

# Papilionoidea inventory of the Sempre Vivas National Park, Minas Gerais State, southeastern Brazil (Insecta: Lepidoptera)

L. D. Silva, A. H. Batista-Rosa, A. V. L. Freitas, C. A. Iserhard,  
L. A. Kaminski, O. J. Marini-Filho, B. M. Thompson,  
G. R. Soares & M. M. de Sousa

## Abstract

This paper provides a preliminary inventory of the Lepidoptera from the Sempre Vivas National Park, a mountain area (1200 to 1400 m a.s.l.) that combines savannas (Cerrado) and open rocky montane fields (campos rupestres) in the north-central region of Minas Gerais, Brazil. Collections were made by active search using nets and Van Someren-Rydon bait traps in two periods: one from 2010 to 2011 (10 sampling days) and the other from 2018 to 2019 (20 sampling days). A total of 1181 individuals of 238 species were sampled, distributed in 18 subfamilies of six Lepidoptera families. Noteworthy were the records of *Rhetus belphegor* (Westwood, [1851] (Riodinidae), *Magnastigma julia* (Lycaenidae), and *Strymon ohausi* (Spitz, 1933) (Lycaenidae), species included in the Brazilian Red List of threatened Lepidoptera. Five species endemic to the Cerrado biome were reported, namely *Cogia cerradicola* (Mielke, 1967) (Hesperiidae), *Parides bunichus diodorus* (Hopffer, 1866) (Papilionidae), *Nhambikuara cerradensis* Freitas, Barbosa & Zacca, 2018, *Ypthimoides cipoensis* Freitas, 2004 (Nymphalidae), and *Sertania jaibensis* (Callaghan & Soares, 2001) (Riodinidae). Although preliminary, the information presented here is important for the management of the Sempre Vivas National Park and contributes to a crucial body of data to support actions for the conservation of the Cerrado biome in Brazil.

KEY WORDS: Insecta, Lepidoptera, Papilionoidea, Cerrado, Hesperiidae, Nymphalidae, Bait traps, Brazil.

## Inventário de Papilionoidea do Parque Nacional Sempre Vivas, Estado de Minas Gerais, sudeste do Brasil (Insecta: Lepidoptera)

## Resumo

O presente trabalho apresenta um inventário preliminar das Lepidoptera do Parque Nacional das Sempre Vivas, uma área montanhosa (1200 to 1400 m de altitude) que combina vegetação de Cerrado e de campos rupestres na região centro-norte de Minas Gerais, Brasil. As coletas foram feitas com busca ativa usando redes e com armadilhas atrativas modelo Van Someren-Rydon, em dois períodos distintos: entre 2010 e 2011 (dez dias de amostragem), e entre 2018 e 2019 (20 dias de amostragem). Foram coletados 1181 indivíduos de 238 espécies, distribuídas em 18 subfamílias de seis famílias de Lepidoptera. Destaca-se o registro das espécies *Rhetus belphegor* (Westwood, [1851]) (Riodinidae), *Magnastigma julia* e *Strymon ohausi* (Spitz, 1933) (ambas Lycaenidae), todas na lista das ameaçadas de extinção do Brasil. Adicionalmente, foram registradas cinco espécies endêmicas do Bioma Cerrado, a saber: *Cogia cerradicola* (Mielke, 1967) (Hesperiidae), *Parides bunichus diodorus* (Hopffer, 1866) (Papilionidae), *Nhambikuara cerradensis* Freitas, Barbosa & Zacca, 2018, *Ypthimoides cipoensis* Freitas, 2004 (Nymphalidae) e *Sertania jaibensis* (Callaghan & Soares, 2001) (Riodinidae). Apesar de preliminar, as informações

aqui apresentadas são importantes não apenas para a gestão do Parque, mas também irão contribuir para formar um corpo de dados crucial para subsidiar ações de conservação do Bioma Cerrado no Brasil.

PALAVRAS-CHAVE: Insecta, Lepidoptera, Papilionoidea, Cerrado, Hesperidae, Nymphalidae, armadilhas atrativas, Brasil.

**Inventario de Papilionoidea del Parque Nacional Sempre Vivas,  
Estado de Minas Gerais, sudeste de Brasil  
(Insecta: Lepidoptera)**

## Resumen

Este trabajo presenta un inventario preliminar de los Lepidoptera del Parque Nacional Sempre Vivas, un área de montaña (1.200 a 1.400 m s.n.m.) que combina sabanas (Cerrado) y campos rocosos abiertos de montaña (campos rupestres) en la región centro-norte de Minas Gerais, Brasil. Las recolecciones se realizaron mediante búsqueda activa con redes y trampas de cebo Van Someren-Rydon en dos periodos: uno de 2010 a 2011 (10 días de muestreo) y otro de 2018 a 2019 (20 días de muestreo). Se muestrearon 1.181 individuos de 238 especies, distribuidos en 18 subfamilias de seis familias de Lepidoptera. Destacan los registros de *Rhetus belphegor* (Westwood, [1851]) (Riodinidae), *Magnastigma julia* (Lycaenidae) y *Strymon ohausi* (Spitz, 1933) (Lycaenidae), especies incluidas en la Lista Roja de mariposas amenazadas de Brasil. Se reportaron cinco especies endémicas del bioma del Cerrado: *Cogia cerradicola* (Mielke, 1967) (Hesperidae), *Parides bunichus diodorus* (Hopffer, 1866) (Papilionidae), *Nhambikuara cerradensis* Freitas, Barbosa & Zacca, 2018, *Ypthimoides cipoensis* Freitas, 2004 (Nymphalidae) y *Sertania jaibensis* (Callaghan & Soares, 2001) (Riodinidae). Aunque preliminar, la información presentada aquí es importante para la gestión del Parque Nacional Sempre Vivas y contribuye a un cuerpo de datos crucial para apoyar las acciones de conservación del bioma del Cerrado en Brasil.

PALABRAS CLAVE: Insecta, Lepidoptera, Papilionoidea, Cerrado, Hesperidae, Nymphalidae, trampas de cebo, Brasil.

## Introduction

Neotropical Cerrado savannas cover extensive areas in northeastern Brazil, where they intermix with Caatinga dry forests, extending obliquely toward the southwest until reaching the boundaries of Pantanal and Chaco and, thereby, dividing two large, forested biomes, the Amazon and the Atlantic Forest (OLIVEIRA & MARQUIS, 2002). This region is considered an important biodiversity hotspot for combining a high rate of endemism and threats (MYERS *et al.*, 2000). The area of Cerrado savannas has decreased in recent decades as a result of policies that prioritize the expansion of agricultural frontiers in Brazil (OLIVEIRA-FILHO, 2006; OLIVEIRA-FILHO & RATTER, 2002). Thus, effective public policies aiming at the conservation of Cerrado remnants are urgently needed to maintain biodiversity and, consequently, preserve ecosystem services (KLINK & MACHADO, 2005; STRASSBURG *et al.*, 2017). For the proposal of new conservation actions and monitoring strategies, it is necessary to obtain information on Cerrado species, their geographical distributions and temporal patterns, and the ecology and natural history of groups occupying preserved Cerrado areas (BROWN & GIFFORD, 2002; CAVALCANTI & JOLY, 2002; PINHEIRO *et al.*, 2010).

Biological inventories, that is, complete and well-represented lists of local species, are fundamental to the knowledge of the geographic distribution of organisms and development of environmental agendas, including conservation priorities and management programs (SANTOS *et al.*, 2008; SILVEIRA *et al.*, 2010). Insect inventories are prioritized because of the ecological relevance of these organisms to terrestrial and aquatic ecosystems. Insects are involved in several ecological processes, such as pollination, suppression of plant species through herbivory, predation of other insects and animals, and nutrient cycling; furthermore, insects are important components of virtually all food webs (MORSE, 1971; BARBOLA *et al.*, 2007; POTTS *et al.*, 2016; SCHOWALTER *et al.*, 2018). Given such a close relationship with other organisms, several insect groups are used as indicators of

anthropogenic disturbances (i.e., biological indicators), particularly Lepidoptera (BROWN, 1991; FREITAS *et al.*, 2003; FREITAS *et al.*, 2006).

