

Geographic distribution of phlebotomine sandfly species (Diptera: Psychodidae) in Central-West Brazil

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This study updates the geographic distributions of phlebotomine species in Central-West Brazil and analyses the climatic factors associated with their occurrence. The data were obtained from the entomology services of the state departments of health in Central-West Brazil, scientific collections and a literature review of articles from 1962-2014. Ecological niche models were produced for sandfly species with more than 20 occurrences using the Maxent algorithm and eight climate variables. In all, 2,803 phlebotomine records for 127 species were analysed. Nyssomyia whitmani, Evandromyia lenti and Lutzomyia longipalpis were the species with the greatest number of records and were present in all the biomes in Central-West Brazil. The models, which were produced for 34 species, indicated that the Cerrado areas in the central and western regions of Central-West Brazil were climatically more suitable to sandflies. The variables with the greatest influence on the models were the temperature in the coldest months and the temperature seasonality. The results show that phlebotomine species in Central-West Brazil have different geographical distribution patterns and that climate conditions in essentially the entire region favour the occurrence of at least one Leishmania vector species, highlighting the need to maintain or intensify vector control and surveillance strategies.

Key words: Phlebotominae - ecological niche modelling - Maxent - Cerrado

Leishmaniasis primarily affect people living in poverty and they are neglected tropical diseases worldwide. According to the World Health Organization (2010), 350 million people are exposed to leishmaniasis and two million cases occur every year. In the Americas, most of the cases occur in Brazil (Alvar et al. 2012). Between 2001-2012, 3,321 confirmed cases of visceral leishmaniasis (VL) were reported in Central-West Brazil. The majority (78%) were reported in Mato Grosso do Sul (MS), followed by Mato Grosso (MT), Goiás (GO) and the Federal District (DF). In the same period, there were 49,932 confirmed cases of American tegumentary leishmaniasis (ATL) in Central-West Brazil, most of which (82%) occurred in MT, followed by GO, MS and DF [Information System on Notifiable Diseases (saude.gov.br/sinanweb)].

In total, 989 phlebotomine species have been identified globally, of which 531 were recorded in the Americas and 277 in Brazil (Shimabukuro & Galati 2010, Andrade et al. 2013, Ladeia-Andrade et al. 2014, Oliveira et al. 2015, Vilela et al. 2015). Various studies have reported a great species

richness of sandflies in Central-West Brazil, particularly in MT (106 spp), followed by MS (57 spp), GO (41 spp) and DF (27 spp) (Young & Duncan 1994, Martins et al. 2002, de Oliveira et al. 2006, Galati et al. 2006, Andrade Filho et al. 2007, Missawa & Maciel 2007, de Almeida et al. 2010b, 2013a, de Carvalho et al. 2010, SES/MT 2013). However, only 20 phlebotomine species are associated with the transmission of *Leishmania* in Brazil, including seven species in Central-West Brazil (MS 2006, 2010, Ready 2013).

Lutzomyia longipalpis (Lutz & Neiva 1912) is the main vector of *Leishmania infantum* in Latin America and it has a widespread distribution in Brazil (Deane & Deane 1962, Lanzaro et al. 1993, Sherlock 1996, Aguiar & Medeiros 2003, Galati 2003). *Lutzomyia cruzi* (Mangabeira, 1938) has been implicated as the *L. infantum* vector in some regions of MS (Galati et al. 1997, Santos et al. 1998) and MT (Missawa et al. 2011). *Lutzomyia forattini* Galati, Rego, Nunes & Teruya, 1985, *Lutzomyia almerioi* Galati & Nunes, 1999, *Nyssomyia antunesi* (Coutinho, 1939), *Migonemyia migonei* (França, 1920) and *Nyssomyia neivai* (Pinto, 1926) might be associated with VL transmission in Brazil (Galati et al. 1997, Lainson & Rangel 2003, Saraiva et al. 2009, Carvalho et al. 2010, Dias et al. 2013).

Nyssomyia whitmani (Antunes & Coutinho, 1939) has widespread distribution in Latin America and is the most important ATL vector in Brazil (Young & Duncan 1994, Galati 2003, Peterson & Shaw 2003, da Costa et al. 2007). In addition, *Bichromomyia flaviscutellata* (Mangabeira, 1942), *Ny. neivai* and *Nyssomyia intermedia* (Lutz & Neiva, 1912) have been incriminated as ATL vectors

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in various regions of Brazil (Shaw & Lainson 1968, Con-dino et al. 1998, Marcondes et al. 2005, 2009, Massafra et al. 2005, Andrade Filho et al. 2007, Silva et al. 2008, Dorval et al. 2010, de Almeida et al. 2013a).

Various studies have analysed the epidemiological importance and ecological aspects of sandflies in Central-West Brazil. However, the geographic distribution and dispersal potential of phlebotomine species must be described and analysed to understand the geographic dimensions of the risk of leishmaniasis transmission. Ecological niche modelling (ENM) could be used in this context to estimate the potential geographic distribution of species, based on known occurrence records (Peterson 2006, Peterson et al. 2011). ENM has been used to estimate sandfly distribution and factors related to leishmaniasis transmission (Peterson & Shaw 2003, Gebre-Michael et al. 2004, Peterson et al. 2004, Nieto et al. 2006, Zeilhofer et al. 2008, Colacicco-Mayhugh et al. 2010, de Oliveira et al. 2012, de Almeida et al. 2013b, Moo-Llanes et al. 2013, Quintana et al. 2013, Samy et al. 2014). The aim of this study was to analyse the geographic distribution of phlebotomine species in Central-West Brazil as well as the climatic factors associated with their occurrence.

MATERIALS AND METHODS

Study area - Central-West Brazil covers an area of 1,606,371 km² and consists of the following four federal units: MT, MS, GO and DF. The region is divided into 467 municipalities, most of which are in GO [Brazilian Institute of Geography and Statistics (ibge.gov.br/cidades)], which has a population of 14,993,194, found predominantly in urban areas (89%). Geographically, Central-West Brazil is formed by a central and a southern plateau and the Pantanal plain. The *Cerrado*, the predominant biome, covers the greatest area; however, the other biomes include the Pantanal, Atlantic Forest and Amazon Forest (Fig. 1). The climate is tropical with the following two well-defined seasons: a rainy summer between October-March and a dry winter between April-September.

Distribution data - The phlebotomine occurrence data were obtained from the entomology services in the state departments of health (MT, MS, GO and DF) and correspond to captures conducted between 1996-2014. In addition, the literature data between 1962-2014 were reviewed (Martins et al. 1962, 1978, 2002, Galati et al. 1985, 1989, 1997, 2001, 2006, Carvalho et al. 1989, Azevedo et al. 2002, de Oliveira et al. 2003, 2006, Braga-Miranda et al. 2006, Dorval et al. 2006, 2009, 2010, Andrade Filho et al. 2007, Missawa & Dias 2007, Missawa & Maciel 2007, Silva et al. 2007, 2008, Missawa et al. 2008, Andrade et al. 2009, de Almeida et al. 2010a, b, 2013a, b, Paiva et al. 2010, Amaral et al. 2011, Mestre et al. 2011, Alves et al. 2012, Queiroz et al. 2012, Santos et al. 2013, Thies et al. 2013). The records from scientific collections in speciesLink (splink.cria.org.br/), a distributed information system that combines primary data from scientific collections in real time and in the Museum of Zoology of the University of São Paulo were analysed as well. The taxonomic classification used follows Galati (2003) and the abbreviations of the sandfly genera are those proposed by Marcondes (2007).

Species occurrence in the biomes - To analyse the phlebotomine occurrence in the biomes in Central-West Brazil, the species distribution data and the limits of the biomes in the region were superimposed using QGIS 2.6. The relative occurrence (the number of records in the biome/total number of records for the species in Central-West Brazil) was then calculated and represented graphically using Excel.

ENM - The phlebotomine species records were georeferenced with a confidence level of < 5 km and an approximate accuracy of 0.01°. The geographic coordinates of named places were obtained from an online gazetteer (fallingrain.com/world) and the data were organised in spreadsheets. The species occurrence database was reviewed in ArcGIS to avoid duplicate records at the spatial resolution used and obvious errors of georeferencing (e.g., points in the ocean) or identification (out dated taxonomic arrangements).

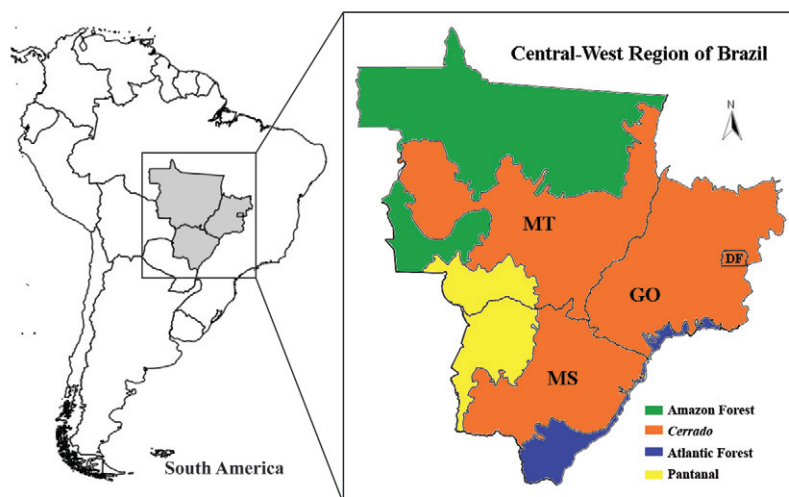


Fig. 1: study area showing the states in Central-West Brazil and the limits of the biomes in this region. DF: Federal District; GO: state of Goiás; MS: state of Mato Grosso do Sul; MT: state of Mato Grosso.

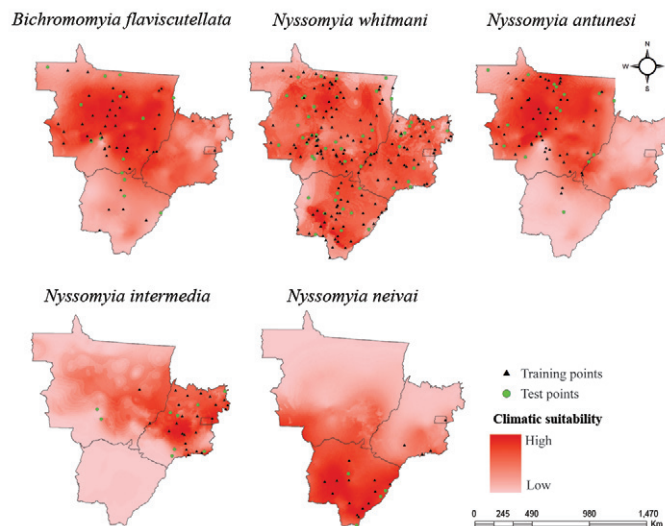


Fig. 3: potential geographic distribution of American tegumentary leishmaniasis vectors in Central-West Brazil. The triangles represent the points used to produce the ecological niche model based on eight climate variables. The circles show the points used to evaluate the models. The red scale shows climate suitability for the different species (dark: high; light: low).

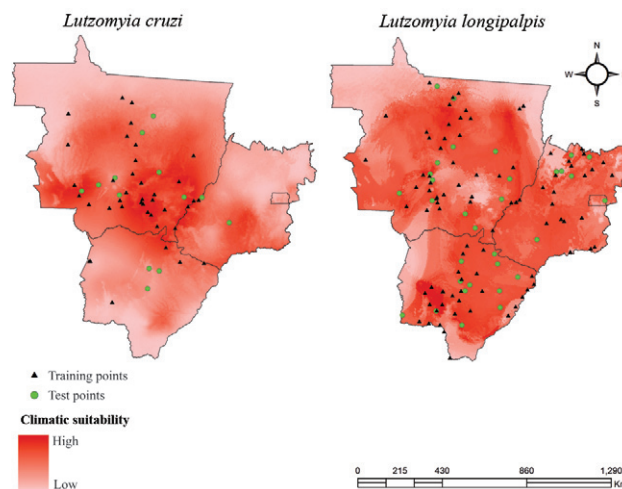


Fig. 4: potential geographic distribution of visceral leishmaniasis vectors in Central-West Brazil. The triangles represent the points used to produce the ecological niche model based on eight climate variables. The circles show the points used to evaluate the models. The red scale shows climate suitability for the different species (dark: high; light: low).

($n = 38$), *Evandromyia walkeri* ($n = 61$), *Evandromyia sallési* ($n = 105$), *Lu. cruzi* ($n = 52$), *Lu. longipalpis* ($n = 129$), *Micropygomyia acanthopharynx* ($n = 49$), *Micropygomyia vellelai* (= *Micropygomyia goiana*) ($n = 25$), *Micropygomyia longipennis* ($n = 62$), *Micropygomyia quinquefer* ($n = 22$), *Mg. migonei* ($n = 33$), *Ny. antunesi* ($n = 71$), *Ny. intermedia* ($n = 34$), *Ny. neivai* ($n = 22$), *Ny. whitmani* ($n = 178$), *Psathyromyia aragaoui* ($n = 76$), *Psathyromyia hermanlenti* ($n = 85$), *Psathyromyia lutziana* ($n = 53$), *Psathyromyia* aff. *runoides* ($n = 46$), *Psathyromyia shannoni* “sensu lato” ($n = 73$), *Psathyromyia punctigeniculata* ($n = 61$), *Pintomyia christenseni* ($n = 29$), *Psychodopygus complexus* ($n = 27$), *Psychodopygus davisi* ($n = 68$), *Sciopemyia sordellii* ($n = 123$) and *Ty. dasypodogeton* ($n = 28$). The

ecological niche models of most of these species and their geographic coordinates are shown in the Supplementary Figure and Table, respectively.

Ny. whitmani was distributed widely in all the states and had the potential to occur throughout the entire territory of Central-West Brazil (Fig. 3). *Bi. flaviscutellata* and *Ny. antunesi* were common in MT, where the climate was more suitable to these species. However, *Bi. flaviscutellata* had high potential to occur in southern GO as well. The distributions of *Ny. neivai* and *Ny. intermedia* were more restricted to MS and GO, respectively (Fig. 3). *Lu. longipalpis* had a broader geographic distribution than *Lu. cruzi*. Areas in northern GO, north-western MT and southern MS were not highly suitable for *Lu. cruzi* (Fig. 4).

The temperatures in the coldest months and temperature seasonality were the variables with the greatest influence on the models, according to the jackknife tests. Most of the test points for the species were included in the areas predicted by the ENMs. All the models had omission errors < 1% and could therefore be validated.

DISCUSSION

This study updated the geographic distributions of phlebotomine species in Central-West Brazil, which account for approximately one-half of all the known species recorded in Brazil. The results show that phlebotomine species have different geographic distribution patterns in this region and that nearly all the areas of Central-West Brazil have climate conditions that favour the occurrence of at least one of these species. The distribution patterns show that sandflies are found more frequently in the *Cerrado* areas and that temperature seasonality and temperature in the coldest months are the climate variables that have the greatest influence on the species distribution.

The phlebotomine species list of Central-West Brazil was updated. Missawa & Maciel (2007) and SES/MT (2013) recorded 106 species in MT, which is fewer than the 108 species registered in this study. In MS, de Oliveira et al. (2006), Galati et al. (2006) and de Almeida et al. (2010b) reported 57 species, which is fewer than the 61 species registered here. Martins et al. (2002) detected 41 species in GO, whereas 47 were found in this study. This study did not find new records of sandfly species in Central-West Brazil. The differences between the numbers of species in the previous lists and in this study are in part because the records of the health departments of municipalities are generally unpublished. In addition, we included the lists of Martins et al. (1978), which is sometimes overlooked in the literature and even the latest revision of Galati (2014), which updates the species records in the Brazilian states. The higher species richness in MT is probably related to the size of this state and the variety of the biomes (the *Cerrado*, Amazon Forest and Pantanal) and transition zones, which could favour diversification of phlebotomine fauna, as observed for triatomine species (Pereira et al. 2013). According to Sábio et al. (2014), *Pa. shannoni* do not occur in Brazil and, based on this taxonomic review of the shannoni series, the specimens recorded in Central-West Brazil is *Psathyromyia bigeniculata* (Floch & Abonnenc, 1941). The records of *Lutzomyia cruciata*, *Pintomyia andina*, *Psathyromyia lanei*, *Psathyromyia rugarupa*, *Psychodopygus nigaraguensis* and *Viannamyia caprina* require confirmation. Moreover, *Lutzomyia gomezi*, *Micropygomyia vonatzinzeni*, *Evandromyia cortelezii* and *Pintomyia kuscheli* could be incorrectly registered in the CWB because they are morphologically similar to *Lutzomyia sherlocki*, *Micropygomyia oswaldoi*, *Evandromyia corumbaensis* and *Pintomyia fischeri* or *Pintomyia pessoai*, respectively (EAB Galati, unpublished observations). Specimens identified as *Sciopemyia microps* and *Pa. runoides* can be new species; in the present study they are considered as *Sciopemyia* aff. *microps* and *Pa.* aff. *runoides* (AJ Andrade, unpublished observations). The occurrence records in the present study are according to identified

species by health services and formally published. The revision of specimens deposited in scientific collections should elucidate these possible taxonomic problems.

Ny. whitmani showed a widespread geographic distribution in Central-West Brazil, corroborating the findings of other studies (Young & Duncan 1994, Galati 2003, Peterson & Shaw 2003). This species is one of the commonest in artificial environments in Brazil. Its presence in an area is positively correlated with deforestation and it occurs primarily in municipalities with lower economic development indexes (Galati et al. 2006, da Costa et al. 2007, Missawa et al. 2008, Zeilhofer et al. 2008, de Almeida et al. 2013b). *Ny. intermedia* occurs predominantly in GO and DF; however, this study indicated that areas in western MT are climatically suitable and could therefore favour dispersal of this species within this state. This species has a widespread distribution in the Southeast Region of Brazil (Peterson & Shaw 2003). The climatic conditions in southern Central-West Brazil (particularly in MS) were suitable for *Ny. neivai* and not for *Ny. intermedia*. The distribution of *Ny. intermedia* and *Ny. neivai* should be revised in future studies because they are similar species and identification errors could cause it to be difficult to map their geographic distributions correctly (Marcondes 1996, Andrade Filho et al. 2003, 2007). *Bi. flaviscutellata* had great potential to occur in southern GO within the *Cerrado* biome, for which there are few records of this species. According to Young and Duncan (1994), *Bi. flaviscutellata* is found predominantly in the Amazon Region. Our results show that it is frequently found in the *Cerrado* as well and that it probably disperses along the gallery forests in this biome. *Ny. antunesi*, *Ty. dasypodogeton* and *Ps. complexus* were found predominantly in northern MT and had a significant relative occurrence in the Amazon biome, which is in agreement with Young and Duncan (1994).

Lu. longipalpis occurred in all the biomes in Central-West Brazil, confirming its great adaptability to different environments (Deane & Deane 1962, Lanzaro et al. 1993, Sherlock 1996, Aguiar & Medeiros 2003, Galati 2003, de Almeida et al. 2013b). *Lu. cruzi* occurred predominantly in MT and MS, confirming the findings of Missawa and Lima (2006). However, the niche model revealed high climate suitability for *Lu. cruzi* in southern GO. Further studies in these areas are required to confirm the presence of *Lu. cruzi*. Although not involved in the transmission of leishmaniases, *Ev. lenti* was widespread in Central-West Brazil, as previously reported by Young and Duncan (1994) and Galati (2003).

The variables with the greatest influence on the models were the temperatures in the coldest months and temperature seasonality, as in the study of *Lu. longipalpis* in MS by de Almeida et al. (2013b). These results are in agreement with those of Guzmán and Tesh (2000) and highlight the fundamental importance of temperature for the development and occurrence of phlebotomines. However, biotic and socioeconomic variables influence the occurrence of these insects as well (Zeilhofer et al. 2008). Therefore, further studies analysing the geographic distribution of phlebotomines under environmental and climate-change scenarios are required (Moo-Llanes et al. 2013).

Considerable efforts were made in this study to establish a comprehensive, representative, up-to-date database of phlebotomine species in Central-West Brazil. However, although the data were gathered from a variety of sources (e.g., scientific articles, museums and books), some records will inevitably have been overlooked, as an inherent limitation of geographic distribution studies. Furthermore, taxonomic issues might have had an effect on the occurrence data, maps and models described here. The database spatial resolution in this study could limit the accuracy of the ENMs. Models based on low-resolution data tend to overestimate the species distribution limits (Seo et al. 2009). The effects of these uncertainties related to low resolution tend to be smaller in studies on a continental or regional scale (Wiens et al. 2009).

Finally, this study could facilitate the development of surveillance and control strategies for leishmaniasis in Central-West Brazil. Areas that are climatically suitable for the species discussed in this study and are without any confirmed occurrence should be investigated in future phlebotomine surveys. The maps produced here could serve as reference to future studies on sandflies and are the first step to developing an Atlas of Phlebotominae in Brazil, with the geographical distribution of all the species, which could be useful in academic studies and health services.

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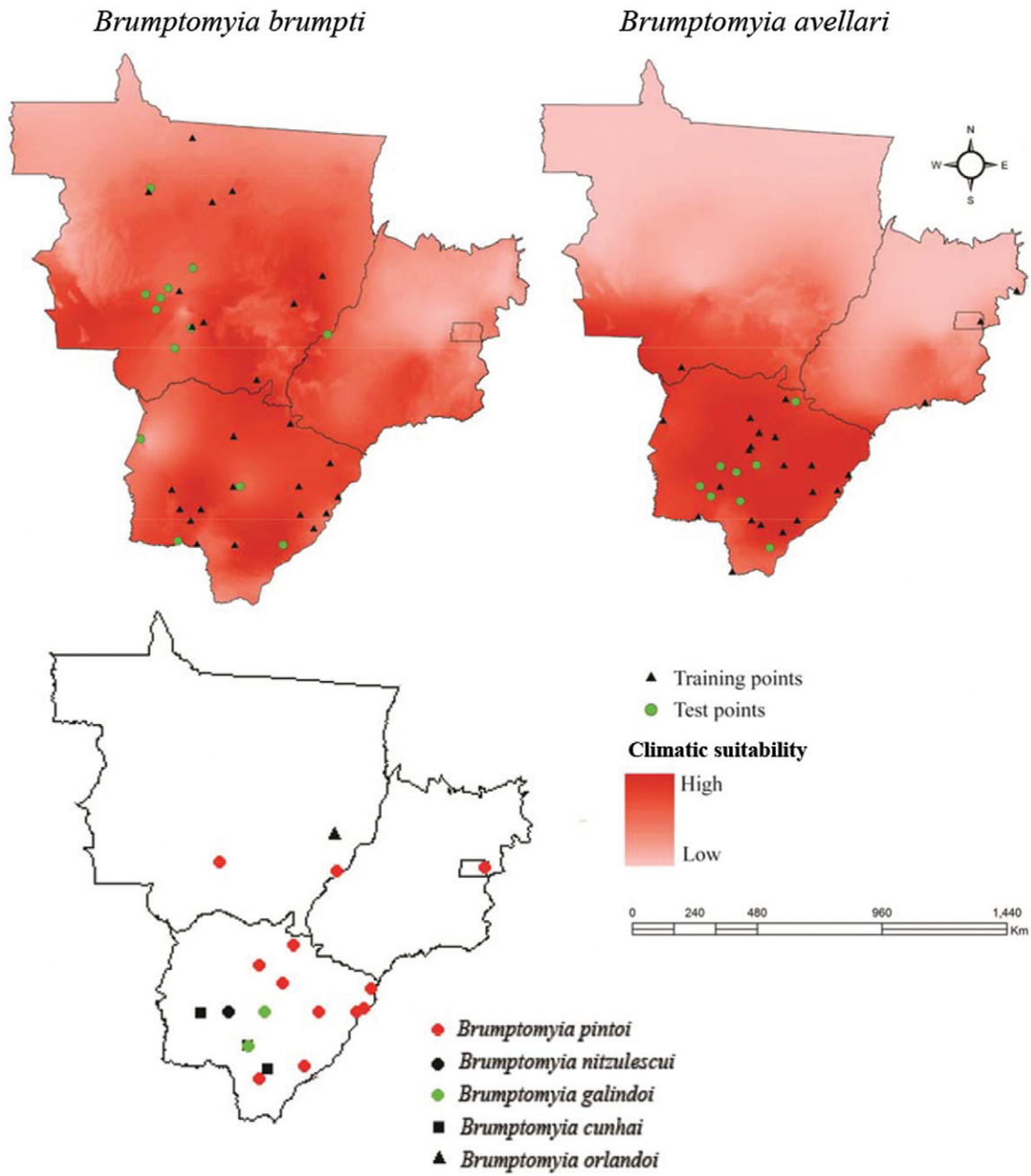
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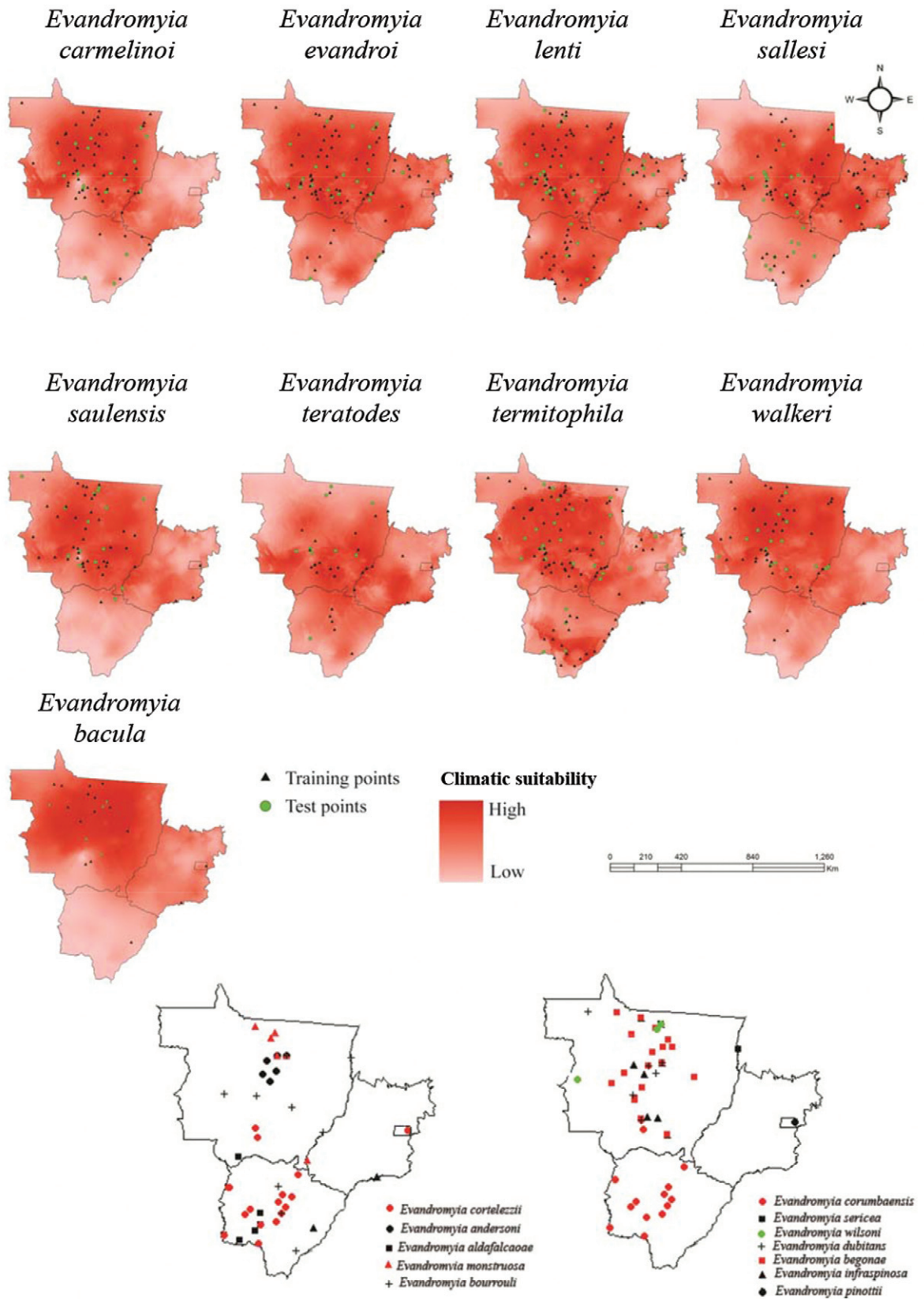
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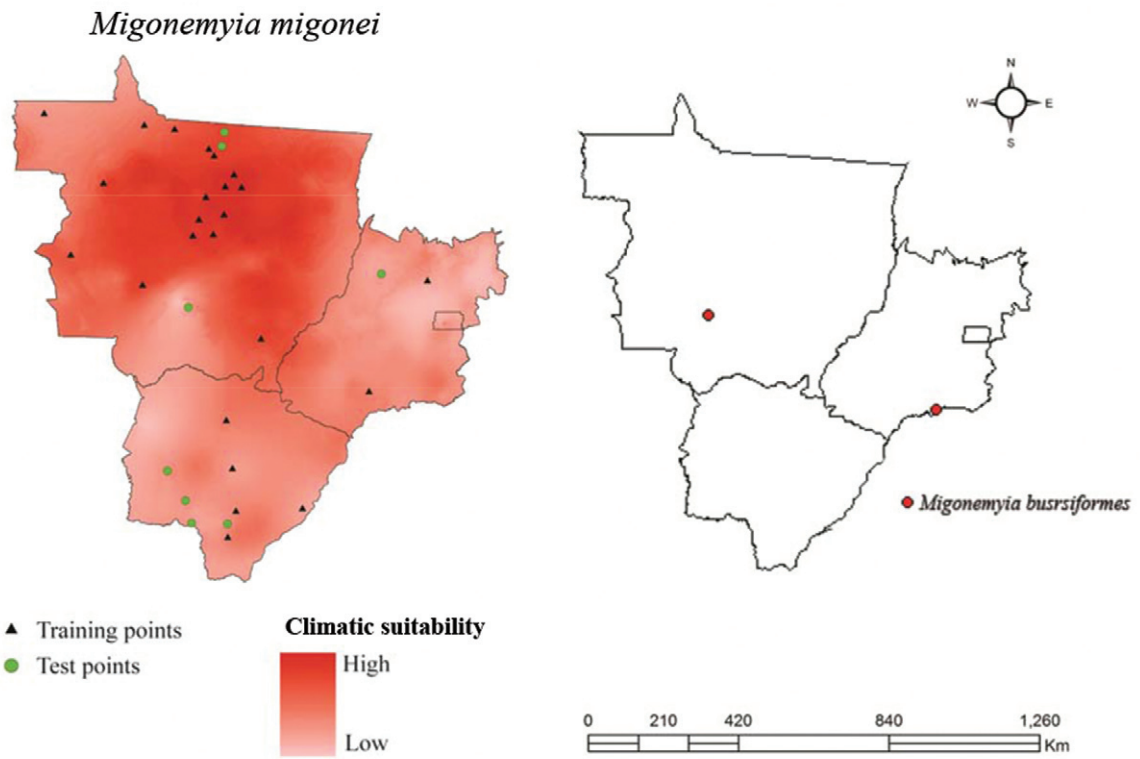
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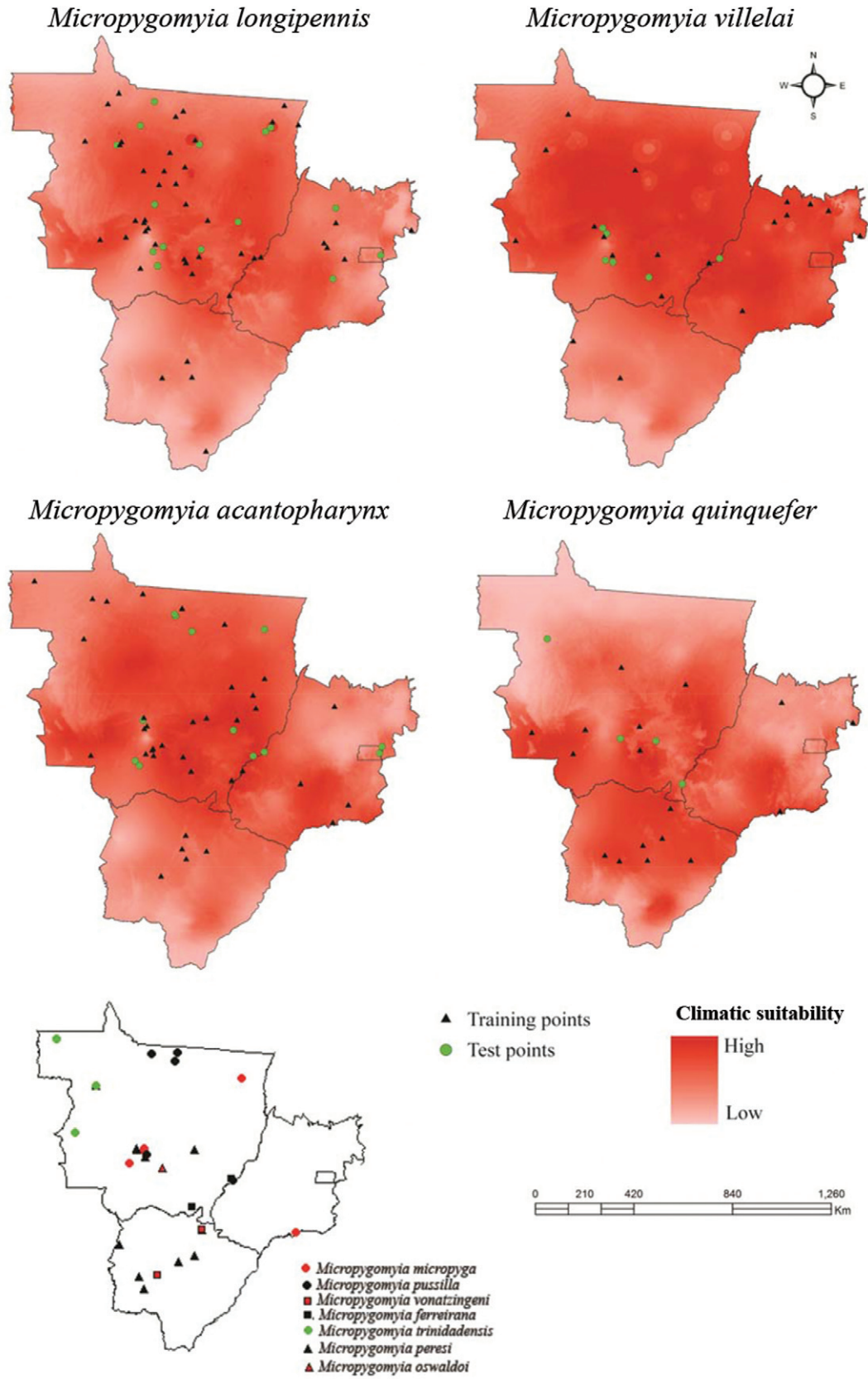
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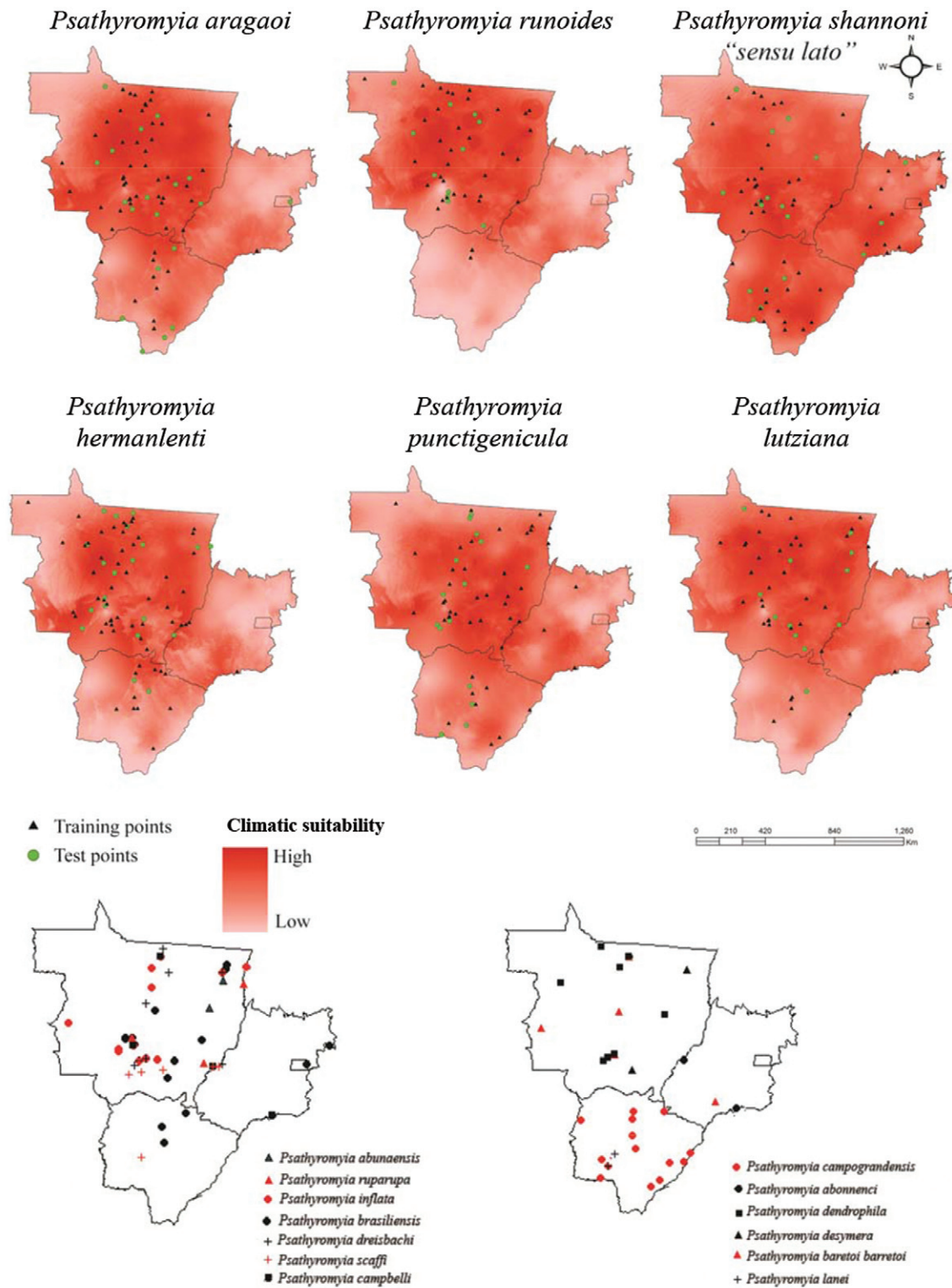
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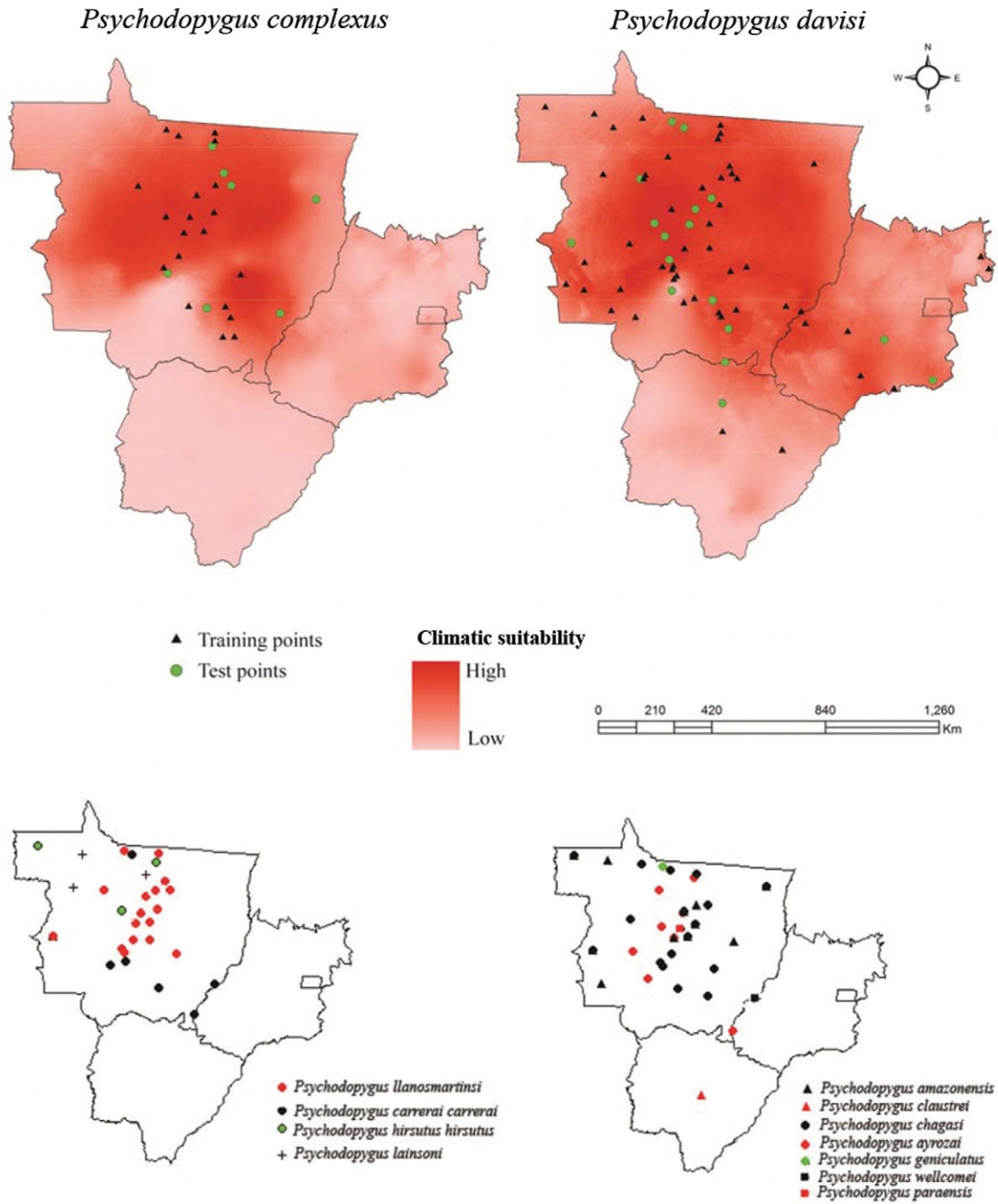


