, 1990).

Most observation of *Sporophila pileata* is from the breeding season between September and March (Fontana *et al.,* 2003). At this time, birds are very easily seen due to active territory defense including singing and flying to confront other males. The lack of records during the drier, non-reproductive months suggest that they have migrated.

Those *S. bouvreuil* that reproduce in the Amazon and Atlantic Forest migrate to drier regions, the Cerrado and Caatinga, during the non-breeding period (Figure 3). At that time, the migratory individuals coexist with sedentary individuals already in these regions. In the Amazon as well as the Atlantic Forest, some individuals apparently do not migrate. Other seedeater species are known to have similar partially migratory tendencies, such as *S. hypoxantha* and *S. plumbea,* in Paraná and Rio Grande do Sul (Fontana *et al.,* 2003; Straube *et al.,* 2004a,b). *Sporophila bouvreuil* probably overwinters in the Cerrado (Silva, 1999) and other species in the genus

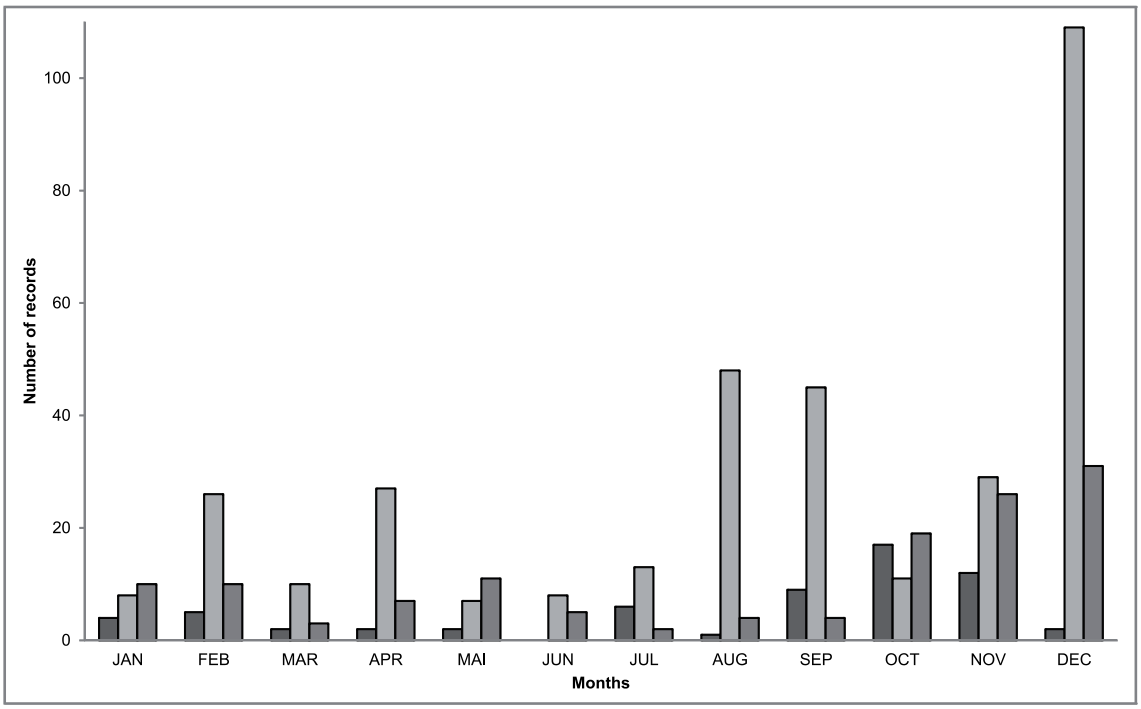

FIGURE 2: Monthly distribution of records of *Sporophila bouvreuil* by the main Brazilian Biomes. Dark gray: Amazonia; light gray: Cerrado and Caatinga; medium gray: Atlantic Forest and southern grasslands.

(*e.g., S. cinnamomea*) also spend their winters in the grasslands (Cerrado) of central Brazil (Fontana *et al.,* 2003). While the wintering grounds of *S. pileata* are still unknown, it is likely that it shows similar behaviors apparently typical of the genus, such as moving to drier grasslands during the non-breeding season. The south and central regions of Brazil, including the states of santa Catarina, Mato Grosso do Sul and Goiás, is a lacuna in terms of avian sampling and should be studied more intensively. Perhaps this region is the key to elucidate the migration patterns of the *Sporophila* group, especially *S. pileata.*

RESUMO

Muitos representantes do gênero *Sporophila* são migratórios. Estes movimentos são pouco estudados e podem ser determinados por fatores como a produção de gramíneas, que podem ser altamente sazonais em

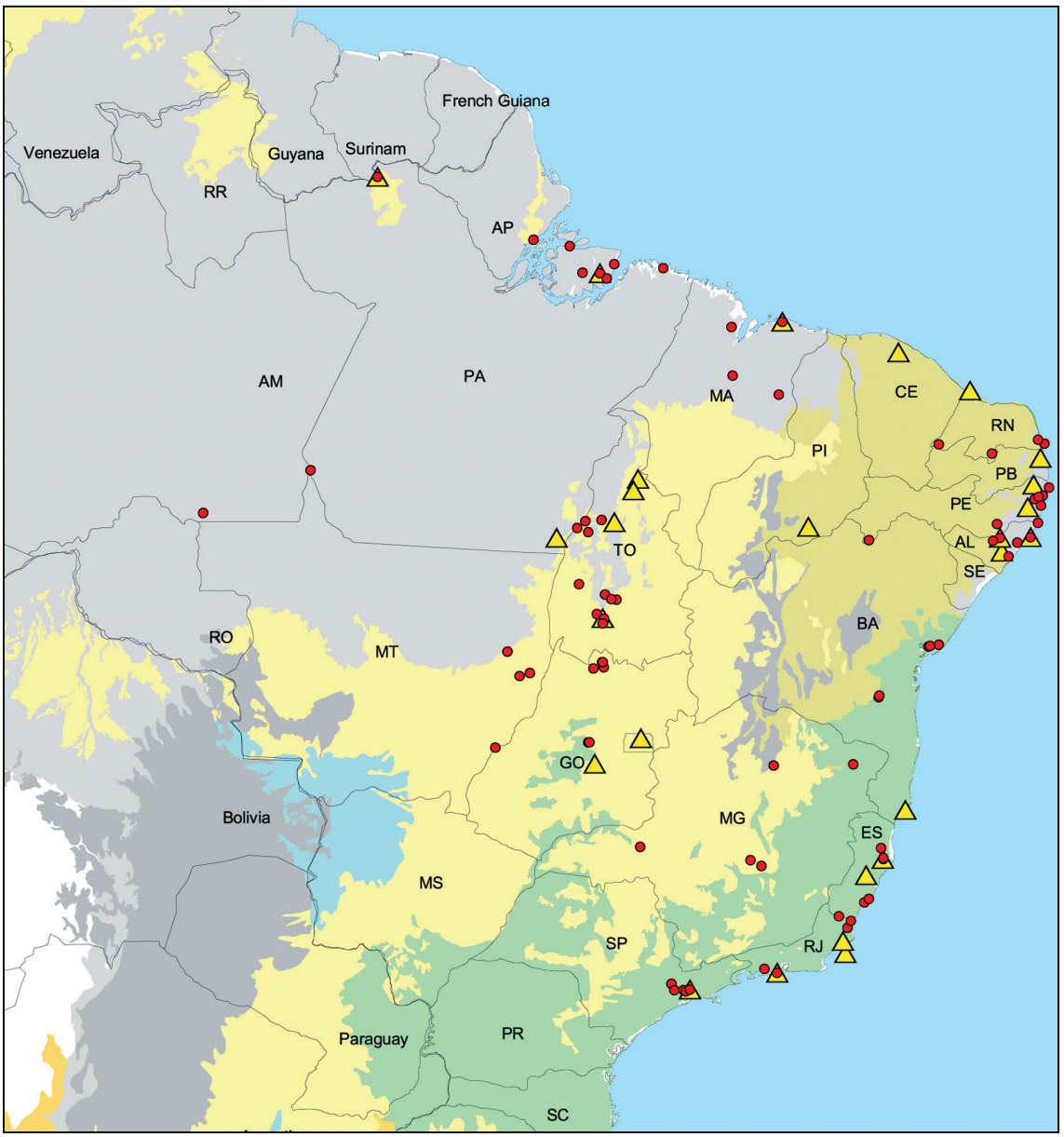

FIGURE 3: Distribution map showing the specimen locations for *Sporophila bouvreuil* during both, reproductive season (red circle) and overwinter season (yellow triangle). Principal Biomes: Green: Atlantic Forest; Light yellow: Cerrado; Brown: Caatinga; Light gray: Amazon Forest.