Despite the growing knowledge of Brazilian Lepidoptera, inventories of Cerrado areas are still local, sparse, and underrepresented, mostly concentrated in the Central-West and Highlands (see BROWN & MIELKE 1967 a, b; BROWN & MIELKE 1968; PINHEIRO & ORTIZ 1992; EMERY *et al.*, 2006; PINHEIRO & EMERY, 2006). Thus, there is a lack of information about butterflies occurring in southern Cerrado, transition zones between biomes, and elevated regions, in which Cerrado vegetation is replaced by natural, open, rocky montane vegetation, known locally as campo rupestre (see SOARES *et al.*, 1999; GOZZI *et al.*, 2012; NERY *et al.*, 2014; PIRES *et al.*, 2018; HENRIQUES *et al.*, 2019; SOLDATI *et al.*, 2019; FREITAS *et al.*, 2021a). This survey provides an inventory of butterflies occurring in the Sempre Vivas National Park (SVNP), an area covered by Cerrado and campo rupestre vegetation in the north-central region of Minas Gerais State, Brazil.

## Material and methods

The study was carried out in the Sempre Vivas National Park (SVNP) (17°55'S 43°47'W), a reserve that encompasses areas in the municipalities of Diamantina, Olhos D'Água, Bocaiúva, and Buenópolis, north-central Minas Gerais State, southeastern Brazil. The SVNP is located in the Serra do Espinhaço and extends over an area of approximately 124,156 ha, covered by a mosaic of different phytophysiognomies, such as riparian forest, seasonal semideciduous forest, several Cerrado physiognomies (such as Cerrado savannas *sensu stricto*, arboreal formations such as cerradão, and open vegetation such as campo limpo), and a high representation of campo rupestre. The climate is humid subtropical with dry winters and temperate summers (Cwb in the Köppen climate classification) (ÁLVARES *et al.*, 2014). Altitudes range from 1200 to 1400 m a.s.l., and the annual precipitation is between 1300 and 1600 mm (ÁLVARES *et al.*, 2014).

Samplings took place at 10 sampling sites over two periods: (1) two expeditions of five consecutive days each in April 2010 and May 2011 and (2) four expeditions of five consecutive days each in October 2018 and January, February, and March 2019 (Table I). Samplings were carried out between 9:00 a.m. and 5:00 p.m. (about 8 h of sampling effort per day) by active search using entomological nets, according to the protocols proposed by BROWN (1972), FREITAS *et al.* (2003), and FREITAS *et al.* (2021b), totaling 240 h of sampling effort over the two periods. Additionally, baited traps (Van Someren-Rydon traps) were used to attract fruit-feeding butterflies, following a protocol adapted from FREITAS *et al.* (2014). Ten traps were placed 20 m away from each other in areas of open vegetation, forest, and forest edges and left in the field for five consecutive days per expedition, totaling 480 h of sampling effort per trap. The bait used was a mixture of fermented banana and sugarcane juice, prepared 48 h before sampling. Collections were restricted to individuals whose identification in the field was difficult or doubtful, in which case the collected specimens were taken to the laboratory for later identification and deposited in zoological collections. Species identification was carried out by authors with experience in the field, supported by specialized literature and comparisons with the illustrated list on the webpage "Butterflies of America" (WARREN *et al.*, 2016) and specimens previously identified and deposited in museums. The classification used follows the checklist published by LAMAS (2004), modified according to WARREN *et al.* (2009), CONG *et al.* (2019), LI *et al.* (2019), and ZHANG *et al.* (2019) for HesperIIDae; SERAPHIM *et al.* (2018) for Riodinidae; WAHLBERG *et al.* (2009) for Nymphalidae; and ZACCA *et al.* (2018) for Euptychiina. Collection, storage, and preparation procedures were performed according to FREITAS *et al.* (2021c). Six families of diurnal butterflies were sampled (family Hedyliidae was not included). Collected specimens were deposited in one of the following three scientific collections: (1) Coleção Zoológica do Museu de Diversidade Biológica da Universidade Estadual de Campinas (ZUEC), Campinas, São Paulo, Brazil; (2) Centro Nacional de Pesquisa e Conservação da Biodiversidade do Cerrado e Caatinga do Instituto Chico Mendes de Conservação da Biodiversidade (CECAT), Brasília, Distrito Federal,

Brazil; or (3) Coleção do Laboratório de Zoologia, do Instituto Federal de Educação, Ciências e Tecnologia do Sul de Minas (CBVS), Campus Inconfidentes, Inconfidentes, Minas Gerais, Brazil.

**Table I.**– Sampling sites, coordinates, and phytophysiognomies where butterfly individuals were collected in the Sempre Vivas National Park, Minas Gerais, southeastern Brazil.

Locality	Geographical coordinates	Phytophysiognomies
Base	17.917200°S 43.786910°W	Campo limpo and riparian forest
Baliza	17.889685°S 43.731034°W	Campo limpo and riparian forest
Cachoeira Santa Rita	17.95820°S 43.93301°W	Cerrado, cerrado sensu stricto, and riparian forest
Córrego do Durão	17.882715°S 43.837921°W	Cerrado, cerrado sensu stricto, and riparian forest
Nhacica	17.846020°S 43.763150°W	Campo rupestre and campo limpo
Os Felipe	17.906360°S 43.709300°W	Campo rupestre, cerrado sensu stricto, and riparian forest
Rio Jequitaiá	17.889999°S 43.805292°W	Cerrado sensu stricto, campo limpo and riparian forest
Rio Jequitinhonha	16.502936°S 41.026484°W	Cerrado and riparian forest
Rio Preto	17.929697°S 43.809616°W	Campo rupestre, cerrado sensu stricto, campo limpo, and riparian forest
Rio Tamanduá	17.972718°S 43.779833°W	Cerrado and riparian forest

## Results

A total of 1181 individuals belonging to 238 species were collected/recorded, distributed in six families of Lepidoptera (Appendix I). The family with the highest species richness was HesperIIDae, with 73 species (30.7%), followed by Nymphalidae ( $n = 65$ , 27.3%), Lycaenidae ( $n = 42$ , 17.7%), Riodinidae ( $n = 37$ , 15.5%), Pieridae ( $n = 15$ , 6.3%), and Papilionidae ( $n = 6$ , 2.5%) (Appendix I).

Of the Lepidoptera species inventoried in this study, three are included in the Brazilian Red List of threatened fauna (MMA, 2014): (1) *Magnastigma julia* Nicolay, 1977 (Lycaenidae) (endangered); (2) *Strymon ohausi* (Spitz, 1933) (Lycaenidae) (endangered); and (3) *Rhetus belphegor* (Westwood, 1851) (Riodinidae) (critically endangered). At least five species are endemic to the Cerrado biome: (1) *Cogia cerradicola* (Mielke, 1967) (HesperIIDae); (2) *Parides bunichus didorus* (Hopffer, 1865) (Papilionidae); (3) *Nhambikuara cerradensis* Freitas, Barbosa & Zacca, 2018 (Nymphalidae); (4) *Ypthimoides cipoensis* Freitas, 2004 (Nymphalidae); and (5) *Sertania jaibensis* (Callaghan & Soares, 2001) (Riodinidae).

## Discussion

Although species richness was relatively low in the SVNP compared with other Neotropical sites (see BROWN 2005 and the discussion below), the present list can be considered representative of the SVNP Lepidoptera assemblage for the following reasons: (1) expeditions were well spaced in time, including periods characteristically known to have high species richness in the region and occurrence of univoltine species (see BROWN, 1972), (2) the team was composed of researchers

with vast experience in butterfly inventories, and (3) the richness of HesperIIDae species was greater than that of Nymphalidae species, a characteristic also observed in complete inventories of Lepidoptera in the Atlantic Forest and Cerrado (FRANCINI *et al.*, 2011; ISERHARD *et al.*, 2017). In summary, although many additions of species are expected in all six families represented here, this list may adequately represent richness patterns of the SVNP Rhopalocera assemblage.