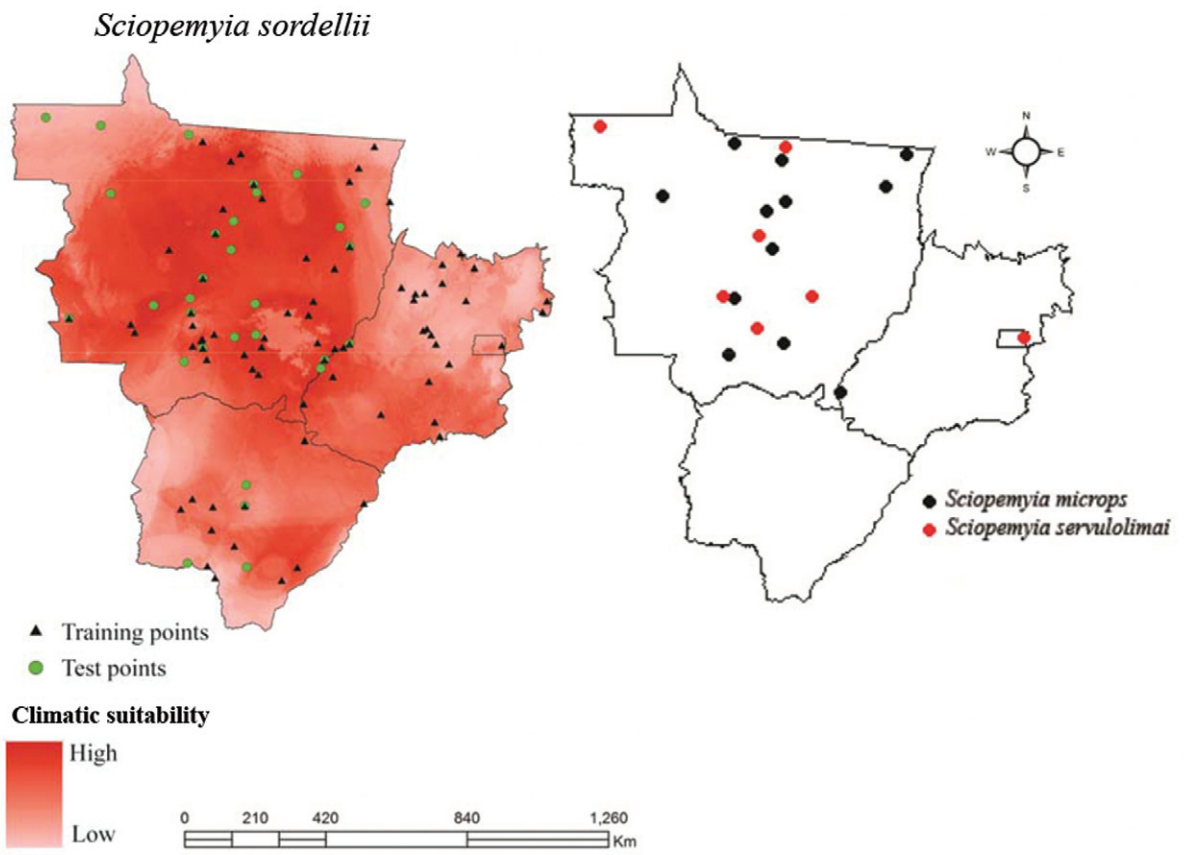


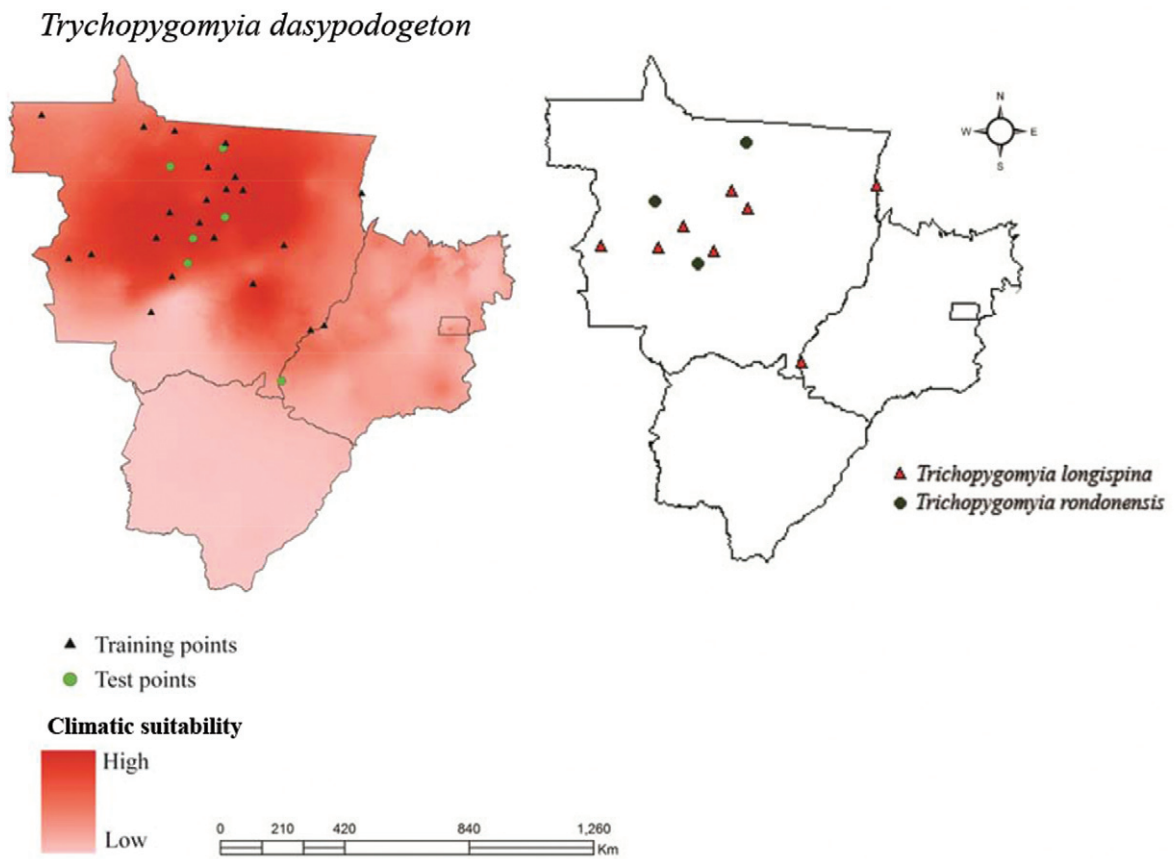




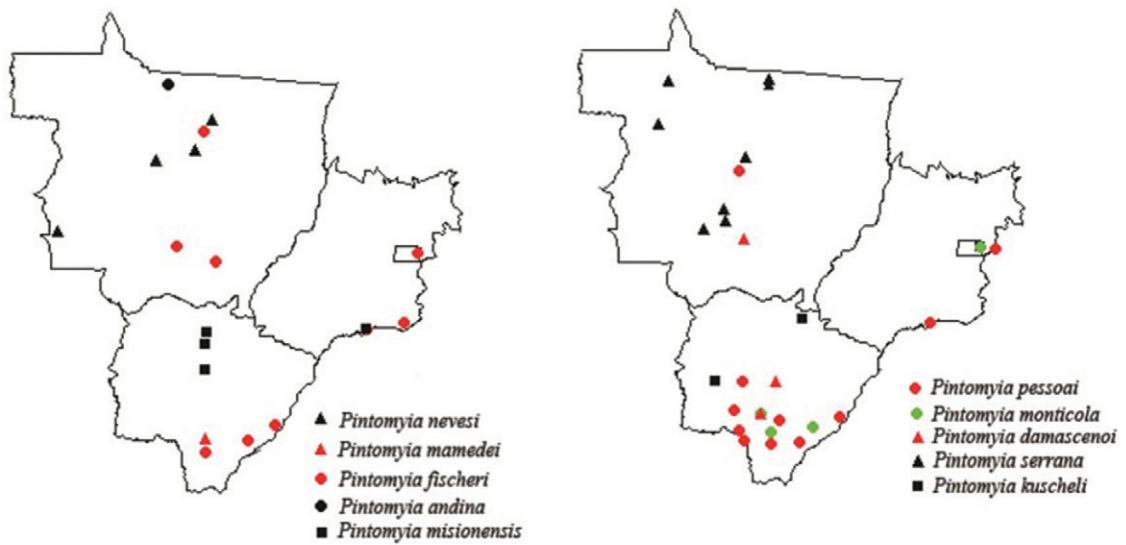
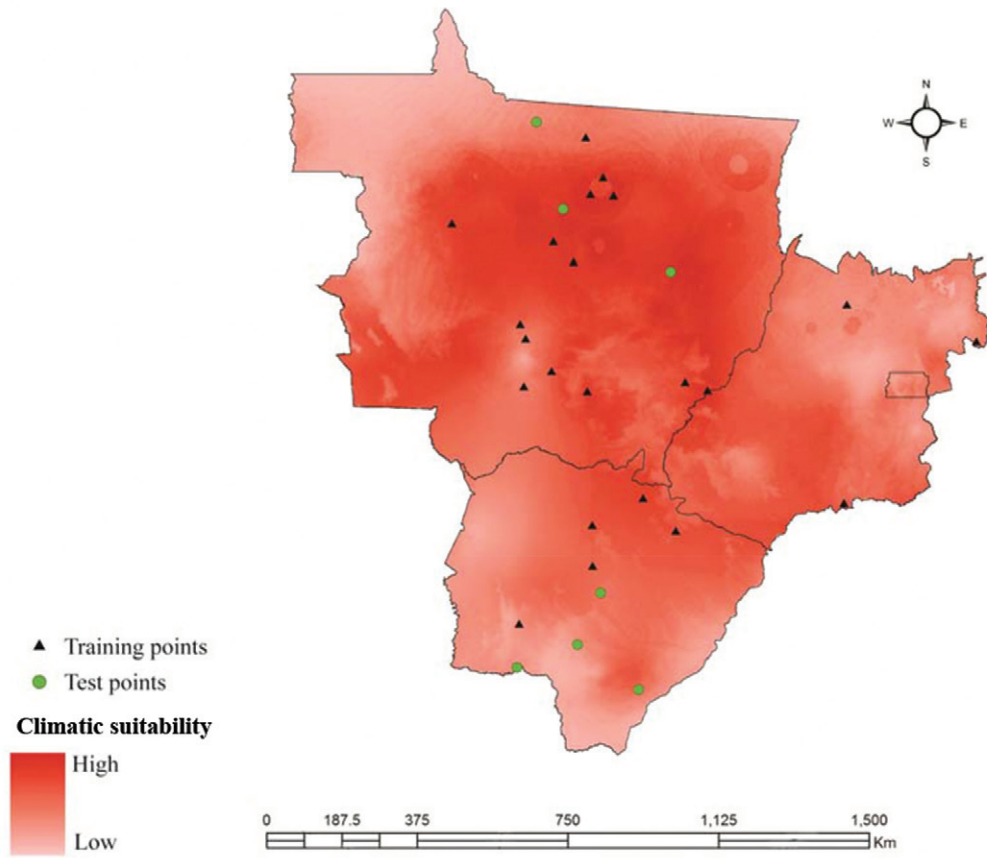


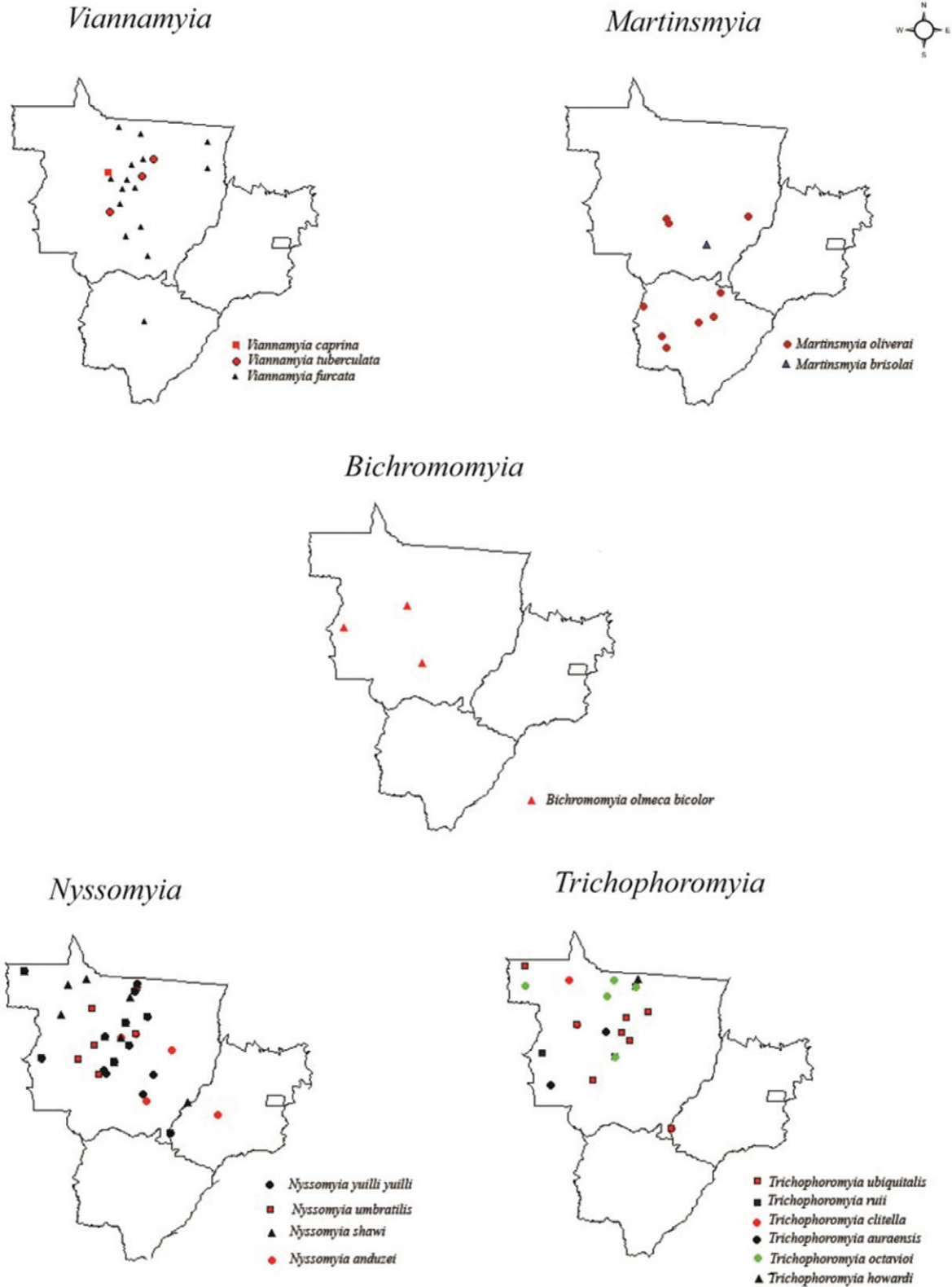


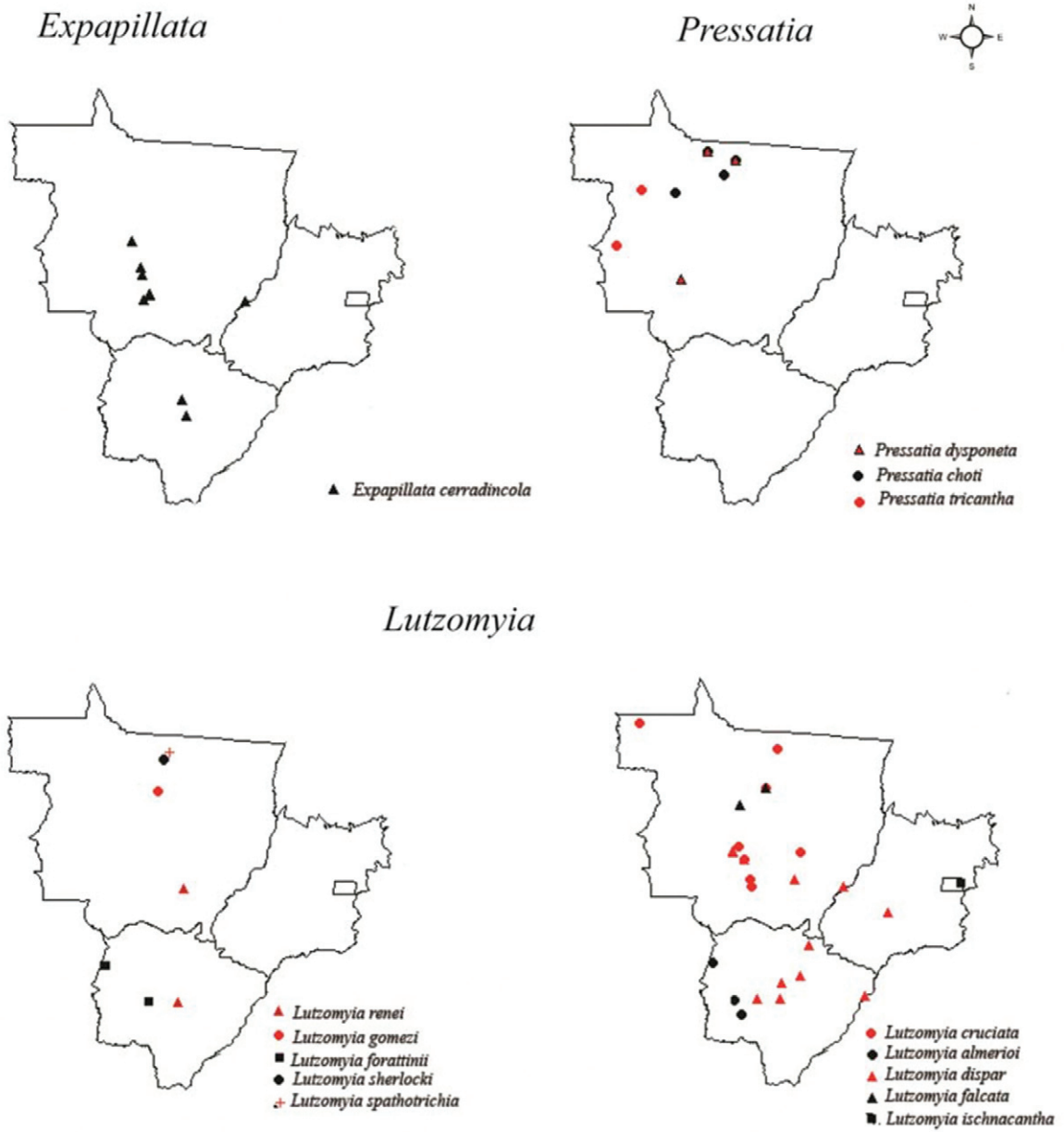




Pintomyia christenseni







Geographic distribution maps of other phlebotomine species in Central-West Brazil.

TABLE

Geographic coordinates used to produce ecological niche models of phlebotomine species in Central-West Brazil

Sandfly species	State code	Municipalities	Longitude	Latitude
<i>Bichromomyia flaviscutellata</i>	MT	Barra dos Bugres	-57.18	-15.08
<i>Bichromomyia flaviscutellata</i>	MT	Varzea Grande	-56.13	-15.65
<i>Bichromomyia flaviscutellata</i>	MT	Sapezal	-57.20	-14.97
<i>Bichromomyia flaviscutellata</i>	MT	Brasnorte	-57.98	-12.15
<i>Bichromomyia flaviscutellata</i>	MT	Nova Mutum	-56.08	-13.83
<i>Bichromomyia flaviscutellata</i>	MT	Barra do Garças	-52.26	-15.89
<i>Bichromomyia flaviscutellata</i>	MT	Água Boa	-52.16	-14.05
<i>Bichromomyia flaviscutellata</i>	MT	Alta Floresta	-56.09	-9.88
<i>Bichromomyia flaviscutellata</i>	MT	Apiacás	-57.45	-9.54
<i>Bichromomyia flaviscutellata</i>	MT	Aripuanã	-60.63	-9.17
<i>Bichromomyia flaviscutellata</i>	MT	Barão do Melgaço	-55.97	-16.19
<i>Bichromomyia flaviscutellata</i>	MT	Campo Novo do Parecis	-57.88	-13.67
<i>Bichromomyia flaviscutellata</i>	MT	Campo Verde	-55.16	-15.54
<i>Bichromomyia flaviscutellata</i>	MT	Canabrava do Norte	-51.83	-11.03
<i>Bichromomyia flaviscutellata</i>	MT	Chapada dos Guimarães	-55.75	-15.46
<i>Bichromomyia flaviscutellata</i>	MT	Cláudia	-54.88	-11.49
<i>Bichromomyia flaviscutellata</i>	MT	Colíder	-55.45	-10.81
<i>Bichromomyia flaviscutellata</i>	MT	Colniza	-59.03	-9.40
<i>Bichromomyia flaviscutellata</i>	MT	Comodoro	-59.79	-13.66
<i>Bichromomyia flaviscutellata</i>	MT	Cuiabá	-56.10	-15.60
<i>Bichromomyia flaviscutellata</i>	MT	Diamantino	-56.45	-14.41
<i>Bichromomyia flaviscutellata</i>	MT	Feliz Natal	-54.92	-12.39
<i>Bichromomyia flaviscutellata</i>	MT	Gaúcha do Norte	-53.08	-13.24
<i>Bichromomyia flaviscutellata</i>	MT	General Carneiro	-52.76	-15.71
<i>Bichromomyia flaviscutellata</i>	MT	Guarantã do Norte	-54.90	-9.78
<i>Bichromomyia flaviscutellata</i>	MT	Itiquira	-54.14	-17.21
<i>Bichromomyia flaviscutellata</i>	MT	Lucas do Rio Verde	-55.91	-13.05
<i>Bichromomyia flaviscutellata</i>	MT	Mercelândia	-54.60	-11.11
<i>Bichromomyia flaviscutellata</i>	MT	Nobres	-56.33	-14.73
<i>Bichromomyia flaviscutellata</i>	MT	Nova Brasilândia	-54.57	-14.57
<i>Bichromomyia flaviscutellata</i>	MT	Nova Lacerda	-59.35	-14.28
<i>Bichromomyia flaviscutellata</i>	MT	Nova Maringá	-57.06	-13.01
<i>Bichromomyia flaviscutellata</i>	MT	Nova Ubiratã	-55.26	-13.01
<i>Bichromomyia flaviscutellata</i>	MT	Novo Horizonte do Norte	-57.35	-11.41
<i>Bichromomyia flaviscutellata</i>	MT	Pontal do Araguaia	-52.01	-15.85
<i>Bichromomyia flaviscutellata</i>	MT	Pontes de Lacerda	-59.37	-15.20
<i>Bichromomyia flaviscutellata</i>	MT	Porto Alegre do Norte	-51.63	-10.87
<i>Bichromomyia flaviscutellata</i>	MT	Poxoréo	-54.38	-15.83
<i>Bichromomyia flaviscutellata</i>	MT	Primavera do Leste	-54.30	-15.56
<i>Bichromomyia flaviscutellata</i>	MT	Ribeirão Cascalheira	-51.82	-12.92
<i>Bichromomyia flaviscutellata</i>	MT	Rondonópolis	-54.64	-16.47
<i>Bichromomyia flaviscutellata</i>	MT	Rosário Oeste	-56.43	-14.84
<i>Bichromomyia flaviscutellata</i>	MT	Santa Rita do Trivelato	-55.26	-13.81
<i>Bichromomyia flaviscutellata</i>	MT	São Felix do Araguaia	-50.67	-11.61
<i>Bichromomyia flaviscutellata</i>	MT	Sapezal	-57.20	-14.97
<i>Bichromomyia flaviscutellata</i>	MT	Sinop	-55.49	-11.83
<i>Bichromomyia flaviscutellata</i>	MT	Sorriso	-55.71	-12.55
<i>Bichromomyia flaviscutellata</i>	MT	Tangará da Serra	-57.50	-14.62
<i>Bichromomyia flaviscutellata</i>	MT	União do Sul	-54.36	-11.52
<i>Bichromomyia flaviscutellata</i>	MS	Aquidauana	-55.79	-20.47
<i>Bichromomyia flaviscutellata</i>	MS	Bela Vista	-56.52	-22.11
<i>Bichromomyia flaviscutellata</i>	MS	Campo Grande	-54.65	-20.44