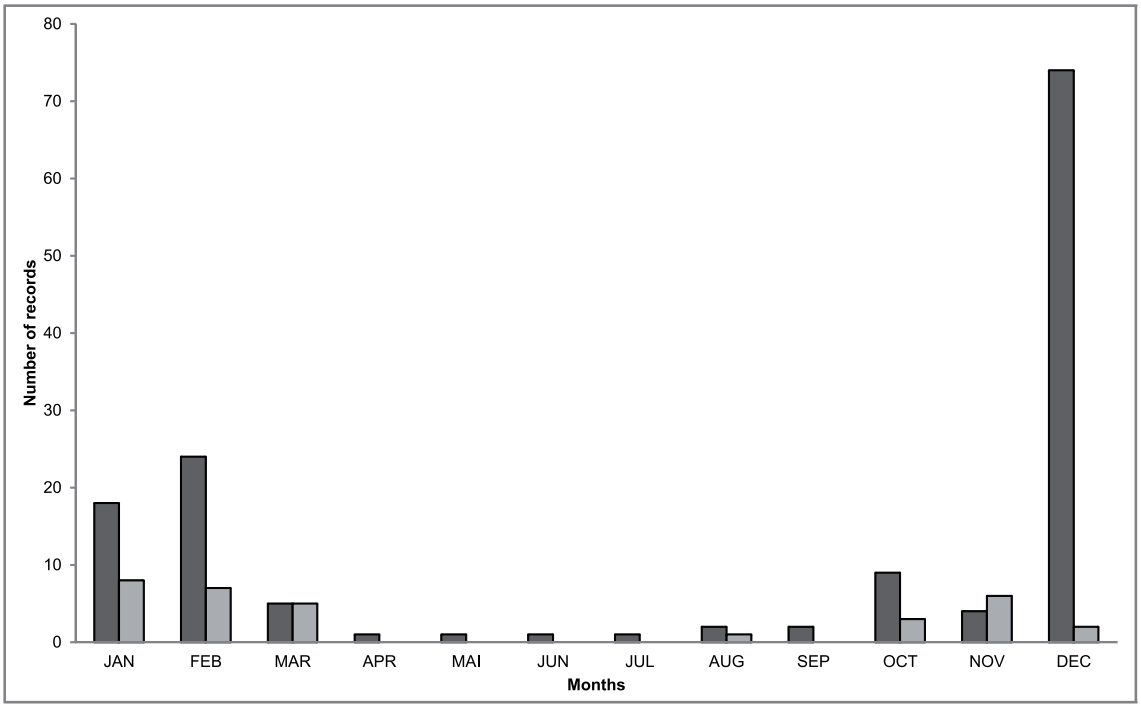

FIGURE 4: Monthly distribution map for the records of *Sporophila pileata* by Biomes: dark gray: Atlantic Forest; light gray: Cerrado and Caatinga.

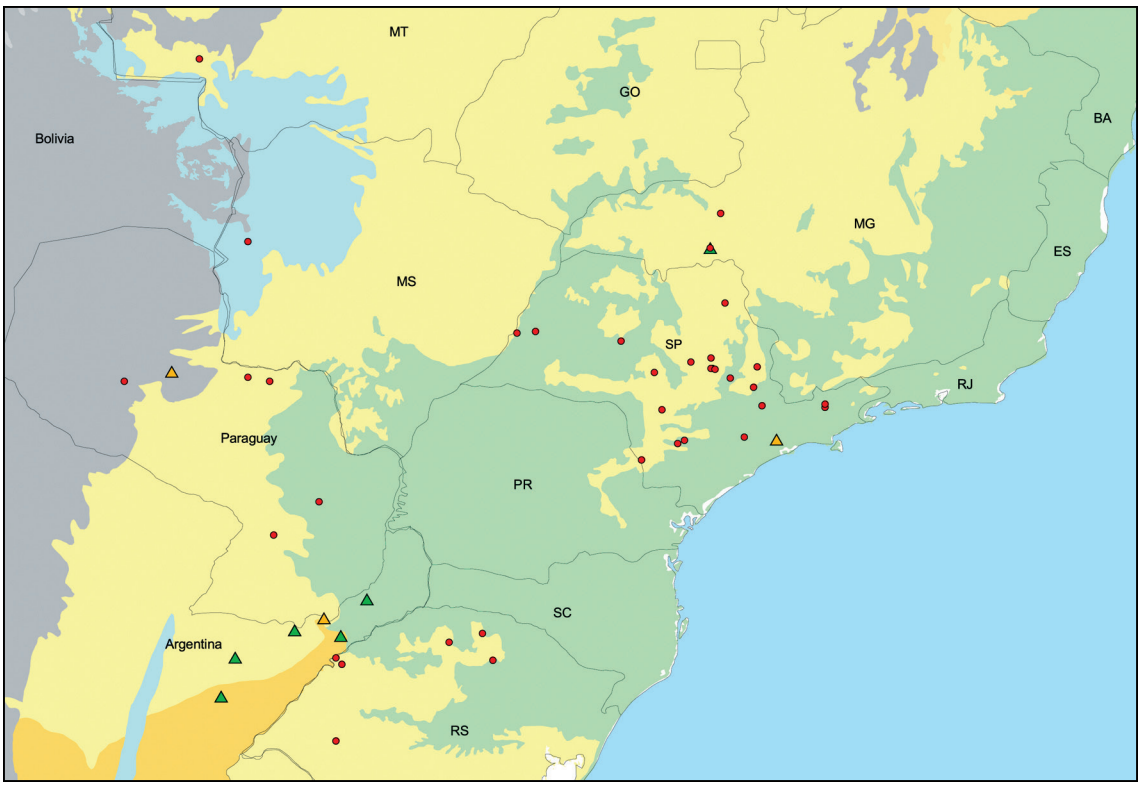

FIGURE 5: Distribution map showing the specimen locations for *Sporophila pileata* during reproductive season (red circle) and overwinter season (yellow triangle). Green triangles are records with uncertain dates. Principal Biomes: Green: Atlantic Forest; Light yellow: Cerrado; Brown: Caatinga; Light gray: Amazon Forest.

algumas regiões. A distribuição de *Sporophila bouvreuil* se estende desde a região amazônica e Suriname passando pelas áreas abertas de boa parte do Brasil, enquanto que *S. pileata* distribui-se pelo sul e sudeste do Brasil, além da Argentina e Paraguai. Os movimentos migratórios destas duas espécies são pouco conhecidos e há evidências de que algumas populações podem ser residentes durante todo o ano. Com o objetivo de definir a distribuição geográfica e sazonal de *S. bouvreuil* e *S. pileata,* os registros foram agrupados em dois tipos, um durante o período reprodutivo (setembro a março) e outro durante os meses de abril a agosto, quando supostamente estas espécies podem migrar. Foram identificadas duas áreas de simpatria entre *S. bouvreuil* e *S. pileata,* nos estados de Minas Gerais e São Paulo. Para *S. bouvreuil* sugere-se que as populações que reproduzem na Amazônia se deslocam para o Cerrado ou a Caatinga, onde se encontram com as populações residentes nestes biomas. As populações desta diagonal seca se reproduzem nestes domínios e provavelmente realizam apenas migrações de curta distância. Na Mata Atlântica parte das populações são residentes, permanecendo neste bioma durante todo o ano. As populações de *S. pileata* que ocorrem no Cerrado e nas áreas abertas da Mata Atlântica se reproduzem nos seus respectivos biomas, mas não foi possível identificar as possíveis áreas de invernagem para esta espécie.