Inventories in forested biomes, such as the Atlantic Forest and Amazon, generally comprise more than 500 species (e. g., BROWN JR. & FREITAS, 2002; BROWN, 2005; MIELKE *et al.*, 2010; FRANCINI *et al.*, 2011; BELTRAMI *et al.*, 2014; GARCIA-SALIK *et al.*, 2014; FREITAS *et al.*, 2016), as do inventories carried out in central Cerrado areas (EMERY *et al.*, 2006; MIELKE *et al.*, 2008). The species richness recorded here is comparable to that obtained in relatively well-sampled areas of southern Cerrado (CASAGRANDE *et al.*, 2012), sites in ecotone with the Atlantic Forest (also known as transition zones) (BROWN & MIELKE, 1968; SOLDATI *et al.*, 2019), and in similar areas of campo rupestre (PIRES *et al.*, 2018; HENRIQUES *et al.*, 2019). Some groups were clearly undersampled, and their richness would likely increase with some additional visits. For example, the subfamily Ithomiini (Nymphalidae: Danainae) had only three sampled species, but, according to other lists from the Cerrado, this number could increase to 15 or more. A good strategy is to visit riparian forests during the dry season, when Ithomiini species can usually be found in large groups in humid, shaded environments. Other poorly sampled groups were two genera of the family Nymphalidae, *Adelpha* (Limnitiidae) and *Actinote* (Heliconiinae), both with only one sampled species. These two genera are usually represented by eight or more species in similar habitats; the number of sampled species could increase with additional visits in March and April.

Finally, it is worth noting that, although richness was not very high, three threatened species were recorded in the SVNP, namely *M. julia*, *S. ohausi*, and *R. belphegor*, all associated with open formations of Cerrado and campo rupestre (FREITAS & MARINI-FILHO, 2011; KAMINSKI *et al.*, 2015; ICMBio, 2018). By contrast, no threatened species were identified in the Baixada Santista region, São Paulo State, where more than 500 species were recorded (FRANCINI *et al.*, 2011). Furthermore, some endemic species of the Cerrado were recorded, such as *Sertania jaibensis*, which was previously observed in only two localities (CALLAGHAN & SOARES, 2001; KAMINSKI *et al.*, 2017). The Serra do Espinhaço region is very peculiar and important to several fauna and flora species, extending over a small area (compared to the Cerrado as a whole) from Minas Gerais to Bahia States. Thus, we highlight the importance of preserved areas in unique landscapes such as campo rupestre in the SVNP. This area, belonging to the Cerrado domain, preserves and maintains various populations of endangered and endemic species in Brazil, representing a crucial and singular ecosystem to the biodiversity of Brazilian elevated regions.

## Taxonomic composition

As previously mentioned, the SVNP list reflects the richness distribution of Brazilian species lists, with HesperIIDae being more represented than Nymphalidae (BROWN & FREITAS, 1999). Such a family composition is evidence that the inventory constituted a representative sampling effort (FRANCINI *et al.*, 2011). This is due to the fact that Nymphalidae has a greater proportion of species that are common and easily detectable, leading to a high accumulation of species in the first expeditions. By contrast, HesperIIDae, Lycaenidae, and Riodinidae show a slower rate of species accumulation, given that these individuals are generally furtive and low in abundance (BROWN & FREITAS, 2000; ISERHARD *et al.*, 2013, 2017a). Thus, these groups demand greater collection effort and time to obtain a well-represented inventory (e.g., BROWN & FREITAS, 2000: Table 3; LAMAS *et al.*, 2021). Inventories carried out with low sampling efforts tend to show greater Nymphalidae than HesperIIDae richness, although local richness is usually greater in the latter family.

A second pattern observed here was the relative proportions of Lycaenidae and Riodinidae.

Previous studies suggested that Lycaenidae predominate over Riodinidae in colder sites of the Atlantic Forest, including southern localities and highlands (ISERHARD & ROMANOWSKI, 2004; ISERHARD *et al.*, 2010; BELLAYER *et al.*, 2012). Riodinidae, by contrast, is more frequent than Lycaenidae in lowlands, northern regions, and the interior of the Atlantic Forest (FRANCINI *et al.*, 2011). Therefore, the SVNP inventory, carried out in a mountainous region with elevations of up to 1600 m a.s.l., is in accordance with this pattern, given that Lycaenidae was better represented than Riodinidae. The reasons for this pattern are unknown; however, warmer climates seem to favor sampling of the latter in relation to the former. According to BROWN (2005), several Amazon sites, including some that exhibit the highest butterfly species richness, follow this pattern, with reports of a significant positive relationship between Riodinidae richness and mean annual temperature. In the current study, the difference in richness between the two families was small, but it is expected that with more collections, the relative proportion between Lycaenidae and Riodinidae may change.

## Conclusion

Given the importance of knowledge about Neotropical Lepidoptera, the inclusion of well-represented inventories is crucial to cover the lack of information on the occurrence and distribution of Lepidoptera in Brazil. This study represents an important contribution to such knowledge, including Lepidoptera that occur in montane sites within the Cerrado biome, where savannas are replaced by campo rupestre. In general, these habitats are spatially restricted and extremely sensitive to human disturbances and climate change, in addition to harboring several endemic and endangered species. Thus, knowledge of the diversity of these ecosystems is essential to support future conservation actions, including monitoring and management of protected areas (as in the present case), and to identify and propose priority areas for conservation. This survey has great relevance and is in accordance with the aims proposed by the National Plan for the Conservation of Threatened Lepidoptera, a great effort involving several researchers and the ICMBio Environmental Agency to increase the knowledge of Lepidoptera in all Brazilian biomes. Thus, this list holds valuable information not only for the management of the SVNP but also, combined with other campo rupestre inventories, for the consolidation of a more robust body of information to support actions aimed at the conservation of Cerrado biodiversity in Brazil.

## Acknowledgments

To Olaf Mielke, Tamara Zacca, Eduardo Barbosa, Tiago Barbosa, Gustavo Accacio, Eurides Furtado, Curtis Callaghan, Diego Dolibaina, and Fernando Dias for assisting in species identification; to Olaf Mielke for critically reading and contributing to the improvement of the manuscript; to the entire team of the zoology lab of IFSULDEMINAS (Campus Inconfidentes, Minas Gerais) for assisting with fieldwork and providing logistical support; to IFSULDEMINAS for supporting and financing our transport; and to ICMBio's team of brigade members and SVNP directory for assisting in the logistics of collection campaigns. We also thank CNPq/FAPs/MMA (Edital 47/2010) for creating SISBIOTA Brazil, encouraging the organization of RedeLep (*Rede Nacional de Pesquisa e Conservação de Lepidópteros*) (563332/2010-7). AHBR thanks the Brazilian Federal Agency for Support and Evaluation of Graduate Education (CAPES, Finance Code 001) for his scholarship; LAK was supported by CNPq (163119/2013-9) and FAPESP (10/51340-8); CAI was supported by CNPq, FAPESP (2011/08433-8), and INCT (*Institutos Nacionais de Ciência e Tecnologia*) in Ecology, Evolution, and Biodiversity Conservation (EECBio) through MCTIC/CNPq (process no. 465610/2014-5) and the Goiás State Research Foundation; AVLF is grateful to FAPESP (Biota-Fapesp 2011/50225-3), CNPq (421248/2017-3, 304291/2020-0), and NSF (DEB-1256742). Collection licenses: SISBIO 63930-1 and 53016. This study is registered in SISGEN (A5334BA).