Sandfly species	State code	Municipalities	Longitude	Latitude
<i>Bichromomyia flaviscutellata</i>	MS	São Gabriel do Oeste	-54.57	-19.40
<i>Bichromomyia flaviscutellata</i>	MS	Santa Rita do Pardo	-52.83	-21.30
<i>Bichromomyia flaviscutellata</i>	MS	Bonito	-56.47	-21.13
<i>Bichromomyia flaviscutellata</i>	MS	Pedro Gomes	-54.55	-18.10
<i>Bichromomyia flaviscutellata</i>	MS	Rio Verde de Mato Grosso	-54.84	-18.92
<i>Bichromomyia flaviscutellata</i>	MS	Sonora	-54.75	-17.57
<i>Bichromomyia flaviscutellata</i>	MS	Três Lagoas	-51.68	-20.75
<i>Bichromomyia flaviscutellata</i>	GO	Cavalcante	-47.50	-13.80
<i>Bichromomyia flaviscutellata</i>	GO	Porangatu	-49.15	-13.44
<i>Bichromomyia flaviscutellata</i>	DF	Brasília	-47.42	-15.78
<i>Brumptomyia avellari</i>	MS	Água Clara	-52.87	-20.44
<i>Brumptomyia avellari</i>	MS	Alcinópolis	-53.70	-18.31
<i>Brumptomyia avellari</i>	MS	Anastácio	-55.81	-20.48
<i>Brumptomyia avellari</i>	MS	Aquidauana	-55.79	-20.47
<i>Brumptomyia avellari</i>	MS	Bela Vista	-56.52	-22.11
<i>Brumptomyia avellari</i>	MS	Bonito	-56.47	-21.13
<i>Brumptomyia avellari</i>	MS	Brasilândia	-52.04	-21.26
<i>Brumptomyia avellari</i>	MS	Camapuã	-54.04	-19.53
<i>Brumptomyia avellari</i>	MS	Campo Grande	-54.65	-20.44
<i>Brumptomyia avellari</i>	MS	Corumbá	-57.65	-19.01
<i>Brumptomyia avellari</i>	MS	Corguinho	-54.83	-19.83
<i>Brumptomyia avellari</i>	MS	Figueirão	-53.38	-18.4
<i>Brumptomyia avellari</i>	MS	Fátima do Sul	-54.51	-22.37
<i>Brumptomyia avellari</i>	MS	Ribas do Rio Pardo	-53.76	-20.44
<i>Brumptomyia avellari</i>	MS	Maracajú	-55.17	-21.61
<i>Brumptomyia avellari</i>	MS	Naviri	-54.22	-23.13
<i>Brumptomyia avellari</i>	MS	Nioaque	-55.83	-21.14
<i>Brumptomyia avellari</i>	MS	Nhecolândia	-57.07	-17.27
<i>Brumptomyia avellari</i>	MS	Nova Andradina	-53.34	-22.23
<i>Brumptomyia avellari</i>	MS	Novo Horizonte do Sul	-53.80	-22.61
<i>Brumptomyia avellari</i>	MS	Rochedo	-54.89	-19.95
<i>Brumptomyia avellari</i>	MS	São Gabriel do Oeste	-54.57	-19.40
<i>Brumptomyia avellari</i>	MS	Dourados	-54.81	-22.22
<i>Brumptomyia avellari</i>	MS	Guia Lopes da Laguna	-56.11	-21.46
<i>Brumptomyia avellari</i>	MS	Santa Rita do Pardo	-52.83	-21.30
<i>Brumptomyia avellari</i>	MS	Bonito	-56.47	-21.13
<i>Brumptomyia avellari</i>	MS	Dois Irmãos do Buriti	-55.30	-20.68
<i>Brumptomyia avellari</i>	MS	Paranhos	-55.43	-23.89
<i>Brumptomyia avellari</i>	MS	Rio Verde de Mato Grosso	-54.84	-18.92
<i>Brumptomyia avellari</i>	MS	Três Lagoas	-51.68	-20.75
<i>Brumptomyia avellari</i>	GO	Itumbiara	-49.21	-18.42
<i>Brumptomyia avellari</i>	GO	Sítio d' Abadia	-46.25	-14.80
<i>Brumptomyia avellari</i>	DF	Brasília	-47.42	-15.78
<i>Brumptomyia brumpti</i>	MT	Peixoto de Azevedo	-54.98	-10.22
<i>Brumptomyia brumpti</i>	MT	Várzea Grande	-56.13	-15.65
<i>Brumptomyia brumpti</i>	MT	Nova Mutum	-56.08	-13.83
<i>Brumptomyia brumpti</i>	MT	Cuiabá	-56.10	-15.60
<i>Brumptomyia brumpti</i>	MT	Barra do Garças	-52.26	-15.89
<i>Brumptomyia brumpti</i>	MT	Água Boa	-52.16	-14.05
<i>Brumptomyia brumpti</i>	MT	Alta Floresta	-56.09	-9.88
<i>Brumptomyia brumpti</i>	MT	Alto do Paraguai	-56.48	-14.51
<i>Brumptomyia brumpti</i>	MT	Araguainha	-53.08	-16.82
<i>Brumptomyia brumpti</i>	MT	Arenápolis	-56.82	-14.43



Sandfly species	State code	Municipalities	Longitude	Latitude
<i>Brumptomyia brumpti</i>	MT	Barra dos Bugres	-57.18	-15.08
<i>Brumptomyia brumpti</i>	MT	Barra do Garças	-52.26	-15.89
<i>Brumptomyia brumpti</i>	MT	Chapada dos Guimarães	-55.75	-15.46
<i>Brumptomyia brumpti</i>	MT	Cláudia	-54.88	-11.49
<i>Brumptomyia brumpti</i>	MT	Denise	-57.05	-14.73
<i>Brumptomyia brumpti</i>	MT	Diamantino	-56.45	-14.41
<i>Brumptomyia brumpti</i>	MT	Itiquira	-54.14	-17.21
<i>Brumptomyia brumpti</i>	MT	Jaciara	-54.95	-15.92
<i>Brumptomyia brumpti</i>	MT	Novo Horizonte do Norte	-57.35	-11.41
<i>Brumptomyia brumpti</i>	MT	Novo São Joaquim	-53.02	-14.90
<i>Brumptomyia brumpti</i>	MT	Poconé	-56.62	-16.26
<i>Brumptomyia brumpti</i>	MT	Pontal do Araguaia	-52.00	-15.84
<i>Brumptomyia brumpti</i>	MT	Porto Alegre do Norte	-51.63	-10.87
<i>Brumptomyia brumpti</i>	MT	Porto dos Gaúchos	-57.41	-11.52
<i>Brumptomyia brumpti</i>	MT	Rondonópolis	-54.64	-16.47
<i>Brumptomyia brumpti</i>	MT	Rosário Oeste	-56.43	-14.84
<i>Brumptomyia brumpti</i>	MT	Santo Antônio do Leverger	-56.08	-15.87
<i>Brumptomyia brumpti</i>	MT	São José dos 4 Marcos	-58.17	-15.17
<i>Brumptomyia brumpti</i>	MT	Sinop	-55.49	-11.83
<i>Brumptomyia brumpti</i>	MT	Tangará da Serra	-57.50	-14.62
<i>Brumptomyia brumpti</i>	MT	Itanhangá	-56.64	-12.23
<i>Brumptomyia brumpti</i>	MS	Água Clara	-52.87	-20.44
<i>Brumptomyia brumpti</i>	MS	Alcinópolis	-53.70	-18.31
<i>Brumptomyia brumpti</i>	MS	Antonio João	-55.95	-22.19
<i>Brumptomyia brumpti</i>	MS	Bela Vista	-56.52	-22.11
<i>Brumptomyia brumpti</i>	MS	Bonito	-56.47	-21.13
<i>Brumptomyia brumpti</i>	MS	Bataguassu	-52.42	-21.71
<i>Brumptomyia brumpti</i>	MS	Bodoquena	-56.72	-20.54
<i>Brumptomyia brumpti</i>	MS	Brasilândia	-52.04	-21.26
<i>Brumptomyia brumpti</i>	MS	Corumbá	-57.65	-19.01
<i>Brumptomyia brumpti</i>	MS	Campo Grande	-54.65	-20.44
<i>Brumptomyia brumpti</i>	MS	Fátima do Sul	-54.51	-22.37
<i>Brumptomyia brumpti</i>	MS	Nova Andradina	-53.34	-22.23
<i>Brumptomyia brumpti</i>	MS	São Gabriel do Oeste	-54.57	-19.40
<i>Brumptomyia brumpti</i>	MS	Terenos	-54.86	-20.44
<i>Brumptomyia brumpti</i>	MS	Costa Rica	-53.13	-18.54
<i>Brumptomyia brumpti</i>	MS	Dourados	-54.81	-22.22
<i>Brumptomyia brumpti</i>	MS	Guia Lopes da Laguna	-56.11	-21.46
<i>Brumptomyia brumpti</i>	MS	Inocência	-51.93	-19.73
<i>Brumptomyia brumpti</i>	MS	Jardim	-56.14	-21.48
<i>Brumptomyia brumpti</i>	MS	Nioaque	-55.83	-21.13
<i>Brumptomyia brumpti</i>	MS	Santa Rita do Pardo	-52.83	-21.30
<i>Brumptomyia brumpti</i>	MS	Bonito	-41.27	-11.97
<i>Brumptomyia brumpti</i>	MS	Rio Verde de Mato Grosso	-54.84	-18.92
<i>Brumptomyia brumpti</i>	MS	Três Lagoas	-51.68	-20.75
<i>Evandromyia carmelinoi</i>	MT	Várzea Grande	-56.13	-15.65
<i>Evandromyia carmelinoi</i>	MT	Cuiabá	-56.10	-15.60
<i>Evandromyia carmelinoi</i>	MT	Água Boa	-52.16	-14.05
<i>Evandromyia carmelinoi</i>	MT	Alta Floresta	-56.09	-9.88
<i>Evandromyia carmelinoi</i>	MT	Alto Araguaia	-53.22	-17.31
<i>Evandromyia carmelinoi</i>	MT	Alto da Boa Vista	-51.38	-11.66
<i>Evandromyia carmelinoi</i>	MT	Alto do Paraguai	-56.48	-14.51
<i>Evandromyia carmelinoi</i>	MT	Araguaina	-51.83	-15.73



Sandfly species	State code	Municipalities	Longitude	Latitude
<i>Evandromyia carmelinoi</i>	MT	Araguainha	-53.08	-16.82
<i>Evandromyia carmelinoi</i>	MT	Arenápolis	-56.82	-14.43
<i>Evandromyia carmelinoi</i>	MT	Aripuanã	-60.63	-9.17
<i>Evandromyia carmelinoi</i>	MT	Barão do Melgaço	-55.97	-16.19
<i>Evandromyia carmelinoi</i>	MT	Barra dos Bugres	-57.18	-15.08
<i>Evandromyia carmelinoi</i>	MT	Barra do Garças	-52.26	-15.89
<i>Evandromyia carmelinoi</i>	MT	Brasnorte	-57.98	-12.15
<i>Evandromyia carmelinoi</i>	MT	Campinápolis	-52.88	-14.50
<i>Evandromyia carmelinoi</i>	MT	Campo Novo do Parecis	-57.88	-13.67
<i>Evandromyia carmelinoi</i>	MT	Campo Verde	-55.16	-15.54
<i>Evandromyia carmelinoi</i>	MT	Canabrava do Norte	-51.83	-11.03
<i>Evandromyia carmelinoi</i>	MT	Canarana	-52.27	-13.55
<i>Evandromyia carmelinoi</i>	MT	Chapada dos Guimarães	-55.75	-15.46
<i>Evandromyia carmelinoi</i>	MT	Claúdia	-54.88	-11.49
<i>Evandromyia carmelinoi</i>	MT	Colíder	-55.45	-10.81
<i>Evandromyia carmelinoi</i>	MT	Comodoro	-59.79	-13.66
<i>Evandromyia carmelinoi</i>	MT	Confresa	-51.56	-10.64
<i>Evandromyia carmelinoi</i>	MT	Diamantino	-56.45	-14.41
<i>Evandromyia carmelinoi</i>	MT	Feliz Natal	-54.92	-12.39
<i>Evandromyia carmelinoi</i>	MT	Gaúcha do Norte	-53.08	-13.24
<i>Evandromyia carmelinoi</i>	MT	General Carneiro	-52.76	-15.71
<i>Evandromyia carmelinoi</i>	MT	Guarantã do Norte	-54.90	-9.78
<i>Evandromyia carmelinoi</i>	MT	Jaciara	-54.95	-15.92
<i>Evandromyia carmelinoi</i>	MT	Nossa S. do Livramento	-56.37	-15.80
<i>Evandromyia carmelinoi</i>	MT	Nova Brasilândia	-54.57	-14.57
<i>Evandromyia carmelinoi</i>	MT	Nova Canaã do Norte	-57.35	-11.41
<i>Evandromyia carmelinoi</i>	MT	Nova Marilândia	-56.57	-14.21
<i>Evandromyia carmelinoi</i>	MT	Nova Maringá	-57.06	-13.01
<i>Evandromyia carmelinoi</i>	MT	Nova Mutum	-56.08	-13.83
<i>Evandromyia carmelinoi</i>	MT	Nova Ubiratã	-55.26	-13.01
<i>Evandromyia carmelinoi</i>	MT	Novo Horizonte do Norte	-57.35	-11.41
<i>Evandromyia carmelinoi</i>	MT	Novo São Joaquim	-53.02	-14.90
<i>Evandromyia carmelinoi</i>	MT	Paratinga	-54.05	-14.43
<i>Evandromyia carmelinoi</i>	MT	Peixoto de Azevedo	-54.98	-10.22
<i>Evandromyia carmelinoi</i>	MT	Planalto da Serra	-55.27	-10.44
<i>Evandromyia carmelinoi</i>	MT	Poconé	-56.62	-16.26
<i>Evandromyia carmelinoi</i>	MT	Pontal do Araguaia	-52.00	-15.84
<i>Evandromyia carmelinoi</i>	MT	Ponte Branca	-56.78	-16.08
<i>Evandromyia carmelinoi</i>	MT	Porto Alegre do Norte	-51.63	-10.87
<i>Evandromyia carmelinoi</i>	MT	Porto dos Gaúchos	-57.41	-11.52
<i>Evandromyia carmelinoi</i>	MT	Porto Estrela	-57.22	-15.32
<i>Evandromyia carmelinoi</i>	MT	Poxoréo	-54.38	-15.83
<i>Evandromyia carmelinoi</i>	MT	Primavera do Leste	-54.30	-15.56
<i>Evandromyia carmelinoi</i>	MT	Querência	-52.11	-12.35
<i>Evandromyia carmelinoi</i>	MT	Rondonópolis	-54.64	-16.47
<i>Evandromyia carmelinoi</i>	MT	Rosário Oeste	-56.43	-14.84
<i>Evandromyia carmelinoi</i>	MT	Santa Rita do Trivelato	-55.26	-13.81
<i>Evandromyia carmelinoi</i>	MT	São José do Rio Claro	-56.72	-13.44
<i>Evandromyia carmelinoi</i>	MT	Sinop	-55.49	-11.83
<i>Evandromyia carmelinoi</i>	MT	Sorriso	-55.71	-12.55
<i>Evandromyia carmelinoi</i>	MT	Taboporã	-56.62	-10.80
<i>Evandromyia carmelinoi</i>	MT	Tangará da Serra	-57.50	-14.62
<i>Evandromyia carmelinoi</i>	MT	Tapurah	-56.50	-12.53



Sandfly species	State code	Municipalities	Longitude	Latitude
<i>Evandromyia carmelinoi</i>	MT	União do Sul	-54.36	-11.52
<i>Evandromyia carmelinoi</i>	MT	Vera	-55.19	-12.18
<i>Evandromyia carmelinoi</i>	MT	Vila Rica	-51.11	-10.01
<i>Evandromyia carmelinoi</i>	MT	Itanhangá	-56.64	-12.23
<i>Evandromyia carmelinoi</i>	MT	Ipiranga do Norte	-56.05	-15.35
<i>Evandromyia carmelinoi</i>	MS	Água Clara	-52.87	-20.44
<i>Evandromyia carmelinoi</i>	MS	Antonio João	-55.95	-22.19
<i>Evandromyia carmelinoi</i>	MS	Aparecida do Taboado	-51.09	-20.09
<i>Evandromyia carmelinoi</i>	MS	Cassilândia	-51.73	-19.11
<i>Evandromyia carmelinoi</i>	MS	Paranaíba	-51.19	-19.68
<i>Evandromyia carmelinoi</i>	MS	Três Lagoas	-51.68	-20.75
<i>Evandromyia carmelinoi</i>	MS	Novo horizonte do Sul	-53.80	-22.61
<i>Evandromyia carmelinoi</i>	MS	Nova Andradina	-53.34	-22.23
<i>Evandromyia carmelinoi</i>	MS	Paraíso das Águas	-52.97	-19.05
<i>Evandromyia carmelinoi</i>	MS	Rio Verde de Mato Grosso	-54.84	-18.92
<i>Evandromyia evandroi</i>	MT	Varzea Grande	-56.13	-15.65
<i>Evandromyia evandroi</i>	MT	Cuiabá	-56.10	-15.60
<i>Evandromyia evandroi</i>	MT	Barra do Garças	-52.26	-15.89
<i>Evandromyia evandroi</i>	MT	Acorizal	-56.37	-15.20
<i>Evandromyia evandroi</i>	MT	Água Boa	-52.16	-14.05
<i>Evandromyia evandroi</i>	MT	Alta Floresta	-56.09	-9.88
<i>Evandromyia evandroi</i>	MT	Alto da Boa Vista	-51.38	-11.66
<i>Evandromyia evandroi</i>	MT	Alto do Paraguai	-56.48	-14.51
<i>Evandromyia evandroi</i>	MT	Araguaina	-51.83	-15.73
<i>Evandromyia evandroi</i>	MT	Aripuanã	-60.63	-9.17
<i>Evandromyia evandroi</i>	MT	Barão do Melgaço	-55.97	-16.19
<i>Evandromyia evandroi</i>	MT	Barra dos Bugres	-57.18	-15.08
<i>Evandromyia evandroi</i>	MT	Brasnorte	-57.98	-12.15
<i>Evandromyia evandroi</i>	MT	Campinápolis	-57.68	-16.07
<i>Evandromyia evandroi</i>	MT	Campo Novo do Parecis	-57.88	-13.67
<i>Evandromyia evandroi</i>	MT	Campo Verde	-55.16	-15.54
<i>Evandromyia evandroi</i>	MT	Canabrava do Norte	-51.83	-11.03
<i>Evandromyia evandroi</i>	MT	Canarana	-52.27	-13.55
<i>Evandromyia evandroi</i>	MT	Carolina	-55.83	-9.96
<i>Evandromyia evandroi</i>	MT	Chapada dos Guimarães	-55.75	-15.46
<i>Evandromyia evandroi</i>	MT	Claúdia	-54.88	-11.49
<i>Evandromyia evandroi</i>	MT	Colíder	-55.45	-10.81
<i>Evandromyia evandroi</i>	MT	Colniza	-59.03	-9.40
<i>Evandromyia evandroi</i>	MT	Confresa	-51.56	-10.64
<i>Evandromyia evandroi</i>	MT	Denise	-57.05	-14.73
<i>Evandromyia evandroi</i>	MT	Diamantino	-56.45	-14.41
<i>Evandromyia evandroi</i>	MT	Dom Aquino	-54.55	-15.48
<i>Evandromyia evandroi</i>	MT	Feliz Natal	-54.92	-12.39
<i>Evandromyia evandroi</i>	MT	Gaúcha do Norte	-53.08	-13.24
<i>Evandromyia evandroi</i>	MT	General Carneiro	-52.76	-15.71
<i>Evandromyia evandroi</i>	MT	Guiratinga	-53.74	-16.33
<i>Evandromyia evandroi</i>	MT	Itiquira	-54.14	-17.21
<i>Evandromyia evandroi</i>	MT	Jaciara	-54.95	-15.92
<i>Evandromyia evandroi</i>	MT	Jangada	-56.49	-15.24
<i>Evandromyia evandroi</i>	MT	Juscimeira	-54.88	-16.05
<i>Evandromyia evandroi</i>	MT	Lucas do Rio Verde	-55.91	-13.05
<i>Evandromyia evandroi</i>	MT	Luciara	-50.57	-10.75
<i>Evandromyia evandroi</i>	MT	Mercelândia	-54.60	-11.11



Sandfly species	State code	Municipalities	Longitude	Latitude
<i>Evandromyia evandroi</i>	MT	Matupá	-54.90	-10.05
<i>Evandromyia evandroi</i>	MT	Mirassol d' Oeste	-58.05	-15.40
<i>Evandromyia evandroi</i>	MT	Nobres	-56.33	-14.73
<i>Evandromyia evandroi</i>	MT	Nossa S. do Livramento	-56.37	-15.80
<i>Evandromyia evandroi</i>	MT	Nova Brasilândia	-54.57	-14.57
<i>Evandromyia evandroi</i>	MT	Nova Maringá	-57.06	-13.01
<i>Evandromyia evandroi</i>	MT	Nova Mutum	-56.08	-13.83
<i>Evandromyia evandroi</i>	MT	Nova Santana Helena	-53.35	-10.82
<i>Evandromyia evandroi</i>	MT	Nova Ubiratã	-55.26	-13.01
<i>Evandromyia evandroi</i>	MT	Novo Horizonte do Norte	-57.35	-11.41
<i>Evandromyia evandroi</i>	MT	Novo São Joaquim	-53.02	-14.90
<i>Evandromyia evandroi</i>	MT	Paratinga	-54.05	-14.43
<i>Evandromyia evandroi</i>	MT	Peixoto de Azevedo	-54.98	-10.22
<i>Evandromyia evandroi</i>	MT	Planalto da Serra	-55.27	-10.44
<i>Evandromyia evandroi</i>	MT	Pontal do Araguaia	-52.01	-15.85
<i>Evandromyia evandroi</i>	MT	Ponte Branca	-56.78	-16.08
<i>Evandromyia evandroi</i>	MT	Porto Alegre do Norte	-51.63	-10.87
<i>Evandromyia evandroi</i>	MT	Porto Estrela	-57.22	-15.32
<i>Evandromyia evandroi</i>	MT	Poxoréo	-54.38	-15.83
<i>Evandromyia evandroi</i>	MT	Primavera do Leste	-54.30	-15.56
<i>Evandromyia evandroi</i>	MT	Querência	-52.11	-12.35
<i>Evandromyia evandroi</i>	MT	Ribeirão Cascalheira	-51.82	-12.92
<i>Evandromyia evandroi</i>	MT	Rondonópolis	-54.64	-16.47
<i>Evandromyia evandroi</i>	MT	Rosário Oeste	-56.43	-14.84
<i>Evandromyia evandroi</i>	MT	Santa Rita do Trivelato	-55.26	-13.81
<i>Evandromyia evandroi</i>	MT	Santo Antônio do Leverger	-56.08	-15.87
<i>Evandromyia evandroi</i>	MT	São Felix do Araguaia	-50.67	-11.61
<i>Evandromyia evandroi</i>	MT	São José do Povo	-54.25	-16.46
<i>Evandromyia evandroi</i>	MT	São José dos 4 Marcos	-58.17	-15.17
<i>Evandromyia evandroi</i>	MT	Sapezal	-57.20	-14.97
<i>Evandromyia evandroi</i>	MT	Serra da Nova Dourado	-51.58	-11.97
<i>Evandromyia evandroi</i>	MT	Sinop	-55.49	-11.83
<i>Evandromyia evandroi</i>	MT	Sorriso	-55.71	-12.55
<i>Evandromyia evandroi</i>	MT	Teorixoréu	-52.56	-16.20
<i>Evandromyia evandroi</i>	MT	União do Sul	-54.36	-11.52
<i>Evandromyia evandroi</i>	GO	Bom Jardim	-52.12	-16.28
<i>Evandromyia evandroi</i>	GO	Campos Verdes	-49.66	-14.26
<i>Evandromyia evandroi</i>	GO	Campestre de Goiás	-49.69	-16.730
<i>Evandromyia evandroi</i>	GO	Mambaí	-46.11	-14.49
<i>Evandromyia evandroi</i>	GO	Mutunópolis	-49.28	-13.73
<i>Evandromyia evandroi</i>	GO	Niquelândia	-48.46	-14.47
<i>Evandromyia evandroi</i>	GO	Nova Crixás	-50.33	-14.10
<i>Evandromyia evandroi</i>	GO	Rio Verde	-50.93	-17.80
<i>Evandromyia evandroi</i>	GO	São Domingos	-46.32	-13.40
<i>Evandromyia evandroi</i>	GO	São João d'Aliança	-47.79	-14.88
<i>Evandromyia evandroi</i>	GO	São Miguel da Araguaia	-50.22	-13.32
<i>Evandromyia evandroi</i>	GO	Silvânia	48.61	-16.66
<i>Evandromyia evandroi</i>	GO	Uruaçu	-49.14	-14.52
<i>Evandromyia evandroi</i>	GO	Amaro Leite	-49.15	-13.97
<i>Evandromyia evandroi</i>	DF	Brasília	-47.42	-15.78
<i>Evandromyia evandroi</i>	MS	Aparecida do Taboado	-51.09	-20.09
<i>Evandromyia evandroi</i>	MS	Aquidauana	-55.79	-20.47
<i>Evandromyia evandroi</i>	MS	Bela Vista	-56.52	-22.11



Sandfly species	State code	Municipalities	Longitude	Latitude
<i>Evandromyia evandroi</i>	MS	Bodoquena	-56.72	-20.54
<i>Evandromyia evandroi</i>	MS	Coxim	-54.76	-18.51
<i>Evandromyia evandroi</i>	MS	Rio Negro	-54.99	-19.45
<i>Evandromyia evandroi</i>	MS	Selvíria	-51.42	-20.37
<i>Evandromyia evandroi</i>	MS	Três Lagoas	-51.68	-20.75
<i>Evandromyia evandroi</i>	MS	Jardim	-56.14	-21.48
<i>Evandromyia evandroi</i>	MS	Três Lagoas	-51.68	-20.75
<i>Evandromyia lenti</i>	MT	Varzea Grande	-56.13	-15.65
<i>Evandromyia lenti</i>	MT	Nova Mutum	-56.08	-13.83
<i>Evandromyia lenti</i>	MT	Cuiabá	-56.10	-15.60
<i>Evandromyia lenti</i>	MT	Barra do Garças	-52.26	-15.89
<i>Evandromyia lenti</i>	MT	Acorizal	-56.37	-15.20
<i>Evandromyia lenti</i>	MT	Água Boa	-52.16	-14.05
<i>Evandromyia lenti</i>	MT	Alta Floresta	-56.09	-9.88
<i>Evandromyia lenti</i>	MT	Alto Araguaia	-53.22	-17.31
<i>Evandromyia lenti</i>	MT	Alto da Boa Vista	-51.38	-11.66
<i>Evandromyia lenti</i>	MT	Alto do Paraguai	-56.48	-14.51
<i>Evandromyia lenti</i>	MT	Araguaina	-51.83	-15.73
<i>Evandromyia lenti</i>	MT	Araguainha	-53.08	-16.82
<i>Evandromyia lenti</i>	MT	Arenápolis	-56.82	-14.43
<i>Evandromyia lenti</i>	MT	Barão do Melgaço	-55.97	-16.19
<i>Evandromyia lenti</i>	MT	Barra dos Bugres	-57.18	-15.08
<i>Evandromyia lenti</i>	MT	Brasnorte	-57.98	-12.15
<i>Evandromyia lenti</i>	MT	Campo Novo do Parecis	-57.88	-13.67
<i>Evandromyia lenti</i>	MT	Campo Verde	-55.16	-15.54
<i>Evandromyia lenti</i>	MT	Canabrava do Norte	-51.83	-11.03
<i>Evandromyia lenti</i>	MT	Canarana	-52.27	-13.55
<i>Evandromyia lenti</i>	MT	Chapada dos Guimarães	-55.75	-15.46
<i>Evandromyia lenti</i>	MT	Claúdia	-54.88	-11.49
<i>Evandromyia lenti</i>	MT	Colíder	-55.45	-10.81
<i>Evandromyia lenti</i>	MT	Comodoro	-59.79	-13.66
<i>Evandromyia lenti</i>	MT	Confresa	-51.56	-10.64
<i>Evandromyia lenti</i>	MT	Denise	-57.05	-14.73
<i>Evandromyia lenti</i>	MT	Diamantino	-56.45	-14.41
<i>Evandromyia lenti</i>	MT	Feliz Natal	-54.92	-12.39
<i>Evandromyia lenti</i>	MT	Gaúcha do Norte	-53.08	-13.24
<i>Evandromyia lenti</i>	MT	General Carneiro	-52.76	-15.71
<i>Evandromyia lenti</i>	MT	Guarantã do Norte	-54.90	-9.78
<i>Evandromyia lenti</i>	MT	Guiratinga	-53.74	-16.33
<i>Evandromyia lenti</i>	MT	Itiquira	-54.14	-17.21
<i>Evandromyia lenti</i>	MT	Jaciara	-54.95	-15.92
<i>Evandromyia lenti</i>	MT	Jangada	-56.49	-15.24
<i>Evandromyia lenti</i>	MT	Juscimeira	-54.88	-16.05
<i>Evandromyia lenti</i>	MT	Lucas do Rio Verde	-55.91	-13.05
<i>Evandromyia lenti</i>	MT	Luciara	-50.57	-10.75
<i>Evandromyia lenti</i>	MT	Mercelândia	-54.60	-11.11
<i>Evandromyia lenti</i>	MT	Matupá	-54.90	-10.05
<i>Evandromyia lenti</i>	MT	Nobres	-56.33	-14.73
<i>Evandromyia lenti</i>	MT	Nossa S. do Livramento	-56.37	-15.80
<i>Evandromyia lenti</i>	MT	Nova Brasilândia	-54.57	-14.57
<i>Evandromyia lenti</i>	MT	Nova Marilândia	-56.57	-14.21
<i>Evandromyia lenti</i>	MT	Nova Maringá	-57.06	-13.01
<i>Evandromyia lenti</i>	MT	Nova Santana Helena	-53.35	-10.82



Sandfly species	State code	Municipalities	Longitude	Latitude
<i>Evandromyia lenti</i>	MT	Nova Ubiratã	-55.26	-13.01
<i>Evandromyia lenti</i>	MT	Novo Horizonte do Norte	-57.35	-11.41
<i>Evandromyia lenti</i>	MT	Novo São Joaquim	-53.02	-14.90
<i>Evandromyia lenti</i>	MT	Paranaíta	-56.48	-9.67
<i>Evandromyia lenti</i>	MT	Paratinga	-54.05	-14.43
<i>Evandromyia lenti</i>	MT	Peixoto de Azevedo	-54.98	-10.22
<i>Evandromyia lenti</i>	MT	Planalto da Serra	-55.27	-10.44
<i>Evandromyia lenti</i>	MT	Poconé	-56.62	-16.26
<i>Evandromyia lenti</i>	MT	Pontal do Araguaia	-52.01	-15.85
<i>Evandromyia lenti</i>	MT	Porto Alegre do Norte	-51.63	-10.87
<i>Evandromyia lenti</i>	MT	Porto Esperidião	-58.47	-15.85
<i>Evandromyia lenti</i>	MT	Poxoréo	-54.38	-15.83
<i>Evandromyia lenti</i>	MT	Primavera do Leste	-54.30	-15.56
<i>Evandromyia lenti</i>	MT	Ribeirão Cascalheira	-51.82	-12.92
<i>Evandromyia lenti</i>	MT	Ribeirãozinho	-52.67	-16.45
<i>Evandromyia lenti</i>	MT	Rondonópolis	-54.64	-16.47
<i>Evandromyia lenti</i>	MT	Rosário Oeste	-56.43	-14.84
<i>Evandromyia lenti</i>	MT	Santa Carmem	-54.52	-11.35
<i>Evandromyia lenti</i>	MT	Santa Rita do Trivelato	-55.26	-13.81
<i>Evandromyia lenti</i>	MT	Santo Antônio do Leverger	-56.08	-15.87
<i>Evandromyia lenti</i>	MT	São Felix do Araguaia	-50.67	-11.61
<i>Evandromyia lenti</i>	MT	São José dos 4 Marcos	-58.17	-15.17
<i>Evandromyia lenti</i>	MT	Sapezal	-57.20	-14.97
<i>Evandromyia lenti</i>	MT	Serra da Nova Dourado	-51.58	-11.97
<i>Evandromyia lenti</i>	MT	Sinop	-55.49	-11.83
<i>Evandromyia lenti</i>	MT	Sorriso	-55.71	-12.55
<i>Evandromyia lenti</i>	MT	Taboporã	-56.62	-10.80
<i>Evandromyia lenti</i>	MT	Tangará da Serra	-57.50	-14.62
<i>Evandromyia lenti</i>	MT	Tapurah	-56.50	-12.53
<i>Evandromyia lenti</i>	MT	Terra nova do Norte	-55.23	-10.51
<i>Evandromyia lenti</i>	MT	Teorixoréu	-52.56	-16.20
<i>Evandromyia lenti</i>	MT	União do Sul	-54.36	-11.52
<i>Evandromyia lenti</i>	MT	Itanhangá	-56.64	-12.23
<i>Evandromyia lenti</i>	MT	Ipiranga do Norte	-56.05	-15.35
<i>Evandromyia lenti</i>	GO	Aragarças	-50.63	-15.09
<i>Evandromyia lenti</i>	GO	Araguapaz	-50.63	-15.09
<i>Evandromyia lenti</i>	GO	Bela Vista	-48.95	-16.97
<i>Evandromyia lenti</i>	GO	Bom Jardim	-52.12	-16.28
<i>Evandromyia lenti</i>	GO	Campos Verdes	-49.66	-14.26
<i>Evandromyia lenti</i>	GO	Campestre de Goiás	-49.41	-16.45
<i>Evandromyia lenti</i>	GO	Colinas do Sul	-48.08	-14.15
<i>Evandromyia lenti</i>	GO	Cumari	-48.15	-18.26
<i>Evandromyia lenti</i>	GO	Catalão	-47.95	-18.17
<i>Evandromyia lenti</i>	GO	Crixás	-49.97	-14.45
<i>Evandromyia lenti</i>	GO	Goiás	-50.14	-15.93
<i>Evandromyia lenti</i>	GO	Goiatuba	-49.37	-18.02
<i>Evandromyia lenti</i>	GO	Itumbiara	-49.22	-18.42
<i>Evandromyia lenti</i>	GO	Guapó	-49.53	-16.83
<i>Evandromyia lenti</i>	GO	Mambaí	-46.11	-14.49
<i>Evandromyia lenti</i>	GO	Montividiu do Norte	-48.61	-13.11
<i>Evandromyia lenti</i>	GO	Mutunópolis	-49.28	-13.73
<i>Evandromyia lenti</i>	GO	Mundo Novo	-40.47	-11.86
<i>Evandromyia lenti</i>	GO	Minaçu	-48.22	-13.53