Palavras-Chave: Aves; Caboclinho; *Sporophila;* Migração; Sazonalidade.

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APPENDIX 1

List of locations and record numbers for the collected specimens of *Sporophila bouvreuil* and *Sporophila pileata* used in this analysis.

Species	Material	Source	Sex	Date	Location
S. bouvreuil	B	MPEG 3007	M	—	Pará, Belém, Utinga
S. bouvreuil	B	MPEG 12636	M	26.x.1916	Pará, Quatipuru, Flor do Prado
S. bouvreuil	B	MPEG 22515	M	09.vii.1964	Pará, Ilha de Marajó, Cachoeira do Arari, Fazenda Maria Pana
S. bouvreuil	B	MPEG 34395	M	06.ii.1982	Pará, Ilha de Marajó, Soure, Fazenda Bonjardim, margem esquerda do rio Maratacá
S. bouvreuil	B	MPEG 49193	M	31.vii.1992	Pará, Santana do Araguaia, Fazenda Barra das Princesas
S. bouvreuil	B	MPEG 50519	M	12.xii.1992	Pará, Ilha de Marajó, Chaves, Fazenda Santana
S. bouvreuil	B	MNRJ 17773	M	26.x.1916	Pará, Quatipuru, Flor do Prado
S. bouvreuil	B	MNRJ 17774	M	24.x.1915	Pará, Ilha da Roça (associada à Ilha de Marajó)
S. bouvreuil	B	MNRJ 44083	M	05.ix.1965	Pará, Ilha de Marajó, Cachoeira do Arari, Fazenda Maria Pana
S. bouvreuil	B	MNRJ 44085	M	05.ix.1965	Pará, Ilha de Marajó, Cachoeira do Arari, Fazenda Maria Pana
S. bouvreuil	B	MNRJ 44087	Mj	06.ix.1965	Pará, Ilha de Marajó, Cachoeira do Arari, Fazenda Maria Pana
S. bouvreuil	B	MPEG 22518	Mj	09.vii.1964	Pará, Ilha de Marajó, Cachoeira do Arari, Fazenda Maria Pana
S. bouvreuil	B	MNRJ 44084	F	02.ix.1965	Pará, Ilha de Marajó, Cachoeira do Arari, Fazenda Maria Pana
S. bouvreuil	B	MNRJ 44086	F	06.ix.1965	Pará, Ilha de Marajó, Cachoeira do Arari, Fazenda Maria Pana
S. bouvreuil	B	MNRJ 44088	I	06.ix.1965	Pará, Ilha de Marajó, Cachoeira do Arari, Fazenda Maria Pana
S. bouvreuil	B	MNRJ 44089	I	06.ix.1965	Pará, Ilha de Marajó, Cachoeira do Arari, Fazenda Maria Pana
S. bouvreuil	B	MPEG 548	I	ii.1895	Pará, Ilha de Marajó, Rio Arari
S. bouvreuil	B	MZUSP 76112	M	28.iii.2002	Tocantins, Santa Rosa do Tocantins, Fazenda Roma, margem direita do Rio Tocantins
S. bouvreuil	B	MZUSP 6816	M	08.ii.1907	Maranhão, Santo Amaro (Boa Vista)
S. bouvreuil	B	MPEG 49801	M	07.xii.1992	Maranhão, Bacabal, Rio Estiva, afluente esquerdo rio Mearim
S. bouvreuil	B	MPEG 50853	M	11.i.1994	Maranhão, Caxias, Fazenda Sabiá, margem esquerda do rio Parnaíba
S. bouvreuil	B	MPEG 50855	M	11.i.1994	Maranhão, Caxias, Fazenda Sabiá, margem esquerda do rio Parnaíba
S. bouvreuil	B	MNRJ 14741	M	28.vii.1943	Maranhão, São Bento
S. bouvreuil	B	MPEG 50854	I	11.i.1994	Maranhão, Caxias, Fazenda Sabiá, margem esquerda do rio Parnaíba
S. bouvreuil	B	MPEG 50856	I	11.i.1994	Maranhão, Caxias, Fazenda Sabiá, margem esquerda do rio Parnaíba
S. bouvreuil	B	MZUSP 42122	Mj	18.viii.1958	Ceará, Itapipoca, Fazenda Poço Verde
S. bouvreuil	B	MZUSP 42123	F	20.viii.1958	Ceará, Itapipoca, Fazenda Poço Verde
S. bouvreuil	B	MZUSP 40600	Mj	13.viii.1957	Paraíba, Mamanguape, Uruba
S. bouvreuil	B	MZUSP 18610	M	31.xii.1938	Pernambuco, Itamaracá
S. bouvreuil	B	MZUSP 18611	M	13.xii.1938	Pernambuco, São Bento (Tapera, Fazenda São Bento)
S. bouvreuil	B	MZUSP 18612	M	03.i.1939	Pernambuco, Itamaracá
S. bouvreuil	B	MZUSP 63487	M	08.vi.1971	Pernambuco, Vicência, Água Azul
S. bouvreuil	B	MNRJ 24774	M	10.ix.1944	Pernambuco, São Lourenço da Mata, Engenho Muribara
S. bouvreuil	B	MNRJ 24918	M	10.ii.1945	Pernambuco, Mercês, Engenho Pirajá
S. bouvreuil	B	MHNT 3139	M	04.xi.1994	Pernambuco, Petrolina
S. bouvreuil	B	MZUSP 18609	F	03.i.1939	Pernambuco, Itamaracá
S. bouvreuil	B	MZUSP 34286	I	12.ix.1950	Pernambuco, Vitória de Santo Antão (Vitória), Usina Nossa Senhora do Carmo, Rio Ipojuca
S. bouvreuil	B	MZUSP 37750	M	12.x.1951	Alagoas, Rio Largo, Fazenda Canoas
S. bouvreuil	B	MZUSP 37751	M	31.x.1951	Alagoas, Palmeira dos Índios
S. bouvreuil	B	MZUSP 39329	M	08.ii.1957	Alagoas, Sinimbú (Usina Sinimbú)
S. bouvreuil	B	MZUSP 39330	M	14.ii.1957	Alagoas, Sinimbú (Usina Sinimbú)
S. bouvreuil	B	MZUSP 39331	M	19.ii.1957	Alagoas, Sinimbú (Usina Sinimbú)
S. bouvreuil	B	MZUSP 39332	M	27.ii.1957	Alagoas, Sinimbú (Usina Sinimbú)
S. bouvreuil	B	MZUSP 39333	M	11.iv.1957	Alagoas, Quebrângulo, Engenho Riachão
S. bouvreuil	B	MZUSP 11340	M	12.ii.1933	Bahia, Curupeba, próximo à Ilha Madre de Deus
S. bouvreuil	B	MZUSP 14340	M	24.i.1933	Bahia, Ilhas Bimbarras (Ilha da Bimbarra)
S. bouvreuil	B	MHNT 4157	M	23.iv.1997	Bahia, Nova Viçosa