## BIBLIOGRAPHY

- ALVARES, C. A., STAPE, J. L., SENTELHAS, P. C., GONÇALVES, J. L. M. & SPAROVEK, G., 2014.– Köppen's climate classification map for Brazil.– *Meteorologische Zeitschrift*, **22**(6): 711-728.
- BARBOLA, I. F., NASCIMENTO, E. A. & MILLÉO, J. A., 2007.– Fauna de insetos dos Campos Gerais.– *In* M. S. MELO, R. S. MORO & G. B. GUIMARÃES. *Patrimônio natural dos Campos Gerais do Paraná*: 230 pp. Editora UEPG, Ponta Grossa.
- BELLAVER, J. M., ISERHARD, C. A., SANTOS J. P., SILVA, A. K., TORRES, M., SIEWERT, R. R., MOSER, A. & ROMANOWSKI, H. P., 2012.– Butterflies (Lepidoptera: Papilionoidea and Hesperioidea) from Swamp forests and Restinga forests at the southern Brazilian Coastal Plain.– *Biota Neotropica*, **12**(4): 181-190.
- BELTRAMI, L. C. C., MIELKE, O. H. H., CASAGRANDE, M. M. & CARNEIRO, E., 2014.– The Hesperioidea and Papilionoidea (Lepidoptera) of São Luiz Do Purunã, Balsa Nova, Paraná State, Brazil.– *Tropical Lepidoptera Research*, **24**(1): 30-36.
- BROWN JR., K. S., 1972.– Maximizing daily butterfly counts.– *Journal of the Lepidopterists' Society*, **26**: 183-196.
- BROWN JR., K. S., 2005.– Geological, evolutionary and ecological bases of the diversification of Neotropical butterflies: implications for conservation.– *In* E. BERMINGHAM, E., C. W. DICK & C. MORITZ. *Tropical rainforests: Past, Present and Future*: 672 pp. University of Chicago Press, Chicago.
- BROWN JR., K. S. & FREITAS, A. V. L., 1999.– Lepidoptera.– *In* C. A. JOLY & C. E. M. BICUDO. *Biodiversidade do Estado de São Paulo, Brasil: Síntese do Conhecimento ao Final do Século XX*.– *In* C. R. F. BRANDÃO & E. M. CANCELLO. *5. Invertebrados terrestres*: 279 pp. FAPESP, São Paulo.
- BROWN JR., K. S. & FREITAS, A. V. L., 2000.– Atlantic Forest butterflies: indicators for landscape conservation.– *Biotropica*, **32**: 934-956.
- BROWN JR, K. S. & FREITAS, A. V. L., 2002.– Diversidade biológica no Alto Juruá: avaliação, causas e manutenção.– *In* M. C. CUNHA & M. B. ALMEIDA. *Enciclopédia da floresta: O alto Juruá: práticas e conhecimentos das populações*: 735 pp. Companhia das Letras, São Paulo.
- BROWN JR, K. S. & GIFFORD, D. R., 2002.– Lepidoptera in the Cerrado Landscape and the Conservation of Vegetation, Soil, and Topographical Mosaics.– *In* P. S. OLIVEIRA & R. J. MARQUIS. *The Cerrados of Brazil: Ecology and natural history of a neotropical savana*: 656 pp. Columbia University Press, New York.
- BROWN JR, K. S., 1991.– Conservation of Neotropical environments: insects as indicators.– *In* N. M. COLLINS & J. A. THOMAS. *The conservation of insects and their habitats*: 468 pp. Royal Entomological Society Symposium XV. Academic Press, London.
- BROWN JR., K. S. & MIELKE, O. H. H., 1967a.– Lepidoptera of the central Brazil plateau: I. Preliminary list of Rhopalocera: Introduction, Nymphalidae, Libytheidae.– *Journal of the Lepidopterists' Society*, **21**: 77-106.
- BROWN JR., K. S. & MIELKE, O. H. H., 1967b.– Lepidoptera of the central Brazil plateau: II. Preliminary list of Rhopalocera: Lycaenidae, Pieridae, Papilionidae, Hesperidae.– *Journal of the Lepidopterists' Society*, **21**: 145-168.
- BROWN JR., K. S. & MIELKE, O. H. H., 1968.– Lepidoptera of the central Brazil plateau: III. Partialist for the Belo Horizonte area, showing the character of the southeastern "blend zone".– *Journal of the Lepidopterists' Society*, **22**: 147-157.
- CALLAGHAN, C. J. & SOARES, A., 2001.– A review of the Cinericiiformes section of the genus *Audre* Hemming and the description of a new subspecies (Riodinidae).– *Revista Brasileira de Zoologia*, **18**(3): 755-763.
- CASAGRANDE, M. M., DOLIBAINA, D. R., CARNEIRO, E., DIAS, F. M. S., LEITE, L. A. R. & MIELKE, O. H. H., 2012.– Borboletas (Hesperioidea e Papilionoidea) de Jaguaiaíva, Paraná, Brasil: Inventário em um enclave de cerrado meridional.– *In* O. T. B. CARPANEZZI & J. B. CAMPOS. *Coletânea de Pesquisas. Parques Estaduais de Vila Velha, Cerrado e Guartelá*: 374 pp. Instituto Ambiental do Paraná, Curitiba.
- CAVALCANTI, R. B. & JOLY, C. A., 2002.– 18. Biodiversity and Conservation Priorities in the Cerrado Region.– *In* P. S. OLIVEIRA & R. J. MARQUIS. *The Cerrados of Brazil: Ecology and natural history of a neotropical savana*: 656 pp. Columbia University Press, New York.
- CONG, Q., ZHANG, J., SHEN, J. & GRISHIN, N. V., 2019.– Fifty new genera of Hesperidae (Lepidoptera).– *Insecta Mundi*, **0731**: 1-56.
- EMERY, E. O., BROWN JR, K. S. & PINHEIRO, C. E. G., 2006.– As borboletas (Lepidoptera, Papilionoidea) do Distrito Federal, Brasil.– *Revista Brasileira de Entomologia*, **50**(1): 85-92.
- FRANCINI, R. B., DUARTE, M., MIELKE, O. H. H., CALDAS, A. & FREITAS, A. V. L., 2011.– Butterflies (Lepidoptera, Papilionoidea and Hesperioidea) of the "Baixada Santista" region, coastal São Paulo, southeastern Brazil.– *Revista Brasileira de Entomologia*, **55**(1): 55-68.
- FREITAS, A. V. L., BROWN JR., K. S., MIELKE, O. H. H., SANTOS, J. P. & VASCONCELLOS-NETO, J.,