Sandfly species	State code	Municipalities	Longitude	Latitude
<i>Evandromyia lenti</i>	GO	Niquelândia	-48.46	-14.47
<i>Evandromyia lenti</i>	GO	Nova Crixás	-50.33	-14.10
<i>Evandromyia lenti</i>	GO	Porangatu	-49.15	-13.44
<i>Evandromyia lenti</i>	GO	Rio Verde	-50.93	-17.80
<i>Evandromyia lenti</i>	GO	São Domingos	-46.32	-13.40
<i>Evandromyia lenti</i>	GO	São Miguel da Araguaína	-50.22	-13.32
<i>Evandromyia lenti</i>	GO	Silvânia	48.61	-16.66
<i>Evandromyia lenti</i>	GO	Uriapuru	-49.92	-14.29
<i>Evandromyia lenti</i>	GO	Uruaçu	-49.14	-14.52
<i>Evandromyia lenti</i>	GO	Sítio d' Abadia	-46.25	-14.80
<i>Evandromyia lenti</i>	GO	Amaro Leite	-49.15	-13.97
<i>Evandromyia lenti</i>	DF	Brasília	-47.42	-15.78
<i>Evandromyia lenti</i>	MS	Água Clara	-52.87	-20.44
<i>Evandromyia lenti</i>	MS	Alcinópolis	-53.71	-18.32
<i>Evandromyia lenti</i>	MS	Anaurilândia	-52.43	-22.10
<i>Evandromyia lenti</i>	MS	Anastácio	-55.81	-20.48
<i>Evandromyia lenti</i>	MS	Antonio João	-55.95	-22.19
<i>Evandromyia lenti</i>	MS	Aquidauana	-55.79	-20.47
<i>Evandromyia lenti</i>	MS	Bela Vista	-56.52	-22.11
<i>Evandromyia lenti</i>	MS	Bodoquena	-56.72	-20.54
<i>Evandromyia lenti</i>	MS	Campo Grande	-54.65	-20.44
<i>Evandromyia lenti</i>	MS	Canmapuã	-54.04	-19.53
<i>Evandromyia lenti</i>	MS	Corguinho	-54.83	-19.83
<i>Evandromyia lenti</i>	MS	Corumbá	-57.65	-19.01
<i>Evandromyia lenti</i>	MS	Figueirão	-53.38	-18.4
<i>Evandromyia lenti</i>	MS	Coxim	-54.76	-18.51
<i>Evandromyia lenti</i>	MS	Ponta Porã	-55.73	-22.54
<i>Evandromyia lenti</i>	MS	Rio Negro	-54.99	-19.45
<i>Evandromyia lenti</i>	MS	Rochedo	-54.89	-19.95
<i>Evandromyia lenti</i>	MS	São Gabriel do Oeste	-54.57	-19.40
<i>Evandromyia lenti</i>	MS	Tacuru	-55.02	-23.63
<i>Evandromyia lenti</i>	MS	Terenos	-54.86	-20.44
<i>Evandromyia lenti</i>	MS	Três Lagoas	-51.68	-20.75
<i>Evandromyia lenti</i>	MS	Dourados	-54.81	-22.22
<i>Evandromyia lenti</i>	MS	Miranda	-56.38	-20.24
<i>Evandromyia lenti</i>	MS	Guia Lopes da Laguna	-56.11	-21.46
<i>Evandromyia lenti</i>	MS	Nova Andradina	-53.34	-22.23
<i>Evandromyia lenti</i>	MS	Novo Horizonte	-53.80	-22.61
<i>Evandromyia lenti</i>	MS	Nioaque	-55.83	-21.14
<i>Evandromyia lenti</i>	MS	Santa Rita do Pardo	-52.83	-21.30
<i>Evandromyia lenti</i>	MS	Bonito	-56.47	-21.13
<i>Evandromyia lenti</i>	MS	Maracajú	-55.17	-21.61
<i>Evandromyia lenti</i>	MS	Pedro Gomes	-54.55	-18.10
<i>Evandromyia lenti</i>	MS	Rio Verde de Mato Grosso	-54.84	-18.92
<i>Evandromyia saulensis</i>	MT	Barra dos Bugres	-57.18	-15.08
<i>Evandromyia saulensis</i>	MT	Rosário d' Oeste	-56.43	-14.84
<i>Evandromyia saulensis</i>	MT	Barra do Garças	-52.26	-15.89
<i>Evandromyia saulensis</i>	MT	Varzea Grande	-56.13	-15.65
<i>Evandromyia saulensis</i>	MT	Nova Mutum	-56.08	-13.83
<i>Evandromyia saulensis</i>	MT	Cuiabá	-56.10	-15.60
<i>Evandromyia saulensis</i>	MT	Alta Floresta	-56.09	-9.88
<i>Evandromyia saulensis</i>	MT	Alto do Paraguai	-56.48	-14.51
<i>Evandromyia saulensis</i>	MT	Alto Taquari	-53.16	-17.49



Sandfly species	State code	Municipalities	Longitude	Latitude
<i>Evandromyia saulensis</i>	MT	Aripuanã	-60.63	-9.17
<i>Evandromyia saulensis</i>	MT	Barão do Melgaço	-55.97	-16.19
<i>Evandromyia saulensis</i>	MT	Brasnorte	-57.98	-12.15
<i>Evandromyia saulensis</i>	MT	Campinápolis	-52.88	-14.50
<i>Evandromyia saulensis</i>	MT	Campo Verde	-55.16	-15.54
<i>Evandromyia saulensis</i>	MT	Canarana	-52.27	-13.55
<i>Evandromyia saulensis</i>	MT	Carolina	-55.83	-9.96
<i>Evandromyia saulensis</i>	MT	Chapada dos Guimarães	-55.75	-15.46
<i>Evandromyia saulensis</i>	MT	Colíder	-55.45	-10.81
<i>Evandromyia saulensis</i>	MT	Colniza	-59.03	-9.40
<i>Evandromyia saulensis</i>	MT	Comodoro	-59.79	-13.66
<i>Evandromyia saulensis</i>	MT	Diamantino	-59.79	-13.66
<i>Evandromyia saulensis</i>	MT	Dom Aquino	-54.55	-15.48
<i>Evandromyia saulensis</i>	MT	Feliz Natal	-54.92	-12.39
<i>Evandromyia saulensis</i>	MT	Gaúcha do Norte	-53.08	-13.24
<i>Evandromyia saulensis</i>	MT	Guarantã do Norte	-54.90	-9.78
<i>Evandromyia saulensis</i>	MT	Itiquira	-56.64	-12.23
<i>Evandromyia saulensis</i>	MT	Jaciara	-54.95	-15.92
<i>Evandromyia saulensis</i>	MT	Jangada	-56.49	-15.24
<i>Evandromyia saulensis</i>	MT	Juara	-54.95	-15.92
<i>Evandromyia saulensis</i>	MT	Juína	-58.74	-11.38
<i>Evandromyia saulensis</i>	MT	Lucas do Rio Verde	-55.91	-13.05
<i>Evandromyia saulensis</i>	MT	Luciara	-50.57	-10.75
<i>Evandromyia saulensis</i>	MT	Matupá	-54.90	-10.05
<i>Evandromyia saulensis</i>	MT	Nobres	-56.33	-14.73
<i>Evandromyia saulensis</i>	MT	Nortelândia	-56.80	-14.42
<i>Evandromyia saulensis</i>	MT	Nossa S. do Livramento	-56.37	-15.80
<i>Evandromyia saulensis</i>	MT	Nova Brasilândia	-54.57	-14.57
<i>Evandromyia saulensis</i>	MT	Nova Canaã do Norte	-55.95	-10.55
<i>Evandromyia saulensis</i>	MT	Novo Horizonte do Norte	-57.35	-11.41
<i>Evandromyia saulensis</i>	MT	Paranaíta	-56.48	-9.67
<i>Evandromyia saulensis</i>	MT	Paratinga	-54.05	-14.43
<i>Evandromyia saulensis</i>	MT	Peixoto de Azevedo	-54.98	-10.22
<i>Evandromyia saulensis</i>	MT	Planalto da Serra	-55.27	-10.44
<i>Evandromyia saulensis</i>	MT	Pontes de Lacerda	-59.37	-15.20
<i>Evandromyia saulensis</i>	MT	Porto Alegre do Norte	-51.63	-10.87
<i>Evandromyia saulensis</i>	MT	Porto dos Gaúchos	-57.41	-11.52
<i>Evandromyia saulensis</i>	MT	Porto Estrela	-57.22	-15.32
<i>Evandromyia saulensis</i>	MT	Poxoréo	-54.38	-15.83
<i>Evandromyia saulensis</i>	MT	Primavera do Leste	-54.30	-15.56
<i>Evandromyia saulensis</i>	MT	Rondonópolis	-54.64	-16.47
<i>Evandromyia saulensis</i>	MT	Santo Antônio do Leverger	-56.08	-15.87
<i>Evandromyia saulensis</i>	MT	São Felix do Araguaia	-50.67	-11.61
<i>Evandromyia saulensis</i>	MT	São José dos 4 Marcos	-58.17	-15.17
<i>Evandromyia saulensis</i>	MT	Sinop	-55.49	-11.83
<i>Evandromyia saulensis</i>	MT	Sorriso	-55.71	-12.55
<i>Evandromyia saulensis</i>	MT	Terra nova do Norte	-55.23	-10.51
<i>Evandromyia saulensis</i>	MT	União do Sul	-54.36	-11.52
<i>Evandromyia saulensis</i>	GO	Itumbiara	-49.22	-18.42
<i>Evandromyia saulensis</i>	GO	Catalão	-47.95	-18.17
<i>Evandromyia saulensis</i>	DF	Brasília	-47.42	-15.78
<i>Evandromyia saulensis</i>	MS	Alcinópolis	-53.70	-18.31
<i>Evandromyia saulensis</i>	MS	Coxim	-54.76	-18.51



Sandfly species	State code	Municipalities	Longitude	Latitude
<i>Evandromyia termitophila</i>	MT	Varzea Grande	-56.13	-15.65
<i>Evandromyia termitophila</i>	MT	Cuiabá	-56.10	-15.60
<i>Evandromyia termitophila</i>	MT	Barra do Garças	-52.26	-15.89
<i>Evandromyia termitophila</i>	MT	Acorizal	-56.37	-15.20
<i>Evandromyia termitophila</i>	MT	Água Boa	-52.16	-14.05
<i>Evandromyia termitophila</i>	MT	Alta Floresta	-56.09	-9.88
<i>Evandromyia termitophila</i>	MT	Alto do Paraguai	-56.48	-14.51
<i>Evandromyia termitophila</i>	MT	Araguaina	-51.83	-15.73
<i>Evandromyia termitophila</i>	MT	Arenápolis	-56.82	-14.43
<i>Evandromyia termitophila</i>	MT	Aripuanã	-60.63	-9.17
<i>Evandromyia termitophila</i>	MT	Barão do Melgaço	-55.97	-16.19
<i>Evandromyia termitophila</i>	MT	Brasnorte	-57.98	-12.15
<i>Evandromyia termitophila</i>	MT	Campinápolis	-52.88	-14.50
<i>Evandromyia termitophila</i>	MT	Campo Novo do Parecis	-57.88	-13.67
<i>Evandromyia termitophila</i>	MT	Campo Verde	-55.16	-15.54
<i>Evandromyia termitophila</i>	MT	Canabrava do Norte	-51.83	-11.03
<i>Evandromyia termitophila</i>	MT	Canarana	-52.27	-13.55
<i>Evandromyia termitophila</i>	MT	Carolina	-55.83	-9.96
<i>Evandromyia termitophila</i>	MT	Chapada dos Guimarães	-55.75	-15.46
<i>Evandromyia termitophila</i>	MT	Claúdia	-54.88	-11.49
<i>Evandromyia termitophila</i>	MT	Colíder	-55.45	-10.81
<i>Evandromyia termitophila</i>	MT	Colniza	-59.03	-9.40
<i>Evandromyia termitophila</i>	MT	Comodoro	-59.79	-13.66
<i>Evandromyia termitophila</i>	MT	Confresa	-51.56	-10.64
<i>Evandromyia termitophila</i>	MT	Diamantino	-56.45	-14.41
<i>Evandromyia termitophila</i>	MT	Dom Aquino	-54.55	-15.48
<i>Evandromyia termitophila</i>	MT	Gáucha do Norte	-53.08	-13.24
<i>Evandromyia termitophila</i>	MT	General Carneiro	-52.76	-15.71
<i>Evandromyia termitophila</i>	MT	Guarantã do Norte	-54.90	-9.78
<i>Evandromyia termitophila</i>	MT	Guiratinga	-53.74	-16.33
<i>Evandromyia termitophila</i>	MT	Itiquira	-54.14	-17.21
<i>Evandromyia termitophila</i>	MT	Jaciara	-54.95	-15.92
<i>Evandromyia termitophila</i>	MT	Jangada	-56.49	-15.24
<i>Evandromyia termitophila</i>	MT	Juara	-57.52	-11.55
<i>Evandromyia termitophila</i>	MT	Juína	-58.74	-11.38
<i>Evandromyia termitophila</i>	MT	Juscimeira	-54.88	-16.05
<i>Evandromyia termitophila</i>	MT	Mercelândia	-54.60	-11.11
<i>Evandromyia termitophila</i>	MT	Matupá	-54.90	-10.05
<i>Evandromyia termitophila</i>	MT	Nobres	-56.33	-14.73
<i>Evandromyia termitophila</i>	MT	Nortelândia	-56.80	-14.42
<i>Evandromyia termitophila</i>	MT	Nossa S. do Livramento	-56.37	-15.80
<i>Evandromyia termitophila</i>	MT	Nova Bandeirantes	-57.86	-9.95
<i>Evandromyia termitophila</i>	MT	Nova Brasilândia	-54.57	-14.57
<i>Evandromyia termitophila</i>	MT	Nova Canaã do Norte	-55.95	-10.55
<i>Evandromyia termitophila</i>	MT	Nova Marilândia	-56.57	-14.21
<i>Evandromyia termitophila</i>	MT	Nova Maringá	-57.06	-13.01
<i>Evandromyia termitophila</i>	MT	Nova Mutum	-56.08	-13.83
<i>Evandromyia termitophila</i>	MT	Nova Santana Helena	-53.35	-10.82
<i>Evandromyia termitophila</i>	MT	Nova Ubiratã	-55.26	-13.01
<i>Evandromyia termitophila</i>	MT	Novo Horizonte do Norte	-57.35	-11.41
<i>Evandromyia termitophila</i>	MT	Novo São Joaquim	-53.02	-14.90
<i>Evandromyia termitophila</i>	MT	Paranaíta	-56.48	-9.67
<i>Evandromyia termitophila</i>	MT	Paratinga	-54.05	-14.43



Sandfly species	State code	Municipalities	Longitude	Latitude
<i>Evandromyia termitophila</i>	MT	Peixoto de Azevedo	-54.98	-10.22
<i>Evandromyia termitophila</i>	MT	Planalto da Serra	-55.27	-10.44
<i>Evandromyia termitophila</i>	MT	Poconé	-56.62	-16.26
<i>Evandromyia termitophila</i>	MT	Pontal do Araguaia	-52.00	-15.84
<i>Evandromyia termitophila</i>	MT	Ponte Branca	-56.78	-16.08
<i>Evandromyia termitophila</i>	MT	Porto Alegre do Norte	-51.63	-10.87
<i>Evandromyia termitophila</i>	MT	Porto dos Gaúchos	-57.41	-11.52
<i>Evandromyia termitophila</i>	MT	Poxoréo	-54.38	-15.83
<i>Evandromyia termitophila</i>	MT	Primavera do Leste	-54.30	-15.56
<i>Evandromyia termitophila</i>	MT	Ribeirãozinho	-52.67	-16.45
<i>Evandromyia termitophila</i>	MT	Rondonópolis	-54.64	-16.47
<i>Evandromyia termitophila</i>	MT	Rosário Oeste	-56.43	-14.84
<i>Evandromyia termitophila</i>	MT	Santa Rita do Trivelato	-55.26	-13.81
<i>Evandromyia termitophila</i>	MT	São Felix do Araguaia	-50.67	-11.61
<i>Evandromyia termitophila</i>	MT	São José dos 4 Marcos	-58.17	-15.17
<i>Evandromyia termitophila</i>	MT	Sapezal	-57.20	-14.97
<i>Evandromyia termitophila</i>	MT	Serra da Nova Dourado	-51.58	-11.97
<i>Evandromyia termitophila</i>	MT	Sinop	-55.49	-11.83
<i>Evandromyia termitophila</i>	MT	Sorriso	-55.71	-12.55
<i>Evandromyia termitophila</i>	MT	Tamboporã	-56.62	-10.80
<i>Evandromyia termitophila</i>	MT	Tapurah	-56.50	-12.53
<i>Evandromyia termitophila</i>	MT	Terra nova do Norte	-55.23	-10.51
<i>Evandromyia termitophila</i>	MT	Teorixoréu	-52.56	-16.20
<i>Evandromyia termitophila</i>	MT	União do Sul	-54.36	-11.52
<i>Evandromyia termitophila</i>	MT	Vila Rica	-51.11	-10.01
<i>Evandromyia termitophila</i>	GO	Bom Jardim	-52.12	-16.28
<i>Evandromyia termitophila</i>	GO	Campos Verdes	-49.66	-14.26
<i>Evandromyia termitophila</i>	GO	Doverlândia	-52.31	-16.69
<i>Evandromyia termitophila</i>	GO	Goiás	-50.14	-15.93
<i>Evandromyia termitophila</i>	GO	Mambáí	-46.11	-14.49
<i>Evandromyia termitophila</i>	GO	Mutunópolis	-49.28	-13.73
<i>Evandromyia termitophila</i>	GO	Mundo Novo	-40.47	-11.86
<i>Evandromyia termitophila</i>	GO	Minaçu	-48.22	-13.53
<i>Evandromyia termitophila</i>	GO	Niquelândia	-48.45	-14.47
<i>Evandromyia termitophila</i>	GO	Rio Verde	-50.93	-17.80
<i>Evandromyia termitophila</i>	GO	São Domingos	-46.32	-13.40
<i>Evandromyia termitophila</i>	GO	Uruaçu	-49.14	-14.52
<i>Evandromyia termitophila</i>	GO	Itumbiara	-49.22	-18.42
<i>Evandromyia termitophila</i>	DF	Brasília	-47.42	-15.78
<i>Evandromyia termitophila</i>	MS	Aquidauana	-55.79	-20.47
<i>Evandromyia termitophila</i>	MS	Amambai	-55.22	-23.08
<i>Evandromyia termitophila</i>	MS	Anaurilândia	-52.75	-22.05
<i>Evandromyia termitophila</i>	MS	Bela Vista	-56.52	-22.11
<i>Evandromyia termitophila</i>	MS	Bonito	-56.47	-21.13
<i>Evandromyia termitophila</i>	MS	Brasilândia	-52.04	-21.26
<i>Evandromyia termitophila</i>	MS	Camapuã	-54.04	-19.53
<i>Evandromyia termitophila</i>	MS	Campo Grande	-54.65	-20.44
<i>Evandromyia termitophila</i>	MS	Corguinho	-54.83	-19.83
<i>Evandromyia termitophila</i>	MS	Paranaíba	-51.19	-19.68
<i>Evandromyia termitophila</i>	MS	Ponta Porã	-55.73	-22.54
<i>Evandromyia termitophila</i>	MS	Rochedo	-54.89	-19.95
<i>Evandromyia termitophila</i>	MS	Selvíria	-51.42	-20.37
<i>Evandromyia termitophila</i>	MS	Dourados	-54.81	-22.22



Sandfly species	State code	Municipalities	Longitude	Latitude
<i>Evandromyia termitophila</i>	MS	Itaporã	-54.90	-22.02
<i>Evandromyia termitophila</i>	MS	Naviraí	-54.22	-23.13
<i>Evandromyia termitophila</i>	MS	Nova Andradina	-53.34	-22.23
<i>Evandromyia termitophila</i>	MS	Novo Horizonte do Sul	-53.80	-22.61
<i>Evandromyia termitophila</i>	MS	Nioaque	-55.83	-21.14
<i>Evandromyia termitophila</i>	MS	Bonito	-56.47	-21.13
<i>Evandromyia termitophila</i>	MS	Maracajú	-55.17	-21.61
<i>Evandromyia termitophila</i>	MS	São Gabriel do Oeste	-54.57	-19.40
<i>Evandromyia termitophila</i>	MS	Rio Verde de Mato Grosso	-54.84	-18.92
<i>Evandromyia termitophila</i>	MS	Três Lagoas	-51.68	-20.75
<i>Evandromyia teratodes</i>	MT	Varzea Grande	-56.13	-15.65
<i>Evandromyia teratodes</i>	MT	Barra do Garças	-52.26	-15.89
<i>Evandromyia teratodes</i>	MT	Alto do Paraguai	-56.48	-14.51
<i>Evandromyia teratodes</i>	MT	Alto Taquari	-53.16	-17.49
<i>Evandromyia teratodes</i>	MT	Araguaina	-51.83	-15.73
<i>Evandromyia teratodes</i>	MT	Barão do Melgaço	-55.97	-16.19
<i>Evandromyia teratodes</i>	MT	Campinápolis	-52.88	-14.50
<i>Evandromyia teratodes</i>	MT	Canabrava do Norte	-51.83	-11.03
<i>Evandromyia teratodes</i>	MT	Chapada dos Guimarães	-55.75	-15.46
<i>Evandromyia teratodes</i>	MT	Cuiabá	-56.10	-15.60
<i>Evandromyia teratodes</i>	MT	Diamantino	-56.45	-14.41
<i>Evandromyia teratodes</i>	MT	Gaúcha do Norte	-53.08	-13.24
<i>Evandromyia teratodes</i>	MT	Guarantã do Norte	-54.90	-9.78
<i>Evandromyia teratodes</i>	MT	Jaciara	-54.95	-15.92
<i>Evandromyia teratodes</i>	MT	Nobres	-56.33	-14.73
<i>Evandromyia teratodes</i>	MT	Nossa S. do Livramento	-56.37	-15.80
<i>Evandromyia teratodes</i>	MT	Nova Brasilândia	-54.57	-14.57
<i>Evandromyia teratodes</i>	MT	Nova Maringá	-57.06	-13.01
<i>Evandromyia teratodes</i>	MT	Nova Mutum	-56.08	-13.83
<i>Evandromyia teratodes</i>	MT	Novo São Joaquim	-53.02	-14.90
<i>Evandromyia teratodes</i>	MT	Peixoto de Azevedo	-54.98	-10.22
<i>Evandromyia teratodes</i>	MT	Planalto da Serra	-55.27	-10.44
<i>Evandromyia teratodes</i>	MT	Rondonópolis	-54.64	-16.47
<i>Evandromyia teratodes</i>	MT	Poxoréo	-54.38	-15.83
<i>Evandromyia teratodes</i>	MT	São Felix do Araguaia	-50.67	-11.61
<i>Evandromyia teratodes</i>	MT	São José dos 4 Marcos	-50.67	-11.61
<i>Evandromyia teratodes</i>	MT	Serra da Nova Dourado	-51.58	-11.97
<i>Evandromyia teratodes</i>	MT	Tangará da Serra	-57.50	-14.62
<i>Evandromyia teratodes</i>	MT	Teorixoréu	-52.56	-16.20
<i>Evandromyia teratodes</i>	GO	Itumbiara	-49.22	-18.42
<i>Evandromyia teratodes</i>	GO	Itapaci	-49.57	-14.95
<i>Evandromyia teratodes</i>	DF	Brasília	-47.42	-15.78
<i>Evandromyia teratodes</i>	MS	Campo Grande	-54.65	-20.44
<i>Evandromyia teratodes</i>	MS	Corguinho	-54.83	-19.83
<i>Evandromyia teratodes</i>	MS	Rio Negro	-54.99	-19.45
<i>Evandromyia teratodes</i>	MS	Nova Andradina	-53.34	-22.23
<i>Evandromyia teratodes</i>	MS	Rio Verde de Mato Grosso	-54.84	-18.92
<i>Evandromyia teratodes</i>	MS	Bonito	-56.47	-21.13
<i>Evandromyia walkeri</i>	MT	Barra dos Bugres	-57.18	-15.08
<i>Evandromyia walkeri</i>	MT	Rosário d' Oeste	-56.43	-14.84
<i>Evandromyia walkeri</i>	MT	Varzea Grande	-56.13	-15.65
<i>Evandromyia walkeri</i>	MT	Nova Mutum	-56.08	-13.83
<i>Evandromyia walkeri</i>	MT	Cuiabá	-56.10	-15.60



Sandfly species	State code	Municipalities	Longitude	Latitude
<i>Evandromyia walkeri</i>	MT	Barra do Garças	-52.26	-15.89
<i>Evandromyia walkeri</i>	MT	Acorizal	-56.37	-15.20
<i>Evandromyia walkeri</i>	MT	Alta Floresta	-56.09	-9.88
<i>Evandromyia walkeri</i>	MT	Alto do Paraguai	-56.48	-14.51
<i>Evandromyia walkeri</i>	MT	Alto Taquari	-53.16	-17.49
<i>Evandromyia walkeri</i>	MT	Araguaina	-51.83	-15.73
<i>Evandromyia walkeri</i>	MT	Arenópolis	-56.82	-14.43
<i>Evandromyia walkeri</i>	MT	Aripuanã	-60.63	-9.17
<i>Evandromyia walkeri</i>	MT	Barão do Melgaço	-55.97	-16.19
<i>Evandromyia walkeri</i>	MT	Campo Novo do Parecis	-57.88	-13.67
<i>Evandromyia walkeri</i>	MT	Campos de Julio	-59.08	-13.53
<i>Evandromyia walkeri</i>	MT	Canabrava do Norte	-51.83	-11.03
<i>Evandromyia walkeri</i>	MT	Chapada dos Guimarães	-55.75	-15.46
<i>Evandromyia walkeri</i>	MT	Claúdia	-54.88	-11.49
<i>Evandromyia walkeri</i>	MT	Colíder	-55.45	-10.81
<i>Evandromyia walkeri</i>	MT	Colniza	-59.03	-9.40
<i>Evandromyia walkeri</i>	MT	Comodoro	-59.79	-13.66
<i>Evandromyia walkeri</i>	MT	Confresa	-51.56	-10.64
<i>Evandromyia walkeri</i>	MT	Diamantino	-56.45	-14.41
<i>Evandromyia walkeri</i>	MT	Feliz Natal	-54.92	-12.39
<i>Evandromyia walkeri</i>	MT	Gaúcha do Norte	-53.08	-13.24
<i>Evandromyia walkeri</i>	MT	General Carneiro	-52.76	-15.71
<i>Evandromyia walkeri</i>	MT	Guarantã do Norte	-54.90	-9.78
<i>Evandromyia walkeri</i>	MT	Itiquira	-54.14	-17.21
<i>Evandromyia walkeri</i>	MT	Jaciara	-54.95	-15.92
<i>Evandromyia walkeri</i>	MT	Juína	-58.74	-11.38
<i>Evandromyia walkeri</i>	MT	Lucas do Rio Verde	-55.91	-13.05
<i>Evandromyia walkeri</i>	MT	Luciara	-50.57	-10.75
<i>Evandromyia walkeri</i>	MT	Nobres	-56.33	-14.73
<i>Evandromyia walkeri</i>	MT	Nova Maringá	-57.06	-13.01
<i>Evandromyia walkeri</i>	MT	Nova Ubiratã	-55.26	-13.01
<i>Evandromyia walkeri</i>	MT	Novo Horizonte do Norte	-57.35	-11.41
<i>Evandromyia walkeri</i>	MT	Paranaita	-56.48	-9.67
<i>Evandromyia walkeri</i>	MT	Peixoto de Azevedo	-54.98	-10.22
<i>Evandromyia walkeri</i>	MT	Planalto da Serra	-55.27	-10.44
<i>Evandromyia walkeri</i>	MT	Pontal do Araguaia	-52.01	-15.85
<i>Evandromyia walkeri</i>	MT	Pontes de Lacerda	-59.37	-15.20
<i>Evandromyia walkeri</i>	MT	Porto Alegre do Norte	-51.63	-10.87
<i>Evandromyia walkeri</i>	MT	Porto dos Gaúchos	-57.41	-11.52
<i>Evandromyia walkeri</i>	MT	Porto Estrela	-57.22	-15.32
<i>Evandromyia walkeri</i>	MT	Rondonópolis	-54.64	-16.47
<i>Evandromyia walkeri</i>	MT	Santa Rita do Trivelato	-55.26	-13.81
<i>Evandromyia walkeri</i>	MT	São Felix do Araguaia	-50.67	-11.61
<i>Evandromyia walkeri</i>	MT	São José dos 4 Marcos	-58.17	-15.17
<i>Evandromyia walkeri</i>	MT	Sinop	-55.49	-11.83
<i>Evandromyia walkeri</i>	MT	Sorriso	-55.71	-12.55
<i>Evandromyia walkeri</i>	MT	Tapurah	-56.50	-12.53
<i>Evandromyia walkeri</i>	MT	Teorixoréu	-52.56	-16.20
<i>Evandromyia walkeri</i>	MT	União do Sul	-54.36	-11.52
<i>Evandromyia walkeri</i>	MT	Vera	-55.19	-12.18
<i>Evandromyia walkeri</i>	MT	Vila Bela de S. Trindade	-59.95	-15.00
<i>Evandromyia walkeri</i>	MT	Ipiranga do Norte	-56.05	-15.35
<i>Evandromyia walkeri</i>	GO	Itumbiara	-49.22	-18.42



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<i>Evandromyia walkeri</i>	MS	Terenos	-54.86	-20.44
<i>Evandromyia walkeri</i>	MS	Nioaque	-55.83	-21.14
<i>Evandromyia walkeri</i>	MS	Corumbá	-57.65	-19.01
<i>Evandromyia sallesi</i>	MT	Rosário d' Oeste	-56.42	-14.83
<i>Evandromyia sallesi</i>	MT	Varzea Grande	-56.13	-15.65
<i>Evandromyia sallesi</i>	MT	Nova Mutum	-56.08	-13.83
<i>Evandromyia sallesi</i>	MT	Cuiabá	-56.10	-15.60
<i>Evandromyia sallesi</i>	MT	Barra do Garças	-52.26	-15.89
<i>Evandromyia sallesi</i>	MT	Acorizal	-56.37	-15.20
<i>Evandromyia sallesi</i>	MT	Alta Floresta	-56.09	-9.88
<i>Evandromyia sallesi</i>	MT	Alto da Boa Vista	-51.38	-11.66
<i>Evandromyia sallesi</i>	MT	Alto do Paraguai	-56.48	-14.51
<i>Evandromyia sallesi</i>	MT	Alto Taquari	-53.16	-17.49
<i>Evandromyia sallesi</i>	MT	Araguaina	-51.83	-15.73
<i>Evandromyia sallesi</i>	MT	Barão do Melgaço	-55.97	-16.19
<i>Evandromyia sallesi</i>	MT	Barra do Garças	-52.26	-15.89
<i>Evandromyia sallesi</i>	MT	Campinápolis	-52.88	-14.50
<i>Evandromyia sallesi</i>	MT	Canabrava do Norte	-51.83	-11.03
<i>Evandromyia sallesi</i>	MT	Canarana	-52.27	-13.55
<i>Evandromyia sallesi</i>	MT	Chapada dos Guimarães	-55.75	-15.46
<i>Evandromyia sallesi</i>	MT	Confresa	-51.56	-10.64
<i>Evandromyia sallesi</i>	MT	Diamantino	-56.45	-14.41
<i>Evandromyia sallesi</i>	MT	Gáucha do Norte	-53.08	-13.24
<i>Evandromyia sallesi</i>	MT	General Carneiro	-52.76	-15.71
<i>Evandromyia sallesi</i>	MT	Itiquira	-54.14	-17.21
<i>Evandromyia sallesi</i>	MT	Jaciara	-54.95	-15.92
<i>Evandromyia sallesi</i>	MT	Jangada	-56.49	-15.24
<i>Evandromyia sallesi</i>	MT	Juscimeira	-54.88	-16.05
<i>Evandromyia sallesi</i>	MT	Mercelândia	-54.60	-11.11
<i>Evandromyia sallesi</i>	MT	Mirassol d' Oeste	-58.05	-15.40
<i>Evandromyia sallesi</i>	MT	Nobres	-56.33	-14.73
<i>Evandromyia sallesi</i>	MT	Nossa S. do Livramento	-56.37	-15.80
<i>Evandromyia sallesi</i>	MT	Nova Brasilândia	-54.57	-14.57
<i>Evandromyia sallesi</i>	MT	Nova Marilândia	-56.57	-14.21
<i>Evandromyia sallesi</i>	MT	Nova Maringá	-57.06	-13.01
<i>Evandromyia sallesi</i>	MT	Novo São Joaquim	-53.02	-14.90
<i>Evandromyia sallesi</i>	MT	Paratinga	-54.05	-14.43
<i>Evandromyia sallesi</i>	MT	Pedra Preta	-54.47	-16.62
<i>Evandromyia sallesi</i>	MT	Peixoto de Azevedo	-54.98	-10.22
<i>Evandromyia sallesi</i>	MT	Planalto da Serra	-55.27	-10.44
<i>Evandromyia sallesi</i>	MT	Poconé	-56.62	-16.26
<i>Evandromyia sallesi</i>	MT	Pontal do Araguaia	-52.01	-15.85
<i>Evandromyia sallesi</i>	MT	Ponte Branca	-56.78	-16.08
<i>Evandromyia sallesi</i>	MT	Porto Alegre do Norte	-51.63	-10.87
<i>Evandromyia sallesi</i>	MT	Poxoréo	-54.38	-15.83
<i>Evandromyia sallesi</i>	MT	Primavera do Leste	-54.30	-15.56
<i>Evandromyia sallesi</i>	MT	Ribeirão Cascalheira	-51.82	-12.92
<i>Evandromyia sallesi</i>	MT	Rondonópolis	-54.64	-16.47
<i>Evandromyia sallesi</i>	MT	Santo Antônio do Leste	-53.62	-14.83
<i>Evandromyia sallesi</i>	MT	Santo Antônio do Leverger	-56.08	-15.87
<i>Evandromyia sallesi</i>	MT	São Felix do Araguaia	-50.67	-11.61
<i>Evandromyia sallesi</i>	MT	São José dos 4 Marcos	-58.17	-15.17
<i>Evandromyia sallesi</i>	MT	Sinop	-55.49	-11.83