Species	Material	Source	Sex	Date	Location
S. bouvreuil	B	MHNT 4158	M	23.iv.1997	Bahia, Nova Viçosa
S. bouvreuil	B	RG 9966	M	01.xi.1998	Bahia, Camaçari
S. bouvreuil	B	RG 9985	M	04.xi.1998	Bahia, Camaçari
S. bouvreuil	B	MZUSP 14342	F	12.ii.1933	Bahia, Curupeba, próximo à Ilha Madre de Deus
S. bouvreuil	B	MZUSP 15314	M	12.ix.1934	Goiás, Jaraguá, Fazenda Tomé Pinto, Rio das Almas
S. bouvreuil	B	MZUSP 15316	M	12.ix.1934	Goiás, Jaraguá, Fazenda Tomé Pinto, Rio das Almas
S. bouvreuil	B	MNRJ 31197	I	15.ix.1954	Goiás, Aragarças
S. bouvreuil	B	MNRJ 14834	M	29.vi.1927	Distrito Federal, Planaltina (Planaltino, Goiás)
S. bouvreuil	B	MZUSP 17531	M	12.ix.1937	Mato Grosso, Pontal da Serra Azul
S. bouvreuil	B	MZUSP 35334	M	05.ix.1949	Mato Grosso, Molha Saco (65 km de Pindaíba)
S. bouvreuil	B	MZUSP 17530	Mj	05.ix.1937	Mato Grosso, Pontal da Serra Azul
S. bouvreuil	B	MZUSP 69400	I	11.09.1968	Mato Grosso, Serra do Roncador (RGS base camp)
S. bouvreuil	B	MNRJ 26457	M	07.xii.1939	Espírito Santo, Linhares, Lagoa
S. bouvreuil	B	MNRJ 27083	M	07.xii.1939	Espírito Santo, Linhares, Lagoa Juparanã
S. bouvreuil	B	MNRJ 27108	M	02.xi.1939	Espírito Santo, Linhares, Fazenda Europa
S. bouvreuil	B	MNRJ 27109	M	02.xii.1939	Espírito Santo, Linhares, Lagoa Juparanã
S. bouvreuil	B	MNRJ 27721	M	03.xii.1939	Espírito Santo, município Linhares, Fazenda Europa
S. bouvreuil	B	MNRJ 27724	M	02.xi.1939	Espírito Santo, município Linhares, Fazenda Europa
S. bouvreuil	B	MBML 6356	M	04.vi.1971	Espírito Santo, Linhares, Lagoa do Aviso
S. bouvreuil	B	MBML 6358	M	28.ii.1971	Espírito Santo, Linhares, Lagoa do Ararau
S. bouvreuil	B	MBML 6359	M	07.v.1971	Espírito Santo, Linhares, Lagoa do Brás
S. bouvreuil	B	MBML 6360	M	21.vi.1971	Espírito Santo, Santa Teresa
S. bouvreuil	B	MBML 6361	M	28.iii.1971	Espírito Santo, Linhares, Lagoa Nova
S. bouvreuil	B	MBML 6364	M	03.i.1971	Espírito Santo, Linhares, Lagoa do Meio
S. bouvreuil	B	MBML 6365	M	28.v.1971	Espírito Santo, Linhares, Lagoa do Meio
S. bouvreuil	B	MBML 6366	M	02.vi.1971	Espírito Santo, Linhares, Lagoa do Meio
S. bouvreuil	B	MBML 6369	M	14.vi.1972	Espírito Santo, Linhares
S. bouvreuil	B	MBML 6370	M	19.ix.1972	Espírito Santo, Linhares
S. bouvreuil	B	MBML 6371	M	03.v.1972	Espírito Santo, Linhares, Barro Novo
S. bouvreuil	B	MBML 6373	M	18.xii.1971	Espírito Santo, Linhares, Barro Novo
S. bouvreuil	B	MBML 6374	M	29.xi.1971	Espírito Santo, Linhares, Barro Novo
S. bouvreuil	B	MBML 6355	M	02.i.1972	Espírito Santo, Linhares, Musquito
S. bouvreuil	B	MZUSP 28139	F	14.x.1942	Espírito Santo, Guarapari
S. bouvreuil	B	MZUSP 28140	F	14.x.1942	Espírito Santo, Guarapari
S. bouvreuil	B	MBML 6375	F	14.ii.1972	Espírito Santo, Linhares, Barro Novo
S. bouvreuil	B	MBML 6376	F	11.vi.1972	Espírito Santo, Linhares, Barro Novo
S. bouvreuil	B	MBML 6377	F	08.v.1972	Espírito Santo, Linhares, Barro Novo
S. bouvreuil	B	MBML 6367	F	11.v.1971	Espírito Santo, Linhares
S. bouvreuil	B	MBML 6368	F	22.ix.1972	Espírito Santo, Linhares
S. bouvreuil	B	MBML 6372	F	08.v.1971	Espírito Santo, Linhares, Barro Novo
S. bouvreuil	B	MBML 6362	F	15.iii.1971	Espírito Santo, Linhares, Córrego Farias
S. bouvreuil	B	MBML 6363	F	28.v.1971	Espírito Santo, Linhares, Lagoa do Meio
S. bouvreuil	B	MBML 6357	F	12.v.1971	Espírito Santo, Linhares, Lagoa do Teste
S. bouvreuil	B	MNRJ 27110	I	06.ix.1939	Espírito Santo, Cupido
S. bouvreuil	B	MZUSP 78842	M	13.x.2007	Rio de Janeiro, Campos dos Goytacazes, Lagoa do Valão
S. bouvreuil	B	MZUSP 78843	M	13.x.2007	Rio de Janeiro, Campos dos Goytacazes, Lagoa do Valão
S. bouvreuil	B	MZUSP 78844	M	13.x.2007	Rio de Janeiro, Campos dos Goytacazes, Lagoa do Valão
S. bouvreuil	B	MZUSP 78845	M	13.x.2007	Rio de Janeiro, Campos dos Goytacazes, Lagoa do Valão
S. bouvreuil	B	MZUSP 78846	M	13.x.2007	Rio de Janeiro, Campos dos Goytacazes, Lagoa do Valão
S. bouvreuil	B	MZUSP 78850	M	13.x.2007	Rio de Janeiro, Campos dos Goytacazes, Lagoa do Valão
S. bouvreuil	B	MZUSP 78851	M	15.x.2007	Rio de Janeiro, Campos dos Goytacazes, campo próximo à Mata do Carvão
S. bouvreuil	B	MZUSP 78852	M	15.x.2007	Rio de Janeiro, Campos dos Goytacazes, campo próximo à Mata do Carvão