- 2016.– Borboletas da Reserva Natural Vale, Linhares/ES.– In S. G. ROLIM, L. F. T. MENEZES & A. C. SRBEK-ARAÚJO. *Floresta Atlântica de Tabuleiro: Diversidade e Endemismos na Reserva Natural Vale*: 496 pp. Editora Rupestre, Belo Horizonte.
- FREITAS, A. V. L., FRANCINI, R. B. & BROWN JR., K. S., 2003.– Insetos como indicadores ambientais.– In L. CULLEN JR., R. RUDRAN & C. VALLADARES-PÁDUA. *Métodos de estudos em biologia da conservação e manejo da vida silvestre*: 665 p. Editora da Universidade Federal do Paraná/Fundação O Boticário de Proteção à Natureza, Curitiba.
- FREITAS, A. V. L., ISERHARD, C., SANTOS, J. P., CARREIRA, J. Y. O., RIBEIRO, D. B., MELO, D. H. A., ROSA, A. H. B., MARINI-FILHO, O. J., ACCACIO, G. M. & UEHARA-PRADO, M., 2014.– Studies with butterfly bait traps: an overview.– *Revista Colombiana de Entomologia*, **40**: 203-212.
- FREITAS, A. V. L., LEAL, I. R., UEHARA-PRADO, M. & IANNUZZI, L., 2006.– Insetos como indicadores de conservação da paisagem.– In C. F. D. ROCHA, H. G. BERGALLO, M. VAN SLUYS & M. A. S. ALVES. *Biologia da conservação: essências*: 582 pp. UERJ, Rio de Janeiro.
- FREITAS, A. V. L. & MARINI-FILHO, O. J., 2011.– Plano de ação nacional para a conservação dos lepidópteros ameaçados de extinção.– *Série Espécies Ameaçadas*, **13**: 124 pp. ICMBio, Brasília.
- FREITAS, A. V. L., MUNIZ, D. G., CARREIRA, J. Y. O. & OLIVEIRA, P. S., 2021a.– Fruit-Feeding Butterfly Assemblages in a Neotropical Savanna: Assessing Phenological Patterns Using Baited Traps.– *The Journal of the Lepidopterists' Society*, **75**(2): 88-103.
- FREITAS, A. V., SANTOS, J. P., ROSA, A. H., ISERHARD, C. A., RICHTER, A., SIEWERT, R. R., GUERATTO, P. E., CARREIRA, J. Y. O. & LOURENÇO, G. M., 2021b.– Sampling Methods for Butterflies (Lepidoptera).– In J. C. SANTOS & G. W. FERNANDES. *Measuring Arthropod Biodiversity*: 600 pp. Springer, Cham.
- FREITAS, A. V. L., ZACCA, T., BARBOSA, E. P., SHIRAI, L. T., SERAPHIM, N., AGUIAR, T. M. C. & CARREIRA, J. Y. O., 2021c.– *Guia de práticas para coleta, preservação e montagem de material coletado em campo. Laboratório de Ecologia e Sistemática de Borboletas (LABBOR) e Laboratório de Pesquisas em Lepidoptera (LaPeL). Campinas - Rio de Janeiro.* Available from em [http://www2.ib.unicamp.br/labor/site/?page\\_id=2211](http://www2.ib.unicamp.br/labor/site/?page_id=2211) (Acesso 10 de março de 2021).
- GARCIA-SALIK, L. M., CARNEIRO, E., DOLIBAINA, D. R., DIAS, F. M. S., RIBEIRO-LEITE, L. A., CASAGRANDE, M. M. & MIELKE, O. H. H., 2014.– Borboletas da estação ecológica do Caiuá, Diamante do Norte, Paraná, Brasil (Lepidoptera: Hesperioidea & Papilionoidea).– *SHILAP Revista de lepidopterologia*, **42**(166): 265-280.
- GOZZI, M. R., BEIRÃO, M. V., MEDEIROS, L. R., NEVES, F. S. & FAGUNDES, M., 2012.– Borboletas frugívoras em uma região de transição entre cerrado sensu stricto e caatinga no norte de Minas Gerais, Brasil.– *MG Biota*, **4**: 25-37.
- HENRIQUES, N. R., BEIRÃO, M. V., BRASIL, E. & CORNELLISEN, T., 2019.– Butterflies (Lepidoptera: Papilionoidea) from the campos rupestres, of São José, Minas Gerais, Brasil.– *Biota Neotropica*, **19**(3): 1-9.
- ICMBIO. Instituto Chico Mendes de Conservação da Biodiversidade. 2018 - *Livro Vermelho da Fauna Brasileira Ameaçada de Extinção: Invertebrados*, **7**: 726 pp. ICMBio, Brasília.
- ISERHARD, C. A., BROWN, K. S. & FREITAS, A. V. L., 2013.– Maximized sampling of butterflies to detect temporal changes in tropical communities.– *Journal of Insect Conservation*, **17**(3): 615-622.
- ISERHARD, C. A., QUADROS, M. T., ROMANOWSKI, H. P. & MENDONÇA-JR, M. S., 2010.– Occurrence of butterflies (Lepidoptera: Papilionoidea and Hesperioidea) in different habitats at the Araucaria Moist Forest and the Grasslands in the Basaltic Highlands in Southern Brazil.– *Biota Neotropica*, **10**(1): 1-13.
- ISERHARD, C. A. & ROMANOWSKI, H. P., 2004.– Butterfly species list (Lepidoptera, Papilionoidea and Hesperioidea) in a region at valley of Maquiné river, Rio Grande do Sul State, Brazil.– *Revista Brasileira de Zoologia*, **21**(3): 649-662.
- ISERHARD, C. A., ROMANOWSKI, H. P., RICHTER, A. & MENDONÇA-JR, M. S., 2017b.– Monitoring Temporal Variation to Assess Changes in the Structure of Subtropical Atlantic Forest Butterfly Communities.– *Environmental Entomology*, **46**(4): 804-813.
- ISERHARD, C. A., UEHARA-PRADO, M., MARINI-FILHO, O. J., DUARTE, M. & FREITAS, A. V. L., 2017a.– Fauna da Mata Atlântica: Lepidoptera - Borboletas.– In E. L. A. MONTEIRO-FILHO & C. E. CONTE. *Revisões em Zoologia - Mata Atlântica*: 490 pp. Editora UFPR, Curitiba.
- KAMINSKI, L. A., SOARES, G. R., SERAPHIM, N., WAHLBERG N., MARINI-FILHO, O. J. & FREITAS, A. V. L., 2015.– Natural history and systematic position of *Rhetus belphegor* (n. comb.) (Lepidoptera: Riodinidae), an endangered butterfly with narrow distribution in Southeast Brazil.– *Journal of Insect Conservation*, **19**(6): 1141-1151.
- KAMINSKI, L. A., CALLAGHAN, C. J., SERAPHIM, N., MAGALDI, L. M., VOLKMANN, L. & FREITAS, A.



- V. L., 2017.– *Sertania* gen. nov., a new genus of butterflies (Lepidoptera: Riodinidae) from the South American dry diagonal.– *Zootaxa*, **4312**(1): 165-179.
- LI, W., CONG, Q., SHEN, J., ZHANG, J., HALLWACHS, W., JANZEN, D. H. & GRISHIN, N. V., 2019.– Genomes of skipper butterflies reveal extensive convergence of wing patterns.– *Proceedings of the National Academy of Sciences*, **116**(13): 6232-6237.
- LINK, C. A. & MACHADO, R. B., 2005.– A conservação do Cerrado brasileiro.– *Megadiversidade*, **1**(1): 147-155.
- LAMAS, G., 2004.– Checklist: Part 4A. Hesperioidea-Papilionoidea.– In J. B. HEPPNER. *Atlas of Neotropical Lepidoptera*: 439 pp. Association for Tropical Lepidoptera, Gainesville.
- LAMAS, G., MCINNIS, M. L., BUSBY, R. C. & ROBBINS, R. K., 2021.– The lycaenid butterfly fauna (Lepidoptera) of Cosñipata, Peru: annotated checklist, elevational patterns, and rarity.– *Insecta Mundi*, **0861**: 1-34.
- MIELKE, O. H. H., CARNEIRO, E. S. & CASAGRANDE, M. M., 2010.– Lepidopterofauna (Papilionoidea e Hesperioidea) do Parque Estadual do Chandless e arredores, Acre, Brasil.– *Biota Neotropica*, **10**: 285-300.
- MIELKE, O. H. H., EMERY, E. D. O. & PINHEIRO, C. E. G., 2008.– As borboletas Hesperidae (Lepidoptera, Hesperioidea) do Distrito Federal, Brasil.– *Revista Brasileira de Entomologia*, **52**(2): 283-288.
- MMA, Ministério do Meio Ambiente, 2014.– *Fauna Brasileira Ameaçada de Extinção*. Portaria nº 444, de 17 de dezembro de 2014.
- MORSE, H. D., 1971.– The insectivorous bird as an adaptive strategy.– *Annual Review of Ecology and Systematics*, **2**(1): 177-200.
- MYERS, N., MITTERMEIER, R. A., MITTERMEIER, C. G., FONSECA, G. A. & KENT, J., 2000.– Biodiversity hotspots for conservation priorities.– *Nature*, **403**(6772): 853-858.
- NERY, I., CARVALHO, N. & PAPROCKI, H., 2014.– Checklist of butterflies (Insecta: Lepidoptera) from Serra do Intendente State Park-Minas Gerais, Brasil.– *Biodiversity data Journal*, **2**: 1-23.
- OLIVEIRA-FILHO, A. T., 2006.– Definição e delimitação de domínios e subdomínios das paisagens naturais do estado de Minas Gerais.– In J. R., SCOLFORO & L. M. T. CARVALHO. *Mapeamento e Inventário da Flora e dos Reflorestamentos de Minas Gerais*: 288 pp. Lavras, UFLA.
- OLIVEIRA-FILHO, A. T. & RATTER, J. A., 2002.– Vegetation physiognomies and the woody flora of the cerrado biome.– In P. S. OLIVEIRA & R. J. MARQUIS. *The Cerrados of Brazil: Ecology and natural history of a neotropical savanna*: 656 pp. Columbia University Press, New York.
- OLIVEIRA, P. S. & MARQUIS R. J., 2002.– *The Cerrados of Brazil: Ecology and natural history of a neotropical savanna*: 656 pp. Columbia University Press, New York.
- PINHEIRO, C. E. G. & EMERY, E. O., 2006.– The butterflies (Lepidoptera: Papilionoidea and Hesperioidea) of the Environmental Protection Zone/APA do Gama e Cabeça de Veado, Distrito Federal, Brasil.– *Biota Neotropica*, **6**: 1-15.
- PINHEIRO, C. E. G., MALINOV, I. K., EMERY, E. O. & SCHMIDT, K., 2010.– Endemismos e conservação de borboletas (Lepidoptera: Papilionoidea e Hesperioidea) no bioma Cerrado.– In I. R. DINIZ, J. M. FILHO, M., R. B. MACHADO & R. B. CAVALCANTI. *Cerrado: conhecimento científico quantitativo como subsídio para as ações de conservação*: 496 pp. Thesaurus, Brasília.
- PINHEIRO, C. E. G. & ORTIZ, J. V. C., 1992.– Communities of Fruit-Feeding Butterflies along a vegetation gradient in Central Brasil.– *Journal of Biogeography*, **19**: 505-511.
- PIRES, A. C. V., BEIRÃO, M. V., FERNANDES, G. W., OLIVEIRA, I. F. PEREIRA, G. C. N., SILVA, V. D., MIELKE, O. H. H. & DUARTE, M., 2018.– Checklist of butterflies from the rupestrian grasslands of Serra do Cipó, Minas Gerais, Brasil (Lepidoptera: Papilionoidea).– *SHILAP Revista de lepidopterologia*, **46**(181): 5-17.
- POTTS, S. G., IMPERATRIZ-FONSECA, V. L., NGO, H. T., AIZEN, M. A., BIESMEIJER, J. C., BREEZE, T. D., DICKS, L. V., GARIBALDI, L. A., HILL, R., SETTELE, J. & VANBERGEN, A. J., 2016.– Safeguarding pollinators and their values to human well-being.– *Nature*, **540**: 220-229.
- SANTOS, E. C., MIELKE, O. H. H. & CASAGRANDE, M. M., 2008.– Butterfly inventories in Brazil: the state of the art and the priority-areas model for research aiming at conservation.– *Natureza & Conservação*, **6**(2): 176-198.
- SCHOWALTER, T. D., NORIEGA, J. A. & TSCHARNTKE, T., 2018.– Insect effects on ecosystem services - introduction.– *Basic and Applied Ecology*, **26**: 1-7.
- SERAPHIM, N., KAMINSKI, L. A., DEVRIES, P. J., PENZ, C., CALLAGHAN, C., WAHLBERG, N., SILVABRANDÃO, K. L. & FREITAS, A. V. L., 2018.– Molecular phylogeny and higher systematics of the metalmark butterflies (Lepidoptera: Riodinidae).– *Systematic Entomology*, **43**(2): 407-425.
- SILVEIRA, L. F., BEISIEGEL, B. M., CURCIO, F. F., VALDUJO, P. H., DIXO, M., VERDADE, V. K., MATTOX,