Sandfly species	State code	Municipalities	Longitude	Latitude
<i>Evandromyia sallesi</i>	MT	Sorriso	-55.71	-12.55
<i>Evandromyia sallesi</i>	MT	Tangará da Serra	-57.50	-14.62
<i>Evandromyia sallesi</i>	MT	Teorixoréu	-52.56	-16.20
<i>Evandromyia sallesi</i>	MT	União do Sul	-54.36	-11.52
<i>Evandromyia sallesi</i>	MT	Vera	-55.19	-12.18
<i>Evandromyia sallesi</i>	MT	Vila Bela de S. Trindade	-59.95	-15.00
<i>Evandromyia sallesi</i>	MT	Vila Rica	-51.11	-10.01
<i>Evandromyia sallesi</i>	GO	Campos do Rio Verde	-49.70	-15.35
<i>Evandromyia sallesi</i>	GO	Campos Verdes	-49.66	-14.26
<i>Evandromyia sallesi</i>	GO	Campestre de Goiás	-49.69	-16.73
<i>Evandromyia sallesi</i>	GO	Cumari	-48.15	-18.26
<i>Evandromyia sallesi</i>	GO	Crixás	-49.97	-14.45
<i>Evandromyia sallesi</i>	GO	Doverlândia	-52.31	-16.69
<i>Evandromyia sallesi</i>	GO	Goiatuba	-49.37	-18.02
<i>Evandromyia sallesi</i>	GO	Guapó	-49.53	-16.83
<i>Evandromyia sallesi</i>	GO	Mambáí	-46.11	-14.49
<i>Evandromyia sallesi</i>	GO	Montividiu do Norte	-48.61	-13.11
<i>Evandromyia sallesi</i>	GO	Mundo Novo	-40.47	-11.86
<i>Evandromyia sallesi</i>	GO	Minaçu	-48.22	-13.53
<i>Evandromyia sallesi</i>	GO	Niquelândia	-48.46	-14.47
<i>Evandromyia sallesi</i>	GO	Nova Crixás	-50.33	-14.10
<i>Evandromyia sallesi</i>	GO	Porangatu	-49.15	-13.44
<i>Evandromyia sallesi</i>	GO	Rio Verde	-50.93	-17.80
<i>Evandromyia sallesi</i>	GO	São Domingos	-46.32	-13.40
<i>Evandromyia sallesi</i>	GO	Silvânia	-48.61	-16.66
<i>Evandromyia sallesi</i>	GO	Uriapuru	-49.92	-14.29
<i>Evandromyia sallesi</i>	GO	Itumbiara	-49.22	-18.42
<i>Evandromyia sallesi</i>	GO	Sítio d' Abadia	-46.25	-14.80
<i>Evandromyia sallesi</i>	GO	Amaro Leite	-49.15	-13.97
<i>Evandromyia sallesi</i>	GO	Ceres	-49.59	-15.30
<i>Evandromyia sallesi</i>	GO	Rianópolis	-49.47	-15.48
<i>Evandromyia sallesi</i>	GO	Anápolis	-48.95	-16.32
<i>Evandromyia sallesi</i>	GO	Jaraguá	-49.33	-15.75
<i>Evandromyia sallesi</i>	DF	Brasília	-47.42	-15.78
<i>Evandromyia sallesi</i>	MS	Água Clara	-52.87	-20.44
<i>Evandromyia sallesi</i>	MS	Alcinópolis	-53.70	-18.31
<i>Evandromyia sallesi</i>	MS	Anastácio	-55.81	-20.48
<i>Evandromyia sallesi</i>	MS	Antonio João	-55.95	-22.19
<i>Evandromyia sallesi</i>	MS	Aquidauana	-55.79	-20.47
<i>Evandromyia sallesi</i>	MS	Bodoquena	-56.72	-20.54
<i>Evandromyia sallesi</i>	MS	Camapuã	-54.04	-19.53
<i>Evandromyia sallesi</i>	MS	Corumbá	-57.65	-19.01
<i>Evandromyia sallesi</i>	MS	Ponta Porã	-55.73	-22.54
<i>Evandromyia sallesi</i>	MS	São Gabriel do Oeste	-54.57	-19.40
<i>Evandromyia sallesi</i>	MS	Selvíria	-51.42	-20.37
<i>Evandromyia sallesi</i>	MS	Terenos	-54.86	-20.44
<i>Evandromyia sallesi</i>	MS	Costa Rica	-53.13	-18.54
<i>Evandromyia sallesi</i>	MS	Guia Lopes da Laguna	-56.11	-21.46
<i>Evandromyia sallesi</i>	MS	Jaraguari	-54.40	-20.14
<i>Evandromyia sallesi</i>	MS	Nova Andradina	-53.34	-22.23
<i>Evandromyia sallesi</i>	MS	Novo Horizonte do Sul	-53.80	-22.61
<i>Evandromyia sallesi</i>	MS	Nioaque	-55.83	-21.13
<i>Evandromyia sallesi</i>	MS	Bonito	-56.47	-21.13



Sandfly species	State code	Municipalities	Longitude	Latitude
<i>Evandromyia sallesi</i>	MS	Maracajú	-55.17	-21.61
<i>Evandromyia sallesi</i>	MS	Miranda	-56.38	-20.24
<i>Evandromyia bacula</i>	GO	Itumbiara	-49.22	-18.42
<i>Evandromyia bacula</i>	MT	Caúdia	-54.88	-11.49
<i>Evandromyia bacula</i>	MT	Chapada dos Guimarães	-55.75	-15.46
<i>Evandromyia bacula</i>	MT	Carolina	-55.83	-9.96
<i>Evandromyia bacula</i>	MT	Colíder	-55.45	-10.81
<i>Evandromyia bacula</i>	MT	Cotriguaçu	-58.41	-9.85
<i>Evandromyia bacula</i>	MT	Gaúcha do Norte	-53.08	-13.24
<i>Evandromyia bacula</i>	MT	Guarantã do Norte	-54.90	-9.78
<i>Evandromyia bacula</i>	MT	Juína	-58.74	-11.38
<i>Evandromyia bacula</i>	MT	Mercelândia	-54.60	-11.11
<i>Evandromyia bacula</i>	MT	Nova Bandeirantes	-57.86	-9.95
<i>Evandromyia bacula</i>	MT	Nova Brasilândia	-54.97	-14.96
<i>Evandromyia bacula</i>	MT	Nova Canaã do Norte	-55.95	-10.55
<i>Evandromyia bacula</i>	MT	Nova Mutum	-56.08	-13.83
<i>Evandromyia bacula</i>	MT	Paranaíta	-57.41	-11.52
<i>Evandromyia bacula</i>	MT	Sinop	-55.49	-11.83
<i>Evandromyia bacula</i>	MT	Tapurah	-56.50	-12.53
<i>Evandromyia bacula</i>	MT	União do Sul	-54.36	-11.52
<i>Evandromyia bacula</i>	MT	Várzea Grande	-56.13	-15.65
<i>Evandromyia bacula</i>	MS	Santa Rita do Pardo	-52.83	-21.30
<i>Evandromyia bacula</i>	DF	Brasília	-47.42	-15.78
<i>Lutzomyia cruzi</i>	MS	Alcinópolis	-53.70	-18.31
<i>Lutzomyia cruzi</i>	MS	Bonito	-56.47	-21.13
<i>Lutzomyia cruzi</i>	MS	Camapuã	-54.04	-19.53
<i>Lutzomyia cruzi</i>	MS	Cassilândia	-51.73	-19.11
<i>Lutzomyia cruzi</i>	MS	Corumbá	-57.65	-19.01
<i>Lutzomyia cruzi</i>	MS	Campo Grande	-54.65	-20.44
<i>Lutzomyia cruzi</i>	MS	Paraíso das Águas	-52.97	-19.05
<i>Lutzomyia cruzi</i>	MS	Ladário	-57.60	-19.00
<i>Lutzomyia cruzi</i>	MS	São Gabriel d'Oeste	-54.57	-19.40
<i>Lutzomyia cruzi</i>	MT	Alto Araguaia	-53.22	-17.31
<i>Lutzomyia cruzi</i>	MT	Araguaiana	-51.83	-15.73
<i>Lutzomyia cruzi</i>	MT	Barra dos Bugres	-57.18	-15.08
<i>Lutzomyia cruzi</i>	MT	Barra do Garças	-52.26	-15.89
<i>Lutzomyia cruzi</i>	MT	Barão de Melgaço	-55.97	-16.19
<i>Lutzomyia cruzi</i>	MT	Canarana	-52.27	-13.55
<i>Lutzomyia cruzi</i>	MT	Colíder	-55.45	-10.81
<i>Lutzomyia cruzi</i>	MT	Cáceres	-57.68	-16.07
<i>Lutzomyia cruzi</i>	MT	Chapada dos Guimarães	-55.75	-15.46
<i>Lutzomyia cruzi</i>	MT	Cuiabá	-56.10	-15.60
<i>Lutzomyia cruzi</i>	MT	Dom Aquino	-54.92	-15.81
<i>Lutzomyia cruzi</i>	MT	Sapezal	-58.76	-12.98
<i>Lutzomyia cruzi</i>	MT	Feliz Natal	-54.92	-12.39
<i>Lutzomyia cruzi</i>	MT	General Carneiro	-52.76	-15.71
<i>Lutzomyia cruzi</i>	MT	Guiratinga	-53.76	-16.35
<i>Lutzomyia cruzi</i>	MT	Jaciara	-54.97	-15.97
<i>Lutzomyia cruzi</i>	MT	Juína	-58.74	-11.38
<i>Lutzomyia cruzi</i>	MT	Itiquira	-54.15	-17.21
<i>Lutzomyia cruzi</i>	MT	Juscimeira	-54.88	-16.05
<i>Lutzomyia cruzi</i>	MT	Mirasol D'Oeste	-58.05	-15.40
<i>Lutzomyia cruzi</i>	MT	Nobres	-56.33	-14.72



Sandfly species	State code	Municipalities	Longitude	Latitude
<i>Lutzomyia cruzi</i>	MT	Nova Brasilândia	-54.97	-14.96
<i>Lutzomyia cruzi</i>	MT	Nova Canaã do Norte	-55.95	-10.56
<i>Lutzomyia cruzi</i>	MT	Nova Uiratã	-55.25	-12.99
<i>Lutzomyia cruzi</i>	MT	Novo São Joaquim	-53.02	-14.90
<i>Lutzomyia cruzi</i>	MT	Pedra Preta	-54.47	-16.62
<i>Lutzomyia cruzi</i>	MT	Paranatinga	-54.05	-14.43
<i>Lutzomyia cruzi</i>	MT	Poconé	-56.62	-16.26
<i>Lutzomyia cruzi</i>	MT	Pontal do Araguaia	-52.01	-15.85
<i>Lutzomyia cruzi</i>	MT	Poxoréo	-54.39	-15.84
<i>Lutzomyia cruzi</i>	MT	Primavera do Leste	-54.30	-15.56
<i>Lutzomyia cruzi</i>	MT	Reserva do Cabaçal	-58.43	-15.08
<i>Lutzomyia cruzi</i>	MT	Rondolândia	-55.42	-14.50
<i>Lutzomyia cruzi</i>	MT	Rondonópolis	-54.64	-16.47
<i>Lutzomyia cruzi</i>	MT	Rosário Oeste	-56.43	-14.84
<i>Lutzomyia cruzi</i>	MT	Santa Rita do Trivelato	-55.26	-13.81
<i>Lutzomyia cruzi</i>	MT	Santo Antônio do Leverger	-56.08	-15.87
<i>Lutzomyia cruzi</i>	MT	São José dos 4 Marcos	-58.18	-15.62
<i>Lutzomyia cruzi</i>	MT	Sorriso	-55.71	-12.55
<i>Lutzomyia cruzi</i>	MT	Sinop	-55.50	-11.86
<i>Lutzomyia cruzi</i>	MT	Torixoreu	-52.56	-16.20
<i>Lutzomyia cruzi</i>	MT	União do Sul	-54.35	-11.53
<i>Lutzomyia cruzi</i>	GO	Paraúna	-50.43	-17.03
<i>Lutzomyia longipalpis</i>	MT	Água Boa	-52.16	-14.05
<i>Lutzomyia longipalpis</i>	MT	Alta Floresta	-56.09	-9.88
<i>Lutzomyia longipalpis</i>	MT	Peixoto de Azevedo	-54.98	-10.22
<i>Lutzomyia longipalpis</i>	MT	Colider	-55.45	-10.81
<i>Lutzomyia longipalpis</i>	MT	Comodoro	-59.79	-13.66
<i>Lutzomyia longipalpis</i>	MT	Alto Araguaia	-53.22	-17.31
<i>Lutzomyia longipalpis</i>	MT	Mirassol D'Oeste	-58.05	-15.40
<i>Lutzomyia longipalpis</i>	MT	Diamantino	-56.45	-14.41
<i>Lutzomyia longipalpis</i>	MT	Alto Paraguai	-56.48	-14.51
<i>Lutzomyia longipalpis</i>	MT	Chapada dos Guimarães	-55.75	-15.46
<i>Lutzomyia longipalpis</i>	MT	Feliz Natal	-54.92	-12.39
<i>Lutzomyia longipalpis</i>	MT	Jangada	-56.49	-15.24
<i>Lutzomyia longipalpis</i>	MT	Várzea Grande	-56.13	-15.65
<i>Lutzomyia longipalpis</i>	MT	Nossa S. do Livramento	-56.35	-15.78
<i>Lutzomyia longipalpis</i>	MT	Nobres	-56.33	-14.72
<i>Lutzomyia longipalpis</i>	MT	Juína	-58.74	-11.38
<i>Lutzomyia longipalpis</i>	MT	Santo Antônio do Leverger	-56.08	-15.87
<i>Lutzomyia longipalpis</i>	MT	Rondonópolis	-54.64	-16.47
<i>Lutzomyia longipalpis</i>	MT	Sorriso	-55.71	-12.55
<i>Lutzomyia longipalpis</i>	MT	Itanhangá	-56.64	-12.23
<i>Lutzomyia longipalpis</i>	MT	União do Sul	-54.36	-11.52
<i>Lutzomyia longipalpis</i>	MT	Terra Nova do Norte	-55.23	-10.51
<i>Lutzomyia longipalpis</i>	MT	Tapurah	-56.50	-12.53
<i>Lutzomyia longipalpis</i>	MT	Itiquira	-54.12	-17.20
<i>Lutzomyia longipalpis</i>	MT	Planalto da Serra	-55.27	-10.44
<i>Lutzomyia longipalpis</i>	MT	Nova Mutum	-56.08	-13.83
<i>Lutzomyia longipalpis</i>	MT	Nova Uiratã	-55.26	-13.01
<i>Lutzomyia longipalpis</i>	MT	Nova Xavantina	-52.34	-14.66
<i>Lutzomyia longipalpis</i>	MT	Paranaíta	-56.48	-9.67
<i>Lutzomyia longipalpis</i>	MT	Porto Alegre do Norte	-51.63	-10.87
<i>Lutzomyia longipalpis</i>	MT	Sinop	-55.49	-11.83



Sandfly species	State code	Municipalities	Longitude	Latitude
<i>Lutzomyia longipalpis</i>	MT	Santa Rita do Trivelato	-55.26	-13.81
<i>Lutzomyia longipalpis</i>	MT	Gaúcha do Norte	-53.08	-13.24
<i>Lutzomyia longipalpis</i>	MT	Marcelândia	-54.60	-11.11
<i>Lutzomyia longipalpis</i>	MT	General Carneiro	-52.76	-15.71
<i>Lutzomyia longipalpis</i>	MT	Paranatinga	-54.05	-14.43
<i>Lutzomyia longipalpis</i>	MT	Nova Brasilândia	-54.97	-14.96
<i>Lutzomyia longipalpis</i>	MT	Rosário D' Oeste	-56.43	-14.84
<i>Lutzomyia longipalpis</i>	MT	Pontal do Araguaia	-52.01	-15.85
<i>Lutzomyia longipalpis</i>	MT	Primavera do Leste	-54.30	-15.56
<i>Lutzomyia longipalpis</i>	MT	Poconé	-56.62	-16.26
<i>Lutzomyia longipalpis</i>	MT	Lucas do Rio Verde	-55.91	-13.05
<i>Lutzomyia longipalpis</i>	MT	Barra dos Bugres	-57.18	-15.08
<i>Lutzomyia longipalpis</i>	MT	Barra do Garças	-52.26	-15.89
<i>Lutzomyia longipalpis</i>	MT	Barão de Melgaço	-55.97	-16.19
<i>Lutzomyia longipalpis</i>	MT	Poxoréu	-54.38	-15.83
<i>Lutzomyia longipalpis</i>	MT	Araguaiana	-51.83	-15.73
<i>Lutzomyia longipalpis</i>	MT	Arenápolis	-56.82	-14.43
<i>Lutzomyia longipalpis</i>	MT	Cuiabá	-56.10	-15.60
<i>Lutzomyia longipalpis</i>	MT	Barra do Garças	-52.26	-15.89
<i>Lutzomyia longipalpis</i>	MT	Cáceres	-57.68	-16.07
<i>Lutzomyia longipalpis</i>	MT	Campinápolis	-52.88	-14.50
<i>Lutzomyia longipalpis</i>	MT	Canabrava do Norte	-51.83	-11.03
<i>Lutzomyia longipalpis</i>	MT	Canarana	-52.27	-13.55
<i>Lutzomyia longipalpis</i>	MT	Cláudia	-54.88	-11.49
<i>Lutzomyia longipalpis</i>	MT	Água Clara	-52.87	-20.44
<i>Lutzomyia longipalpis</i>	MS	Alcinópolis	-53.70	-18.31
<i>Lutzomyia longipalpis</i>	MS	Anastácio	-55.81	-20.48
<i>Lutzomyia longipalpis</i>	MS	Antonio João	-55.95	-22.19
<i>Lutzomyia longipalpis</i>	MS	Aparecida do Taboado	-51.09	-20.09
<i>Lutzomyia longipalpis</i>	MS	Aquidauana	-55.79	-20.47
<i>Lutzomyia longipalpis</i>	MS	Bataguassu	-52.42	-21.71
<i>Lutzomyia longipalpis</i>	MS	Bela Vista	-56.52	-22.11
<i>Lutzomyia longipalpis</i>	MS	Bodoquena	-56.72	-20.54
<i>Lutzomyia longipalpis</i>	MS	Brasilândia	-52.04	-21.26
<i>Lutzomyia longipalpis</i>	MS	Campo Grande	-54.65	-20.44
<i>Lutzomyia longipalpis</i>	MS	Camapuã	-54.04	-19.53
<i>Lutzomyia longipalpis</i>	MS	Corguinho	-54.83	-19.83
<i>Lutzomyia longipalpis</i>	MS	Caracol	-57.02	-22.01
<i>Lutzomyia longipalpis</i>	MS	Coxim	-54.76	-18.51
<i>Lutzomyia longipalpis</i>	MS	Paranaíba	-51.19	-19.68
<i>Lutzomyia longipalpis</i>	MS	Ponta Porã	-55.73	-22.54
<i>Lutzomyia longipalpis</i>	MS	Porto Murtinho	-57.88	-21.70
<i>Lutzomyia longipalpis</i>	MS	Ribas do Rio Pardo	-53.76	-20.44
<i>Lutzomyia longipalpis</i>	MS	Rio Negro	-54.99	-19.45
<i>Lutzomyia longipalpis</i>	MS	Rochedo	-54.89	-19.95
<i>Lutzomyia longipalpis</i>	MS	Selvíria	-51.42	-20.37
<i>Lutzomyia longipalpis</i>	MS	Sidrolândia	-54.96	-20.93
<i>Lutzomyia longipalpis</i>	MS	Terenos	-54.86	-20.44
<i>Lutzomyia longipalpis</i>	MS	Três Lagoas	-51.68	-20.75
<i>Lutzomyia longipalpis</i>	MS	Costa Rica	-53.13	-18.54
<i>Lutzomyia longipalpis</i>	MS	Dourados	-54.81	-22.22
<i>Lutzomyia longipalpis</i>	MS	Guia Lopes da Laguna	-56.11	-21.46
<i>Lutzomyia longipalpis</i>	MS	Inocência	-51.93	-19.73



Sandfly species	State code	Municipalities	Longitude	Latitude
<i>Lutzomyia longipalpis</i>	MS	Jaraguari	-54.40	-20.14
<i>Lutzomyia longipalpis</i>	MS	Jardim	-56.14	-21.48
<i>Lutzomyia longipalpis</i>	MS	Nova Alvorada do Sul	-54.38	-21.47
<i>Lutzomyia longipalpis</i>	MS	Nioaque	-55.83	-21.14
<i>Lutzomyia longipalpis</i>	MS	Santa Rita do Pardo	-52.83	-21.30
<i>Lutzomyia longipalpis</i>	MS	Bonito	-56.47	-21.13
<i>Lutzomyia longipalpis</i>	MS	Dois Irmãos do Buriti	-55.30	-20.68
<i>Lutzomyia longipalpis</i>	MS	Maracajú	-55.17	-21.61
<i>Lutzomyia longipalpis</i>	MS	Miranda	-56.38	-20.24
<i>Lutzomyia longipalpis</i>	MS	Pedro Gomes	-54.55	-18.10
<i>Lutzomyia longipalpis</i>	MS	Paraíso das Águas	-52.97	-19.05
<i>Lutzomyia longipalpis</i>	MS	Paranhos	-55.43	-23.89
<i>Lutzomyia longipalpis</i>	MS	Rio Verde de Mato Grosso	-54.84	-18.92
<i>Lutzomyia longipalpis</i>	GO	Amaro Leite	-49.15	-13.97
<i>Lutzomyia longipalpis</i>	GO	Araguapaz	-50.63	-15.09
<i>Lutzomyia longipalpis</i>	GO	Campos Verdes	-49.66	-14.26
<i>Lutzomyia longipalpis</i>	GO	Crixás	-49.97	-14.45
<i>Lutzomyia longipalpis</i>	GO	Padre Bernardo	-48.50	-13.35
<i>Lutzomyia longipalpis</i>	GO	Cavalcante	-47.50	-13.80
<i>Lutzomyia longipalpis</i>	GO	Campestre	-49.69	-16.73
<i>Lutzomyia longipalpis</i>	GO	Colinas do Sul	-48.08	-14.15
<i>Lutzomyia longipalpis</i>	GO	Cumari	-48.15	-18.26
<i>Lutzomyia longipalpis</i>	GO	Catalão	-47.95	-18.17
<i>Lutzomyia longipalpis</i>	GO	Flores de Goiás	-47.05	-14.45
<i>Lutzomyia longipalpis</i>	GO	Goiás	-50.14	-15.93
<i>Lutzomyia longipalpis</i>	GO	Guapó	-49.53	-16.83
<i>Lutzomyia longipalpis</i>	GO	Mambai	-46.11	-14.49
<i>Lutzomyia longipalpis</i>	GO	Montividiu do Norte	-48.61	-13.11
<i>Lutzomyia longipalpis</i>	GO	Mutunópolis	-49.28	-13.73
<i>Lutzomyia longipalpis</i>	GO	Mundo Novo	-40.47	-11.86
<i>Lutzomyia longipalpis</i>	GO	Minaçu	-48.22	-13.53
<i>Lutzomyia longipalpis</i>	GO	Morro Agudo de Goiás	-50.06	-15.32
<i>Lutzomyia longipalpis</i>	GO	Niquelândia	-48.46	-14.47
<i>Lutzomyia longipalpis</i>	GO	Porangatu	-49.15	-13.44
<i>Lutzomyia longipalpis</i>	GO	Posse	-46.37	-14.09
<i>Lutzomyia longipalpis</i>	GO	Rio Verde	-50.93	-17.80
<i>Lutzomyia longipalpis</i>	GO	São Miguel do Araguaia	-50.22	-13.32
<i>Lutzomyia longipalpis</i>	GO	São Domingos	-46.32	-13.40
<i>Lutzomyia longipalpis</i>	GO	Silvânia	-48.61	-16.66
<i>Lutzomyia longipalpis</i>	GO	Uriapuru	-49.92	-14.29
<i>Lutzomyia longipalpis</i>	GO	Paraúna	-50.44	-16.94
<i>Lutzomyia longipalpis</i>	GO	Sítio d' Abadia	-46.25	-14.80
<i>Lutzomyia longipalpis</i>	GO	Itumbiara	-49.21	-18.42
<i>Lutzomyia longipalpis</i>	GO	Uruaçu	-49.14	-14.52
<i>Lutzomyia longipalpis</i>	DF	Brasília	-47.42	-15.78
<i>Micropygomyia vilhelai</i>	MT	Cuiabá	-56.10	-15.60
<i>Micropygomyia vilhelai</i>	MT	Barra do Garças	-52.26	-15.89
<i>Micropygomyia vilhelai</i>	MT	Alto do Paraguai	-56.48	-14.51
<i>Micropygomyia vilhelai</i>	MT	Araguaina	-51.83	-15.73
<i>Micropygomyia vilhelai</i>	MT	Arenápolis	-56.82	-14.43
<i>Micropygomyia vilhelai</i>	MT	Itiquira	-54.14	-17.21
<i>Micropygomyia vilhelai</i>	MT	Juína	-58.74	-11.38
<i>Micropygomyia vilhelai</i>	MT	Nobres	-56.33	-14.73



Sandfly species	State code	Municipalities	Longitude	Latitude
<i>Micropygomyia vilhelai</i>	MT	Nossa S. do Livramento	-56.37	-15.80
<i>Micropygomyia vilhelai</i>	MT	Nova Bandeirantes	-57.86	-9.95
<i>Micropygomyia vilhelai</i>	MT	Primavera do Leste	-54.30	-15.56
<i>Micropygomyia vilhelai</i>	MT	Rondonópolis	-54.64	-16.47
<i>Micropygomyia vilhelai</i>	MT	Rosário Oeste	-56.43	-14.84
<i>Micropygomyia vilhelai</i>	MT	Santo Antônio do Leverger	-56.08	-15.87
<i>Micropygomyia vilhelai</i>	MT	Vera	-55.19	-12.18
<i>Micropygomyia vilhelai</i>	MT	Vila Bela de S. Trindade	-59.95	-15.00
<i>Micropygomyia vilhelai</i>	MS	Aquidauana	-55.79	-20.47
<i>Micropygomyia vilhelai</i>	MS	Corumbá	-57.65	-19.01
<i>Micropygomyia vilhelai</i>	GO	Campos Verdes	-49.66	-14.26
<i>Micropygomyia vilhelai</i>	GO	Minaçu	-48.22	-13.53
<i>Micropygomyia vilhelai</i>	GO	Porangatu	-49.15	-13.44
<i>Micropygomyia vilhelai</i>	GO	Rio Verde	-50.93	-17.80
<i>Micropygomyia vilhelai</i>	GO	Sítio d' Abadia	-46.25	-14.80
<i>Micropygomyia vilhelai</i>	GO	Amaro Leite	-49.15	-13.97
<i>Micropygomyia vilhelai</i>	GO	Cavalcante	-47.50	-13.80
<i>Micropygomyia longipennis</i>	MT	Varzea Grande	-56.13	-15.65
<i>Micropygomyia longipennis</i>	MT	Nova Mutum	-56.08	-13.83
<i>Micropygomyia longipennis</i>	MT	Barra do Garças	-52.26	-15.89
<i>Micropygomyia longipennis</i>	MT	Alta Floresta	-56.09	-9.88
<i>Micropygomyia longipennis</i>	MT	Alto Araguaia	-53.22	-17.31
<i>Micropygomyia longipennis</i>	MT	Alto do Paraguai	-56.48	-14.51
<i>Micropygomyia longipennis</i>	MT	Apiacás	-57.45	-9.54
<i>Micropygomyia longipennis</i>	MT	Araguaina	-53.08	-16.82
<i>Micropygomyia longipennis</i>	MT	Arenópolis	-56.82	-14.43
<i>Micropygomyia longipennis</i>	MT	Barão do Melgaço	-55.97	-16.19
<i>Micropygomyia longipennis</i>	MT	Barra dos Bugres	-57.18	-15.08
<i>Micropygomyia longipennis</i>	MT	Campinápolis	-52.88	-14.50
<i>Micropygomyia longipennis</i>	MT	Canabrava do Norte	-51.83	-11.03
<i>Micropygomyia longipennis</i>	MT	Chapada dos Guimarães	-55.75	-15.46
<i>Micropygomyia longipennis</i>	MT	Confresa	-51.56	-10.64
<i>Micropygomyia longipennis</i>	MT	Diamantino	-56.45	-14.41
<i>Micropygomyia longipennis</i>	MT	Feliz Natal	-54.92	-12.39
<i>Micropygomyia longipennis</i>	MT	General Carneiro	-52.76	-15.71
<i>Micropygomyia longipennis</i>	MT	Jaciara	-54.95	-15.92
<i>Micropygomyia longipennis</i>	MT	Juara	-57.52	-11.55
<i>Micropygomyia longipennis</i>	MT	Juína	-58.74	-11.38
<i>Micropygomyia longipennis</i>	MT	Juscimeira	-54.88	-16.05
<i>Micropygomyia longipennis</i>	MT	Lucas do Rio Verde	-55.91	-13.05
<i>Micropygomyia longipennis</i>	MT	Luciara	-50.57	-10.75
<i>Micropygomyia longipennis</i>	MT	Nobres	-56.33	-14.73
<i>Micropygomyia longipennis</i>	MT	Nova Bandeirantes	-57.86	-9.95
<i>Micropygomyia longipennis</i>	MT	Nova Ubiratã	-55.26	-13.01
<i>Micropygomyia longipennis</i>	MT	Novo Horizonte do Norte	-57.35	-11.41
<i>Micropygomyia longipennis</i>	MT	Paratinga	-54.05	-14.43
<i>Micropygomyia longipennis</i>	MT	Peixoto de Azevedo	-54.98	-10.22
<i>Micropygomyia longipennis</i>	MT	Planalto da Serra	-55.27	-10.44
<i>Micropygomyia longipennis</i>	MT	Poconé	-56.62	-16.26
<i>Micropygomyia longipennis</i>	MT	Pontal do Araguaia	-52.01	-15.85
<i>Micropygomyia longipennis</i>	MT	Porto Alegre do Norte	-51.63	-10.87
<i>Micropygomyia longipennis</i>	MT	Porto dos Gaúchos	-57.41	-11.52
<i>Micropygomyia longipennis</i>	MT	Porto Esperidião	-58.47	-15.85



Sandfly species	State code	Municipalities	Longitude	Latitude
<i>Micropygomyia longipennis</i>	MT	Poxoréo	-54.38	-15.83
<i>Micropygomyia longipennis</i>	MT	Primavera do Leste	-54.30	-15.56
<i>Micropygomyia longipennis</i>	MT	Rondonópolis	-54.64	-16.47
<i>Micropygomyia longipennis</i>	MT	Rosário Oeste	-56.43	-14.84
<i>Micropygomyia longipennis</i>	MT	Santa Carmem	-54.52	-11.35
<i>Micropygomyia longipennis</i>	MT	São José dos 4 Marcos	-58.17	-15.17
<i>Micropygomyia longipennis</i>	MT	Sinop	-55.49	-11.83
<i>Micropygomyia longipennis</i>	MT	Sorriso	-55.71	-12.55
<i>Micropygomyia longipennis</i>	MT	Taboporã	-56.62	-10.80
<i>Micropygomyia longipennis</i>	MT	Tapurah	-56.50	-12.53
<i>Micropygomyia longipennis</i>	MT	União do Sul	-54.36	-11.52
<i>Micropygomyia longipennis</i>	MT	Vila Rica	-51.11	-10.01
<i>Micropygomyia longipennis</i>	MT	Ipiranga do Norte	-56.05	-15.35
<i>Micropygomyia longipennis</i>	MS	Aquidauana	-55.79	-20.47
<i>Micropygomyia longipennis</i>	MS	Campo Grande	-54.65	-20.44
<i>Micropygomyia longipennis</i>	MS	Camapuã	-54.04	-19.53
<i>Micropygomyia longipennis</i>	MS	Corguinho	-54.83	-19.83
<i>Micropygomyia longipennis</i>	MS	Itaquiraí	-54.11	-23.28
<i>Micropygomyia longipennis</i>	GO	Sítio d' Abadia	-46.25	-14.80
<i>Micropygomyia longipennis</i>	GO	Amaro Leite	-49.15	-13.97
<i>Micropygomyia longipennis</i>	GO	Corumbá de Goiás	-48.80	-15.92
<i>Micropygomyia longipennis</i>	GO	Ceres	-49.59	-15.30
<i>Micropygomyia longipennis</i>	GO	Goiania	-49.25	-16.67
<i>Micropygomyia longipennis</i>	GO	Rianópolis	-49.47	-15.48
<i>Micropygomyia longipennis</i>	GO	Uruaçu	-49.14	-14.52
<i>Micropygomyia longipennis</i>	DF	Brasília	-47.42	-15.78
<i>Micropygomyia quinquefer</i>	MT	Barra dos Bugres	-57.18	-15.08
<i>Micropygomyia quinquefer</i>	MT	Alto Araguaia	-53.22	-17.31
<i>Micropygomyia quinquefer</i>	MT	Cáceres	-57.68	-16.07
<i>Micropygomyia quinquefer</i>	MT	Chapada dos Guimarães	-55.75	-15.46
<i>Micropygomyia quinquefer</i>	MT	Gaúcha do Norte	-53.08	-13.24
<i>Micropygomyia quinquefer</i>	MT	Jaciara	-54.95	-15.92
<i>Micropygomyia quinquefer</i>	MT	Juína	-58.74	-11.38
<i>Micropygomyia quinquefer</i>	MT	Nova Brasilândia	-54.97	-14.96
<i>Micropygomyia quinquefer</i>	MT	Pontes de Lacerda	-59.37	-15.20
<i>Micropygomyia quinquefer</i>	MT	Primavera do Leste	-54.30	-15.56
<i>Micropygomyia quinquefer</i>	MT	Sorriso	-55.71	-12.55
<i>Micropygomyia quinquefer</i>	GO	Itumbiara	-49.22	-18.42
<i>Micropygomyia quinquefer</i>	GO	Sítio d' Abadia	-46.25	-14.80
<i>Micropygomyia quinquefer</i>	GO	Amaro Leite	-49.15	-13.97
<i>Micropygomyia quinquefer</i>	MS	Água Clara	-52.87	-20.44
<i>Micropygomyia quinquefer</i>	MS	Alcinópolis	-53.70	-18.31
<i>Micropygomyia quinquefer</i>	MS	Aquidauana	-55.79	-20.47
<i>Micropygomyia quinquefer</i>	MS	Camapuã	-54.04	-19.53
<i>Micropygomyia quinquefer</i>	MS	Campo Grande	-54.65	-20.44
<i>Micropygomyia quinquefer</i>	MS	Corguinho	-54.83	-19.83
<i>Micropygomyia quinquefer</i>	MS	Bonito	-56.47	-21.13
<i>Micropygomyia quinquefer</i>	MS	Miranda	-56.38	-20.24
<i>Micropygomyia acanthopharynx</i>	MT	Diamantino	-56.45	-14.41
<i>Micropygomyia acanthopharynx</i>	MT	Peixoto de Azevedo	-54.98	-10.22
<i>Micropygomyia acanthopharynx</i>	MT	Barra do Garças	-52.26	-15.89
<i>Micropygomyia acanthopharynx</i>	MT	Água Boa	-52.16	-14.05
<i>Micropygomyia acanthopharynx</i>	MT	Alto do Paraguai	-56.48	-14.51