Species	Material	Source	Sex	Date	Location
S. bouvreuil	B	MZUSP 78853	M	15.x.2007	Rio de Janeiro, Campos dos Goytacazes, campo próximo à Mata do Carvão
S. bouvreuil	B	MZUSP 78847	Mj	13.x.2007	Rio de Janeiro, Campos dos Goytacazes, Lagoa do Valão
S. bouvreuil	B	MZUSP 78849	F	13.x.2007	Rio de Janeiro, Campos dos Goytacazes, Lagoa do Valão
S. bouvreuil	B	MNRJ 31060	F	21.xi.1965	Rio de Janeiro, Itaguaí
S. bouvreuil	B	MNRJ 31061	I	21.xi.1965	Rio de Janeiro, Itaguaí
S. bouvreuil	B	MZUSP 78848	M	13.x.2007	Rio de Janeiro, Campos dos Goytacazes, Lagoa do Valão
S. bouvreuil	B	MZUSP 78854	M	15.x.2007	Rio de Janeiro, Campos dos Goytacazes, campo próximo à Mata do Carvão
S. bouvreuil	B	MNRJ 30090	M	07.xii.1965	Rio de Janeiro, Lagoa Feia, Farinha Seca
S. bouvreuil	B	MNRJ 30091	M	01.iii.1965	Rio de Janeiro, Lagoa Feia, margem da lagoa, E. Quiçamã
S. bouvreuil	B	MNRJ 30096	M	05.xii.1965	Rio de Janeiro, Lagoa Feia, Farinha Seca
S. bouvreuil	B	MNRJ 30097	M	05.xii.1965	Rio de Janeiro, Lagoa Feia, Farinha Seca
S. bouvreuil	B	MNRJ 30099	M	04.xii.1965	Rio de Janeiro, Lagoa Feia, Bacurau
S. bouvreuil	B	MNRJ 32502	M	07.xii.1965	Rio de Janeiro, Lagoa Feia, Farinha Seca
S. bouvreuil	B	MNRJ 32501	M	07.xii.1965	Rio de Janeiro, Lagoa Feia, Farinha Seca
S. bouvreuil	B	MNRJ 32503	M	07.xii.1965	Rio de Janeiro, Lagoa Feia, Farinha Seca
S. bouvreuil	B	MNRJ 28887	M	21.v.1961	Rio de Janeiro, Lagoa Feia
S. bouvreuil	B	MNRJ 30094	M	28.ii.1965	Rio de Janeiro, Lagoa Feia, margem da lagoa, E. Quiçamã
S. bouvreuil	B	MNRJ 32495	M	21.v.1961	Rio de Janeiro, Lagoa Feia
S. bouvreuil	B	MNRJ 32500	M	07.xii.1965	Rio de Janeiro, Lagoa Feia, Farinha Seca
S. bouvreuil	B	MNRJ 32504	M	07.xii.1965	Rio de Janeiro, Lagoa Feia, Farinha Seca
S. bouvreuil	B	MNRJ 32499	M	05.xii.1965	Rio de Janeiro, Lagoa Feia, Farinha Seca
S. bouvreuil	B	MNRJ 32496	M	03.xii.1965	Rio de Janeiro, Lagoa Feia, Pontal
S. bouvreuil	B	MNRJ 32498	M	04.xii.1965	Rio de Janeiro, Lagoa Feia, Bacurau
S. bouvreuil	B	MNRJ 32497	M	04.xii.1965	Rio de Janeiro, Lagoa Feia, Bacurau
S. bouvreuil	B	MNRJ 30095	Mj	04.xii.1965	Rio de Janeiro, Lagoa Feia, Bacurau
S. bouvreuil	B	MZUSP 78856	F	14.x.2007	Rio de Janeiro, Campos dos Goytacazes, Lagoa Feia
S. bouvreuil	B	MNRJ 30093	F	04.xii.1965	Rio de Janeiro, Lagoa Feia, Bacurau
S. bouvreuil	B	MNRJ 32510	F	07.xii.1965	Rio de Janeiro, Lagoa Feia, Farinha Seca
S. bouvreuil	B	MNRJ 32505	F	05.xii.1965	Rio de Janeiro, Lagoa Feia, Farinha Seca
S. bouvreuil	B	MNRJ 32508	F	07.xii.1965	Rio de Janeiro, Lagoa Feia, Farinha Seca
S. bouvreuil	B	MNRJ 32509	F	07.xii.1965	Rio de Janeiro, Lagoa Feia, Farinha Seca
S. bouvreuil	B	MNRJ 32506	F	05.xii.1965	Rio de Janeiro, Lagoa Feia, Farinha Seca
S. bouvreuil	B	MNRJ 32507	F	06.xii.1965	Rio de Janeiro, Lagoa Feia, Pontal
S. bouvreuil	B	MNRJ 32511	I	06.xii.1965	Rio de Janeiro, Lagoa Feia, Pontal
S. bouvreuil	B	DZUFMG 3963	M	20.xi.2003	Minas Gerais, Francisco Sá, arredores da cidade
S. bouvreuil	B	DZUFMG 3965	M	20.xi.2003	Minas Gerais, Francisco Sá, arredores da cidade
S. bouvreuil	B	MNRJ 31459	M	22.iii.1970	Minas Gerais, Jequitinhonha
S. bouvreuil	B	DZUFMG 3964	F	20.xi.2003	Minas Gerais, Francisco Sá, arredores da cidade
S. bouvreuil	B	DZUFMG 3962	F	13.xi.2003	Minas Gerais, Francisco Sá, arredores da cidade
S. bouvreuil	B	MZUSP 698	M	31.i.1900	São Paulo, município São Paulo, Ipiranga,Vila Ema
S. bouvreuil	B	MZUSP 77828	M	24.ii.2007	São Paulo, Mogi das Cruzes, distrito de Taiaçupeba
S. bouvreuil	B	MZUSP 77829	M	24.ii.2007	São Paulo, Mogi das Cruzes, distrito de Taiaçupeba
S. bouvreuil	B	MZUSP 77830	M	24.ii.2007	São Paulo, Mogi das Cruzes
S. bouvreuil	B	MZUSP 3098	I	28.xii.1896	São Paulo, município São Paulo, Ipiranga
S. bouvreuil	B	MZUSP 79445	M	12.i.2008	São Paulo, Mogi das Cruzes
S. bouvreuil	I	FMNH 63599	F	03.ix.1923	Maranhão, São Bento
S. bouvreuil	I	FMNH 63600	F	04.ix.1923	Maranhão, São Bento
S. bouvreuil	I	MCZ 169594	M	31.i.1933	Bahia, Curupeba
S. bouvreuil	I	MCZ 169595	M	12.xi.1933	Bahia, Curupeba
S. bouvreuil	I	MCZ 178779	F	12.ix.1934	Goiás, Fazenda Tomás Pinto, Rio das Almas
S. bouvreuil	I	MCZ 273857	F	13.x.1942	Espírito Santo, Guarapari
S. bouvreuil	I	USNM 536510	M	22.iii.1958	Pernambuco, Garanhuns

Species	Material	Source	Sex	Date	Location
S. bouvreuil	I	USNM 177740	F	31.i.1900	São Paulo, São Paulo, Vila Ema
S. bouvreuil	I	LACM 27219	I	27.iii.1957	Alagoas, Quebrângulo, Engenho Riachão
S. bouvreuil	I	LACM 27220	I	19.ii.1957	Alagoas, Sinimbú (Usina Sinimbú)
S. bouvreuil	I	LACM 27221	I	27.ii.1957	Alagoas, Sinimbú (Usina Sinimbú)
S. bouvreuil	I	LACM 27222	I	19.ii.1957	Alagoas, Sinimbú (Usina Sinimbú)
S. bouvreuil	I	LACM 27223	I	14.ii.1957	Alagoas, Sinimbú (Usina Sinimbú)
S. bouvreuil	I	LACM 44704	I	18.x.1960	Pará, Rio Cururu, alto Tapajós, margem direita
S. bouvreuil	I	LACM 44705	I	02.xi.1960	Pará, Rio Cururu, alto Tapajós, margem direita
S. bouvreuil	I	ANSP 10747	M	—	Guiana Francesa, Cayene
S. bouvreuil	I	ANSP 9824	M	—	Guiana Francesa, Cayene
S. bouvreuil	I	NMW 20334	M	08.i.1819	São Paulo, Moji das Cruzes
S. bouvreuil	I	AMNH 801479	F	07.xii.1965	Rio de Janeiro, Farinha Seca
S. bouvreuil	I	AMNH 801478	M	03.xii.1965	Rio de Janeiro, Pontal, Lagoa Feia
S. bouvreuil	I	RMNH 72202	M	30.vii.1972	Suriname, Sipaliwini
S. bouvreuil	I	RMNH 38278	M	30.vi.1972	Suriname, Sipaliwini
S. bouvreuil	I	RMNH 72759	M	05.ii.1966	Suriname, Sipaliwini
S. bouvreuil	I	RMNH 72201	M	19.v.1972	Suriname, Sipaliwini
S. bouvreuil	I	RMNH 39225	M	30.vi.1972	Suriname, Sipaliwini
S. bouvreuil	I	RMNH 38264	M	31.i.1966	Suriname, Sipaliwini
S. bouvreuil	L	Blamires *et al.,* 2002	—	v a xii.1997	Goiás, Caldazinha, Fazenda Bonsucesso
S. bouvreuil	L	Burmeister, 1856	—	—	Minas Gerais, Lagoa Santa
S. bouvreuil	L	Burmeister, 1856	—	—	Rio de Janeiro, Nova Friburgo
S. bouvreuil	L	Cestari, 2006	—	xi.2005	Mato Grosso do Sul, Pantanal de Nhecolândia
S. bouvreuil	L	Cintra & Yamashita, 1990	—	sazonal – ii/v	Mato Grosso, Pantanal de Poconé
S. bouvreuil	L	Daniel Blamies (no prelo)	—	—	Goiás, APA Nascentes do Rio Vermelho
S. bouvreuil	L	Figueiredo *et al.,* 2000	—	16.ii.1997 a 03.i.1999	São Paulo, Itapetininga, Estação Experimental de Itapetininga
S. bouvreuil	L	Forbes, 1881	—	—	Pernambuco, Recife
S. bouvreuil	L	Guzzi e Donatelli, 2003	—	x.1998 a ix.1999	São Paulo, Botucatu, Campus da UNESP
S. bouvreuil	L	Ihering, 1900	—	—	Rio de Janeiro, Nova Friburgo
S. bouvreuil	L	Ihering, 1900	—	—	Rio de Janeiro, Cantagalo
S. bouvreuil	L	O'Shea, 2005	—	—	Suriname, Sipaliwini
S. bouvreuil	L	Pelzeln, 1868	—	—	São Paulo, Mato Dentro, atual São José dos Campos
S. bouvreuil	L	Pelzeln, 1868	—	—	Goiás, Rio Araguaia
S. bouvreuil	L	Pinto, 1944	—	—	Pará, Ilha de Marajó, Rio Arari
S. bouvreuil	L	Pinto, 1944	—	—	Pará, Ilha de Marajó, Fazenda Teso de São José
S. bouvreuil	L	Reinhardt, 1870	—	04.xi.1835	Minas Gerais, Lagoa Santa
S. bouvreuil	L	Reinhardt, 1870	—	16.x.1851	Minas Gerais, Sete Lagoas
S. bouvreuil	L	Roda, 2004	—	01 e 04.x.2004	Pernambuco, São José da Coroa Grande, Fazenda Mirim
S. bouvreuil	L	Roda e Pereira, 2005	—	15 e 16.iv.2005	Pernambuco, Amaraji, Engenho Opinoso
S. bouvreuil	L	Roda *et al.,* 2005	—	22 a 24.iv.2005	Pernambuco, Gravatá, Engenho Jussará
S. bouvreuil	L	Silva *et al.,* 1997	M	14.x.1990	Amapá, Estação Experimental da Embrapa
S. bouvreuil	L	Silveira, 1998	—	ii.1996 a ii.1998	Minas Gerais, São Roque de Minas, Parque Nacional da Serra da Canastra
S. bouvreuil	L	Telino-Júnior *et al.,* 2005	—	viii.2002/ iv.2003	Pernambuco, Reserva Estadual do Gurjaú
S. bouvreuil	L	Aleixo & Poletto, 2007	M	16.xi.2003	Amazonas, Fazenda Passo Formoso
S. bouvreuil	L	Sick, 1967	—	—	Rio de Janeiro, Lagoa Feia
S. bouvreuil	F	JFP	—	05.vii.2005	Tocantins, Filadélfia, Fazenda Mangabeira