- G. M. T. & CUNNINGHAM, P. T. M., 2010.– Para que servem os inventários de fauna?– *Estudos avançados*, **24**(68): 173-207.
- SOARES, A., JÚLIO, C. E. A., CAETANO, C. A., TANGERINI, N., FARIA, A. C. & COSTA, J. E., 1998.– Lista da Lepidopterofauna diurna da região da Calha do Rio São Francisco, Estado de Minas Gerais, Municípios de Itacarambi, Jaíba, Manga e Matias Cardoso.– *Boletim do Museu Nacional, n. s., Zoologia*, **402**: 1-11.
- SOLDATI, D., SILVEIRA, F. A. D. & SILVA, A. R. M., 2019.– Butterfly fauna (Lepidoptera, Papilionoidea) in a heterogeneous area between two biodiversity hotspots in Minas Gerais, Brasil.– *Papéis Avulsos de Zoologia*, **59**: 1-9.
- STRASSBURG, B. B. N., BROOKS, T., FELTRAN-BARBIERI, R., IRIBARREM, A., CROUZEILLES, R., LOYOLA, R., LATAWIEC, A. E., OLIVEIRA FILHO, F. J. B., SCARAMUZZA, C. A. M., SCARANO, F. R., SOARES-FILHO, B. & BALMFORD, A., 2017.– Moment of truth for the Cerrado hotspot.– *Nature Ecology & Evolution*, **1**: 13-15.
- WAHLBERG, N., LENEVEU, J., KODANDARAMAIAH, U., PEÑA, C., NYLIN, S., FREITAS, A. V. L. & BROWER, A. V. Z., 2009.– Nymphalid butterflies diversify following near demise at the Cretaceous/Tertiary boundary.– *Proceedings of the Royal Society of London. Biological Science*, **276**: 4295-4302.
- WARREN, A. D., DAVIS, K. J., STANGELAND, E. M., PELHAM, J. P., WILLMOTT, K. R. & GRISHIN, N. V., 2016.– *Illustrated Lists of American Butterflies*.– Available from em <http://www.butterfliesofamerica.com> (Acesso em 01 de julho de 2020).
- WARREN, A. D., OGAWA, J. R. & BROWER, A. V. Z., 2009.– Revised classification of the family Hesperidae (Lepidoptera: Hesperioidea) based on combined molecular and morphological data.– *Systematic Entomology*, **34**: 467-523.
- ZACCA, T., BARBOSA, E. P. & FREITAS, A. V. L., 2018.– *Euptychiina Species Checklist*.– Available from em [https://www2.ib.unicamp.br/labor/site/?page\\_id=1020](https://www2.ib.unicamp.br/labor/site/?page_id=1020) (Acesso em julho de 2020).
- ZHANG, J., CONG, Q., SHEN, J., BROCKMANN, E. & GRISHIN, N. V., 2019.– Genomes reveal drastic and recurrent phenotypic divergence in firetip skipper butterflies (Hesperiidae: Pyrrhopyginae).– *Proceedings of the Royal Society B*, **286**(1903): 1-6.

L. D. S.

Instituto Federal de Educação, Ciência e Tecnologia do Sul de Minas Gerais  
Campus Inconfidentes,

Inconfidentes, Minas Gerais

BRASIL / BRAZIL

E-mail: [lauana.silva@alunos.ifsuldeminas.edu.br](mailto:lauana.silva@alunos.ifsuldeminas.edu.br)

<https://orcid.org/0000-0002-6549-2259>

\*A. H. B. R.

Departamento de Biologia Animal e Museu de Diversidade Biológica

Instituto de Biologia, Universidade Estadual de Campinas (Unicamp)

Campinas, São Paulo

BRASIL / BRAZIL

E-mail: [augustohbrosa@hotmail.com](mailto:augustohbrosa@hotmail.com)

<https://orcid.org/0000-0002-0151-114X>

A. V. L. F.

Departamento de Biologia Animal e Museu de Diversidade Biológica

Instituto de Biologia

Universidade Estadual de Campinas

Campinas, São Paulo

BRASIL / BRAZIL

E-mail: [baku@unicamp.br](mailto:baku@unicamp.br)

<https://orcid.org/0000-0002-5763-4990>

C. A. I.  
Programa de Pós-Graduação em Biologia Animal  
Departamento de Ecologia, Zoologia e Genética  
Instituto de Biologia  
Universidade Federal de Pelotas  
Pelotas, Rio Grande do Sul  
BRASIL / BRAZIL  
E-mail: cristianoagra@yahoo.com.br  
<https://orcid.org/0000-0001-6414-9216>

L. A. K  
Departamento de Zoologia  
Universidade Federal do Rio Grande Sul  
Porto Alegre, Rio Grande do Sul  
BRASIL / BRAZIL  
E-mail: lucaskaminski@yahoo.com.br  
<https://orcid.org/0000-0002-6468-0960>

O. J. M.  
Centro Nacional de Avaliação da Biodiversidade e de Pesquisa e Conservação do Cerrado,  
Instituto Chico Mendes de Conservação da Biodiversidade  
Brasília, Distrito Federal  
BRASIL / BRAZIL  
E-mail: o.marini@gmail.com  
<https://orcid.org/0000-0003-4857-0865>