Sandfly species	State code	Municipalities	Longitude	Latitude
<i>Micropygomyia acanthopharynx</i>	MT	Araguaina	-51.83	-15.73
<i>Micropygomyia acanthopharynx</i>	MT	Araguainha	-53.08	-16.82
<i>Micropygomyia acanthopharynx</i>	MT	Aripuanã	-60.63	-9.17
<i>Micropygomyia acanthopharynx</i>	MT	Campinápolis	-52.88	-14.50
<i>Micropygomyia acanthopharynx</i>	MT	Canabrava do Norte	-51.83	-11.03
<i>Micropygomyia acanthopharynx</i>	MT	Canarana	-52.27	-13.55
<i>Micropygomyia acanthopharynx</i>	MT	Chapada dos Guimarães	-55.75	-15.46
<i>Micropygomyia acanthopharynx</i>	MT	Cotriguaçu	-58.41	-9.85
<i>Micropygomyia acanthopharynx</i>	MT	Cuiabá	-56.10	-15.60
<i>Micropygomyia acanthopharynx</i>	MT	Gaúcha do Norte	-53.08	-13.24
<i>Micropygomyia acanthopharynx</i>	MT	Jaciara	-54.95	-15.92
<i>Micropygomyia acanthopharynx</i>	MT	Juína	-58.74	-11.38
<i>Micropygomyia acanthopharynx</i>	MT	Mercelândia	-54.60	-11.11
<i>Micropygomyia acanthopharynx</i>	MT	Nobres	-56.33	-14.73
<i>Micropygomyia acanthopharynx</i>	MT	Nossa S. do Livramento	-56.37	-15.80
<i>Micropygomyia acanthopharynx</i>	MT	Nova Bandeirantes	-57.86	-9.95
<i>Micropygomyia acanthopharynx</i>	MT	Nova Brasilândia	-54.57	-14.57
<i>Micropygomyia acanthopharynx</i>	MT	Nova Santana Helena	-53.35	-10.82
<i>Micropygomyia acanthopharynx</i>	MT	Novo São Joaquim	-53.02	-14.90
<i>Micropygomyia acanthopharynx</i>	MT	Paranaíta	-56.48	-9.67
<i>Micropygomyia acanthopharynx</i>	MT	Paratinga	-54.05	-14.43
<i>Micropygomyia acanthopharynx</i>	MT	Planalto da Serra	-55.27	-10.44
<i>Micropygomyia acanthopharynx</i>	MT	Poconé	-56.62	-16.26
<i>Micropygomyia acanthopharynx</i>	MT	Ponte Branca	-56.78	-16.08
<i>Micropygomyia acanthopharynx</i>	MT	Porto Esperidião	-58.47	-15.85
<i>Micropygomyia acanthopharynx</i>	MT	Ribeirão Cascalheira	-51.82	-12.92
<i>Micropygomyia acanthopharynx</i>	MT	Ribeirãozinho	-52.67	-16.45
<i>Micropygomyia acanthopharynx</i>	MT	Rondonópolis	-54.64	-16.47
<i>Micropygomyia acanthopharynx</i>	MT	Rosário Oeste	-56.43	-14.84
<i>Micropygomyia acanthopharynx</i>	MT	Santo Antônio do Leverger	-56.08	-15.87
<i>Micropygomyia acanthopharynx</i>	MT	Terra nova do Norte	-55.23	-10.51
<i>Micropygomyia acanthopharynx</i>	MT	Várzea Grande	-56.13	-15.65
<i>Micropygomyia acanthopharynx</i>	GO	Itumbiara	-49.21	-18.42
<i>Micropygomyia acanthopharynx</i>	Go	Amaro Leite	-49.15	-13.97
<i>Micropygomyia acanthopharynx</i>	Go	Formoso	-47.33	-15.53
<i>Micropygomyia acanthopharynx</i>	GO	Paraúna	-50.44	-16.94
<i>Micropygomyia acanthopharynx</i>	GO	Caldas Novas	-48.62	-17.74
<i>Micropygomyia acanthopharynx</i>	DF	Brasília	-47.42	-15.78
<i>Micropygomyia acanthopharynx</i>	MS	Aquidauana	-55.79	-20.47
<i>Micropygomyia acanthopharynx</i>	MS	Corguinho	-54.83	-19.83
<i>Micropygomyia acanthopharynx</i>	MS	Rio Negro	-54.99	-19.45
<i>Micropygomyia acanthopharynx</i>	MS	Bonito	-56.47	-21.13
<i>Micropygomyia acanthopharynx</i>	MS	Camapuã	-54.04	-19.53
<i>Micropygomyia acanthopharynx</i>	MS	Rio Verde de Mato Grosso	-54.84	-18.92
<i>Migonemyia migonei</i>	MT	Peixoto de Azevedo	-54.98	-10.22
<i>Migonemyia migonei</i>	MT	Apiacás	-57.45	-9.54
<i>Migonemyia migonei</i>	MT	Aripuanã	-60.63	-9.17
<i>Migonemyia migonei</i>	MT	Claúdia	-54.88	-11.49
<i>Migonemyia migonei</i>	MT	Comodoro	-59.79	-13.66
<i>Migonemyia migonei</i>	MT	Feliz Natal	-54.92	-12.39
<i>Migonemyia migonei</i>	MT	Guarantã do Norte	-54.90	-9.78
<i>Migonemyia migonei</i>	MT	Guiratinga	-53.74	-16.33
<i>Migonemyia migonei</i>	MT	Juína	-58.74	-11.38



Sandfly species	State code	Municipalities	Longitude	Latitude
<i>Migonemyia migonei</i>	MT	Lucas do Rio Verde	-55.91	-13.05
<i>Migonemyia migonei</i>	MT	Mercelândia	-54.60	-11.11
<i>Migonemyia migonei</i>	MT	Nova Guarita	-55.40	-10.30
<i>Migonemyia migonei</i>	MT	Nova Ubiratã	-55.26	-13.01
<i>Migonemyia migonei</i>	MT	Paranaíta	-56.48	-9.67
<i>Migonemyia migonei</i>	MT	Sinop	-55.49	-11.83
<i>Migonemyia migonei</i>	MT	Sorriso	-55.71	-12.55
<i>Migonemyia migonei</i>	MT	Tangará da Serra	-57.50	-14.62
<i>Migonemyia migonei</i>	MT	Terra nova do Norte	-55.23	-10.51
<i>Migonemyia migonei</i>	MT	União do Sul	-54.36	-11.52
<i>Migonemyia migonei</i>	MT	Ipiranga do Norte	-56.05	-15.35
<i>Migonemyia migonei</i>	GO	Maurilândia	-50.31	-18.00
<i>Migonemyia migonei</i>	GO	Niquelândia	-48.45	-14.47
<i>Migonemyia migonei</i>	GO	Silvânia	-48.61	-16.66
<i>Migonemyia migonei</i>	GO	Uriapuru	-49.92	-14.29
<i>Migonemyia migonei</i>	MS	Antonio João	-55.95	-22.19
<i>Migonemyia migonei</i>	MS	Bodoquena	-56.72	-20.54
<i>Migonemyia migonei</i>	MS	Campo Grande	-54.65	-20.44
<i>Migonemyia migonei</i>	MS	Dourados	-54.81	-22.22
<i>Migonemyia migonei</i>	MS	Jardim	-56.14	-21.48
<i>Migonemyia migonei</i>	MS	Rio Brillhante	-54.54	-21.80
<i>Migonemyia migonei</i>	MS	Rio Verde de Mato Grosso	-54.84	-18.92
<i>Migonemyia migonei</i>	MS	Bataguassu	-52.42	-21.71
<i>Migonemyia migonei</i>	MS	Caarapó	-54.80	-22.63
<i>Nyssomyia whitmani</i>	MT	Claúdia	-54.88	-11.49
<i>Nyssomyia whitmani</i>	MT	Confresa	-51.56	-10.64
<i>Nyssomyia whitmani</i>	MT	Canabrava do Norte	-51.83	-11.03
<i>Nyssomyia whitmani</i>	MT	Chapada dos Guimarães	-55.75	-15.46
<i>Nyssomyia whitmani</i>	MT	Cláudia	-54.88	-11.49
<i>Nyssomyia whitmani</i>	MT	Feliz Natal	-54.92	-12.39
<i>Nyssomyia whitmani</i>	MT	Jangada	-56.49	-15.24
<i>Nyssomyia whitmani</i>	MT	Itiquira	-54.14	-17.21
<i>Nyssomyia whitmani</i>	MT	Várzea Grande	-56.13	-15.65
<i>Nyssomyia whitmani</i>	MT	Nova Mutum	-56.08	-13.83
<i>Nyssomyia whitmani</i>	MT	Novo São Joaquim	-53.02	-14.90
<i>Nyssomyia whitmani</i>	MT	Nova Brasilândia	-54.57	-14.57
<i>Nyssomyia whitmani</i>	MT	Nova Bandeirantes	-57.86	-9.95
<i>Nyssomyia whitmani</i>	MT	Nortelândia	-56.80	-14.42
<i>Nyssomyia whitmani</i>	MT	Nova Guarita	-55.40	-10.30
<i>Nyssomyia whitmani</i>	MT	Nova Ubiratã	-55.26	-13.01
<i>Nyssomyia whitmani</i>	MT	Novo Horizonte do Norte	-57.35	-11.41
<i>Nyssomyia whitmani</i>	MT	Nova Canaã do Norte	-55.95	-10.55
<i>Nyssomyia whitmani</i>	MT	Nova Maringá	-57.06	-13.01
<i>Nyssomyia whitmani</i>	MT	Nossa S. do Livramento	-56.37	-15.80
<i>Nyssomyia whitmani</i>	MT	Nova Santa Helena	-53.35	-10.82
<i>Nyssomyia whitmani</i>	MT	Nova Xavantina	-52.34	-14.66
<i>Nyssomyia whitmani</i>	MT	Nobres	-56.33	-14.73
<i>Nyssomyia whitmani</i>	MT	Juscimeira	-54.88	-16.05
<i>Nyssomyia whitmani</i>	MT	Juara	-57.52	-11.55
<i>Nyssomyia whitmani</i>	MT	Jaciara	-54.95	-15.92
<i>Nyssomyia whitmani</i>	MT	Juína	-58.74	-11.38
<i>Nyssomyia whitmani</i>	MT	São Pedro da Cipa	-54.91	-15.99
<i>Nyssomyia whitmani</i>	MT	Santo Antonio do Leste	-53.62	-14.83



Sandfly species	State code	Municipalities	Longitude	Latitude
<i>Nyssomyia whitmani</i>	MT	Santo Antônio do Leverger	-56.08	-15.87
<i>Nyssomyia whitmani</i>	MT	Rondonópolis	-54.64	-16.47
<i>Nyssomyia whitmani</i>	MT	Sinop	-55.49	-11.83
<i>Nyssomyia whitmani</i>	MT	Sapezal	-57.20	-14.97
<i>Nyssomyia whitmani</i>	MT	Sorriso	-55.71	-12.55
<i>Nyssomyia whitmani</i>	MT	Guiratinga	-53.74	-16.33
<i>Nyssomyia whitmani</i>	MT	Gaúcha do Norte	-53.08	-13.24
<i>Nyssomyia whitmani</i>	MT	Guarantã do Norte	-54.90	-9.78
<i>Nyssomyia whitmani</i>	MT	Matupá	-54.90	-10.05
<i>Nyssomyia whitmani</i>	MT	Marcelândia	-54.60	-11.11
<i>Nyssomyia whitmani</i>	MT	General Carneiro	-52.76	-15.71
<i>Nyssomyia whitmani</i>	MT	Planalto da Serra	-55.27	-10.44
<i>Nyssomyia whitmani</i>	MT	Pontes de Lacerda	-59.37	-15.20
<i>Nyssomyia whitmani</i>	MT	Paranatinga	-54.05	-14.43
<i>Nyssomyia whitmani</i>	MT	Nova Brasilândia	-54.97	-14.96
<i>Nyssomyia whitmani</i>	MT	Tambaporã	-56.62	-10.80
<i>Nyssomyia whitmani</i>	MT	Tangará da Serra	-57.50	-14.62
<i>Nyssomyia whitmani</i>	MT	Tapurah	-56.50	-12.53
<i>Nyssomyia whitmani</i>	MT	Serra Nova Dourada	-51.58	-11.97
<i>Nyssomyia whitmani</i>	MT	São José dos 4 Marcos	-58.17	-15.17
<i>Nyssomyia whitmani</i>	MT	São José do Povo	-54.25	-16.46
<i>Nyssomyia whitmani</i>	MT	São Félix do Araguaia	-50.67	-11.61
<i>Nyssomyia whitmani</i>	MT	Paranaíta	-56.48	-9.67
<i>Nyssomyia whitmani</i>	MT	Porto dos Gaúchos	-57.41	-11.52
<i>Nyssomyia whitmani</i>	MT	Porto Esperidião	-58.47	-15.85
<i>Nyssomyia whitmani</i>	MT	Santa Rita do Trivelato	-55.26	-13.81
<i>Nyssomyia whitmani</i>	MT	Vila Rica	-51.11	-10.01
<i>Nyssomyia whitmani</i>	MT	Vila Bela da S. Trindade	-59.95	-15.00
<i>Nyssomyia whitmani</i>	MT	Itanguá	-56.64	-12.23
<i>Nyssomyia whitmani</i>	MT	União do Sul	-54.36	-11.52
<i>Nyssomyia whitmani</i>	MT	Ribeirão Cascalheira	-51.82	-12.92
<i>Nyssomyia whitmani</i>	MT	Ribeirãozinho	-52.67	-16.45
<i>Nyssomyia whitmani</i>	MT	Rosário D' Oeste	-56.43	-14.84
<i>Nyssomyia whitmani</i>	MT	Pontal do Araguaia	-52.01	-15.85
<i>Nyssomyia whitmani</i>	MT	Peixoto de Azevedo	-54.98	-10.22
<i>Nyssomyia whitmani</i>	MT	Pedra Preta	-54.47	-16.62
<i>Nyssomyia whitmani</i>	MT	Ponte Branca	-56.78	-16.08
<i>Nyssomyia whitmani</i>	MT	Porto Alegre do Norte	-51.63	-10.87
<i>Nyssomyia whitmani</i>	MT	Vera	-55.31	-12.30
<i>Nyssomyia whitmani</i>	MT	Primavera do Leste	-54.30	-15.56
<i>Nyssomyia whitmani</i>	MT	Pontal do Araguaia	-52.00	-15.84
<i>Nyssomyia whitmani</i>	MT	Poconé	-56.62	-16.26
<i>Nyssomyia whitmani</i>	MT	Terra Nova do Norte	-55.23	-10.51
<i>Nyssomyia whitmani</i>	MT	Lucas do Rio Verde	-55.91	-13.05
<i>Nyssomyia whitmani</i>	MT	Luciara	-50.57	-10.75
<i>Nyssomyia whitmani</i>	MT	Barra dos Bugres	-57.18	-15.08
<i>Nyssomyia whitmani</i>	MT	Brasnorte	-57.98	-12.15
<i>Nyssomyia whitmani</i>	MT	Barra do Garças	-52.26	-15.89
<i>Nyssomyia whitmani</i>	MT	Barão de Melgaço	-55.97	-16.19
<i>Nyssomyia whitmani</i>	MT	Poxoréo	-54.38	-15.83
<i>Nyssomyia whitmani</i>	MT	Araguaiana	-51.83	-15.73
<i>Nyssomyia whitmani</i>	MT	Araguainha	-53.08	-16.82
<i>Nyssomyia whitmani</i>	MT	Cuiabá	-56.10	-15.60



Sandfly species	State code	Municipalities	Longitude	Latitude
<i>Nyssomyia whitmani</i>	MT	Cáceres	-57.68	-16.07
<i>Nyssomyia whitmani</i>	MT	Campinápolis	-52.88	-14.50
<i>Nyssomyia whitmani</i>	MS	Amambai	-55.22	-23.08
<i>Nyssomyia whitmani</i>	MS	Anastácio	-55.81	-20.48
<i>Nyssomyia whitmani</i>	MS	Antonio João	-55.95	-22.19
<i>Nyssomyia whitmani</i>	MS	Alcinópolis	-53.70	-18.31
<i>Nyssomyia whitmani</i>	MS	Aparecida do Taboado	-51.09	-20.09
<i>Nyssomyia whitmani</i>	MS	Aquidauana	-55.79	-20.47
<i>Nyssomyia whitmani</i>	MS	Bela Vista	-56.52	-22.11
<i>Nyssomyia whitmani</i>	MS	Bataguassú	-52.42	-21.71
<i>Nyssomyia whitmani</i>	MS	Bodoquena	-56.72	-20.54
<i>Nyssomyia whitmani</i>	MS	Brasilândia	-52.04	-21.26
<i>Nyssomyia whitmani</i>	MS	Camapuã	-54.04	-19.53
<i>Nyssomyia whitmani</i>	MS	Campo Grande	-54.65	-20.44
<i>Nyssomyia whitmani</i>	MS	Caarapó	-54.80	-22.63
<i>Nyssomyia whitmani</i>	MS	Corguinho	-54.83	-19.83
<i>Nyssomyia whitmani</i>	MS	Caracol	-57.02	-22.01
<i>Nyssomyia whitmani</i>	MS	Coxim	-54.76	-18.51
<i>Nyssomyia whitmani</i>	MS	Ponta Porã	-55.73	-22.54
<i>Nyssomyia whitmani</i>	MS	Porto Murtinho	-57.88	-21.70
<i>Nyssomyia whitmani</i>	MS	Ribas do Rio Pardo	-53.76	-20.44
<i>Nyssomyia whitmani</i>	MS	Rio Negro	-54.99	-19.45
<i>Nyssomyia whitmani</i>	MS	Rochedo	-54.89	-19.95
<i>Nyssomyia whitmani</i>	MS	São Gabriel d' Oeste	-54.57	-19.40
<i>Nyssomyia whitmani</i>	MS	Selvíria	-51.42	-20.37
<i>Nyssomyia whitmani</i>	MS	Sidrolândia	-54.96	-20.93
<i>Nyssomyia whitmani</i>	MS	Terenos	-54.86	-20.44
<i>Nyssomyia whitmani</i>	MS	Três Lagoas	-51.68	-20.75
<i>Nyssomyia whitmani</i>	MS	Costa Rica	-53.13	-18.54
<i>Nyssomyia whitmani</i>	MS	Dourados	-54.81	-22.22
<i>Nyssomyia whitmani</i>	MS	Guia Lopes da Laguna	-56.11	-21.46
<i>Nyssomyia whitmani</i>	MS	Inocência	-51.93	-19.73
<i>Nyssomyia whitmani</i>	MS	Jaraguari	-54.40	-20.14
<i>Nyssomyia whitmani</i>	MS	Jardim	-56.14	-21.48
<i>Nyssomyia whitmani</i>	MS	Nhecolândia	-57.07	-19.27
<i>Nyssomyia whitmani</i>	MS	Novo Horizonte do Sul	-53.80	-22.61
<i>Nyssomyia whitmani</i>	MS	Nova Alvorada Do Sul	-54.38	-21.47
<i>Nyssomyia whitmani</i>	MS	Laguna Carapã	-55.02	-22.45
<i>Nyssomyia whitmani</i>	MS	Naviraí	-54.22	-23.13
<i>Nyssomyia whitmani</i>	MS	Nioaque	-55.83	-21.14
<i>Nyssomyia whitmani</i>	MS	Santa Rita do Pardo	-52.83	-21.30
<i>Nyssomyia whitmani</i>	MS	Bonito	-56.47	-21.13
<i>Nyssomyia whitmani</i>	MS	Dois Irmãos do Buriti	-55.30	-20.68
<i>Nyssomyia whitmani</i>	MS	Maracajú	-55.17	-21.61
<i>Nyssomyia whitmani</i>	MS	Miranda	-56.38	-20.24
<i>Nyssomyia whitmani</i>	MS	Pedro Gomes	-54.55	-18.10
<i>Nyssomyia whitmani</i>	MS	Paranhos	-55.43	-23.89
<i>Nyssomyia whitmani</i>	MS	Rio Brillhante	-54.54	-21.80
<i>Nyssomyia whitmani</i>	MS	Rio Verde de Mato Grosso	-54.84	-18.92
<i>Nyssomyia whitmani</i>	GO	Anápolis	-48.95	-16.32
<i>Nyssomyia whitmani</i>	GO	Aragarças	-52.25	-15.92
<i>Nyssomyia whitmani</i>	GO	Araguapaz	-50.63	-15.09
<i>Nyssomyia whitmani</i>	GO	Bela Vista	-48.95	-16.97



Sandfly species	State code	Municipalities	Longitude	Latitude
<i>Nyssomyia whitmani</i>	GO	Carmo do Rio Verde	-49.70	-15.35
<i>Nyssomyia whitmani</i>	GO	Campos Verdes	-49.66	-14.26
<i>Nyssomyia whitmani</i>	GO	Campestre	-49.69	-16.73
<i>Nyssomyia whitmani</i>	GO	Colinas do Sul	-48.08	-14.15
<i>Nyssomyia whitmani</i>	GO	Formosa	-47.33	-15.53
<i>Nyssomyia whitmani</i>	GO	Israelândia	-50.90	-16.35
<i>Nyssomyia whitmani</i>	GO	Padre Bernado	-48.50	-13.35
<i>Nyssomyia whitmani</i>	GO	Doverlândia	-52.31	-16.69
<i>Nyssomyia whitmani</i>	GO	Crixás	-49.97	-14.45
<i>Nyssomyia whitmani</i>	GO	Cumari	-48.15	-18.26
<i>Nyssomyia whitmani</i>	GO	Catalão	-47.95	-18.17
<i>Nyssomyia whitmani</i>	GO	Colinas do Sul	-48.07	-14.14
<i>Nyssomyia whitmani</i>	GO	Carmo do Rio Verde	-49.70	-15.35
<i>Nyssomyia whitmani</i>	GO	Goiás	-50.14	-15.93
<i>Nyssomyia whitmani</i>	GO	Goiatuba	-49.37	-18.02
<i>Nyssomyia whitmani</i>	GO	Itumbiara	-49.22	-18.42
<i>Nyssomyia whitmani</i>	GO	Cavalcante	-47.50	-13.80
<i>Nyssomyia whitmani</i>	GO	Jataí	-51.72	-17.88
<i>Nyssomyia whitmani</i>	GO	Guapó	-49.53	-16.83
<i>Nyssomyia whitmani</i>	GO	Mineiros	-50.73	-16.54
<i>Nyssomyia whitmani</i>	GO	Mambaí	-46.11	-14.49
<i>Nyssomyia whitmani</i>	GO	Maurilândia	-50.31	-18.00
<i>Nyssomyia whitmani</i>	GO	Montividiu do Norte	-48.61	-13.11
<i>Nyssomyia whitmani</i>	GO	Mutunópolis	-49.28	-13.73
<i>Nyssomyia whitmani</i>	GO	Mundo Novo	-40.47	-11.86
<i>Nyssomyia whitmani</i>	GO	Minaçu	-48.22	-13.53
<i>Nyssomyia whitmani</i>	GO	Morro Agudo	-50.06	-15.32
<i>Nyssomyia whitmani</i>	GO	Niquelândia	-48.46	-14.47
<i>Nyssomyia whitmani</i>	GO	Nova Crixás	-50.33	-14.10
<i>Nyssomyia whitmani</i>	GO	Porangatu	-49.15	-13.44
<i>Nyssomyia whitmani</i>	GO	Posse	-46.37	-14.09
<i>Nyssomyia whitmani</i>	GO	Rianópolis	-49.47	-15.48
<i>Nyssomyia whitmani</i>	GO	Quirinópolis	-50.50	-18.53
<i>Nyssomyia whitmani</i>	GO	Rio Verde	-50.93	-17.80
<i>Nyssomyia whitmani</i>	GO	São Domingos	-46.32	-13.40
<i>Nyssomyia whitmani</i>	GO	São João d'Aliança	-47.79	-14.88
<i>Nyssomyia whitmani</i>	GO	Sítio d' Abadia	-46.25	-14.80
<i>Nyssomyia whitmani</i>	GO	São Miguel da Araguaína	-50.22	-13.32
<i>Nyssomyia whitmani</i>	GO	Silvânia	48.61	-16.66
<i>Nyssomyia whitmani</i>	GO	Uriapuru	-49.92	-14.29
<i>Nyssomyia whitmani</i>	GO	Uruaçu	-49.14	-14.52
<i>Nyssomyia whitmani</i>	DF	Brasília	-47.42	-15.78
<i>Nyssomyia whitmani</i>	MS	Água Clara	-52.87	-20.44
<i>Nyssomyia neivai</i>	MS	Água Clara	-52.87	-20.44
<i>Nyssomyia neivai</i>	MS	Aquidauana	-55.79	-20.47
<i>Nyssomyia neivai</i>	MS	Bataguassu	-52.42	-21.71
<i>Nyssomyia neivai</i>	MS	Bodoquena	-56.72	-20.54
<i>Nyssomyia neivai</i>	MS	Brasilândia	-52.04	-21.26
<i>Nyssomyia neivai</i>	MS	Rochedo	-54.89	-19.95
<i>Nyssomyia neivai</i>	MS	Terenos	-54.86	-20.44
<i>Nyssomyia neivai</i>	MS	Três Lagoas	-51.68	-20.75
<i>Nyssomyia neivai</i>	MS	Dourados	-54.81	-22.22
<i>Nyssomyia neivai</i>	MS	Guia Lopes da Laguna	-56.11	-21.46



Sandfly species	State code	Municipalities	Longitude	Latitude
<i>Nyssomyia neivai</i>	MS	Itaquiraí	-54.11	-23.28
<i>Nyssomyia neivai</i>	MS	Naviraí	-54.22	-23.13
<i>Nyssomyia neivai</i>	MS	Nova Andradina	-53.34	-22.23
<i>Nyssomyia neivai</i>	MS	Novo Horizonte do Sul	-53.80	-22.61
<i>Nyssomyia neivai</i>	MS	Santa Rita do Pardo	-52.83	-21.30
<i>Nyssomyia neivai</i>	MS	Bonito	-56.47	-21.13
<i>Nyssomyia neivai</i>	MS	Mundo Novo	-54.27	-23.94
<i>Nyssomyia neivai</i>	MS	Rio Verde de Mato Grosso	-54.84	-18.92
<i>Nyssomyia neivai</i>	GO	Santa Helena de Goiás	-50.58	-17.72
<i>Nyssomyia neivai</i>	GO	Corumbaíba	-48.57	-18.15
<i>Nyssomyia neivai</i>	GO	Itumbiara	-49.21	-18.42
<i>Nyssomyia neivai</i>	DF	Brasília	-47.42	-15.78
<i>Nyssomyia intermedia</i>	MT	Cuiabá	-56.10	-15.60
<i>Nyssomyia intermedia</i>	MT	Gaúcha do Norte	-53.08	-13.24
<i>Nyssomyia intermedia</i>	MT	Rosário do Oeste	-56.42	-14.83
<i>Nyssomyia intermedia</i>	GO	Aragarças	-52.25	15.92
<i>Nyssomyia intermedia</i>	GO	Araguapaz	-50.63	-15.09
<i>Nyssomyia intermedia</i>	GO	Carmo do Rio Verde	-49.70	-15.35
<i>Nyssomyia intermedia</i>	GO	Campestre de Goiás	-49.69	-16.73
<i>Nyssomyia intermedia</i>	GO	Cumari	-48.15	-18.26
<i>Nyssomyia intermedia</i>	GO	Catalão	-47.95	-18.17
<i>Nyssomyia intermedia</i>	GO	Crixás	-49.97	-14.45
<i>Nyssomyia intermedia</i>	GO	Flores de Goiás	-47.05	-14.45
<i>Nyssomyia intermedia</i>	GO	Goiás	-50.14	-15.93
<i>Nyssomyia intermedia</i>	GO	Goiatuba	-49.37	-18.02
<i>Nyssomyia intermedia</i>	GO	Itumbiara	-49.22	-18.42
<i>Nyssomyia intermedia</i>	GO	Guapó	-49.53	-16.83
<i>Nyssomyia intermedia</i>	GO	Mambá	-46.11	-14.49
<i>Nyssomyia intermedia</i>	GO	Maurilândia	-50.31	-18.00
<i>Nyssomyia intermedia</i>	GO	Mutunópolis	-49.28	-13.73
<i>Nyssomyia intermedia</i>	GO	Mundo Novo	-40.47	-11.86
<i>Nyssomyia intermedia</i>	GO	Minaçu	-48.22	-13.53
<i>Nyssomyia intermedia</i>	GO	Morro Agudo	-50.06	-15.32
<i>Nyssomyia intermedia</i>	GO	Niquelândia	-48.46	-14.47
<i>Nyssomyia intermedia</i>	GO	Posse	-46.37	-14.09
<i>Nyssomyia intermedia</i>	GO	Quirinópolis	-50.50	-18.53
<i>Nyssomyia intermedia</i>	GO	São Domingos	-46.32	-13.40
<i>Nyssomyia intermedia</i>	GO	São Miguel da Araguaína	-50.22	-13.32
<i>Nyssomyia intermedia</i>	GO	Silvânia	-48.61	-16.66
<i>Nyssomyia intermedia</i>	GO	Sítio d' Abadia	-46.25	-14.80
<i>Nyssomyia intermedia</i>	GO	Mineiros	-50.73	-16.54
<i>Nyssomyia intermedia</i>	GO	Corumbaíba	-48.56	-18.14
<i>Nyssomyia intermedia</i>	GO	Cavalcate	-47.50	-13.80
<i>Nyssomyia intermedia</i>	GO	Formosa	-47.33	-15.53
<i>Nyssomyia intermedia</i>	GO	Padre Bernardo	-48.50	-15.35
<i>Nyssomyia intermedia</i>	GO	Pontalina	-49.44	-17.52
<i>Nyssomyia antunesi</i>	MT	Diamantino	-56.45	-14.41
<i>Nyssomyia antunesi</i>	MT	Barra dos Bugres	-57.18	-15.08
<i>Nyssomyia antunesi</i>	MT	Barra do Garças	-52.26	-15.89
<i>Nyssomyia antunesi</i>	MT	Peixoto de Azevedo	-54.98	-10.22
<i>Nyssomyia antunesi</i>	MT	Nova Mutum	-56.08	-13.83
<i>Nyssomyia antunesi</i>	MT	Alto Araguaia	-53.22	-17.31
<i>Nyssomyia antunesi</i>	MT	Apiacás	-57.45	-9.54



Sandfly species	State code	Municipalities	Longitude	Latitude
<i>Nyssomyia antunesi</i>	MT	Alta Floresta	-56.09	-9.88
<i>Nyssomyia antunesi</i>	MT	Alto Taquari	-53.16	-17.49
<i>Nyssomyia antunesi</i>	MT	Aripuanã	-60.63	-9.17
<i>Nyssomyia antunesi</i>	MT	Barão do Melgaço	-55.97	-16.19
<i>Nyssomyia antunesi</i>	MT	Brasnorte	-57.98	-12.15
<i>Nyssomyia antunesi</i>	MT	Cáceres	-57.68	-16.07
<i>Nyssomyia antunesi</i>	MT	Campo Novo do Parecis	-57.88	-13.67
<i>Nyssomyia antunesi</i>	MT	Campos de Julio	-59.08	-13.53
<i>Nyssomyia antunesi</i>	MT	Canabrava do Norte	-51.83	-11.03
<i>Nyssomyia antunesi</i>	MT	Canarana	-52.27	-13.55
<i>Nyssomyia antunesi</i>	MT	Carlinda	-55.83	-9.96
<i>Nyssomyia antunesi</i>	MT	Chapada dos Guimarães	-55.75	-15.46
<i>Nyssomyia antunesi</i>	MT	Claúdia	-54.88	-11.49
<i>Nyssomyia antunesi</i>	MT	Colíder	-55.45	-10.81
<i>Nyssomyia antunesi</i>	MT	Colniza	-59.03	-9.40
<i>Nyssomyia antunesi</i>	MT	Comodoro	-59.79	-13.66
<i>Nyssomyia antunesi</i>	MT	Cotriguaçu	-58.41	-9.85
<i>Nyssomyia antunesi</i>	MT	Feliz Natal	-54.92	-12.39
<i>Nyssomyia antunesi</i>	MT	Gaúcha do Norte	-53.08	-13.24
<i>Nyssomyia antunesi</i>	MT	General Carneiro	-52.76	-15.71
<i>Nyssomyia antunesi</i>	MT	Guarantã do Norte	-54.90	-9.78
<i>Nyssomyia antunesi</i>	MT	Itiquira	-54.14	-17.21
<i>Nyssomyia antunesi</i>	MT	Jaciara	-54.95	-15.92
<i>Nyssomyia antunesi</i>	MT	Juara	-57.52	-11.55
<i>Nyssomyia antunesi</i>	MT	Juína	-58.74	-11.38
<i>Nyssomyia antunesi</i>	MT	Lucas do Rio Verde	-55.91	-13.05
<i>Nyssomyia antunesi</i>	MT	Mercelândia	-54.60	-11.11
<i>Nyssomyia antunesi</i>	MT	Matupá	-54.90	-10.05
<i>Nyssomyia antunesi</i>	MT	Nobres	-56.33	-14.73
<i>Nyssomyia antunesi</i>	MT	Notelândia	-56.80	-14.42
<i>Nyssomyia antunesi</i>	MT	Nova Bandeirante	-57.86	-9.95
<i>Nyssomyia antunesi</i>	MT	Nova Canaã do Norte	-55.95	-10.55
<i>Nyssomyia antunesi</i>	MT	Nova Guarita	-55.40	-10.30
<i>Nyssomyia antunesi</i>	MT	Nova Lacerda	-59.35	-14.28
<i>Nyssomyia antunesi</i>	MT	Nova Marilândia	-56.57	-14.21
<i>Nyssomyia antunesi</i>	MT	Nova Maringá	-57.06	-13.01
<i>Nyssomyia antunesi</i>	MT	Nova Ubiratã	-55.26	-13.01
<i>Nyssomyia antunesi</i>	MT	Novo Horizonte do Norte	-57.35	-11.41
<i>Nyssomyia antunesi</i>	MT	Paranaíta	-56.48	-9.67
<i>Nyssomyia antunesi</i>	MT	Peixoto de Azevedo	-54.98	-10.22
<i>Nyssomyia antunesi</i>	MT	Pontes de Lacerda	-59.37	-15.20
<i>Nyssomyia antunesi</i>	MT	Porto Alegre do Norte	-51.63	-10.87
<i>Nyssomyia antunesi</i>	MT	Porto dos Gaúchos	-57.41	-11.52
<i>Nyssomyia antunesi</i>	MT	Porto Esperidião	-58.47	-15.85
<i>Nyssomyia antunesi</i>	MT	Poxoréo	-54.38	-15.83
<i>Nyssomyia antunesi</i>	MT	Querência	-52.11	-12.35
<i>Nyssomyia antunesi</i>	MT	Ribeirãozinho	-52.67	-16.45
<i>Nyssomyia antunesi</i>	MT	Rondonópolis	-54.64	-16.47
<i>Nyssomyia antunesi</i>	MT	Santa Rita do Trivelato	-55.26	-13.81
<i>Nyssomyia antunesi</i>	MT	São Felix do Araguaia	-50.67	-11.61
<i>Nyssomyia antunesi</i>	MT	São José dos 4 Marcos	-58.17	-15.17
<i>Nyssomyia antunesi</i>	MT	Sapezal	-57.20	-14.97
<i>Nyssomyia antunesi</i>	MT	Sorriso	-55.71	-12.55