Species	Material	Source	Sex	Date	Location
S. bouvreuil	F	JFP	—	07.vii.2005	Tocantins, Filadélfia, Fazenda Mangabeira
S. bouvreuil	F	JFP	—	17.xi.2005	Tocantins, Araguacema, Rio Piranha
S. bouvreuil	F	JFP	—	18.xi.2005	Tocantins, Goianorte
S. bouvreuil	F	JFP	—	20.xi.2005	Tocantins, Araguacema, Rio Piranha
S. bouvreuil	F	JFP	—	21.xi.2005	Tocantins, Araguacema, Fazenda Vera Cruz
S. bouvreuil	F	JFP	—	24.xi.2005	Tocantins, Entre Rios
S. bouvreuil	F	JFP	—	24.iv.2004	Alagoas, Campo Alegre, Usina Porto Rico
S. bouvreuil	F	JFP	—	06.vi.2004	Alagoas, Passo do Camaragibe
S. bouvreuil	F	JFP	—	18.ix.2004	Alagoas, Passo do Camaragibe
S. bouvreuil	F	JFP	—	13.viii.2001	Tocantins, Rio Santo Antonio, leste do Gurupi
S. bouvreuil	F	JFP	—	13.ix.2001	Goiás, Porangatu, Fazenda Pedreira
S. bouvreuil	F	JFP	—	14.ix.2001	Goiás, Porangatu, Fazenda Maracujina
S. bouvreuil	F	JFP	—	07.xii.2001	Goiás, 30 km leste do Porangatu
S. bouvreuil	F	JFP	—	08.xii.2001	Goiás, Porangatu, Rio Santa Tereza
S. bouvreuil	F	JFP	—	08.xii.2001	Goiás, Porangatu, Fazenda Toco Preto
S. bouvreuil	F	JFP	—	09.xii.2001	Goiás, Porangatu, Fazenda Maracujina
S. bouvreuil	F	JFP	—	09.xii.2001	Goiás, Porangatu, Barreiro
S. bouvreuil	F	JFP	—	10.xii.2001	Goiás, Porangatu, Rio Santa Tereza
S. bouvreuil	F	JFP	—	11.xii.2001	Tocantins, Gurupi, ponte rio Tocantins
S. bouvreuil	F	JFP	—	12.xii.2001	Tocantins, Gurupi, Rio Santa Tereza
S. bouvreuil	F	JFP	—	13.xii.2001	Tocantins, Sucupira, Fazenda São Luis
S. bouvreuil	F	JFP	—	13.xii.2001	Tocantins, Gurupi, Rio Santa Tereza
S. bouvreuil	F	JFP	—	14.xii.2001	Tocantins, Peixe, Praia Tartaruga
S. bouvreuil	F	JFP	—	14.xii.2001	Tocantins, Brejinho de Nazaré
S. bouvreuil	F	JFP	—	16.xii.2001	Tocantins, Brejinho de Nazaré, Fazenda Maranata
S. bouvreuil	F	JFP	—	16.xii.2001	Tocantins, 50 km sul do Brejinho de Nazaré
S. bouvreuil	F	EE	—	—	Bahia, Boa Nova
S. bouvreuil	F	FO e JFP	—	06.viii.2006	Goiás, Teresópolis de Goiás, Fazenda Santa Branca
S. bouvreuil	F	EE	—	—	Minas Gerais, Itinga
S. bouvreuil	F	EE	—	—	Minas Gerais, Parque Nacional da Serra da Canastra
S. bouvreuil	F	LFF	—	13.ii.2005	São Paulo, Suzano, Raposão
S. bouvreuil	F	LFF	—	27.ii.2005	São Paulo, Franco da Rocha, Parque Estadual de Juquery
S. bouvreuil	F	JFP	—	01.xii.2003	Tocantins, Lagoa da Confusão
S. bouvreuil	F	JFP	—	20.i.1998	Espírito Santo, Varjão do Rio Benevente, próximo a Guarapari
S. bouvreuil	F	JFP	—	01.viii.1999	Rio de Janeiro, Parque Nacional da Restinga de Jurubatiba
S. bouvreuil	F	JFP	—	20.xi.1999	Rio de Janeiro, Rio de Janeiro, Bosque da Barra
S. bouvreuil	F	CA	M	10.iv.2007	Ceará, Icapuí
S. bouvreuil	F	FO e JFP	M	05.iv.2007	Piauí, Barragem Petrônio Portela
S. bouvreuil	F	JFP	—	29.x.1997	Rio de Janeiro, Santo Eduardo, vale do rio Itabapoana
S. bouvreuil	F	JFP	F	16.vi.1996	Rio de Janeiro, Rio de Janeiro, Bosque da Barra
S. bouvreuil	F	GS	M	vi.2007	Rio de Janeiro, Rio de Janeiro, Bosque da Barra
S. bouvreuil	F	GBMS	M	x.2007	Minas Gerais, Indianópolis
S. bouvreuil	F	RP	M	09.iv.2008	Tocantins, Guaraí
S. bouvreuil	F	RP	M	11.iv.2008	Tocantins, Palmenirante
S. bouvreuil	F	RP	M	11.iv.2008	Tocantins, Palmenirante
S. bouvreuil	F	AP	M	04.i.2008	Argentina, Corrientes
S. bouvreuil	F	EM	M, F, Mj	27.ii.2007	Bahia, Boa Nova, Fazenda Alvorada
S. bouvreuil	F	EM	M	27.ii.2007	Bahia, Boa Nova, Lagoa do Barro
S. bouvreuil	F	EM	M e F	22.ii.2007	São Paulo, Itirapina, Estação Ecológica de Itirapina
S. bouvreuil	F	EM	M	23.ii.2007	São Paulo, Itirapina, Estação Experimental de Itirapina
S. bouvreuil	F	EM	M	11.xi.2006	São Paulo, Moji das Cruzes, bairro César de Souza
S. bouvreuil	F	EM	F	11.xi.2006	São Paulo, Moji das Cruzes, bairro César de Souza
S. bouvreuil	F	EM	M	12.xi.2006	São Paulo, Moji das Cruzes, bairro César de Souza
S. bouvreuil	F	EM	F	12.xi.2006	São Paulo, Moji das Cruzes, bairro César de Souza