B. M. Th.  
Centro Nacional de Avaliação da Biodiversidade e de Pesquisa e Conservação do Cerrado  
Instituto Chico Mendes de Conservação da Biodiversidade  
Brasília, Distrito Federal  
BRASIL / BRAZIL  
E-mail: barbaramoraist@gmail.com  
<https://orcid.org/0000-0002-5206-2831>

G. R. S.  
Pesquisadora independente  
Ouro Preto, Minas Gerais  
BRASIL / BRAZIL  
E-mail: biogloria@yahoo.com.br  
<https://orcid.org/0000-0001-6524-8654>

M. M. S.  
Instituto Federal de Educação, Ciência e Tecnologia do Sul de Minas Gerais  
Campus Inconfidentes  
Inconfidentes, Minas Gerais  
BRASIL / BRAZIL  
E-mail: marcos.souza@ifsuldeminas.edu.br  
<https://orcid.org/0000-0003-0415-1714>

\*Autor para la correspondencia / *Corresponding author*

(Recibido para publicación / *Received for publication* 10-X-2021)

(Revisado y aceptado / *Revised and accepted* 15-XII-2021)

(Publicado / *Published* 30-VI-2022)

**Appendix I.**– List of Papilionoidea species recorded in the Sempre Vivas National Park, Minas Gerais, southeastern Brazil. The total number of species in each taxon is indicated in parentheses.

- HESPERIIDAE (73)  
 PYRRHOPYGINAE (10)  
*Elbella* sp.  
*Mimoniades (Mahotis) versicolor* (Latreille, [1824])  
*Mysoria (Mysoria) barcastus* barta Evans, 1951  
*Mysoria (Sarbia) damippe* Mabilille & Boulet, 1908  
*Mysoria (Sarbia) xanthippe* (Latreille, [1824])  
*Mysoria (Sarbiena) catomelaena* Mabilille & Boulet, 1908  
*Passova polemon* (Hopffer, 1874)  
*Pyrrhopyge charybdis* Westwood, 1852  
*Pyrrhopyge pelota* Plötz, 1879  
*Pyrrhopyge* sp.  
 EUDAMINAE (15)  
*Autochton (Autochton) integrifascia* (Mabilille, 1891)  
*Autochton (Autochton) itylus* Hübner, 1823  
*Autochton (Autochton) neis* (Geyer, 1832)  
*Cecropterus (Murgaria) barra* Evans, 1952  
*Cecropterus (Thorybes) dorantes* (Stoll, [1790])  
*Chioides catillus* (Cramer, 1779)  
*Cogia calchas* (Herrich-Schäffer, 1869)  
*Cogia cerradicola* (O. Mielke, 1967)  
*Cogia grandis* Riley, 1921  
*Spicauda cindra* Evans, 1952  
*Spicauda simplicius* (Stoll, [1790])  
*Spicauda teleus* (Hübner, 1821)  
*Udranomia spitzzi* (Hayward, 1942)  
*Urbanus (Urbanus) proteus* (Linnaeus, 1758)  
*Urbanus (Urbanus) velinus* (Plötz, 1880)  
 HESPERIINAE (27)  
*Callimormus saturnus* (Herrich-Schäffer, 1869)  
*Cobalopsis* sp.  
*Cymaenes uruba uruba* (Plötz, 1886)  
*Cymaenes warreni* (Weeks, 1901)  
*Euphyes cherra* Evans, 1955  
*Hedone vibex catilina* (Plötz, 1886)  
*Hylephila phyleus* (Drury, 1773)  
*Justinia kora* (Hewitson, 1877)  
*Miltomiges cinnamomea* (Herrich-Schäffer, 1869)  
*Mnaseas bicolor inca* Bell, 1930  
*Morys subgrisea subgrisea* (Mabilille, 1898)  
*Mucia scitula* (Hayward, 1951)  
*Orthos* sp.  
*Panoquina peraea* (Hewitson, 1866)  
*Pompeius amblyspila* (Mabilille, 1898)  
*Quasimellana mielkei* Burns, 1994  
*Rufocumbre eberti* (Evans, 1955)  
*Synale elana* (Plötz, 1882)  
*Synale metella* (Plötz, 1882)  
*Veadda veadeira* O. Mielke, 1968  
*Vehilius inca* (Scudder, 1872)  
*Vernia dares* (Plötz, 1883)  
*Vidius nostra* Evans, 1955  
*Vidius similis* O. Mielke, 1980  
*Vidius spitzzi* O. Mielke, 1967  
*Wallengrenia otho clavus* (Erichson, [1849])  
*Xeniades chalestra* (Hewitson, 1866)  
 PYRGINAE (21)  
*Anastrus ulpianus* Poey, 1832  
*Anisochoria minorella* Mabilille, 1898  
*Burnsius orcus* (Stoll, 1780)  
*Chiothion asychis autander* (Mabilille, 1891)  
*Chiothion basigutta* (Plötz, 1884)  
*Cycloglypha thrasibulus* (Fabricius, 1793)  
*Gesta (Gesta) gesta* (Herrich-Schäffer, 1863)  
*Gorythion begga* (Prittwitz, 1868)  
*Eantis mithridates thraso* (Hübner, [1807])  
*Helias phalaenoides palpalis* (Latreille, [1824])  
*Heliopetes (Heliopetes) arsalte* (Linnaeus, 1758)  
*Heliopetes (Heliopetes) orbiger* (Mabilille, 1888)  
*Heliopetes (Leucoscirtes) libra* Evans, 1944  
*Heliopetes (Leucoscirtes) omrina* (A. Butler, 1870)  
*Incisus incisus* (Mabilille, 1878)  
*Pellicia dimidiata zamia* Plötz, 1882  
*Timochares trifasciata* (Hewitson, 1868)  
*Timochreon doria* (Plötz, 1884)  
*Viola violella* (Mabilille, 1898)  
*Zopyrion evenor* Godman, 1901  
*Zopyrion reticulata* Hayward, 1942  
 LYCAENIDAE (42)  
 POLYOMMATINAE (2)  
*Hemiargus hanno* (Stoll, [1790])  
*Leptotes cassius* (Cramer, 1775)  
 THECLINAE (40)  
*Allosmaitia strophius* (Godart, [1824])  
*Arawacus binangula* (Schaus, 1902)  
*Arawacus ellida* (Hewitson, 1867)  
*Arawacus tarania* (Hewitson, 1868)  
*Atlides rustan* (Stoll, [1790])  
*Badecla badaca* (Hewitson, 1868)  
*Bistonina mantica* (H. Druce, 1907)  
*Calycopis caulonia* (Hewitson, 1877)  
*Chlorostrymon telea* (Hewitson, 1868)  
*Cyanophrys* sp.  
*Eroria tella* (Schaus, 1902)  
*Magnastigma hirsuta* (Prittwitz, 1865)  
*Magnastigma julia* Nicolay, 1977  
*Ministrymon azia* (Hewitson, 1873)  
*Nicolaea cauter* (H. Druce, 1907)  
*Nicolaea laconia* (Hewitson, 1868)  
*Nicolaea socia* (Hewitson, 1868)  
*Ostrinotes empusa* (Hewitson, 1867)  
*Paiwarria aphaca* (Hewitson, 1867)  
*Parrhasius polibetes* (Stoll, 1781)