Sandfly species	State code	Municipalities	Longitude	Latitude
<i>Nyssomyia antunesi</i>	MT	Tapurah	-56.50	-12.53
<i>Nyssomyia antunesi</i>	MT	Terra Nova do Norte	-55.23	-10.51
<i>Nyssomyia antunesi</i>	MT	União do Sul	-54.36	-11.52
<i>Nyssomyia antunesi</i>	MT	Várzea Grande	-56.13	-15.65
<i>Nyssomyia antunesi</i>	MT	Vera	-55.19	-12.18
<i>Nyssomyia antunesi</i>	MT	Vila Bela de S. Trindade	-59.95	-15.00
<i>Nyssomyia antunesi</i>	MT	Itanhangá	-56.64	-12.23
<i>Nyssomyia antunesi</i>	MT	Ipiranga do Norte	-56.05	-15.35
<i>Nyssomyia antunesi</i>	MS	Coxim	-54.76	-18.51
<i>Nyssomyia antunesi</i>	MS	Rio Verde de Mato Grosso	-54.84	-18.92
<i>Nyssomyia antunesi</i>	MS	Campo Grande	-54.65	-20.44
<i>Pintomyia christenseni</i>	MS	Alcinópolis	-53.70	-18.31
<i>Pintomyia christenseni</i>	MS	Bela Vista	-56.52	-22.11
<i>Pintomyia christenseni</i>	MS	Campo Grande	-54.65	-20.44
<i>Pintomyia christenseni</i>	MS	Corguinho	-54.83	-19.83
<i>Pintomyia christenseni</i>	MS	Novo Horizonte do Sul	-53.80	-22.61
<i>Pintomyia christenseni</i>	MS	Bonito	-56.47	-21.13
<i>Pintomyia christenseni</i>	MS	Maracajú	-55.17	-21.61
<i>Pintomyia christenseni</i>	MS	Paraíso das Águas	-52.97	-19.05
<i>Pintomyia christenseni</i>	MS	Rio Verde de Mato Grosso	-54.84	-18.92
<i>Pintomyia christenseni</i>	GO	Itumbiara	-49.21	-18.42
<i>Pintomyia christenseni</i>	GO	Sítio d' Abadia	-46.25	-14.80
<i>Pintomyia christenseni</i>	GO	Amaro Leite	-49.15	-13.97
<i>Pintomyia christenseni</i>	MT	Diamantino	-56.45	-14.41
<i>Pintomyia christenseni</i>	MT	Alta Floresta	-56.09	-9.88
<i>Pintomyia christenseni</i>	MT	Barra do Garças	-52.26	-15.89
<i>Pintomyia christenseni</i>	MT	Brasnorte	-57.98	-12.15
<i>Pintomyia christenseni</i>	MT	Chapada dos Guimarães	-55.75	-15.46
<i>Pintomyia christenseni</i>	MT	Claúdia	-54.88	-11.49
<i>Pintomyia christenseni</i>	MT	Gaúcha do Norte	-53.08	-13.24
<i>Pintomyia christenseni</i>	MT	General Carneiro	-52.76	-15.71
<i>Pintomyia christenseni</i>	MT	Jaciara	-54.95	15.92
<i>Pintomyia christenseni</i>	MT	Mercelândia	-54.60	-11.11
<i>Pintomyia christenseni</i>	MT	Nobres	-56.33	-14.73
<i>Pintomyia christenseni</i>	MT	Nossa S. do Livramento	-56.37	-15.80
<i>Pintomyia christenseni</i>	MT	Nova Ubiratã	-55.26	-13.01
<i>Pintomyia christenseni</i>	MT	Peixoto de Azevedo	-54.98	-10.22
<i>Pintomyia christenseni</i>	MT	Sinop	-55.49	-11.83
<i>Pintomyia christenseni</i>	MT	Sorriso	-55.71	-12.55
<i>Pintomyia christenseni</i>	MT	União do Sul	-54.36	-11.52
<i>Psathyromyia shannoni</i> "sensu lato"	MT	Diamantino	-56.45	-14.41
<i>Psathyromyia shannoni</i> "sensu lato"	MT	Barra dos Bugres	-57.18	-15.08
<i>Psathyromyia shannoni</i> "sensu lato"	MT	Rosário d' Oeste	-56.43	-14.84
<i>Psathyromyia shannoni</i> "sensu lato"	MT	Barra do Garças	-52.26	-15.89
<i>Psathyromyia shannoni</i> "sensu lato"	MT	Nova Mutum	-56.08	-13.83
<i>Psathyromyia shannoni</i> "sensu lato"	MT	Alta Floresta	-56.09	-9.88
<i>Psathyromyia shannoni</i> "sensu lato"	MT	Apiacás	-57.45	-9.54
<i>Psathyromyia shannoni</i> "sensu lato"	MT	Arenápolis	-56.82	-14.43
<i>Psathyromyia shannoni</i> "sensu lato"	MT	Barão do Melgaço	-55.97	-16.19
<i>Psathyromyia shannoni</i> "sensu lato"	MT	Chapada dos Guimarães	-55.75	-15.46
<i>Psathyromyia shannoni</i> "sensu lato"	MT	Cuiabá	-56.10	-15.60
<i>Psathyromyia shannoni</i> "sensu lato"	MT	Gaúcha do Norte	-53.08	-13.24
<i>Psathyromyia shannoni</i> "sensu lato"	MT	Jaciara	-54.95	-15.92



Sandfly species	State code	Municipalities	Longitude	Latitude
<i>Psathyromyia shannoni</i> "sensu lato"	MT	Juína	-58.74	-11.38
<i>Psathyromyia shannoni</i> "sensu lato"	MT	Luciara	-50.57	-10.75
<i>Psathyromyia shannoni</i> "sensu lato"	MT	Mercelândia	-54.60	-11.11
<i>Psathyromyia shannoni</i> "sensu lato"	MT	Nobres	-56.33	-14.73
<i>Psathyromyia shannoni</i> "sensu lato"	MT	Nossa S. do Livramento	-56.37	-15.80
<i>Psathyromyia shannoni</i> "sensu lato"	MT	Nova Bandeirante	-57.86	-9.95
<i>Psathyromyia shannoni</i> "sensu lato"	MT	Nova Brasilândia	-54.57	-14.57
<i>Psathyromyia shannoni</i> "sensu lato"	MT	Nova Canaã do Norte	-55.95	-10.55
<i>Psathyromyia shannoni</i> "sensu lato"	MT	Nova Guarita	-55.40	-10.30
<i>Psathyromyia shannoni</i> "sensu lato"	MT	Paranaíta	-56.48	-9.67
<i>Psathyromyia shannoni</i> "sensu lato"	MT	Paratinga	-54.05	-14.43
<i>Psathyromyia shannoni</i> "sensu lato"	MT	Peixoto de Azevedo	-54.98	-10.22
<i>Psathyromyia shannoni</i> "sensu lato"	MT	Poconé	-56.62	-16.26
<i>Psathyromyia shannoni</i> "sensu lato"	MT	Porto Alegre do Norte	-51.63	-10.87
<i>Psathyromyia shannoni</i> "sensu lato"	MT	Poxoréo	-54.38	-15.83
<i>Psathyromyia shannoni</i> "sensu lato"	MT	Primavera do Leste	-54.30	-15.56
<i>Psathyromyia shannoni</i> "sensu lato"	MT	Rondonópolis	-54.64	-16.47
<i>Psathyromyia shannoni</i> "sensu lato"	MT	Rosário Oeste	-56.43	-14.84
<i>Psathyromyia shannoni</i> "sensu lato"	MT	Santo Antônio do Leverger	-56.08	-15.87
<i>Psathyromyia shannoni</i> "sensu lato"	MT	São José dos 4 Marcos	-58.17	-15.17
<i>Psathyromyia shannoni</i> "sensu lato"	MT	Sinop	-55.49	-11.83
<i>Psathyromyia shannoni</i> "sensu lato"	MT	Sorriso	-55.71	-12.55
<i>Psathyromyia shannoni</i> "sensu lato"	MT	Várzea Grande	-56.13	-15.65
<i>Psathyromyia shannoni</i> "sensu lato"	GO	Colinas do Sul	-48.08	-14.15
<i>Psathyromyia shannoni</i> "sensu lato"	GO	Divinópolis	-46.39	-13.29
<i>Psathyromyia shannoni</i> "sensu lato"	GO	Goiás	-50.13	-15.93
<i>Psathyromyia shannoni</i> "sensu lato"	GO	Goiatuba	-49.35	-18.01
<i>Psathyromyia shannoni</i> "sensu lato"	GO	Maurilândia	-50.33	-17.97
<i>Psathyromyia shannoni</i> "sensu lato"	GO	Minaçu	-48.22	-13.53
<i>Psathyromyia shannoni</i> "sensu lato"	GO	Quirinópolis	-50.50	-18.53
<i>Psathyromyia shannoni</i> "sensu lato"	GO	Itumbiara	-49.22	-18.42
<i>Psathyromyia shannoni</i> "sensu lato"	GO	Sítio d' Abadia	-46.25	-14.80
<i>Psathyromyia shannoni</i> "sensu lato"	GO	Amaro Leite	-49.15	-13.97
<i>Psathyromyia shannoni</i> "sensu lato"	GO	Itapaci	-49.57	-14.95
<i>Psathyromyia shannoni</i> "sensu lato"	GO	Mineiros	-49.53	-16.83
<i>Psathyromyia shannoni</i> "sensu lato"	GO	Corumbáiba	-48.56	-18.14
<i>Psathyromyia shannoni</i> "sensu lato"	GO	Anápolis	-48.95	-16.32
<i>Psathyromyia shannoni</i> "sensu lato"	GO	Maurilândia	-50.31	-18.00
<i>Psathyromyia shannoni</i> "sensu lato"	DF	Brasília	-47.42	-15.78
<i>Psathyromyia shannoni</i> "sensu lato"	MS	Alcinópolis	-52.87	-20.44
<i>Psathyromyia shannoni</i> "sensu lato"	MS	Anastácio	-55.81	-20.48
<i>Psathyromyia shannoni</i> "sensu lato"	MS	Antonio João	-55.95	-22.19
<i>Psathyromyia shannoni</i> "sensu lato"	MS	Aquidauana	-55.79	-20.47
<i>Psathyromyia shannoni</i> "sensu lato"	MS	Bela Vista	-56.52	-22.11
<i>Psathyromyia shannoni</i> "sensu lato"	MS	Bodoquena	-56.72	-20.54
<i>Psathyromyia shannoni</i> "sensu lato"	MS	Campo Grande	-54.65	-20.44
<i>Psathyromyia shannoni</i> "sensu lato"	MS	Caarapó	-54.80	-22.63
<i>Psathyromyia shannoni</i> "sensu lato"	MS	Camapuã	-54.04	-19.53
<i>Psathyromyia shannoni</i> "sensu lato"	MS	Corguinho	-54.83	-19.83
<i>Psathyromyia shannoni</i> "sensu lato"	MS	Corumbá	-57.65	-19.01
<i>Psathyromyia shannoni</i> "sensu lato"	MS	Dourados	-54.81	-22.22
<i>Psathyromyia shannoni</i> "sensu lato"	MS	Guia Lopes da Laguna	-56.11	-21.46
<i>Psathyromyia shannoni</i> "sensu lato"	MS	Jardim	-56.14	-21.48



Sandfly species	State code	Municipalities	Longitude	Latitude
<i>Psathyromyia shannoni</i> "sensu lato"	MS	Nova Andradina	-53.34	-22.23
<i>Psathyromyia shannoni</i> "sensu lato"	MS	Novo Horizonte do Sul	-53.80	-22.61
<i>Psathyromyia shannoni</i> "sensu lato"	MS	Nioaque	-55.83	-21.14
<i>Psathyromyia shannoni</i> "sensu lato"	MS	Bonito	-56.47	-21.13
<i>Psathyromyia shannoni</i> "sensu lato"	MS	Maracajú	-55.17	-21.61
<i>Psathyromyia shannoni</i> "sensu lato"	MS	Rio Verde de Mato Grosso	-54.84	-18.92
<i>Psathyromyia shannoni</i> "sensu lato"	MS	Nhecolândia	-57.07	-17.27
<i>Psathyromyia runoides</i>	MT	Peixoto de Azevedo	-54.98	-10.22
<i>Psathyromyia runoides</i>	MT	Nova Mutum	-56.08	-13.83
<i>Psathyromyia runoides</i>	MT	Alta Floresta	-56.09	-9.88
<i>Psathyromyia runoides</i>	MT	Alto do Paraguai	-56.48	-14.51
<i>Psathyromyia runoides</i>	MT	Apiacás	-57.45	-9.54
<i>Psathyromyia runoides</i>	MT	Arenópolis	-56.82	-14.43
<i>Psathyromyia runoides</i>	MT	Aripuanã	-60.63	-9.17
<i>Psathyromyia runoides</i>	MT	Barra do Garças	-52.26	-15.89
<i>Psathyromyia runoides</i>	MT	Brasnorte	-57.98	-12.15
<i>Psathyromyia runoides</i>	MT	Campo Novo do Parecis	-57.88	-13.67
<i>Psathyromyia runoides</i>	MT	Campo Verde	-55.16	-15.54
<i>Psathyromyia runoides</i>	MT	Canabrava do Norte	-51.83	-11.03
<i>Psathyromyia runoides</i>	MT	Canarana	-52.27	-13.55
<i>Psathyromyia runoides</i>	MT	Carolina	-55.83	-9.96
<i>Psathyromyia runoides</i>	MT	Chapada dos Guimarães	-55.75	-15.46
<i>Psathyromyia runoides</i>	MT	Colniza	-59.03	-9.40
<i>Psathyromyia runoides</i>	MT	Cuiabá	-56.10	-15.60
<i>Psathyromyia runoides</i>	MT	Feliz Natal	-54.92	-12.39
<i>Psathyromyia runoides</i>	MT	Gaúcha do Norte	-53.08	-13.24
<i>Psathyromyia runoides</i>	MT	Guarantã do Norte	-54.90	-9.78
<i>Psathyromyia runoides</i>	MT	Itiquira	-54.14	-17.21
<i>Psathyromyia runoides</i>	MT	Lucas do Rio Verde	-55.91	-13.05
<i>Psathyromyia runoides</i>	MT	Mercelândia	-54.60	-11.11
<i>Psathyromyia runoides</i>	MT	Nobres	-56.33	-14.73
<i>Psathyromyia runoides</i>	MT	Nossa S. do Livramento	-56.37	-15.80
<i>Psathyromyia runoides</i>	MT	Nova Canaã do Norte	-55.95	-10.55
<i>Psathyromyia runoides</i>	MT	Nova Santana Helena	-53.35	-10.82
<i>Psathyromyia runoides</i>	MT	Nova Ubiratã	-55.26	-13.01
<i>Psathyromyia runoides</i>	MT	Novo Horizonte do Norte	-57.35	-11.41
<i>Psathyromyia runoides</i>	MT	Paranaíta	-56.48	-9.67
<i>Psathyromyia runoides</i>	MT	Paratinga	-54.05	-14.43
<i>Psathyromyia runoides</i>	MT	Poconé	-56.62	-16.26
<i>Psathyromyia runoides</i>	MT	Porto Alegre do Norte	-51.63	-10.87
<i>Psathyromyia runoides</i>	MT	Poxoréo	-54.38	-15.83
<i>Psathyromyia runoides</i>	MT	Primavera do Leste	-54.30	-15.56
<i>Psathyromyia runoides</i>	MT	Santo Antônio do Leverger	-56.08	-15.87
<i>Psathyromyia runoides</i>	MT	Sapezal	-57.20	-14.97
<i>Psathyromyia runoides</i>	MT	Serra da Nova Dourado	-51.58	-11.97
<i>Psathyromyia runoides</i>	MT	Sinop	-55.49	-11.83
<i>Psathyromyia runoides</i>	MT	Taboporã	-56.62	-10.80
<i>Psathyromyia runoides</i>	MT	Tapurah	-56.50	-12.53
<i>Psathyromyia runoides</i>	MT	União do Sul	-54.36	-11.52
<i>Psathyromyia runoides</i>	MT	Várzea Grande	-56.13	-15.65
<i>Psathyromyia runoides</i>	MT	Ipiranga do Norte	-56.05	-15.35
<i>Psathyromyia runoides</i>	MS	Rio Verde de MT	-54.84	-18.92
<i>Psathyromyia runoides</i>	MS	Coxim	-54.76	-18.51



Sandfly species	State code	Municipalities	Longitude	Latitude
<i>Psathyromyia lutziana</i>	MT	Barra do Garças	-52.26	-15.89
<i>Psathyromyia lutziana</i>	MT	Varzea Grande	-56.13	-15.65
<i>Psathyromyia lutziana</i>	MT	Cuiabá	-56.10	-15.60
<i>Psathyromyia lutziana</i>	MT	Alta Floresta	-56.09	-9.88
<i>Psathyromyia lutziana</i>	MT	Alto Araguaia	-53.22	-17.31
<i>Psathyromyia lutziana</i>	MT	Alto do Paraguai	-56.48	-14.51
<i>Psathyromyia lutziana</i>	MT	Apiacás	-57.45	-9.54
<i>Psathyromyia lutziana</i>	MT	Araguainha	-53.08	-16.82
<i>Psathyromyia lutziana</i>	MT	Canabrava do Norte	-51.83	-11.03
<i>Psathyromyia lutziana</i>	MT	Chapada dos Guimarães	-55.75	-15.46
<i>Psathyromyia lutziana</i>	MT	Cládia	-54.88	-11.49
<i>Psathyromyia lutziana</i>	MT	Confresa	-51.56	-10.64
<i>Psathyromyia lutziana</i>	MT	Feliz Natal	-54.92	-12.39
<i>Psathyromyia lutziana</i>	MT	Itiquira	-54.14	-17.21
<i>Psathyromyia lutziana</i>	MT	Jaciara	-54.95	-15.92
<i>Psathyromyia lutziana</i>	MT	Juína	-58.74	-11.38
<i>Psathyromyia lutziana</i>	MT	Juscimeira	-54.88	-16.05
<i>Psathyromyia lutziana</i>	MT	Lucas do Rio Verde	-10.75	-50.57
<i>Psathyromyia lutziana</i>	MT	Mercelândia	-54.60	-11.11
<i>Psathyromyia lutziana</i>	MT	Matupá	-54.90	-10.05
<i>Psathyromyia lutziana</i>	MT	Nossa S. do Livramento	-56.37	-15.80
<i>Psathyromyia lutziana</i>	MT	Nova Marilândia	-56.57	-14.21
<i>Psathyromyia lutziana</i>	MT	Nova Maringá	-57.06	-13.01
<i>Psathyromyia lutziana</i>	MT	Nova Mutum	-56.08	-13.83
<i>Psathyromyia lutziana</i>	MT	Nova Ubiratã	-55.26	-13.01
<i>Psathyromyia lutziana</i>	MT	Novo Horizonte do Norte	-57.35	-11.41
<i>Psathyromyia lutziana</i>	MT	Novo São Joaquim	-53.02	-14.90
<i>Psathyromyia lutziana</i>	MT	Paranaitá	-56.48	-9.67
<i>Psathyromyia lutziana</i>	MT	Paratinga	-54.05	-14.43
<i>Psathyromyia lutziana</i>	MT	Porto Alegre do Norte	-51.63	-10.87
<i>Psathyromyia lutziana</i>	MT	Porto dos Gaúchos	-57.41	-11.52
<i>Psathyromyia lutziana</i>	MT	Poxoréo	-54.38	-15.83
<i>Psathyromyia lutziana</i>	MT	Ribeirão Cascalheira	-51.82	-12.92
<i>Psathyromyia lutziana</i>	MT	Rondonópolis	-54.64	-16.47
<i>Psathyromyia lutziana</i>	MT	Rosário D' Oeste	-56.43	-14.84
<i>Psathyromyia lutziana</i>	MT	Santo Antônio do Leverger	-56.08	-15.87
<i>Psathyromyia lutziana</i>	MT	São Felix do Araguaia	-50.67	-11.61
<i>Psathyromyia lutziana</i>	MT	São Pedro da Cipa	-54.91	-15.99
<i>Psathyromyia lutziana</i>	MT	Serra da Nova Dourado	-51.58	-11.97
<i>Psathyromyia lutziana</i>	MT	Sinop	-55.49	-11.83
<i>Psathyromyia lutziana</i>	MT	Taboporã	-56.62	-10.80
<i>Psathyromyia lutziana</i>	MT	Tangará da Serra	-57.50	-14.62
<i>Psathyromyia lutziana</i>	MT	União do Sul	-54.36	-11.52
<i>Psathyromyia lutziana</i>	MT	Vila Rica	-51.11	-10.01
<i>Psathyromyia lutziana</i>	MT	Itanhangá	-56.64	-12.23
<i>Psathyromyia lutziana</i>	GO	Itumbiara	-49.22	-18.42
<i>Psathyromyia lutziana</i>	DF	Brasília	-47.42	-15.78
<i>Psathyromyia lutziana</i>	MS	Corguinho	-54.83	-19.83
<i>Psathyromyia lutziana</i>	MS	Rochedo	-54.89	-19.95
<i>Psathyromyia lutziana</i>	MS	Nioaque	-55.83	-21.14
<i>Psathyromyia lutziana</i>	MS	Terenos	-54.86	-20.44
<i>Psathyromyia lutziana</i>	MS	Três Lagoas	-51.68	-20.75
<i>Psathyromyia lutziana</i>	MS	Camapuã	-54.04	-19.53



Sandfly species	State code	Municipalities	Longitude	Latitude
<i>Psathyromyia aragaoi</i>	MT	Peixoto de Azevedo	-54.98	-10.22
<i>Psathyromyia aragaoi</i>	MT	Varzea Grande	-56.13	-15.65
<i>Psathyromyia aragaoi</i>	MT	Nova Mutum	-56.08	-13.83
<i>Psathyromyia aragaoi</i>	MT	Cuiabá	-56.10	-15.60
<i>Psathyromyia aragaoi</i>	MT	Água Boa	-52.16	-14.05
<i>Psathyromyia aragaoi</i>	MT	Alta Floresta	-56.09	-9.88
<i>Psathyromyia aragaoi</i>	MT	Alto Araguaia	-53.22	-17.31
<i>Psathyromyia aragaoi</i>	MT	Alto do Paraguai	-56.48	-14.51
<i>Psathyromyia aragaoi</i>	MT	Apiacás	-57.45	-9.54
<i>Psathyromyia aragaoi</i>	MT	Barão do Melgaço	-55.97	-16.19
<i>Psathyromyia aragaoi</i>	MT	Barra do Garças	-52.26	-15.89
<i>Psathyromyia aragaoi</i>	MT	Brasnorte	-57.98	-12.15
<i>Psathyromyia aragaoi</i>	MT	Cáceres	-57.68	-16.07
<i>Psathyromyia aragaoi</i>	MT	Campinápolis	-52.88	-14.50
<i>Psathyromyia aragaoi</i>	MT	Campo Novo do Parecis	-57.88	-13.67
<i>Psathyromyia aragaoi</i>	MT	Campo Verde	-55.16	-15.54
<i>Psathyromyia aragaoi</i>	MT	Canabrava do Norte	-51.83	-11.03
<i>Psathyromyia aragaoi</i>	MT	Carolina	-55.83	-9.96
<i>Psathyromyia aragaoi</i>	MT	Chapada dos Guimarães	-55.75	-15.46
<i>Psathyromyia aragaoi</i>	MT	Cláudia	-54.88	-11.49
<i>Psathyromyia aragaoi</i>	MT	Colíder	-55.45	-10.81
<i>Psathyromyia aragaoi</i>	MT	Comodoro	-59.79	-13.66
<i>Psathyromyia aragaoi</i>	MT	Diamantino	-56.45	-14.41
<i>Psathyromyia aragaoi</i>	MT	Dom Aquino	-54.55	-15.48
<i>Psathyromyia aragaoi</i>	MT	Feliz Natal	-54.92	-12.39
<i>Psathyromyia aragaoi</i>	MT	General Carneiro	-52.76	-15.71
<i>Psathyromyia aragaoi</i>	MT	Guarantã do Norte	-54.90	-9.78
<i>Psathyromyia aragaoi</i>	MT	Itiquira	-54.14	-17.21
<i>Psathyromyia aragaoi</i>	MT	Mercelândia	-54.60	-11.11
<i>Psathyromyia aragaoi</i>	MT	Nobres	-56.33	-14.73
<i>Psathyromyia aragaoi</i>	MT	Nossa S. do Livramento	-56.37	-15.80
<i>Psathyromyia aragaoi</i>	MT	Nova Brasilândia	-54.57	-14.57
<i>Psathyromyia aragaoi</i>	MT	Nova Maringá	-57.06	-13.01
<i>Psathyromyia aragaoi</i>	MT	Nova Ubiratã	-55.26	-13.01
<i>Psathyromyia aragaoi</i>	MT	Novo Horizonte do Norte	-57.35	-11.41
<i>Psathyromyia aragaoi</i>	MT	Novo São Joaquim	-53.02	-14.90
<i>Psathyromyia aragaoi</i>	MT	Paranaíta	-56.48	-9.67
<i>Psathyromyia aragaoi</i>	MT	Paratinga	-54.05	-14.43
<i>Psathyromyia aragaoi</i>	MT	Planalto da Serra	-55.27	-10.44
<i>Psathyromyia aragaoi</i>	MT	Poconé	-56.62	-16.26
<i>Psathyromyia aragaoi</i>	MT	Pontes de Lacerda	-59.37	-15.20
<i>Psathyromyia aragaoi</i>	MT	Porto Esperidião	-58.47	-15.85
<i>Psathyromyia aragaoi</i>	MT	Poxoréo	-54.38	-15.83
<i>Psathyromyia aragaoi</i>	MT	Primavera do Leste	-54.30	-15.56
<i>Psathyromyia aragaoi</i>	MT	Rondonópolis	-54.64	-16.47
<i>Psathyromyia aragaoi</i>	MT	Rosário Oeste	-56.43	-14.84
<i>Psathyromyia aragaoi</i>	MT	Santa Rita do Trivelato	-55.26	-13.81
<i>Psathyromyia aragaoi</i>	MT	Santo Antônio do Leste	-53.62	-14.83
<i>Psathyromyia aragaoi</i>	MT	Santo Antônio do Leverger	-56.08	-15.87
<i>Psathyromyia aragaoi</i>	MT	São Felix do Araguaia	-50.67	-11.61
<i>Psathyromyia aragaoi</i>	MT	Sinop	-55.49	-11.83
<i>Psathyromyia aragaoi</i>	MT	Sorriso	-55.71	-12.55
<i>Psathyromyia aragaoi</i>	MT	Tabaporã	-56.62	-10.80



Sandfly species	State code	Municipalities	Longitude	Latitude
<i>Psathyromyia aragaoi</i>	MT	Tapurah	-56.50	-12.53
<i>Psathyromyia aragaoi</i>	MT	Terra nova do Norte	-55.23	-10.51
<i>Psathyromyia aragaoi</i>	MT	União do Sul	-54.36	-11.52
<i>Psathyromyia aragaoi</i>	GO	Itumbiara	-49.22	-18.42
<i>Psathyromyia aragaoi</i>	DF	Brasília	-47.42	-15.78
<i>Psathyromyia aragaoi</i>	MS	Alcinópolis	-53.70	-18.31
<i>Psathyromyia aragaoi</i>	MS	Bela Vista	-56.52	-22.11
<i>Psathyromyia aragaoi</i>	MS	Caarapó (Aldeia Jacaré)	-54.80	-22.63
<i>Psathyromyia aragaoi</i>	MS	Campo Grande	-54.65	-20.44
<i>Psathyromyia aragaoi</i>	MS	Camapuã	-54.04	-19.53
<i>Psathyromyia aragaoi</i>	MS	Corumbá	-57.65	-19.01
<i>Psathyromyia aragaoi</i>	MS	Corguinho	-54.83	-19.83
<i>Psathyromyia aragaoi</i>	MS	Coxim	-54.76	-18.51
<i>Psathyromyia aragaoi</i>	MS	Dourados	-54.81	-22.22
<i>Psathyromyia aragaoi</i>	MS	Nioaque	-55.83	-21.14
<i>Psathyromyia aragaoi</i>	MS	Naviraí	-54.22	-23.13
<i>Psathyromyia aragaoi</i>	MS	Novo Horizonte do Sul	-53.80	-22.61
<i>Psathyromyia aragaoi</i>	MS	Nioaque	-55.83	-21.14
<i>Psathyromyia aragaoi</i>	MS	Bonito	-56.47	-21.13
<i>Psathyromyia aragaoi</i>	MS	Paranhos	-55.43	-23.89
<i>Psathyromyia aragaoi</i>	MS	São Gabriel d' Oeste	-54.57	-19.40
<i>Psathyromyia aragaoi</i>	MS	Rio Verde de Mato Grosso	-54.84	-18.92
<i>Psathyromyia aragaoi</i>	MS	Nhecolândia	-57.07	-17.27
<i>Psathyromyia punctigeniculata</i>	MT	Barra do Garças	-52.26	-15.89
<i>Psathyromyia punctigeniculata</i>	MT	Varzea Grande	-56.13	-15.65
<i>Psathyromyia punctigeniculata</i>	MT	Nova Mutum	-56.08	-13.83
<i>Psathyromyia punctigeniculata</i>	MT	Água Boa	-52.16	-14.05
<i>Psathyromyia punctigeniculata</i>	MT	Alto Araguaia	-53.22	-17.31
<i>Psathyromyia punctigeniculata</i>	MT	Brasnorte	-57.98	-12.15
<i>Psathyromyia punctigeniculata</i>	MT	Campinápolis	-52.88	-14.50
<i>Psathyromyia punctigeniculata</i>	MT	Canabrava do Norte	-51.83	-11.03
<i>Psathyromyia punctigeniculata</i>	MT	Chapada dos Guimarães	-55.75	-15.46
<i>Psathyromyia punctigeniculata</i>	MT	Claúdia	-54.88	-11.49
<i>Psathyromyia punctigeniculata</i>	MT	Colniza	-59.03	-9.40
<i>Psathyromyia punctigeniculata</i>	MT	Confresa	-51.56	-10.64
<i>Psathyromyia punctigeniculata</i>	MT	Cuiabá	-56.10	-15.60
<i>Psathyromyia punctigeniculata</i>	MT	Diamantino	-56.45	-14.41
<i>Psathyromyia punctigeniculata</i>	MT	Gaúcha do Norte	-53.08	-13.24
<i>Psathyromyia punctigeniculata</i>	MT	General Carneiro	-52.76	-15.71
<i>Psathyromyia punctigeniculata</i>	MT	Guarantã do Norte	-54.90	-9.78
<i>Psathyromyia punctigeniculata</i>	MT	Jaciara	-54.95	-15.92
<i>Psathyromyia punctigeniculata</i>	MT	Lucas do Rio Verde	-55.91	-13.05
<i>Psathyromyia punctigeniculata</i>	MT	Luciara	-50.57	-10.75
<i>Psathyromyia punctigeniculata</i>	MT	Mercelândia	-54.60	-11.11
<i>Psathyromyia punctigeniculata</i>	MT	Matupá	-54.90	-10.05
<i>Psathyromyia punctigeniculata</i>	MT	Mirassol D' Oeste	-58.05	-15.40
<i>Psathyromyia punctigeniculata</i>	MT	Nobres	-56.33	-14.73
<i>Psathyromyia punctigeniculata</i>	MT	Nossa S. do Livramento	-56.37	-15.80
<i>Psathyromyia punctigeniculata</i>	MT	Nova Brasilândia	-54.57	-14.57
<i>Psathyromyia punctigeniculata</i>	MT	Nova Santana Helena	-53.35	-10.82
<i>Psathyromyia punctigeniculata</i>	MT	Nova Ubiratã	-55.26	-13.01
<i>Psathyromyia punctigeniculata</i>	MT	Novo São Joaquim	-53.02	-14.90
<i>Psathyromyia punctigeniculata</i>	MT	Paratinga	-54.05	-14.43