Species	Material	Source	Sex	Date	Location
S. bouvreuil	F	EM	M	15.xi.2006	São Paulo, Moji das Cruzes, bairro César de Souza
S. bouvreuil	F	EM	F	15.xi.2006	São Paulo, Moji das Cruzes, bairro César de Souza
S. bouvreuil	F	EM	M	14.i.2007	São Paulo, Moji das Cruzes, distrito de Taiaçupeba
S. bouvreuil	F	EM	M	12.i.2008	São Paulo, Moji das Cruzes
S. bouvreuil	F	EM e MAR	M	06.xi.22008	São Paulo, Moji das Cruzes, bairro César de Souza
S. bouvreuil	F	GOP	M	v.1988	Rio Grande do Norte, Macau, salinas da CIRNE
S. bouvreuil	F	GOP	M	v.1988	Rio Grande do Norte, Pendências, Fazenda Pocinhos
S. bouvreuil	F	GOP	M	v.1988	Rio Grande do Norte, Macau
S. bouvreuil	F	GOP	M	iii.1998	Rio Grande do Norte, Major Sales, Alto Apodi
S. bouvreuil	F	GOP	M	28.ii.2003	Rio Grande do Norte, Baia Formosa
S. bouvreuil	F	GOP	M	07.iii.2003	Rio Grande do Norte, Baia Formosa
S. bouvreuil	F	GOP	M	11.xi.2005	Rio Grande do Norte, Parelhas
S. bouvreuil	F	GOP	M	14.xi.2005	Rio Grande do Norte, Parelhas
S. bouvreuil	F	GOP	M	17.iii.2006	Rio Grande do Norte, Parelhas
S. bouvreuil	F	GOP	M	19.iii.2006	Rio Grande do Norte, Parelhas
S. bouvreuil	F	GOP	M	05.xi.2006	Rio Grande do Norte, Goianinha
S. bouvreuil	F	GOP	M	23.iv.2001	Rio Grande do Norte, Galinhos, Salina Diamante Branco
S. bouvreuil	F	GOP	M	17.v.2007	Rio Grande do Norte, Ceará Mirim
S. pileata	B	MCN 1435	M	30.i.1973	Rio Grande do Sul, São Borja, próximo a Garruchos
S. pileata	B	MCN 1436	M	25.xi.1973	Rio Grande do Sul, São Borja, Arroio Ipunchi
S. pileata	B	MCN 2114	M	22.xi.1959	Rio Grande do Sul, Passo Fundo, arredores da cidade
S. pileata	B	MHNT 3039	M	22.i.1994	São Paulo, Tremembé, Poço Grande
S. pileata	B	MHNT 3140	M	15.i.1994	São Paulo, Tremembé, Aeroporto
S. pileata	B	MHNT 3141	M	i.1985	São Paulo, Taubaté, Quiririm
S. pileata	B	MHNT 3248	M	i.1994	São Paulo, Tremembé, Poço Grande
S. pileata	B	MZUSP 1720	M	10.xii.1900	São Paulo, Batatais
S. pileata	B	MZUSP 23753	M	14.iii.1937	São Paulo, Ibiúna (Una)
S. pileata	B	MZUSP 26292	M	01.ii.1941	São Paulo, Lins, Fazenda Varjão
S. pileata	B	MZUSP 26293	M	01.ii.1941	São Paulo, Lins, Fazenda Varjão
S. pileata	B	MZUSP 26294	M	24.i.1941	São Paulo, Lins, Fazenda Varjão
S. pileata	B	MZUSP 26296	M	15.ii.1941	São Paulo, Lins, Barra do Rio Dourado
S. pileata	B	MZUSP 26297	M	25.i.1941	São Paulo, Lins, Barra do Rio Dourado
S. pileata	B	MZUSP 54127	M	11.ii.1963	São Paulo, Avaré, Fazenda Santa Madalena
S. pileata	B	MZUSP 76717	M	21.xii.2005	São Paulo, Buri, Lagoa
S. pileata	B	MZUSP 76718	M	19.xii.2005	São Paulo, Buri, Lagoa
S. pileata	B	MZUSP 77831	M	23.ii.2007	São Paulo, Santa Gertrudes
S. pileata	B	MZUSP 77832	M	23.ii.2007	São Paulo, Santa Gertrudes
S. pileata	B	MZUSP 77833	M	23.ii.2007	São Paulo, Santa Gertrudes
S. pileata	B	MZUSP 77834	M	23.ii.2007	São Paulo, Santa Gertrudes
S. pileata	B	RG 7556	M	01.viii.1940	São Paulo, São Bernardo do Campo
S. pileata	B	MZUSP 10686	Mj	19.iii.1926	São Paulo, Itatiba
S. pileata	B	MHNT 3040	F	13.ii.1994	São Paulo, Tremembé, Poço Grande,
S. pileata	B	MHNT 3041	F	13.ii.1994	São Paulo, Tremembé, Poço Grande
S. pileata	B	MZUSP 13326	F	11.ix.1930	Mato Grosso do Sul, Porto Esperança
S. pileata	B	MZUSP 26295	F	13.ii.1941	São Paulo, Lins, Fazenda Varjão
S. pileata	B	MNRJ 9595	F	14.xi.1908	Mato Grosso, Porto Esperidião, Rio Jaurú
S. pileata	B	MCN 1434	I	11.ii.1971	Rio Grande do Sul, Alegrete, 20 km SE de Alegrete
S. pileata	B	MZUSP 23754	I	14.iii.1937	São Paulo, Ibiúna (Una)
S. pileata	I	NMW 20345	M	24.ii.1821	São Paulo, Itararé
S. pileata	I	NMW 20346	F	18.ii.1821	São Paulo, Itararé
S. pileata	I	NMW 20344	M	24.ii.1821	São Paulo, Itararé
S. pileata	I	NMW 20343	M	06.?.1821	São Paulo, Itararé
S. pileata	I	NMW 20341	M	xii.1822	São Paulo, Irisanga
S. pileata	I	FMNH 123654	M	24.i.1941	São Paulo, Lins, Fazenda Varjão