- Pseudolycaena marsyas* (Linnaeus, 1758)  
*Rekoa marius* (Lucas, 1857)  
*Rekoa palegon* (Cramer, 1780)  
*Strymon bubastus* (Stoll, 1780)  
*Strymon cestri* (Reakirt, [1867])  
*Strymon crambusa* (Hewitson, 1874)  
*Strymon lucena* (Hewitson, 1868)  
*Strymon mulucha* (Hewitson, 1867)  
*Strymon ohausi* (Spitz, 1933)  
*Strymon rufofusca* (Hewitson, 1877)  
*Strymon serapio* (Godman & Salvin, 1887)  
*Strymon tegaea* (Hewitson, 1868)  
*Strymon ziba* (Hewitson, 1868)  
*Strymon* sp. 1  
*Strymon* sp. 2  
*Symbiopsis lenitas* (H. Druce, 1907)  
*Thepytus* sp.  
*Thereus* sp.  
*Theritas triquetra* (Hewitson, 1865)  
*Thestius lycabas* (Cramer, 1777)  
 NYMPHALIDAE (65)  
 BIBLIDINAE (11)  
*Biblis hyperia nectanabis* (Fruhstorfer, 1909)  
*Callicore astarte selima* (Guenée, 1872)  
*Callicore sorana* (Godart, [1824])  
*Dynamine postverta* (Cramer, 1779)  
*Dynamine tithia* (Hübner, [1823])  
*Eunica bechina magnipunctata* Talbot, 1928  
*Eunica cuvieri* (Godart, 1819)  
*Eunica sydonia* (Godart, [1824])  
*Hamadryas februa* (Hübner, [1823])  
*Pyrrhogyra* sp.  
*Temenis laothoe* (Cramer, 1777)  
 CHARAXINAE (3)  
*Fountainea ryphea phidile* (Geyer, 1837)  
*Memphis acidalia victoria* (H. Druce, 1877)  
*Zaretis strigosus* (Gmelin, [1790])  
 DANAINAE (4)  
*Aeria olena* Weymer, 1875  
*Brevioleria aelia plisthenes* (R.F. d' Almeida, 1958)  
*Danaus gilippus* (Cramer, 1775)  
*Mechanitis polymnia casabranca* Haensch, 1905  
 HELICONIINAE (9)  
*Actinote pellenea* Hübner, [1821]  
*Agraulis vanillae maculosa* (Stichel, [1908])  
*Dryas iulia alcionea* (Cramer, 1779)  
*Eueides isabella dianasa* (Hübner, [1806])  
*Euptoieta hegesia meridiania* Stichel, 1938  
*Heliconius besckei* (Ménétriés, 1857)  
*Heliconius erato phyllis* (Fabricius, 1775)  
*Heliconius ethilla narcaea* (Godart, 1819)  
*Philaethria wernickei* (Röber, 1906)  
 LIMENITIDINAE (1)  
*Adelpha thoasa gerona* (Hewitson, 1867)  
 NYMPHALINAE (8)  
*Anartia jatrophae jatrophae* (Linnaeus, 1763)  
*Eresia lansdorfi* (Godart, 1819)  
*Historis odius dious* Lamas, 1995  
*Junonia evarete* (Cramer, 1779)  
*Ortilia orthia* (Hewitson, 1864)  
*Tegosa claudina* (Eschscholtz, 1821)  
*Telenassa teletusa* (Godart, [1824])  
*Vanessa myrinna* (E. Doubleday, 1849)  
 SATYRINAE (29)  
*Caligo illioneus* (Cramer, 1775)  
*Cissia eous* (A. Butler, 1867)  
*Erichthodes narapa* (Schaus, 1902)  
*Godartiana muscosa* (A. Butler, 1870)  
*Hermeuptychia* ca. *atalanta* (A. Butler, 1867)  
*Hermeuptychia gisella* (Hayward, 1957)  
*Hermeuptychia maimoune* (A. Butler, 1870)  
*Morpho anaxibia* (Esper, [1801])  
*Morpho helenor* ca. *mielkei* Blandin, 2007  
*Morpho epistrophus* (Fabricius, 1796)  
*Moneuptychia itapeva* Freitas, 2007  
*Moneuptychia wahlbergi* Freitas, Barbosa, Siewert & Mielke, 2015  
*Nhambikuara cerradensis* Freitas, Barbosa & Zacca, 2018  
*Opsiphanes invirae* (Hübner, [1808])  
*Paryphthimoides sylvina* (C. Felder & R. Felder, 1867)  
*Pharneuptychia* ca. *innocentia* sp. 1  
*Pharneuptychia* ca. *innocentia* sp. 2  
*Pharneuptychia* ca. *innocentia* sp. 3  
*Pharneuptychia* ca. *innocentia* sp. 4  
*Pharneuptychia phares* (Godart, [1824])  
*Praepedaliodes landryi* Pycrz & Freitas, 2017  
*Stegosatyryus ocelloides* (Schaus, 1902)  
*Taygetis laches* Fabricius, 1793  
*Taygetis* sp.  
*Yphthimoides affinis* (A. Butler, 1867)  
*Yphthimoides cipoensis* Freitas, 2004  
*Yphthimoides pacta* (Weymer, 1911)  
*Yphthimoides patricia* (Hayward, 1957)  
*Yphthimoides straminea* (A. Butler, 1867)  
 PAPILIONIDAE (6)  
 PAPILIONINAE (6)  
*Heraclides thoas brasiliensis* (Rothschild & Jordan, 1906)  
*Mimoides lysithous* (Hübner, [1821])  
*Parides anchises foetterlei* (Rothschild & Jordan, 1906)  
*Parides bunichus diodorus* (Hopffer, 1865)  
*Protesilaus telesilaus* (C. Felder & R. Felder, 1864)  
*Pterourus scamander grayi* (Boisduval, 1836)  
 PIERIDAE (15)  
 COLIADINAE (11)  
*Anteos clorinde* (Godart, [1824])  
*Anteos menippe* (Hübner, [1818])  
*Eurema albula sinoe* (Godart, 1819)  
*Eurema deva* (E. Doubleday, 1847)

- Eurema elathea flavescens* (Chavannes, 1850)  
*Eurema phiale paula* (Röber, 1909)  
*Leucidia elvina* (Godart, 1819)  
*Phoebis argante* (Fabricius, 1775)  
*Phoebis marcellina* (Cramer, 1777)  
*Pyrisitia leuce* (Boisduval, 1836)  
*Pyrisitia nise tenella* (Boisduval, 1836)  
 DISMORPHIINAE (1)  
*Enantia clarissa* (Weymer, 1895)  
 PIERINAE (3)  
*Glutophrissa drusilla* (Cramer, 1777)  
*Hesperocharis paranensis* Schaus, 1898  
*Melete lycimnia* (Cramer, 1777)  
 RIODINIDAE (37)  
 NEMEOBIINAE (1)  
*Euselasia thucydides truncata* Callaghan, 2001  
 RIODININAE (36)  
*Adelotypa asemna* (Stichel, 1910)  
*Ancyluris colubra* (Saunders, 1859)  
*Anteros formosus* (Cramer, 1777)  
*Anteros lectabilis* Stichel, 1909  
*Ariconias glaphyra* (Westwood, 1851)  
*Aricoris almironensis* (Schweizer & Kay, 1941)  
*Aricoris caracensis* (Callaghan, 2001)  
*Aricoris tutana* (Godart, [1824])  
*Aricoris* sp. 1  
*Aricoris* sp. 2
- Baeotis johanna* Sharpe, 1890  
*Calephelis brasiliensis* McAlpine, 1971  
*Chalodeta theodora* (C. Felder & R. Felder, 1862)  
*Detritivora gynaea* (Godart, [1824])  
*Emesis diogenia* Prittwitz, 1865  
*Emesis lupina melancholica* Stichel, 1916  
*Juditha* sp.  
*Lemonias stalactioides* (A. Butler, 1867)  
*Lyropteryx tersichore* Westwood, 1851  
*Melanis smithiae* (Westwood, 1851)  
*Melanis xenia* (Hewitson, [1853])  
*Parcella amarynthina* (C. Felder & R. Felder, 1865)  
*Periplacis nitida* (A. Butler, 1867)  
*Phaenochitonina* sp.  
*Rhetus belphegor* (Westwood, 1851)  
*Rhetus periander arthuriana* (Sharpe, 1890)  
*Riodina lycisca* (Hewitson, [1853])  
*Sertania jaibensis* (Callaghan & Soares, 2001)  
*Stalactis phlegia phlegetontia* (Perty, 1833)  
*Stichelia bocchoris* (Hewitson, 1876)  
*Synargis axenus* (Hewitson, 1876)  
*Synargis calyce* (C. Felder & R. Felder, 1862)  
*Theope ca. leucanthe* H. Bates, 1868  
*Theope pieridoides* C. Felder & R. Felder, 1865  
*Zabuella castanea* (Prittwitz, 1865)  
*Zabuella paucipuncta* (Spitz, 1930)