Sandfly species	State code	Municipalities	Longitude	Latitude
<i>Psathyromyia punctigeniculata</i>	MT	Peixoto de Azevedo	-54.98	-10.22
<i>Psathyromyia punctigeniculata</i>	MT	Poconé	-56.62	-16.26
<i>Psathyromyia punctigeniculata</i>	MT	Ponte Branca	-56.78	-16.08
<i>Psathyromyia punctigeniculata</i>	MT	Porto Alegre do Norte	-51.63	-10.87
<i>Psathyromyia punctigeniculata</i>	MT	Poxoréo	-54.38	-15.83
<i>Psathyromyia punctigeniculata</i>	MT	Ribeirão Cascalheira	-51.82	-12.92
<i>Psathyromyia punctigeniculata</i>	MT	Rosário D' Oeste	-56.43	-14.84
<i>Psathyromyia punctigeniculata</i>	MT	Santa Rita do Trivelato	-55.26	-13.81
<i>Psathyromyia punctigeniculata</i>	MT	Santo Antônio do Leverger	-56.08	-15.87
<i>Psathyromyia punctigeniculata</i>	MT	São Felix do Araguaia	-50.67	-11.61
<i>Psathyromyia punctigeniculata</i>	MT	Sinop	-55.49	-11.83
<i>Psathyromyia punctigeniculata</i>	MT	Sorriso	-55.71	-12.55
<i>Psathyromyia punctigeniculata</i>	MT	União do Sul	-54.36	-11.52
<i>Psathyromyia punctigeniculata</i>	MT	Vila Rica	-51.11	-10.01
<i>Psathyromyia punctigeniculata</i>	MT	Ipiranga do Norte	-56.05	-15.35
<i>Psathyromyia punctigeniculata</i>	GO	Itumbiara	-49.22	-18.42
<i>Psathyromyia punctigeniculata</i>	GO	Israelândia	-50.90	-16.35
<i>Psathyromyia punctigeniculata</i>	GO	Amaro Leite	-49.15	-13.97
<i>Psathyromyia punctigeniculata</i>	MS	Bela Vista	-56.52	-22.11
<i>Psathyromyia punctigeniculata</i>	MS	Campo Grande	-54.65	-20.44
<i>Psathyromyia punctigeniculata</i>	MS	Camapuã	-54.04	-19.53
<i>Psathyromyia punctigeniculata</i>	MS	Corguinho	-54.83	-19.83
<i>Psathyromyia punctigeniculata</i>	MS	Rio Negro	-54.99	-19.45
<i>Psathyromyia punctigeniculata</i>	MS	Terenos	-54.86	-20.44
<i>Psathyromyia punctigeniculata</i>	MS	Jardim	-56.14	-21.48
<i>Psathyromyia punctigeniculata</i>	MS	Novo Horizonte do Sul	-53.80	-22.61
<i>Psathyromyia punctigeniculata</i>	MS	Nova Andradina	-53.34	-22.23
<i>Psathyromyia punctigeniculata</i>	MS	Bonito	-56.47	-21.13
<i>Psathyromyia punctigeniculata</i>	MS	Maracajú	-55.17	-21.61
<i>Psathyromyia punctigeniculata</i>	MS	Rio Verde de Mato Grosso	-54.84	-18.92
<i>Psathyromyia punctigeniculata</i>	MS	Três Lagoas	-51.68	-20.75
<i>Psathyromyia hermanlenti</i>	MT	Peixoto de Azevedo	-54.98	-10.22
<i>Psathyromyia hermanlenti</i>	MT	Varzea Grande	-56.13	-15.65
<i>Psathyromyia hermanlenti</i>	MT	Nova Mutum	-56.08	-13.83
<i>Psathyromyia hermanlenti</i>	MT	Barra do Garças	-52.26	-15.89
<i>Psathyromyia hermanlenti</i>	MT	Água Boa	-52.16	-14.05
<i>Psathyromyia hermanlenti</i>	MT	Alto da Boa Vista	-51.38	-11.66
<i>Psathyromyia hermanlenti</i>	MT	Alto do Paraguai	-56.48	-14.51
<i>Psathyromyia hermanlenti</i>	MT	Araguaina	-51.83	-15.73
<i>Psathyromyia hermanlenti</i>	MT	Arenápolis	-56.82	-14.43
<i>Psathyromyia hermanlenti</i>	MT	Aripuanã	-60.63	-9.17
<i>Psathyromyia hermanlenti</i>	MT	Barão do Melgaço	-55.97	-16.19
<i>Psathyromyia hermanlenti</i>	MT	Barra dos Bugres	-57.18	-15.08
<i>Psathyromyia hermanlenti</i>	MT	Cáceres	-57.68	-16.07
<i>Psathyromyia hermanlenti</i>	MT	Carolina	-55.83	-9.96
<i>Psathyromyia hermanlenti</i>	MT	Chapada dos Guimarães	-55.75	-15.46
<i>Psathyromyia hermanlenti</i>	MT	Claúdia	-54.88	-11.49
<i>Psathyromyia hermanlenti</i>	MT	Colíder	-55.45	-10.81
<i>Psathyromyia hermanlenti</i>	MT	Confresa	-51.56	-10.64
<i>Psathyromyia hermanlenti</i>	MT	Cuiabá	-56.10	-15.60
<i>Psathyromyia hermanlenti</i>	MT	Diamantino	-56.45	-14.41
<i>Psathyromyia hermanlenti</i>	MT	Feliz Natal	-54.92	-12.39
<i>Psathyromyia hermanlenti</i>	MT	Gaúcha do Norte	-53.08	-13.24



Sandfly species	State code	Municipalities	Longitude	Latitude
<i>Psathyromyia hermanlenti</i>	MT	General Carneiro	-52.76	-15.71
<i>Psathyromyia hermanlenti</i>	MT	Guarantã do Norte	-54.90	-9.78
<i>Psathyromyia hermanlenti</i>	MT	Itiquira	-54.14	-17.21
<i>Psathyromyia hermanlenti</i>	MT	Jaciara	-54.95	-15.92
<i>Psathyromyia hermanlenti</i>	MT	Juara	-57.52	-11.55
<i>Psathyromyia hermanlenti</i>	MT	Juína	-58.74	-11.38
<i>Psathyromyia hermanlenti</i>	MT	Lucas do Rio Verde	-55.91	-13.05
<i>Psathyromyia hermanlenti</i>	MT	Mercelândia	-54.60	-11.11
<i>Psathyromyia hermanlenti</i>	MT	Matupá	-54.90	-10.05
<i>Psathyromyia hermanlenti</i>	MT	Mirassol d' Oeste	-58.05	-15.40
<i>Psathyromyia hermanlenti</i>	MT	Nobres	-56.33	-14.73
<i>Psathyromyia hermanlenti</i>	MT	Notelândia	-56.80	-14.42
<i>Psathyromyia hermanlenti</i>	MT	Nossa S. do Livramento	-56.37	-15.80
<i>Psathyromyia hermanlenti</i>	MT	Nova Bandeirantes	-57.86	-9.95
<i>Psathyromyia hermanlenti</i>	MT	Nova Canaã do Norte	-55.95	-10.55
<i>Psathyromyia hermanlenti</i>	MT	Nova Guarita	-55.40	-10.30
<i>Psathyromyia hermanlenti</i>	MT	Nova Maringá	-57.06	-13.01
<i>Psathyromyia hermanlenti</i>	MT	Nova Mutum	-56.08	-13.83
<i>Psathyromyia hermanlenti</i>	MT	Nova Santana Helena	-55.26	-13.01
<i>Psathyromyia hermanlenti</i>	MT	Nova Ubiratã	-55.26	-13.01
<i>Psathyromyia hermanlenti</i>	MT	Novo Horizonte do Norte	-57.35	-11.41
<i>Psathyromyia hermanlenti</i>	MT	Novo São Joaquim	-53.02	-14.90
<i>Psathyromyia hermanlenti</i>	MT	Paranaíta	-56.48	-9.67
<i>Psathyromyia hermanlenti</i>	MT	Paratinga	-54.05	-14.43
<i>Psathyromyia hermanlenti</i>	MT	Pedra Preta	-54.47	-16.62
<i>Psathyromyia hermanlenti</i>	MT	Peixoto de Azevedo	-54.98	-10.22
<i>Psathyromyia hermanlenti</i>	MT	Planalto da Serra	-55.27	-10.44
<i>Psathyromyia hermanlenti</i>	MT	Poconé	-56.62	-16.26
<i>Psathyromyia hermanlenti</i>	MT	Pontal do Araguaia	-52.01	-15.85
<i>Psathyromyia hermanlenti</i>	MT	Ponte Branca	-56.78	-16.08
<i>Psathyromyia hermanlenti</i>	MT	Porto Alegre do Norte	-51.63	-10.87
<i>Psathyromyia hermanlenti</i>	MT	Porto dos Gaúchos	-57.41	-11.52
<i>Psathyromyia hermanlenti</i>	MT	Porto Esperidião	-58.47	-15.85
<i>Psathyromyia hermanlenti</i>	MT	Poxoréo	-54.38	-15.83
<i>Psathyromyia hermanlenti</i>	MT	Primavera do Leste	-54.30	-15.56
<i>Psathyromyia hermanlenti</i>	MT	Ribeirãozinho	-52.67	-16.45
<i>Psathyromyia hermanlenti</i>	MT	Rondonópolis	-54.64	-16.47
<i>Psathyromyia hermanlenti</i>	MT	Rosário Oeste	-56.43	-14.84
<i>Psathyromyia hermanlenti</i>	MT	Santo Antônio do Leverger	-56.08	-15.87
<i>Psathyromyia hermanlenti</i>	MT	São Felix do Araguaia	-50.67	-11.61
<i>Psathyromyia hermanlenti</i>	MT	São José dos 4 Marcos	-58.17	-15.17
<i>Psathyromyia hermanlenti</i>	MT	Serra da Nova Dourado	-51.58	-11.97
<i>Psathyromyia hermanlenti</i>	MT	Sinop	-55.49	-11.83
<i>Psathyromyia hermanlenti</i>	MT	Sorriso	-55.71	-12.55
<i>Psathyromyia hermanlenti</i>	MT	Taboporã	-56.62	-10.80
<i>Psathyromyia hermanlenti</i>	MT	Tapurah	-56.50	-12.53
<i>Psathyromyia hermanlenti</i>	MT	Terra nova do Norte	-55.23	-10.51
<i>Psathyromyia hermanlenti</i>	MT	União do Sul	-54.36	-11.52
<i>Psathyromyia hermanlenti</i>	MT	Itanhangá	-56.64	-12.23
<i>Psathyromyia hermanlenti</i>	GO	Itumbiara	-49.22	-18.42
<i>Psathyromyia hermanlenti</i>	MS	Água Clara	-52.87	-20.44
<i>Psathyromyia hermanlenti</i>	MS	Alcinópolis	-53.70	-18.31
<i>Psathyromyia hermanlenti</i>	MS	Anastácio	-55.81	-20.48



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<i>Psathyromyia hermanlenti</i>	MS	Camapuã	-54.04	-19.53
<i>Psathyromyia hermanlenti</i>	MS	Campo Grande	-54.65	-20.44
<i>Psathyromyia hermanlenti</i>	MS	Corguinho	-54.83	-19.83
<i>Psathyromyia hermanlenti</i>	MS	Coxim	-54.76	-18.507
<i>Psathyromyia hermanlenti</i>	MS	Figueirão	-53.38	-18.4
<i>Psathyromyia hermanlenti</i>	MS	Terenos	-54.86	-20.44
<i>Psathyromyia hermanlenti</i>	MS	Costa Rica	-53.13	-18.54
<i>Psathyromyia hermanlenti</i>	MS	Novo Horizonte do Sul	-53.80	-22.61
<i>Psathyromyia hermanlenti</i>	MS	Pedro Gomes	-54.55	-18.10
<i>Psathyromyia hermanlenti</i>	MS	Rio Verde de Mato Grosso	-54.84	-18.92
<i>Psychodopygus complexus</i>	MT	Peixoto de Azevedo	-54.98	-10.22
<i>Psychodopygus complexus</i>	MT	Nova Mutum	-56.08	-13.83
<i>Psychodopygus complexus</i>	MT	Alta Floresta	-56.09	-9.88
<i>Psychodopygus complexus</i>	MT	Campo Verde	-55.16	-15.54
<i>Psychodopygus complexus</i>	MT	Chapada dos Guimarães	-55.75	-15.46
<i>Psychodopygus complexus</i>	MT	Cládia	-54.88	-11.49
<i>Psychodopygus complexus</i>	MT	Diamantino	-56.45	-14.41
<i>Psychodopygus complexus</i>	MT	Dom Aquino	-54.55	-15.48
<i>Psychodopygus complexus</i>	MT	Feliz Natal	-54.92	-12.39
<i>Psychodopygus complexus</i>	MT	General Carneiro	-52.76	-15.71
<i>Psychodopygus complexus</i>	MT	Guarantã do Norte	-54.90	-9.78
<i>Psychodopygus complexus</i>	MT	Lucas do Rio Verde	-55.91	-13.05
<i>Psychodopygus complexus</i>	MT	Mercelândia	-54.60	-11.11
<i>Psychodopygus complexus</i>	MT	Matupá	-54.90	-10.05
<i>Psychodopygus complexus</i>	MT	Nova Marilândia	-56.57	-14.21
<i>Psychodopygus complexus</i>	MT	Nova Ubiratã	-55.26	-13.01
<i>Psychodopygus complexus</i>	MT	Paranaíta	-56.48	-9.67
<i>Psychodopygus complexus</i>	MT	Paratinga	-54.05	-14.43
<i>Psychodopygus complexus</i>	MT	Porto dos Gaúchos	-57.41	-11.52
<i>Psychodopygus complexus</i>	MT	Poxoréo	-54.38	-15.83
<i>Psychodopygus complexus</i>	MT	Rondonópolis	-54.64	-16.47
<i>Psychodopygus complexus</i>	MT	São José do Povo	-54.25	-16.46
<i>Psychodopygus complexus</i>	MT	Serra da Nova Dourado	-51.58	-11.97
<i>Psychodopygus complexus</i>	MT	Sinop	-55.49	-11.83
<i>Psychodopygus complexus</i>	MT	Sorriso	-55.71	-12.55
<i>Psychodopygus complexus</i>	MT	Tapurah	-56.50	-12.53
<i>Psychodopygus complexus</i>	MT	União do Sul	-54.36	-11.52
<i>Psychodopygus davisi</i>	MT	Nova Mutum	-56.08	-13.83
<i>Psychodopygus davisi</i>	MT	Cuiabá	-56.10	-15.60
<i>Psychodopygus davisi</i>	MT	Barra do Garças	-52.26	-15.89
<i>Psychodopygus davisi</i>	MT	Alta Floresta	-56.09	-9.88
<i>Psychodopygus davisi</i>	MT	Alto do Paraguai	-56.48	-14.51
<i>Psychodopygus davisi</i>	MT	Apiacás	-57.45	-9.54
<i>Psychodopygus davisi</i>	MT	Aripuanã	-60.63	-9.17
<i>Psychodopygus davisi</i>	MT	Cáceres	-57.68	-16.07
<i>Psychodopygus davisi</i>	MT	Campo Novo do Parecis	-57.88	-13.67
<i>Psychodopygus davisi</i>	MT	Campo Verde	-55.16	-15.54
<i>Psychodopygus davisi</i>	MT	Canabrava do Norte	-51.83	-11.03
<i>Psychodopygus davisi</i>	MT	Chapada dos Guimarães	-55.75	-15.46
<i>Psychodopygus davisi</i>	MT	Cláudia	-54.88	-11.49
<i>Psychodopygus davisi</i>	MT	Colniza	-59.03	-9.40
<i>Psychodopygus davisi</i>	MT	Comodoro	-59.79	-13.66
<i>Psychodopygus davisi</i>	MT	Cotriguaçu	-58.41	-9.85



Sandfly species	State code	Municipalities	Longitude	Latitude
<i>Psychodopygus davisi</i>	MT	Diamantino	-56.45	-14.41
<i>Psychodopygus davisi</i>	MT	Feliz Natal	-54.92	-12.39
<i>Psychodopygus davisi</i>	MT	General Carneiro	-52.76	-15.71
<i>Psychodopygus davisi</i>	MT	Guarantã do Norte	-54.90	-9.78
<i>Psychodopygus davisi</i>	MT	Jaciara	-54.95	-15.92
<i>Psychodopygus davisi</i>	MT	Jangada	-56.49	-15.24
<i>Psychodopygus davisi</i>	MT	Juara	-57.52	-11.55
<i>Psychodopygus davisi</i>	MT	Juína	-58.74	-11.38
<i>Psychodopygus davisi</i>	MT	Juscimeira	-54.88	-16.05
<i>Psychodopygus davisi</i>	MT	Lucas do Rio Verde	-55.91	-13.05
<i>Psychodopygus davisi</i>	MT	Mercelândia	-54.60	-11.11
<i>Psychodopygus davisi</i>	MT	Matupá	-54.90	-10.05
<i>Psychodopygus davisi</i>	MT	Nobres	-56.33	-14.73
<i>Psychodopygus davisi</i>	MT	Notelândia	-56.80	-14.42
<i>Psychodopygus davisi</i>	MT	Nova Brasilândia	-54.57	-14.57
<i>Psychodopygus davisi</i>	MT	Nova Lacerda	-59.35	-14.28
<i>Psychodopygus davisi</i>	MT	Nova Marilândia	-56.57	-14.21
<i>Psychodopygus davisi</i>	MT	Nova Maringá	-57.06	-13.01
<i>Psychodopygus davisi</i>	MT	Nova Ubiratã	-55.26	-13.01
<i>Psychodopygus davisi</i>	MT	Novo Horizonte do Norte	-57.35	-11.41
<i>Psychodopygus davisi</i>	MT	Paranaíta	-56.48	-9.67
<i>Psychodopygus davisi</i>	MT	Paratinga	-54.05	-14.43
<i>Psychodopygus davisi</i>	MT	Peixoto de Azevedo	-54.98	-10.22
<i>Psychodopygus davisi</i>	MT	Pontes de Lacerda	-59.37	-15.20
<i>Psychodopygus davisi</i>	MT	Porto dos Gaúchos	-57.41	-11.52
<i>Psychodopygus davisi</i>	MT	Porto Esperidião	-58.47	-15.85
<i>Psychodopygus davisi</i>	MT	Poxoréo	-54.38	-15.83
<i>Psychodopygus davisi</i>	MT	Rondonópolis	-54.64	-16.47
<i>Psychodopygus davisi</i>	MT	Rosário Oeste	-56.43	-14.84
<i>Psychodopygus davisi</i>	MT	Santa Carmem	-54.52	-11.35
<i>Psychodopygus davisi</i>	MT	Santa Rita do Trivelato	-55.26	-13.81
<i>Psychodopygus davisi</i>	MT	São José do Rio Claro	-56.72	-13.44
<i>Psychodopygus davisi</i>	MT	São José dos 4 Marcos	-58.17	-15.17
<i>Psychodopygus davisi</i>	MT	Sinop	-55.49	-11.83
<i>Psychodopygus davisi</i>	MT	Sorriso	-55.71	-12.55
<i>Psychodopygus davisi</i>	MT	Taboporã	-56.62	-10.80
<i>Psychodopygus davisi</i>	MT	Tapurah	-56.50	-12.53
<i>Psychodopygus davisi</i>	MT	União do Sul	-54.36	-11.52
<i>Psychodopygus davisi</i>	MT	Vera	-55.19	-12.18
<i>Psychodopygus davisi</i>	MT	Vila Bela de S. Trindade	-59.95	-15.00
<i>Psychodopygus davisi</i>	GO	Bom Jardim	-52.12	-16.28
<i>Psychodopygus davisi</i>	GO	Guapó	-49.53	-16.83
<i>Psychodopygus davisi</i>	GO	Mambaí	-46.11	-14.49
<i>Psychodopygus davisi</i>	GO	Maurilândia	-50.31	-18.00
<i>Psychodopygus davisi</i>	GO	Posse	-46.37	-14.09
<i>Psychodopygus davisi</i>	GO	Itumbiara	-49.21	-18.42
<i>Psychodopygus davisi</i>	GO	Mineiros	-50.73	-16.54
<i>Psychodopygus davisi</i>	GO	Catalão	-47.95	-18.17
<i>Psychodopygus davisi</i>	MS	Alcinópolis	-52.87	-20.44
<i>Psychodopygus davisi</i>	MS	Corguinho	-54.83	-19.83
<i>Psychodopygus davisi</i>	MS	Rio Verde de Mato Grosso	-54.84	-18.92
<i>Psychodopygus davisi</i>	MS	Sonora	-54.75	-17.57
<i>Sciopemyia sordellii</i>	MT	Diamantino	-56.45	-14.41



Sandfly species	State code	Municipalities	Longitude	Latitude
<i>Sciopemyia sordellii</i>	MT	Varzea Grande	-55.16	-15.54
<i>Sciopemyia sordellii</i>	MT	Nova Mutum	-56.08	-13.83
<i>Sciopemyia sordellii</i>	MT	Cuiabá	-56.10	-15.60
<i>Sciopemyia sordellii</i>	MT	Barra do Garças	-52.26	-15.89
<i>Sciopemyia sordellii</i>	MT	Acorizal	-56.37	-15.20
<i>Sciopemyia sordellii</i>	MT	Água Boa	-52.16	-14.05
<i>Sciopemyia sordellii</i>	MT	Alta Floresta	-56.09	-9.88
<i>Sciopemyia sordellii</i>	MT	Alto Araguaia	-53.22	-17.31
<i>Sciopemyia sordellii</i>	MT	Alto da Boa Vista	-51.38	-11.66
<i>Sciopemyia sordellii</i>	MT	Alto do Paraguai	-56.48	-14.51
<i>Sciopemyia sordellii</i>	MT	Apiacás	-57.45	-9.54
<i>Sciopemyia sordellii</i>	MT	Araguaina	-51.83	-15.73
<i>Sciopemyia sordellii</i>	MT	Arenópolis	-56.82	-14.43
<i>Sciopemyia sordellii</i>	MT	Aripuanã	-60.63	-9.17
<i>Sciopemyia sordellii</i>	MT	Barão do Melgaço	-55.97	-16.19
<i>Sciopemyia sordellii</i>	MT	Barra dos Bugres	-57.18	-15.08
<i>Sciopemyia sordellii</i>	MT	Brasnorte	-57.98	-12.15
<i>Sciopemyia sordellii</i>	MT	Campinápolis	-52.88	-14.50
<i>Sciopemyia sordellii</i>	MT	Campo Novo do Parecis	-57.88	-13.67
<i>Sciopemyia sordellii</i>	MT	Campo Verde	-55.16	-15.54
<i>Sciopemyia sordellii</i>	MT	Campos de Julio	-59.08	-13.53
<i>Sciopemyia sordellii</i>	MT	Canabrava do Norte	-51.83	-11.03
<i>Sciopemyia sordellii</i>	MT	Canarana	-52.27	-13.55
<i>Sciopemyia sordellii</i>	MT	Carolina	-55.83	-9.96
<i>Sciopemyia sordellii</i>	MT	Chapada dos Guimarães	-55.75	-15.46
<i>Sciopemyia sordellii</i>	MT	Claúdia	-54.88	-11.49
<i>Sciopemyia sordellii</i>	MT	Colíder	-55.45	-10.81
<i>Sciopemyia sordellii</i>	MT	Colniza	-59.03	-9.40
<i>Sciopemyia sordellii</i>	MT	Comodoro	-59.79	-13.66
<i>Sciopemyia sordellii</i>	MT	Confresa	-51.56	-10.64
<i>Sciopemyia sordellii</i>	MT	Denise	-57.05	-14.73
<i>Sciopemyia sordellii</i>	MT	Dom Aquino	-54.55	-15.48
<i>Sciopemyia sordellii</i>	MT	Gaúcha do Norte	-53.08	-13.24
<i>Sciopemyia sordellii</i>	MT	General Carneiro	-52.76	-15.71
<i>Sciopemyia sordellii</i>	MT	Guarantã do Norte	-54.90	-9.78
<i>Sciopemyia sordellii</i>	MT	Guiratinga	-53.74	-16.33
<i>Sciopemyia sordellii</i>	MT	Jaciara	-54.95	-15.92
<i>Sciopemyia sordellii</i>	MT	Jangada	-56.49	-15.24
<i>Sciopemyia sordellii</i>	MT	Juína	-58.74	-11.38
<i>Sciopemyia sordellii</i>	MT	Juscimeira	-54.88	-16.05
<i>Sciopemyia sordellii</i>	MT	Lucas do Rio Verde	-55.91	-13.05
<i>Sciopemyia sordellii</i>	MT	Luciara	-50.37	-10.75
<i>Sciopemyia sordellii</i>	MT	Mercelândia	-54.60	-11.11
<i>Sciopemyia sordellii</i>	MT	Matupá	-54.90	-10.05
<i>Sciopemyia sordellii</i>	MT	Mirassol d' Oeste	-58.05	-15.40
<i>Sciopemyia sordellii</i>	MT	Nobres	-56.33	-14.73
<i>Sciopemyia sordellii</i>	MT	Nossa S. do Livramento	-56.37	-15.80
<i>Sciopemyia sordellii</i>	MT	Nova Bandeirantes	-57.86	-9.95
<i>Sciopemyia sordellii</i>	MT	Nova Brasilândia	-54.57	-14.57
<i>Sciopemyia sordellii</i>	MT	Nova Canaã do Norte	-55.95	-10.55
<i>Sciopemyia sordellii</i>	MT	Nova Marilândia	-56.57	-14.21
<i>Sciopemyia sordellii</i>	MT	Nova Maringá	-57.06	-13.01
<i>Sciopemyia sordellii</i>	MT	Nova Santana Helena	-53.35	-10.82



Sandfly species	State code	Municipalities	Longitude	Latitude
<i>Sciopemyia sordellii</i>	MT	Nova Ubiratã	-55.26	-13.01
<i>Sciopemyia sordellii</i>	MT	Novo Horizonte do Norte	-57.35	-11.41
<i>Sciopemyia sordellii</i>	MT	Novo São Joaquim	-53.02	-14.90
<i>Sciopemyia sordellii</i>	MT	Paranaíta	-56.48	-9.67
<i>Sciopemyia sordellii</i>	MT	Paratinga	-54.05	-14.43
<i>Sciopemyia sordellii</i>	MT	Pedra Preta	-54.47	-16.62
<i>Sciopemyia sordellii</i>	MT	Peixoto de Azevedo	-54.98	-10.22
<i>Sciopemyia sordellii</i>	MT	Planalto da Serra	-55.27	-10.44
<i>Sciopemyia sordellii</i>	MT	Poconé	-56.62	-16.26
<i>Sciopemyia sordellii</i>	MT	Pontal do Araguaia	-52.01	-15.85
<i>Sciopemyia sordellii</i>	MT	Ponte Branca	-56.78	-16.08
<i>Sciopemyia sordellii</i>	MT	Pontes de Lacerda	-59.37	-15.20
<i>Sciopemyia sordellii</i>	MT	Porto Alegre do Norte	-51.63	-10.87
<i>Sciopemyia sordellii</i>	MT	Porto Esperidião	-58.47	-15.85
<i>Sciopemyia sordellii</i>	MT	Poxoréo	-54.38	-15.83
<i>Sciopemyia sordellii</i>	MT	Primavera do Leste	-54.30	-15.56
<i>Sciopemyia sordellii</i>	MT	Querência	-52.11	-12.35
<i>Sciopemyia sordellii</i>	MT	Ribeirão Cascalheira	-51.82	-12.92
<i>Sciopemyia sordellii</i>	MT	Ribeirãozinho	-52.67	-16.45
<i>Sciopemyia sordellii</i>	MT	Rondonópolis	-54.64	-16.47
<i>Sciopemyia sordellii</i>	MT	Rosário Oeste	-56.43	-14.84
<i>Sciopemyia sordellii</i>	MT	Santa Carmem	-54.52	-11.35
<i>Sciopemyia sordellii</i>	MT	Santa Rita do Trivelato	-55.26	-13.81
<i>Sciopemyia sordellii</i>	MT	Santo Antônio do Leverger	-56.08	-15.87
<i>Sciopemyia sordellii</i>	MT	São Felix do Araguaia	-50.67	-11.61
<i>Sciopemyia sordellii</i>	MT	São José do 4 Marcos	-58.17	-15.17
<i>Sciopemyia sordellii</i>	MT	Serra da Nova Dourado	-51.58	-11.97
<i>Sciopemyia sordellii</i>	MT	Sinop	-55.49	-11.83
<i>Sciopemyia sordellii</i>	MT	Sorriso	-55.71	-12.55
<i>Sciopemyia sordellii</i>	MT	Taboporã	-56.62	-10.80
<i>Sciopemyia sordellii</i>	MT	Tangará da Serra	-57.50	-14.62
<i>Sciopemyia sordellii</i>	MT	Terra Nova do Norte	-55.23	-10.51
<i>Sciopemyia sordellii</i>	MT	Teorixoréu	-52.56	-16.20
<i>Sciopemyia sordellii</i>	MT	União do Sul	-54.36	-11.52
<i>Sciopemyia sordellii</i>	MT	Vila Bela de S. Trindade	-59.95	-15.00
<i>Sciopemyia sordellii</i>	MT	Vila Rica	-51.11	-10.01
<i>Sciopemyia sordellii</i>	MT	Itanhangá	-56.64	-12.23
<i>Sciopemyia sordellii</i>	MT	Ipiranga do Norte	-56.05	-15.35
<i>Sciopemyia sordellii</i>	MT	Vera	-55.19	-12.18
<i>Sciopemyia sordellii</i>	GO	Itumbiara	-46.25	-14.80
<i>Sciopemyia sordellii</i>	GO	Itapaci	-49.57	-14.95
<i>Sciopemyia sordellii</i>	DF	Brasília	-47.42	-15.78
<i>Sciopemyia sordellii</i>	MS	Aparecida do Taboado	-51.09	-20.09
<i>Sciopemyia sordellii</i>	MS	Aquidauana	-55.79	-20.47
<i>Sciopemyia sordellii</i>	MS	Bataguassu	-52.42	-21.71
<i>Sciopemyia sordellii</i>	MS	Bela Vista	-56.52	-22.11
<i>Sciopemyia sordellii</i>	MS	Bodoquena	-56.72	-20.54
<i>Sciopemyia sordellii</i>	MS	Campo Grande	-54.65	-20.44
<i>Sciopemyia sordellii</i>	MS	Corguinho	-54.83	-19.83
<i>Sciopemyia sordellii</i>	MS	Corumbá	-57.65	-19.01
<i>Sciopemyia sordellii</i>	MS	Paranaíba	-51.19	-19.68
<i>Sciopemyia sordellii</i>	MS	Ponta Porã	-55.73	-22.54
<i>Sciopemyia sordellii</i>	MS	Selvíria	-51.42	-20.37



Sandfly species	State code	Municipalities	Longitude	Latitude
<i>Sciopemyia sordellii</i>	MS	Terenos	-54.86	-20.44
<i>Sciopemyia sordellii</i>	MS	Três Lagoas	-51.68	-20.75
<i>Sciopemyia sordellii</i>	MS	Costa Rica	-53.13	-18.54
<i>Sciopemyia sordellii</i>	MS	Dourados	-54.81	-22.22
<i>Sciopemyia sordellii</i>	MS	Guia Lopes da Laguna	-56.11	-21.46
<i>Sciopemyia sordellii</i>	MS	Itaquiraí	-54.11	-23.28
<i>Sciopemyia sordellii</i>	MS	Jaraguari	-54.40	-20.14
<i>Sciopemyia sordellii</i>	MS	Nova Andradina	-53.34	-22.23
<i>Sciopemyia sordellii</i>	MS	Novo Horizonte do Sul	-53.80	-22.61
<i>Sciopemyia sordellii</i>	MS	Nioaque	-55.83	-21.14
<i>Sciopemyia sordellii</i>	MS	Santa Rita do Pardo	-52.83	-21.30
<i>Sciopemyia sordellii</i>	MS	Bonito	-41.27	-11.97
<i>Sciopemyia sordellii</i>	MS	Maracajú	-55.17	-21.61
<i>Sciopemyia sordellii</i>	MS	Rio Verde de Mato Grosso	-54.84	-18.92
<i>Sciopemyia sordellii</i>	MS	Aquidauana	-55.79	-20.47
<i>Sciopemyia sordellii</i>	MS	Nhecolândia	-57.07	-17.27
<i>Trichopygomyia dasypodogeton</i>	MT	Nova Mutum	-56.08	-13.83
<i>Trichopygomyia dasypodogeton</i>	MT	Apiacás	-57.45	-9.54
<i>Trichopygomyia dasypodogeton</i>	MT	Peixoto de Azevedo	-54.98	-10.22
<i>Trichopygomyia dasypodogeton</i>	MT	Alto Taquari	-53.16	-17.49
<i>Trichopygomyia dasypodogeton</i>	MT	Araguaina	-51.83	-15.73
<i>Trichopygomyia dasypodogeton</i>	MT	Aripuanã	-60.63	-9.17
<i>Trichopygomyia dasypodogeton</i>	MT	Barra do Garças	-52.26	-15.89
<i>Trichopygomyia dasypodogeton</i>	MT	Campos de Julio	-59.08	-13.53
<i>Trichopygomyia dasypodogeton</i>	MT	Claúdia	-54.88	-11.49
<i>Trichopygomyia dasypodogeton</i>	MT	Colíder	-55.45	-10.81
<i>Trichopygomyia dasypodogeton</i>	MT	Comodoro	-59.79	-13.66
<i>Trichopygomyia dasypodogeton</i>	MT	Feliz Natal	-54.92	-12.39
<i>Trichopygomyia dasypodogeton</i>	MT	Gáucha do Norte	-53.08	-13.24
<i>Trichopygomyia dasypodogeton</i>	MT	Lucas do Rio Verde	-55.91	-13.05
<i>Trichopygomyia dasypodogeton</i>	MT	Mercelândia	-54.60	-11.11
<i>Trichopygomyia dasypodogeton</i>	MT	Matupá	-54.90	-10.05
<i>Trichopygomyia dasypodogeton</i>	MT	Nova Marilândia	-56.57	-14.21
<i>Trichopygomyia dasypodogeton</i>	MT	Nova Maringá	-57.06	-13.01
<i>Trichopygomyia dasypodogeton</i>	MT	Nova Ubiratã	-55.26	-13.01
<i>Trichopygomyia dasypodogeton</i>	MT	Paranaita	-56.48	-9.67
<i>Trichopygomyia dasypodogeton</i>	MT	Paratinga	-54.05	-14.43
<i>Trichopygomyia dasypodogeton</i>	MT	Porto Estrela	-57.22	-15.32
<i>Trichopygomyia dasypodogeton</i>	MT	São Felix do Araguaia	-50.67	-11.61
<i>Trichopygomyia dasypodogeton</i>	MT	Sinop	-55.49	-11.83
<i>Trichopygomyia dasypodogeton</i>	MT	Sorriso	-55.71	-12.55
<i>Trichopygomyia dasypodogeton</i>	MT	Taboporã	-56.62	-10.80
<i>Trichopygomyia dasypodogeton</i>	MT	União do Sul	-54.36	-11.52
<i>Trichopygomyia dasypodogeton</i>	MT	Itanhangá	-56.64	-12.23

DF: Federal District; GO: state of Goiás; MS: state of Mato Grosso do Sul; MT: state of Mato Grosso.