Species	Material	Source	Sex	Date	Location
S. pileata	I	FMNH 123655	M	25.i.1941	São Paulo, Lins, Barra do Rio Dourado
S. pileata	I	FMNH 123656	F	03.ii.1941	São Paulo, Lins, Fazenda Varjão
S. pileata	I	FMNH 123657	F	01.i.1941	São Paulo, Lins, Fazenda Varjão
S. pileata	I	FMNH 152767	F	24.x.1945	Paraguai, Boqueron, Orloff
S. pileata	I	FMNH 152769	M	06.vi.1945	Paraguai, departamento de Presidente Hayes, Laguna General Diaz
S. pileata	I	MCZ 265011	F	26.x.1938	São Paulo, Aracaçú
S. pileata	I	MCZ 265012	M	26.x.1936	São Paulo, Aracaçú
S. pileata	I	MNHN 1952.346	M	28.viii.1949	Argentina, Província de Misiones, Posadas
S. pileata	I	BMNH 1905.10.12.879	M	23.iii.1904	Paraguay, Sapucay
S. pileata	I	BMNH 1905.10.12.844	M	24.iii.1903	Paraguay, Sapucay
S. pileata	I	ZSM 32.1149	M	26.x.1931	Paraguay, San Luis de la Sierra
S. pileata	I	ZSM 32.1151	M	18.x.1931	Paraguay, San Luis de la Sierra
S. pileata	I	ZSM 32.1148	M	26.x.1931	Paraguay, San Luis de la Sierra
S. pileata	I	ZSM 32.1147	M	26.x.1931	Paraguay, San Luis de la Sierra
S. pileata	I	ZSM 32.1152	M	26.x.1931	Paraguay, San Luis de la Sierra
S. pileata	I	ZSM 32.1150	M	06.x.1931	Paraguay, San Luis de la Sierra
S. pileata	I	ZSM 32.1146	M	23.xi.1931	Paraguay, Zanja Moroti, nordeste do Paraguai, Apa-Bergland
S. pileata	I	ZSM 32.1145	M	10.xii.1931	Paraguay, Zanja Moroti, nordeste do Paraguai, Apa-Bergland
S. pileata	I	ZSM 38.99	M	30.i.1938	Paraguay, rio Inú, N Encarnacíon, oeste do Paraguai
S. pileata	I	ZSM 11.1445	M	1908	Minas Gerais, Água Suja (Bagagem)
S. pileata	I	BMNH 1885.2.10.120	M	03.iii.1821	São Paulo, Itararé
S. pileata	I	BMNH 1885.2.10.118	M	21.xi.1822	São Paulo, Borda do Mato
S. pileata	I	BMNH 1905.10.12.879	M	23.iii.1904	Paraguay, Sapucay
S. pileata	I	BMNH 1905.10.12.844	M	24.iii.1903	Paraguay, Sapucay
S. pileata	L	Anjos e Graf, 1993	—	—	Paraná, Palmeira, Fazenda Santa Rita
S. pileata	L	Anjos e Schuchmann, 1997	—	—	Paraná, Ponta Grossa, Represa de Alagados
S. pileata	L	Bertoni, 1914	—	—	Paraguai, Encarnación
S. pileata	L	Bertoni, 1919	—	—	Paraguai, Puerto Bertoni
S. pileata	L	Chubb, 1910	M	24.iii.1903	Paraguai, Sapucay
S. pileata	L	Chubb, 1910	F	25.iii.1903	Paraguai, Sapucay
S. pileata	L	Chubb, 1910	Mj	23.iii.1904	Paraguai, Sapucay
S. pileata	L	Pelzeln, 1868	—	xi.1821	São Paulo, Borda da Mata (Borda do Matto)
S. pileata	L	Scherer-Neto *et al.,* 1994	—	—	Paraná, Ponta Grossa, Parque Estadual de Vila Velha
S. pileata	F	EE	—	x	São Paulo, Itirapina
S. pileata	F	PM e DW	M	29.i.2007	São Paulo, Presidente Epitácio
S. pileata	F	GBMS	—	x.2005 – iii.2006	Minas Gerais, Uberaba
S. pileata	F	GBMS	—	—	Minas Gerais, Uberaba
S. pileata	F	GBMS	—	xi.2006	Minas Gerais, Uberaba, Satipel Florestal
S. pileata	F	GBMS	M	x.2007	Minas Gerais, Indianópolis
S. pileata	F	FKU	M	12.i.2007	São Paulo, Bauru
S. pileata	F	GBMS	—	iii.2007	São Paulo, Dracena
S. pileata	F	GBMS	—	—	Minas Gerais, Monte Carmelo
S. pileata	F	GBMS	—	—	Minas Gerais, Estrela do Sul
S. pileata	F	LFS	M	17.xii.2007	Goiás, Parque Nacional das Emas

Species	Material	Source	Sex	Date	Location
S. pileata	F	JIA	—	—	Argentina, Misiones, Campo San Juan
S. pileata	F	JIA	—	—	Argentina, Misiones, Arroyo Guarupa
S. pileata	F	JIA	—	—	Argentina, Misiones, Campo Prate
S. pileata	F	JIA	—	—	Argentina, Corrientes, Rincon Santa Maria
S. pileata	F	JIA	—	—	Argentina, Corrientes, San Juan
S. pileata	F	AP	M	—	Argentina, Corrientes
S. pileata	F	AP	M	—	Argentina, Corrientes, Puerto Valle
S. pileata	F	JCMJ	M	31.i.2008	São Paulo, Itirapina
S. pileata	F	JCMJ	M	31.i.2008	São Paulo, Itirapina
S. pileata	F	RVD	M	14.i.2003	Rio Grande do Sul, Passo Fundo
S. pileata	F	RVD	M	28.x.2004	Rio Grande do Sul, Campinas do Sul
S. pileata	F	RVD	M	14.xi.2004	Rio Grande do Sul, Campinas do Sul
S. pileata	F	RVD	M	30.xii.2004	Rio Grande do Sul, Campinas do Sul
S. pileata	F	RVD	M	20.i.2005	Rio Grande do Sul, Campinas do Sul
S. pileata	F	RVD	M	30.i.2005	Rio Grande do Sul, Campinas do Sul
S. pileata	F	RVD	M	31.iii.2005	Rio Grande do Sul, Campinas do Sul
S. pileata	F	RVD	M	15.xi.2006	Rio Grande do Sul, Campinas do Sul
S. pileata	F	RVD	M	20.xii.2007	Rio Grande do Sul, Palmeira das Missões

Legend: L = records obtained from the literature; F = records from the field; B = records from museum specimens in Brazil; I = records from museum specimens from international institutions or collections;. M = male; F = female; YM = young male; I = unknown sex. Acronyms: DZUFMG = Departamento de Zoologia da Universidade Federal de Minas Gerais; MBML = Museu de Biologia Mello Leitão; MCN = Museu de Ciências Naturais da Fundação Zoobotânica do Rio Grande do Sul; MHNT = Museu de História Natural de Taubaté; MPEG = Museu Paraense Emilio Goeldi; MZUSP = Museu de Zoologia da Universidade de São Paulo; MNRJ = Museu Nacional do Rio de Janeiro; RG = Coleção Rolf Grantsau; AMNH = American Museum of Natural History; ANSP = The Academy of Natural Sciences; FMNH = Field Museum of Natural History; MCZ = Museum of Comparative Zoology; LACM = Natural History Museum of Los Angeles County; NMW = Naturhistorisches Museum Wien; USMN = United States National Museum, Smithsonian Institution; MNHN = Muséum National d'Histoire Naturelle; BMNH = British Museum of Natural History; ZSM = Zoologische Staatssammlung München; RMNH = Rijksmuseum van Natuurlijke Histoire Leiden; AP = Aníbal Perera; CA = Ciro Albano; DW = Djalma Weffort; EE = Edson Endrigo; FKU = Flávio Kulaif Ubaid; EM = Érika Machado; FO = Fábio Olmos; GBMS = Gustavo Bernardino Mallaco da Silva; JCMJ = José Carlos Motta-Júnior; JFP = José Fernando Pacheco; JIA = Juan Ignácio Aretta; LFS = Luís Fábio Silveira; LFF = Luiz Fernando Figueiredo; MAR = Marco Antônio Rêgo; PM = Peter Mix; RVD = Rodrigo Vargas Damiani. Locations in parentheses indicate nomenclature on the labels, which were corrected to current names and places.

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Manuscripts should be written preferentially in English, but texts in Portuguese or Spanish will also be considered. Studies with a broad coverage are encouraged to be submitted in English. All manuscripts should include an abstract and keywords in English and a second abstract and keywords in Portuguese or Spanish.

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Manuscript Form: Manuscripts should not exceed 150 pages of double-spaced, justified text, with size 12 and source Times New Roman (except for symbols). Page format should be A4 (21 by 29.7 cm), with 3 cm of margins. The pages of the manuscript should be numbered consecutively.

The text should be arranged in the following order: **Title Page, Abstracts with Keywords, Body of Text, Literature Cited, Tables, Appendices, and Figure Captions.** Each of these sections should begin on a new page.

(1) **Title Page:** This should include the **Title, Short Title, Author(s) Name(s) and Institutions.** The title should be concise and, where appropriate, should include mention of families and/or higher taxa. Names of new taxa should not be included in titles.

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(3) **Body of Text:** The main body of the text should include the following sections: **Introduction, Material and Methods, Results, Discussion, Conclusion, Acknowledgments, and References at end.** Primary headings in the text should be in capital letters, in bold and centered. Secondary headings should be in capital and lower case letters, in bold and centered. Tertiary headings should be in capital and lower case letters, in bold and indented at left. In all the cases the text should begin in the following line.

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